

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**TENDER DOCUMENT**



**T. No. DyCE-C-JAM-RANAVAV-01:  
(TWO PACKET )**

**Name of Work: Construction of ICD maintenance facilities including Vande Bharat trains at Ranavav under Bhavnagar Division on Western Railway.**

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**Tenderers are compulsorily required to enclose certificate as per Annexure- V of Tender document without that the offer will be considered incomplete and will be rejected summarily.**

**OFFICE OF THE**

**Deputy Chief Engineer Construction Jamnagar /Western Railways,**

**behind SSE /WORKS /HAPA office,**

**near Hapa Railway station, Hapa, Gujarat-361120**

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
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Tender No. **DYCE-C-JAM-RANAVAV-01**

**Tender shall be governed by Electronic Reverse Auction (e-R.A.) guidelines issued by Railway Board vide letter No: 2017/Trans/01/Policy/Pt-S dated 28.03.2018. Reverse Auction is NOT applicable for this Tender.**

Initial e-RA period/ Initial Cooling Off Period : NA

Auto Execution period/ Subsequent Cooling Off Period : NA

Minimum Decrement Percentages (%) : NA

Date and time for start of e-R.A. shall be communicated to qualified tenderers after evaluation of the Technical Bids.

During auction period, identities of the participating tenderers will be kept hidden.

Minimum admissible bid value will be last bid value minus minimum decrement as specified before starting of reverse auction. Starting point for reverse auction shall be the lowest initial Price Bid of the tenderer eligible for award of contract.

After close of the R.A, tabulation of last (minimum) bids received from all the tenderers will be generated and made visible to Railways and participating tenderers.

Railway users can also view the bidding history in chronological order.

Bidders are not allowed to withdraw their last offer.

L-1 will be defined as the lowest bid obtained after the closure of R.A. session for Goods, Works and Services tenders.

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**1.1 INSTRUCTIONS TO THE TENDERER(S)**

1. The E- Tenders document shall consist of :-

a) Annexed Documents to the Tender Documents which includes (i)Top Sheet (Chapter-1), (ii) Instructions to the Tender(s),(iii) Eligibility Criteria (iv) General Condition of Contract, (v) Special Contract,(vi) Addl. Special Conditions of Contract i.e. Technical Conditions, (vii) Guidelines for participation of JV Firms, MOU for JV Participation & JV Agreement, (viii) Contractor's Familiarization (ix) Annexure and

b) Indian Railways Standard General Conditions of Contract 2022 up to date of inviting tender.

c) USSOR of WR 2021 and DSR 2023 with correction slips up to date of inviting tender.

d) Technical bid.

2. Before submitting the offer, please read carefully complete E-tender document including latest versions of documents such as instructions to Tenderers, Indian Railways Standard General Conditions of Contract, General Conditions of Contract, Special Conditions of Contract, Additional Special Conditions of Contract i.e. Technical Conditions etc. as available on the web site [www.ireps.gov.in](http://www.ireps.gov.in). Please do not leave any lapses which may lead to declaration of your offer as INVALID.

3. 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 as well as schedule of tender consisting of technical bid form (including special conditions attached to E- Tender) and Financial offer form, unless specific deviation is quoted in the technical bid.

**4. The prospective tenderers are advised to revisit the website frequently before the date of closing of tender to note any changes/corrigenda issued for this tender. Website: [www.ireps.gov.in](http://www.ireps.gov.in).**

5. 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 invalid offers and shall be rejected summarily without any consideration.

6. E-Tender is not transferable and the same is to be submitted with digital signature by the preauthorized personnel of the tenderer, already registered with the site.

7. 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.

8. 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.

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9. In case of Two packet system of bidding, after scrutinizing the Technical bid and short listing the tenderers, the Financial Bid shall be opened on a subsequent date only for those tenderers who will be qualifying Technical Bid 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.

**10. Tender to be digitally signed by Authorized person:**

(a) If the tender is submitted on behalf of a partnership concern, he/they should upload the certified copy of the partnership deed and authorization to sign the tender on behalf of partnership firm. If copies of these documents are not enclosed along with tender, the tender will be treated as having been submitted by individual signing the tender.

(b) The tenderer whether sole proprietor, a limited company or a partnership firm if they want to act through agent or individual partner(s) should upload along with the tender, a power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person specifically authorizing him/them to submit the tender, sign the agreement, receive money, witness measurements, sign measurement books, compromise, settle, relinquish any claim(s) preferred by the firm and sign "No Claim Certificate" and refer all or any disputes to arbitration.

(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 to the satisfaction of the Railway, the cost of which will be chargeable to the contractor.

11. An option for the contractor to take payment from Railways through a letter of credit (LC) arrangement shall be considered as per guidelines conveyed vide Railway board letter No. 2018/CE-I/CT/9 dated 04.06.18 in reference (i) Railway Board's letter No. 2017/AC-II/9/10 Pt 3 dated 09.05.18 (ii) Railway Board Letter No. 2017/AC II/9/10 Pt. I, dated 20.02.18.

**Instructions for Letter of Credit as per Rly. Board letter No. 2018/CE-I/CT/9 dated 04.06.18**

1. It has been decided by Board (MRS,MTR,ME, FC,CRB) that henceforth, all works tenders or service tenders invited by railways through e-tendering on IREPS, having advertised value of Rs.10 lakh and above, shall include in tender conditions, an option for the contractor to take payment from Railways through a letter of credit (LC) arrangement.

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2. As such, following special conditions shall be included in the works tenders or service tenders to be invited henceforth:

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

(ii) *This option of taking payment through Le arrangement has to be exercised in IREPS (Indian Railway Electronic Procurement System - the e-application on which tenders are called by Railways) 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 exercised, 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 the procedure to deal release of payment through LC:*

(a) *The Le 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. SBI branches where the respective Railway Accounts Office has its Account (local SB1branch) 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*

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*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 Railways 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 2) 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 Authorization, a copy of Document of Authorization shall be posted on IREPS for download by the contractor. A digitally signed copy of Document of Authorization shall also be sent by Railway Accounts Office to Railway's bank (Local SBI Branch).*

*(j) The contractor shall take print out of the Document of Authorization 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 Authorization, 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 Branch).*

*(m) The railway's bank (issuing bank) shall, after verifying the claim so received w.r.t. the digitally signed Document of Authorization 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 I.C, provided the sum total of 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 P VC 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.*

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3. For opening of LC, executive department shall make a request letter to concerned Accounts Department on a format, placed as Annexure - 1.
4. Necessary changes in IREPS and IPAS e-applications have already been carried out, for having option for payment to contractors through LC.
5. This issues with the concurrence of Finance Directorate of Ministry of Railways.

14. **The Tenderer/s must fulfill/satisfy the following mandatory requirements failing which their offers shall be summarily rejected:**

**Mandatory Requirements:**

- (a) Regarding Technical and financial eligibility criteria, scanned copies of supportive documents/ certificates from competent officials are to be uploaded along with their offer.
- (b) 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 copies of the documents wherever required as per tender conditions are to be uploaded along with offer.

15. **Special condition:**

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 numbers like Annexure-I, Annexure-2 etc. on the right hand side top corner of the same and this Annexure numbers shall also be indicated in relevant column of the Annexure supplied to the tenderer/s with the Technical bid.

**NOTE- The tenderer/s must keep all the original documents ready, copies of which have been uploaded by the tenderer/s along with the offer. The original documents will have to be produced as and when required by the Railway for verification purpose. All the documents uploaded shall be self attested by the tenderer/s.**

- Tenderer may note that, GST@18% shall be considered. However, after opening of tender, if any changes in GST advised by Government, it should be taken in consideration for reimbursement/ deduction as applicable for.  
(Ref: Rly. Board's letter No. 2017/AC-II/1/6/GST/Main/Vol. III Dated 05.07.2022)

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**1.2 MANDATE FORM (DETAILS TO BE UPLOADED WITH E - TENDER)**

**1 PARTICULARS OF THE PARTY**

- a) NAME: :
- b) ADDRESS: :
- c) PHONE NO.: :
- d) MOBILE No.: :
- e) FAX.No :
- f) I. TAX PAN No :
- g) EMAIL :

**2 PARTICULARS OF BANK ACCOUNT:**

- a) BANK NAME: :
- b) BRANCH: :
- c) BANK ADDRESS: :
- d) BANK TEL No.: FAX No.: :
- e) BANK MICR CODE (9DIGIT): :
- f) BANK IFS CODE.: :
- g) BANK ACCOUNT No.: :
- h) ACCOUNT TYPE: :  
(SAVINGS/CURRENT/CASH CREDIT)
- i) LEDGER F/NO.: :
- j) GISTN No. :

**3 DECLARATION BY THE PARTY :**

I hereby, declare that the particulars given above are correct and complete. If the transaction is delayed or not effected at all for reasons of incomplete or incorrect information the User Institution, i.e. Dy. FA & CAO (C) WR / ADI will not be held responsible. I have understood the scheme and agree to discharge the responsibility expected from me as a participant under the scheme. I also undertake to acknowledge/intimate the concerned Railway Administration Dy.FA&CAO(C)WR/ADI on receipt of each payment from Railways.

One cancelled cheque/photo copy of the cheque duly carrying IFS Code is enclosed. Certified that the particulars furnished above are correct as per our records.

**Signature of Tenderer**

Name of Signatory

Signature of Contractor/s  
Date:

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**1.3 Mandatory details to be filled in by tenderer while submitting their offer:**

**(DETAILS TO BE UPLOADED WITH E- TENDER)**

1	Constitution of the firm/ Concern (Tick as applicable)	Sole Proprietorship/ Partnership Firm / Company/JV/Society
2	Full name of Sole Proprietorship/ Partnership firm/Company/ JV/ Society (as the case may be)	
3	Year of formation/ Incorporation	
4	PAN NO.	
	GISTN NO.	
5	Registered Office Address	
6	Address on which correspondence regarding this tender should be done	
7	Names of the Proprietor/ Partners/JV members etc.	
8	Details of Security Deposit submitted.	

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**CHECKLIST FOR SUBMISSION OF BID**

<b>Sr. No.</b>	<b>Particulars</b>	<b>Complied YES or No</b>	<b>Details of Supporting document</b>
1	Requisite earnest money if applicable in valid format with details of bank.		
2	Signature of tenderer/authorized signatory on all the pages of tender document & supporting document along with address and phone no. for correspondence & communication.		
3	Proof of authorization if the firm is a Sole Proprietorship/partnership firm/ limited company/ HUF/ Joint Venture etc.		
4	Copy of partnership deed/ Memorandum of association/ Article of association/ Agreement of HUF/ Joint venture agreement/Affidavit for Sole proprietorship		
5	Proof of contractual turnover for minimum eligibility criteria.		
6	Proof of similar nature of work for minimum eligibility criteria.		
7	List of completed works as per preform No. III .		
8	List of work in progress as per preform No-IV		
9	Bid Capacity duly supported document with CA signature and tenderer signature		
9	List of tools & plats planned to be deployed for the work.		
10	Details of organization, Technical employees to be engaged on this work.		
11	Test certificates if any required as per tender document.		
12	All the Annexures duly signed.		

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**II. INDEX**

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2	Part – I Regulations for tenders and Contracts for guidance of Engineers & Contractors for works contracts		
3	TENDER FORM (First Sheet) Annexure “I”		
4	TENDER FORM (Second Sheet)- Instructions to the tenderer		
5	Standard General Condition of Contract		
6	Special Conditions		

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**III. TENDER AT A GLANCE**

1.	Name of Work	:	Construction of ICD maintenance facilities including Vande Bharat trains at Ranavav under Bhavnagar Division on Western Railway.
2.	Approximate Cost of Work Rs.	:	1199406297.04 (As mentioned in NIT on IREPS)
3.	Bid Security Rs.	:	23988100.00 (As mentioned in NIT on IREPS)
4.	Completion Period	:	15 ( Fifteen) Months including Monsoon.
5.	Cost of Tender Document	:	Rs. NIL (For E-Tender Only) as per GCC-2022 Para 3 of Part I regulation for tenders and contract.
6.	Maintenance period	:	6 (Six months) from actual date of completion.

Tender closing date	As mentioned in NIT on IREPS
Tender opening date	As mentioned in NIT on IREPS

**NOT TRANSFERABLE**

Unit : Deputy Chief Engineer Construction Jamnagar /Western Railways,  
behind SSE /WORKS /HAPA office,  
near Hapa Railway station, Hapa, Gujarat-361120

Signature of Contractor/s  
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**PART – I**

**Instructions to Tenderers (ITT)**

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

**1.01 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/Acceptance (LOA)
- ii. Bill(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 (IRUSSOR-2021) 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 2023 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) 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.

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- 1.1 Interpretation:** These Instructions to Tenderers shall be read in conjunction with the Standard General Conditions of Contract which are referred to herein and shall be subject to modifications additions or suppression by Special Conditions of Contract and/or Special Specifications, if any, annexed to the Tender Forms.
- 1.2 Definition:** In these Instructions to Tenderers, the following terms shall have the meanings assigned hereunder except where the context otherwise requires:
- (a) “Railway” shall mean the President of the Republic of India or the administrative officers of the Railway or Successor Railway authorized to deal with any matter, which these presents are concerned on his behalf.
  - (b) “General Manager” shall mean the Officer-in-Charge of the general superintendence and control of the Zonal Railway/Production Unit and shall also include Addl. General Manager, General Manager (Construction) and shall mean and include their successors of the Successor Railway.
  - (c) “Chief Engineer” shall mean the Officer-in-Charge of the Engineering Department of Railway and shall also include Chief Engineer (Construction), Chief Electrical Engineer, Chief Electrical Engineer (Construction), Chief Signal & Telecom Engineer, Chief Signal & Telecom Engineer (Construction), Chief Mechanical Engineer and shall mean and include their successors of the Successor Railway.
  - (d) “Divisional Railway Manager” shall mean the Officer-in-Charge of a Division of Zonal Railway and shall mean and include Divisional Railway Manager of the Successor Railway.
  - (e) “Engineer” shall mean the Divisional Engineer or Executive Engineer, Divisional Signal & Telecom Engineer, Divisional Electrical Engineer, Divisional Mechanical Engineer in executive charge of the works and shall include the superior officers, both Open Line and Construction Organizations, of Engineering, Signal & Telecom, Mechanical and Electrical Departments, i.e. the Senior Divisional Engineer/Deputy Chief Engineer, Senior Divisional Signal & Telecom Engineer / Dy. Chief Signal & Telecom Engineer, Senior Divisional Electrical Engineer / Deputy Chief Electrical Engineer, Senior Divisional Mechanical Engineer and shall mean & include the Engineers of the Successor Railway.
  - (f) “Tenderer” shall mean the person / firm / co-operative or company whether incorporated or not who tenders for the works with a view to execute the works on contract with the Railway and shall include their representatives, successors and permitted assigns.
  - (g) “Limited Tenders” shall mean tenders invited from all or some contractors on the approved or select list of contractors with the Railway.

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- (h) “Open Tenders” shall mean the tenders invited in open and public manner and with adequate notice.
  - (i) “Works” shall mean the works contemplated in the drawings and Bill(s) of Quantities set forth in the tender forms and required to be executed according to the specifications.
  - (j) “Specifications” shall mean the Specifications for Materials and Works of the Railway as specified under the authority of the Ministry of Railways or Chief Engineer or as amplified, added to or superseded by special specifications if any, appended to the Tender Forms.
  - (k) Standard Schedule of Rates (SSOR) shall mean the schedule of Rates adopted by the Railway, which includes-
    - 1. “Unified Standard Schedule of Rates of the Railway (USSOR)” 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;
    - 2. “Delhi Schedule Of Rates (DSR)” 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.
  - (l) “Drawings” shall mean the maps, drawings, plans and tracings, or prints thereof annexed to the Tender Forms.
  - (m) “Contractor’s authorized Engineer” shall mean a graduate engineer or equivalent, having more than 3 years’ experience in the relevant field of construction work involved in the contract, duly approved by the Engineer.
  - (n) Date of inviting tender shall be the date of publishing tender notice on IREPS website if tender is published on website or the date of publication in newspaper in case tender is not published on website.
  - (o) “Bill of Quantities” shall mean Schedule of Item(s) included in the tender document along with respective quantities.
- 1.3** Words importing the singular number shall also include the plural and vice versa where the context requires.

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## CREDENTIALS OF CONTRACTORS

### **2. Application for Registration and Approved list of contractors:**

**2.1** Works of construction and of supply of material shall be entrusted for execution to contractors whose capabilities and financial status have been investigated and approved to the satisfaction of the Railway. A list of approved contractors may also be maintained by the Railway. The said list be revised periodically once in a year or so by giving wide publicity through advertisements etc. For registration, the contractor including a contractor who is already on the approved list shall apply to the concerned General Manager (Construction) / Chief Administrative Officer (Construction) / Principal Chief Engineer / Principal Chief Signal & Telecommunication Engineer / Principal Chief Mechanical Engineer / Principal Chief Electrical Engineer/ Divisional Railway Manager, furnishing particulars regarding:

- (a) his position as an independent contractor specifying engineering organization available with details of partners / staff / engineers employed with qualifications and experience;
- (b) his capacity to undertake and carry out works satisfactorily as vouched for by a responsible official or firm; details about the transport equipment's, construction tools and plants etc. required for the work, maintained by him;
- (c) his previous experience of works similar to that to be contracted for, in proof of which original certificates or testimonials may be called for and their genuineness verified, if needs be, by reference to the signatories thereof;
- (d) his knowledge from actual personal investigation of the resources of the area/zone or zones in which he offers to work;
- (e) his ability to supervise the work personally or by competent and duly authorized agent;
- (f) his financial position;

**2.2** An applicant shall clearly state the categories of works and the area/zone/division(s)/district(s) in which he desires registration in the list of approved contractors.

**2.3** The selection of contractors for enlistment in the approved list would be done by a committee for different value of slabs as notified by Railway.

**2.4** An annual fee as prescribed by the Railway from time to time would be charged from such approved contractors to cover the cost of sending notices to them and clerkage for tenders etc. Notices shall be sent to them on registered e-mail address and registered postal address.

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**TENDERS FOR WORKS**

3. **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. e-Tender Forms shall be issued free of cost to all tenderers.
4. **Omissions & Discrepancies:** Should a tenderer find discrepancies in or omissions from the drawings or any of the Tender Forms or should he be in doubt as to their meaning, he should at once notify the authority inviting tenders. The tender inviting authority may, if deemed necessary, clarify the same to all tenderers. It shall be understood that every endeavour has been made to avoid any error which can materially affect the basis of tender and successful tenderer shall take upon himself and provide for the risk of any error which may subsequently be discovered and shall make no subsequent claim on account thereof.
5. **Bid Security:**
- (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 the 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

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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.
- (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-VIA** and shall be valid for a period of 90days beyond the bid validity period.
- (3) **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 non 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.

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- viii. If the envelope is not sealed and marked as instructed above, the Authority 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.

**6. Care in Submission of Tenders:**

- (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 provisions in Clause-37 of the Standard General Conditions of Contract for the completion of works to the entire satisfaction of the Engineer.
- (a)(ii) 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.
- (a)(iii) The successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST Act to 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.
- (a)(iv) 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.
- (a)(v) contractor shall be liable to pay/refund the amount collect as GST to the Indian Railways along with interest and panalties, 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;

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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 make 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, 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.

**6.1** The tenderers shall submit a copy of certificate stating that all their statements/documents submitted along with bid are true and factual. Standard format of certificate to be submitted by the bidder is enclosed as **Annexure-V**. In addition to Annexure -V, **In case of other than Company/Proprietary firm, Annexure-V-(A) 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**, 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.

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**CONSIDERATION OF TENDERS**

7. **Right of Railway to Deal with Tenders:** The Railway reserves the right of not to invite tenders for any of Railway work or works or to invite open or limited tenders and when tenders are called to accept a tender in whole or in part or reject any tender or all tenders without assigning reasons for any such action. In case if tender is accepted in part by Railway administration, Letter of Acceptance shall be issued as counter offer to the Tenderer, which shall be subject to acceptance by the Tenderer.
- 7A. **Two Packets System of Tendering :** With a view to assess the tenders technically without being influenced by the financial bids, 'Two Packets System of tendering' shall be adopted wherein tender documents provide for the same.
- 7B. **Pre-Bid Conference:** Intenders having advertised value more than Rs 50 Crore or as mentioned in the tender document, Railway shall conduct Pre-Bid Conference(s) with the prospective bidders.
- 7C. **Make in India Policy:** Provisions of Make in India Policy 2017 issued by Govt. of India, as amended from time to time, shall be followed for consideration of tenders.
- 7D. **Permission to Bid for a bidder from a country which shares Land boundary with India:** Any bidder from the countries sharing a land border with India will be eligible to bid in any procurement of works (including turnkey projects) only if the bidder is registered with the Competent Authority. The Competent Authority for registration will be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT), Government of India. For interpretation of this para, Department of Expenditure, Ministry of Finance, Government of India letter F.No.6/18/2019-PPD dated 23/07/2020 shall be referred.
- 7E. **Clarification of Bids:** To assist in the examination, evaluation & comparison and pre-qualification of the Tender, the Railway may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Railway shall not be entertained or considered. The Railway request for clarification and the response of the bidder in this regard shall be in writing.
- However, if a Bidder does not provide clarification of its bid by the date and time communicated in the Railway request for clarification, the bid shall be evaluated as per the documents submitted along with the bid.
8. **Execution of Contract Document:** The Tenderer whose tender is accepted shall be required to appear in person at the office of General Manager/General Manager

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(Construction), Chief Administrative Officer (Construction), Divisional Railway Manager or concerned Engineer, as the case may be, or if tenderer is a firm or corporation, a duly authorized representative shall appear (there would be no need for appear in person if agreement is signed digitally) and execute the contract agreement within seven days of notice from Railways that the Contract Agreement is ready. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the tender. The Contract Agreement shall be entered into by Railway only after submission of valid Performance Guarantee by the Contractor. In such cases the Railway may determine that such tenderer has abandoned the contract and there upon his tender and acceptance thereof shall be treated as cancelled and the Railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The failed Contractor shall be debarred from participating in the re tender for that work.

- 9. Form of Contract Document:** Every contract shall be complete in respect of the document it shall so constitute. Not less than 2 copies of the contract document shall be signed by the competent authority and the Contractor and one copy given to the Contractor (there would be no need of signing two copies if agreement is signed digitally).
- (a) For Zone Contracts, awarded on the basis of the percentage above or below the applicable chapter(s) of Standard Schedule of Rates (SSOR) for the whole or part of financial year, the contract agreement required to be executed by the tenderer whose tender is accepted shall be as per specimen form, Annexure-II. During the currency of the Zone Contract, work orders as per specimen form Annexures-III, for works not exceeding ₹ 5,00,000 each, shall be issued by the Divisional Railway Manager / Executive Engineer under the agreement for Zone Contract.
- (b) For contracts for specific works, the contract document required to be executed by the tenderer whose tender is accepted shall be an agreement as per specimen form **Annexure IV**.

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**ANNEXURE - I**

**WESTERN RAILWAY  
TENDER FORM (First Sheet)**

Tender No. DYCE-C-JAM-RANAVAV-01

Name of Work: Construction of ICD maintenance facilities including Vande Bharat trains at Ranavav under Bhavnagar Division on Western Railway..

To,  
The President of India  
Acting through the Deputy Chief Engineer/C,  
Western Railway, Rajkot.

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 **90 days** from the date fixed for closing of the tender and in default thereof, I/We will be liable for forfeiture of my/our "Bid Security". I/We offer to do the work for **Dy. Chief Engineer/Const./Western Railway, Jamnagar**, at the rates quoted in the attached bill(s) of quantities and hereby bind myself/ourselves to complete the work in all respects within **15 (Fifteen) 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 **₹ 23988100.00** (As mentioned in NIT on IREPS ) 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 Start-up firm registered by ..... Department of Industrial Policy and Promotion (DIPP) and my registration number is ..... valid up to ..... (Copy enclosed) and hence

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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)

---

Signature of Contractor/s  
Date:

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**ANNEXURE - I (Contd. ...)**

**TENDER FORM (Second Sheet)**

- 1. Instructions to Tenderers and Conditions of Tender:** The following documents form part of Tender / Contract:
  - (a) Tender Forms – First Sheet and Second Sheet
  - (b) Special Conditions/Specifications (enclosed)
  - (c) Bill(s) of quantities (enclosed)
  - (d) Standard General Conditions of Contract and Standard Specifications (Works and Materials) of Indian Railways as amended/corrected up to latest correction slips, copies of which can be seen in the office of **Dy. Chief Engineer/Const./Western Railway, Jamnagar** or obtained from the office of the Chief Engineer, Works, Western Railway on payment of prescribed charges.
  - (e) Standard Schedule of Rates (SSOR) as amended / corrected up to latest correction slips, copies of which can be seen in the office of **Dy. Chief Engineer/Const./Western Railway, Jamnagar** or obtained from the office of the Chief Engineer, Works, Western Railway on payment of prescribed charges.
  - (f) All general and detailed drawings pertaining to this work which will be issued by the Engineer or his representatives (from time to time) with all changes and modifications.
- 2. Drawings for the Work:** The Drawing for the work can be seen in the office of the **Dy. Chief Engineer/Const./Western Railway, Jamnagar** and/or Chief Project Manager, Western Railway at any time during the office hours. The drawings are only for the guidance of Tenderer(s). Detailed working drawings (if required) based generally on the drawing mentioned above, will be given by the Engineer or his representative from time to time.
- 3.** The Tenderer(s) shall quote his / their rates as a percentage above or below the Standard Schedule of Rates (SSOR) of Western Railway as applicable to Rajkot Division except where he/they are required to quote item rates and must tender for all the items shown in the Bill(s) of Quantities attached. The quantities shown in the attached Bill(s) of Quantities are given as a guide and are approximate only and are subject to variation according to the needs of the Railway. The Railway does not guarantee work under each item of the Bill(s) of Quantities. The tenderer(s) shall quote rates / rebates only at specified place in Tender Form supplied by Railway. Any revision of rates / rebates submitted (quoted) through a separate letter whether enclosed with the bid (Tender Form) or submitted separately or mentioned elsewhere in the document other than specified place shall be summarily ignored and will not be considered.

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4. Tenders containing erasures and / or alterations of tender documents are liable to be rejected. Any correction made by tender(s) in his/their entries must be attested by him /them.
5. The works are required to be completed within a period of **15 (Fifteen) months** from the date of issue of acceptance letter.

**6. Bid Security:**

(a) The tender must be accompanied by a sum of **₹ 23988100.00 (As mentioned in NIT on IREPS)** as Earnest Money deposited in cash through e-payment gateway or as mentioned in tender documents, failing which the tender shall not be considered. Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as 'Start-ups' shall be exempted from payment of Earnest Money on submission of Registration Certificate issued by appropriate authority.

(b) The Tenderer(s) shall keep the offer open for a minimum period of **60** days (in case of two packet system of tendering **90 days**) 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 resile from his offer or modify the terms and conditions thereof in a manner not acceptable to Western 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.

(c) If his tender is accepted,

- (i) 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;
- (ii) the Bid Security mentioned in sub para(a) above submitted as Bank guarantee bond, will be encashed 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 to the Bid Security that may happen thereto while in their possession, nor be liable to pay interest thereon.

(d) 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.

**7. Rights of the Railway to deal with Tender:** 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 tenderer(s) shall neither demand any explanation for the cause of rejection of his/ their tender nor the Railway to assign reasons for declining to consider or reject any particular tender or tenders.

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8. If the tenderer(s) deliberately gives / give wrong information in his / their tender or creates / create circumstances for the acceptance of his / their tender, the Railway reserves the right to reject such tender at any stage.
9. If any partner(s) of a partnership firm expires after the submission of its tender or after the acceptance of its tender, the Railway shall deem such tender as cancelled/contract as terminated under clause 61 of the Standard General Conditions of Contract, unless the firm retains its character as per partnership agreement. If a sole proprietor expires after the submission of tender or after the acceptance of tender, the Railway shall deem such tender as cancelled / contract as terminated under clause 61 of the Standard General Conditions of Contract.

**10. Eligibility Criteria:**

**10.1 Technical Eligibility Criteria:**

- (a) The 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 the tender, or
  - (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or
  - (iii) One similar work each costing not less than the amount equal to 60% of advertised value of the tender.

**Similar nature of work are as under. The tenderer/s must fulfill the eligibility criteria of similar nature as mentioned hereunder:**

Components	Description (Scope of works)	NIT Value in Rs. (Approx.)	Proposed Similar nature of work
Components 'A'	Total for Earthwork and bridges with protection	₹ 30,31,06,991.03	Earthwork and bridge work involving execution of earthwork /blanketing in formation/cutting and construction of bridge.
Components 'B'	P.Way works	₹ 3,44,49,272.33	Permanent Way work involving: Track linking or Track relaying (CTR or TRR or TSR) or Linking / Insertion /replacement of turnouts.
Components 'C'	Building structures incl. other misc civil works including Ballast Supply	₹ 74,89,35,488.19	Steel fabrication/PEB work involving Construction of any building / Civil engineering structure

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Components 'D'	Electrical {TRD}	₹ 5,58,59,347.00	Execution of any 1500 V DC or 25 KV AC OHE work.
Components 'E'	Electrical {General Services}	₹ 5,70,55,198.50	Execution of HT substation of equivalent or higher voltage and Wiring/Re-wiring in buildings with associated electrical works like control gear and protection arrangements in residential buildings or service buildings or railway stations /yards or colony/highway lightings. OR Lighting arrangement in buildings, circulating area, yard, street etc. with associated electrical works. OR Wiring/Rewiring, Lighting arrangement in buildings with associated electrical works.
	<b>Total</b>	<b>₹119,94,06,297.05</b>	

**( “Similar work mentioned in NIT on IREPS.” )**

- (b) (i) In case of 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 fulfillment 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.

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(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 Contract or 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 fulfilment 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 10.1:**

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 issue 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

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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.

**10.2. 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-VIB, along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet.

**10.3 Bid Capacity:** The tender/technical bid will be evaluated based on bid capacity formula detailed as Annexure-VI.

**10.4** No Technical and Financial credentials are required for tenders having advertised value up to Rs 50 lakh.

**10.5** 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. 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 10 including clause 10.1 to 10.5 - 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*

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*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 fulfilment 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 fulfilment 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 fulfilment of credentials.*

6. *In case a work is considered similar in nature for fulfilment 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  $0.3 \times 0.2$  \* 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*

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*having share 30%, 30% & 40% respectively and credentials of Rs 10 crore; 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.]*

**11. 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 Western 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.

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- (ii) Audited Balance Sheet duly certified by the Chartered Accountant 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-V. In addition to Annexure -V, in case of other than Company/Proprietary firm, Annexure-V(A) 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. 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 thereunder.
  - (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.
- 12.** Non-compliance with any of the conditions set forth therein above is liable to result in the tender being rejected.
- 13. Execution of Contract Documents:** The successful Tenderer(s) shall be required to execute an agreement with the President of India acting through the **Chief Project Manager/ Dy. Chief Engineer/ Const/JAM/Western Railway, Rajkot** , for carrying out the work according to Standard General Conditions of Contract, Special

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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).

**14. Documents to be Submitted Along with Tender:**

(i) 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) 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.

(ii) 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) above.

(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) above.

(c) **Partnership Firm:**

(i) All documents as mentioned in para 18 of the Tender Form (Second Sheet).

(d) **Joint Venture (JV):** All documents as mentioned in para 17 of the Tender Form (Second Sheet).

(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) above.

(i) **LLP (Limited Liability Partnership):**

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- (ii) A copy of LLP Agreement
  - (iii) A copy of Certificate of Incorporation
  - (iv) 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.
  - (v) 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.
  - (vi) All other documents in terms of Para 10 of the Tender Form (Second Sheet).
- (f) **Registered Society & Registered Trust:** The tenderer shall submit:
- (i) A copy of the 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) above.
- (iii) 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.
- (iv) 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.
- (v) A tender from JV / Partnership firm etc. shall be considered only where permissible as per the tender conditions.
- (vi) 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,

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

- 15.** 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 Appostille certificate.

**16. 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

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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 16.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.

**JOINT VENTURE (JV) IN WORKS TENDERS.**

**17. Participation of Joint Venture (JV) in Works Tender:** This Para shall be applicable for works tenders wherein tender documents provide for the same.

**17.1** Separate identity/name shall be given to the Joint Venture.

**17.2** 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

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**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 of 51%.**

- 17.3** 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.
- 17.4** 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.
- 17.5** 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.
- 17.6** 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.
- 17.7** 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.
- 17.8** 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 tender 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.
- 17.9** Similarly, after the contract is awarded, the constitution of JV shall not normally be allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc. and minimum eligibility criteria should

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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.

- 17.10** 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.
- 17.11** 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 alongwith 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:
- 17.11.1** 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.
- 17.11.2** 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.
- 17.11.3** Governing Laws - The Registered Entity shall in all respect be governed by and interpreted in accordance with Indian Laws.
- 17.12** 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

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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.

**17.13** 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.

**17.14** Documents to be enclosed by the JV along with the tender:

**17.14.1** In case one or more of the members of the JV is/are partnership firm(s), following documents shall be submitted:

- (i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.
- (ii) 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,
- (iii) 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.
- (iv) 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.

**17.14.2** In case one or more members is/are Proprietary Firm or HUF, the following documents shall be enclosed:

- (i) 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.

**17.14.3** In case one or more members of the JV is/are companies, the following documents shall be submitted:

- (i) A copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement,
- (ii) The copies of **MOA (Memorandum of Association) / AOA (Articles of Association)** of the company
- (iii) A copy of Certificate of Incorporation

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- (iv) 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

**17.14.4** In case one or more members of the JV is/are LLP firm/s, the following documents shall be submitted:

- (i) A copy of LLP Agreement
- (ii) A copy of Certificate of Incorporation of LLP
- (iii) A copy of resolution passed by partners of LLP firm, permitting the Firm to enter into a JV agreement
- (iv) 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.
- (v) 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.

**17.14.5** In case one or more members of the JV is/are Society/s or Trust/s, the following documents shall be submitted:

- (i) A copy of Certificate of Registration
- (ii) A copy of Memorandum of Association of Society/Trust Deed
- (iii) A copy of Rules & Regulations of the Society
- (iv) A copy of Power of Attorney, in favour of the individual to sign the tender documents and create liability against the Society/Trust.

**17.14.6 All other documents in terms of Para 10 of the Tender Form (Second Sheet) above.**

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**17.14.7 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.**

**17.15 Credentials & Qualifying Criteria:** Technical, financial eligibility and Bid capacity of the JV shall be adjudged based on satisfactory fulfillment of the following criteria:

**17.15.1 Technical Eligibility Criteria ('a' or 'b' mentioned hereunder):**

**(a) For Works without composite components**

The technical eligibility for the work as per 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 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**

- (i) The technical eligibility for major component of work as per 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 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 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 Clause 17.15.1:*

- (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.

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- (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.

### **17.15.2 Financial Eligibility Criteria**

The JV shall satisfy the requirement of “Financial Eligibility” mentioned at para 10.2 above. The “financial capacity” of the lead partner of JV shall not be less than 51% of the financial eligibility criteria mentioned at para 10.2 above.

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.

### **17.15.3 Bid Capacity**

The JV shall satisfy the requirement of “Bid Capacity” requirement mentioned at 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.

## **18. Participation of Partnership Firms in works tenders:**

- 18.1 The Partnership Firms participating in the tender should be legally valid under the provisions of the Indian Partnership Act.
- 18.2 The partnership firm should have been in existence or should have been formed prior to submission of tender. Partnership firm should have either been registered with the Registrar or the partnership deed should have been notarized prior to date of tender opening as per the Indian Partnership Act, prior to submission of tender.
- 18.3 Separate identity / name should be given to the partnership firm. The partnership firm should have PAN / TAN number in its own name and PAN / TAN number in the name of any of the constituent partners shall not be considered. The valid constituents of the firm shall be called partners.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

- 18.4 Once the tender has been submitted, the constitution of the firm shall not normally be allowed to be modified / altered / terminated during the validity of the tender as well as the currency of the contract except when modification becomes inevitable due to succession laws etc., in which case prior permission should be taken from Railway and in any case the minimum eligibility criteria should not get vitiated. The re-constitution of firm in such cases should be followed by a notary certified Supplementary Deed. The approval for change of constitution of the firm, in any case, shall be at the sole discretion of the Railways and the tenderer shall have no claims what-so-ever. Any change in the constitution of Partnership firm after submission of tender shall be with the consent of all partners and with the signatures of all partners as that in the Partnership Deed. Failure to observe this requirement shall render the offer invalid and full Bid Security shall be forfeited.

If any Partner/s withdraws from the firm after submission of the tender and before the award of the contract, the offer shall be rejected and Bid Security of the tenderer will be forfeited. If any new partner joins the firm after submission of tender but prior to award of contract, his / her credentials shall not qualify for consideration towards eligibility criteria either individually or in proportion to his share in the previous firm. In case the tenderer fails to inform Railway beforehand about any such changes / modification in the constitution which is inevitable due to succession laws etc. and the contract is awarded to such firm, then it will be considered a breach of the contract conditions liable for determination of the contract under Clause 62 of the Standard General Conditions of Contract.

- 18.5 A partner of the firm shall not be permitted to participate either in his individual capacity or as a partner of any other firm in the same tender.
- 18.6 The tender form shall be submitted only in the name of partnership firm. The Bid Security shall be submitted by partnership firm through e-payment gateway or as mentioned in tender document. The Bid Security submitted in the name of any individual partner or in the name of authorized partner (s) shall not be considered.
- 18.7 On issue of Letter of Acceptance (LOA) to the partnership firm, all the guarantees like Performance Guarantee, Guarantee for various Advances to the Contractor shall be submitted only in the name of the partnership firm and no splitting of guarantees among the partners shall be acceptable.
- 18.8 On issue of Letter of Acceptance (LOA), contract agreement with partnership firm shall be executed in the name of the firm only and not in the name of any individual partner.
- 18.9 In case the Letter of Acceptance (LOA) is issued to a partnership firm, the following undertakings shall be furnished by all the partners through a notarized affidavit, before signing of contract agreement.

Signature of Contractor/s  
Date:

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Western Railway, Jamnagar

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**(a) Joint and several liabilities:**

The partners of the firm to which the Letter of Acceptance (LOA) is issued, shall be jointly and severally liable to the Railway for execution of the contract in accordance with General and Special Conditions of the Contract. The partners shall also be liable jointly and severally for the loss, damages caused to the Railway during the course of execution of the contract or due to non-execution of the contract or part thereof.

**(b) Duration of the partnership deed and partnership firm agreement:**

The partnership deed/partnership firm agreement shall normally not be modified/altered/ terminated during the currency of contract and the maintenance period after the work is completed as contemplated in the conditions of the contract. Any change carried out by partners in the constitution of the firm without permission of Railway, shall constitute a breach of the contract, liable for determination of the contract under Clause 62 of the Standard General Conditions of Contract.

**(c) Governing laws:** The partnership firm agreement shall in all respect be governed by and interpreted in accordance with the Indian laws.

**(d) No partner of the firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other partner/s and that of the Railway.**

**18.10** The tenderer shall clearly specify that the tender is submitted on behalf of a partnership firm. The following documents shall be submitted by the partnership firm, with the tender:

- (i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.
- (ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement etc. and create liability against the firm.
- (iii) 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.
- (iv) All other documents in terms of Para 10 of the Tender Form (Second Sheet) above.

**18.11 Evaluation of eligibility of a partnership firm:**

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
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Technical and financial eligibility of the firm shall be adjudged based on satisfactory fulfillment of the eligibility criteria laid down in Para 10 of the Tender Form (Second Sheet) above.

**19.0 Advances to Contractor –**

If specifically provided in Tender Documents of tender having advertised value more than Rs 50 Crores, Railway shall make payment, as an Interest-bearing advances, as per Contractor's request. These advances shall carry a simple interest \_\_\_\_\_ as indicated in the Tender documents. The payment and recovery of such advances shall be made as per manners prescribed in Clause 46.4 of the Standard General Conditions of Contract.

(Signature)

(Designation)

Signature of Tenderer(s)

Date \_\_\_\_\_

\_\_\_\_\_ Railway  
Date \_\_\_\_\_

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

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**ANNEXURE - I (Contd. ...)**

**TENDER FORM (Third Sheet)**

**Name of Work:** \_\_\_\_\_

**BILL OF QUANTITIES**

**1. Standard Schedule of Rates (SSOR) Items:**

SL	Item No. of SSOR	Description of Item of Work	Approximate Quantity	Unit	Rates in Figures and Words to be filled by tenderer (₹)	Amount (₹)
1	2	3	4	5	6	7

**2. Non Standard Schedule of Rates (SSOR) Items:**

SL	Item No.	Description of Item of Work	Approximate Quantity	Unit	Rates in Figures and Words to be filled by tenderer (₹)	Amount (₹)
1	2	3	4	5	6	7

The quantities shown in above Bill of Quantities are approximate and are as a guide to give the tenderer(s) an idea of quantum of work involved. The Railway reserves the right to increase/decrease and/or delete or include any of the quantities given above and no extra rate will be allowed on this account.

I/We undertake to do the work at \_\_\_\_\_ % above/below the Standard Schedule of Rates (SSOR) of the \_\_\_\_\_ Railway as applicable to \_\_\_\_\_ Division or at the rates quoted above for each item.

Signature of Contractor/s  
Date:

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Western Railway, Jamnagar

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Dated \_\_\_\_\_

Signature of the Tenderer(s)

Note: Columns 1 to 5 shall be filled by the office of the Authority inviting tender. Columns 6 & 7 shall be filled by the Tenderer(s) only when percentage tenders are not invited.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

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Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE – II**

**AGREEMENT FOR ZONE CONTRACT**

CONTRACT AGREEMENT No. \_\_\_\_\_ DATED \_\_\_\_\_. ARTICLES OF AGREEMENT made this \_\_\_\_\_ day of \_\_\_\_\_ between the President of India acting through the \_\_\_\_\_, \_\_\_\_\_ Railway hereinafter called the "Railway" of the one part and \_\_\_\_\_ hereinafter called the "Contractor" of the other part.

WHEREAS the Contractor has agreed with the Railway during the period of \_\_\_\_\_ months from \_\_\_\_\_ to \_\_\_\_\_ for the performance of:

(a) New Works, additions and alterations to existing structures, special repair works and supply of building materials subject to the contract value for such works not exceeding ₹ \_\_\_\_\_.

(b) All ordinary repair and maintenance works at any site between kilometer \_\_\_\_\_ and kilometre \_\_\_\_\_ as will be set forth in the work orders (which work orders shall be deemed and taken to be part of this contract) that will be issued during the said period at \_\_\_\_\_% above/below the Standard Schedule of Rates (SSOR) of the \_\_\_\_\_ Railway, corrected up to the latest correction slips and Standard Specifications of the \_\_\_\_\_ Railway corrected upto latest correction slips and the Special Conditions and Special Specifications, if any in conformity with the drawings (if any) that will be issued with the work order, aforesaid AND WHEREAS the performance of the said work is an act in which the public are interested.

NOW THIS INDENTURE PRESENTS WITNESSETH That in consideration of the payment to be made by the Railway, the Contractor will duly perform the works set forth in the said Work Order and shall execute the same with great promptness, care and accuracy, in a workman like manner to the satisfaction of the Railway and will complete the same on or before the respective dates specified therein in accordance with the said specifications and said drawings (if any) and said conditions of contract and will observe, fulfill and keep all the conditions therein mentioned, (which shall be deemed and taken to be part of this contract as if the same had been duly set forth herein), AND the Railway both here-by agree that if the Contractor shall duly perform the said work in the manner aforesaid and observe and keep the said terms and conditions, the Railway will pay or cause to be paid to the Contractor for the said works on the completion thereof the amount due in respect thereof at the rates specified above.

Contractor \_\_\_\_\_

Designation \_\_\_\_\_

Address \_\_\_\_\_

Railway \_\_\_\_\_

(For President of India)

Witnesses (to signature of Contractor):

Signature of witnesses with address \_\_\_\_\_

Date \_\_\_\_\_

Signature of witnesses with address \_\_\_\_\_

Date \_\_\_\_\_

Signature of Contractor/s

Date:

For Dy. Chief Engineer (C),

Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE - III**

**WORK ORDER UNDER ZONE CONTRACT**

WORK ORDER NO. \_\_\_\_\_, DATED \_\_\_\_\_ UNDER CONTRACT AGREEMENT

NO. \_\_\_\_\_ DATED \_\_\_\_\_.

Name of Work \_\_\_\_\_ (SITE) \_\_\_\_\_

Schedule of Drawings \_\_\_\_\_

Authority \_\_\_\_\_ Allocation \_\_\_\_\_

The Contractor(s) \_\_\_\_\_ is / are hereby ordered to carry out the following works at \_\_\_\_\_ % above/below the Standard Schedule of Rates (SSOR) of \_\_\_\_\_, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents under Zone Contract Agreement here-in-before referred to:

SL	Item No.	Description of Item of Work	Approximate Quantity	Unit	Rates in Figures and Words (₹)	Amount (₹)
1	2	3	4	5	6	7
Total Approximate Value of Work = ₹ _____						

The works herein mentioned are required to be completed on or before \_\_\_\_\_ (Date). The quantities provided herein are approximate and subject to variation under Clause 42 of the Standard General Conditions of Contract updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.

Divisional Railway Manager/Divisional \_\_\_\_\_ Engineer  
\_\_\_\_\_ Division  
\_\_\_\_\_ Railway

Date \_\_\_\_\_

Signature of Contractor/s

Date:

for President of India

For Dy. Chief Engineer (C)

Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

I agree to complete the works herein set forth on or before the date specified under the Zone Contract Agreement herein before referred to in conformity with the drawings hereto annexed and in accordance with the General and Special (if any) Conditions of Contract updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents and the Standard Specifications of \_\_\_\_\_ Railway updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents .

I also agree to maintain such works for the period specified below from the date of completion:

- (a) Repair and maintenance work including white/color washing: three calendar months from date of completion.
- (b) All new works except earth work: Six calendar months from date of completion.

Contractor \_\_\_\_\_ (Signature)

Railway: Designation \_\_\_\_\_

Address \_\_\_\_\_

For President of India)

Date \_\_\_\_\_

Date \_\_\_\_\_

Signature of Witnesses (to Signature of Contractor) with address

- |    |       |       |
|----|-------|-------|
| 1. | _____ | _____ |
|    | _____ | _____ |
|    | _____ | _____ |
| 2. | _____ | _____ |
|    | _____ | _____ |
|    | _____ | _____ |

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE - IV**

\_\_\_\_\_ **RAILWAY**  
**CONTRACT AGREEMENT OF WORKS**

CONTRACT AGREEMENT NO. \_\_\_\_\_ DATED \_\_\_\_\_

ARTICLES OF AGREEMENT made this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ between President of India acting through the Railway Administration hereafter called the "Railway" of the one part and \_\_\_\_\_ herein after called the "Contractor" of other part.

WHEREAS the Contractor has agreed with the Railway for performance of the works \_\_\_\_\_ set forth in the Bill(s) of Quantities hereto annexed upon the Standard General Conditions of Contract, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents and the Specifications of \_\_\_\_\_ updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents and the applicable Standard Schedule of Rates (SSOR) of \_\_\_\_\_ updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents and the Special Conditions and Special Specifications, if any and in conformity with the drawings here-into annexed AND WHEREAS the performance of the said works is an act in which the public are interested.

NOW THIS INDENTURE WITNESSETH that in consideration to the payments to be made by the Railways, the Contractors will duly perform the said works in the said Bill(s) of Quantities set forth and shall execute the same with great promptness, care and accuracy in a workman like manner to the satisfaction of the Railway and will complete the same in accordance with the said specifications and said drawings and said conditions of contract on or before the \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ and will maintain the said works for a period of \_\_\_\_\_ Calendar months from the certified date of their completion and will observe, fulfill and keep all the conditions therein mentioned (which shall be deemed and taken to be part of this contract, as if the same have been fully set forth herein), AND the Railway, both hereby agree that if the Contractor shall duly perform the said works in the manner aforesaid and observe and keep the said terms and conditions, the Railway will pay or cause to be paid to the Contractor for the said works on the final completion thereof the amount due in respect thereof at the rates specified in the Bill(s) of Quantities hereto annexed.

Contractor \_\_\_\_\_ (Signature)      Railway: Designation \_\_\_\_\_

Address \_\_\_\_\_ (For President of India)

Date \_\_\_\_\_      Date \_\_\_\_\_

Signature of **Witnesses** (to Signature of Contractor) with address:

**Witnesses:**

\_\_\_\_\_  
\_\_\_\_\_

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE-V**

**Reference -Para 6.1 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 as under:

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](http://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.**

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

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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 at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security and 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 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 :-

“One 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)

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE- V(A)**  
**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  
..... (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 Railway 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 :

Date :

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

**ANNEXURE – VI**

Reference -Para 10.3 & 17.15.3 of Tender Form (Second Sheet) of Annexure I of ITT

**TENDERER'S CREDENTIALS (BID CAPACITY)**

**\_\_\_\_\_ RAILWAY**

**For tenders having advertised value more than Rs 10 crore** wherein eligibility criteria includes 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:

$$\text{Available Bid Capacity} = [A \times N \times 2] - 0.33 \times N \times B$$

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 the 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

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 upto 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

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
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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 upto 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.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

Tender No. **DYCE-C-JAM-RANAVAV-01**

**Annexure –VIA**

Para 5 of the Instructions to Tenderers

**(Bid Security)**

**56 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 to conditions of Bid.

**AND**

WHEREAS, .....***[Insert Name of the Bank]***, with its Branch .....***[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.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

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 Publication No.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
NAME OF BENEFICIARY	PFA/FA&CAO
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

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

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 –XVII**

Reference Para 16(4)

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**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 xxxxxx hereinafter called the contractor, for the work of xxxxx" under invitation for bids no. xxxxx dated xxxx, vide Letter of Acceptance No. ....

**AND**

WHEREAS, the contractor is required to furnish Performance Security for the sum of Rs. Xxxxx (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 xxxxx contractor, agreed to give Bond for performance security/ additional performance security as hereinafter contained:

1. KNOW ALL MEN that 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 to the Railway full amount in the sum of xxxxx (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 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.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

3. On payment of any amount less than the 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 Bidder and without the Railway being required to show grounds or give reasons for its demand of the amount so 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 the 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 its issue, which is .....*[insert date of issue]*. **The** Bond and our obligations under it will expire on xxxxx (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 totaling 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 herein before used shall include their respective successors 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 he 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.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

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**Notwithstanding anything to the contrary contained in these presents,**

- a. Our liability under this Surety Bond shall not exceed Rs. XXXXXX (Rupees XXXXX only),
- b. This Surety Bond shall be valid upto XXXXX (being the date of Expiry)
- c. Unless the Surety 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](mailto:customer.care@sbigeneral.in))

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 text is for guidance on how to prepare this Insurance Surety Bond and shall be deleted from the final document.)

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**Annexure –VIB**

Reference -Para 10.2 & 17.15.2 of Tender Form (Second Sheet) of Annexure I of ITT

**Each Bidder or each member of a JV must fill in this form separately:**

**NAME OF BIDDER/JV PARTNER:**

<b>Annual Contractual Turnover Data for the Previous 3/4 Years (Contractual Payment only)</b>			
<b>Year</b>	<b>Amount Currency</b>	<b>Exchange Rate</b>	<b>Indian National Rupees Equivalent</b>
<b>Average Annual Contractual Turnover for last 3 years</b>			

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.
- 4.

***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)***

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**Performa of Statement of All Works in Progress (For Bid capacity)**

(i.e., Current contract commitments/balance amount of ongoing works with the tenderer)

**For Calculation of Bid capacity in accordance with Annex.-VI of GCC- April' 2022 and ACS No.1 dated 14-07-2022**

(Applicable for tenders having advertised value more than Rs 10 crore, to be filled by the Tenderer)

S . N .	Desc ription of Work	Cont ract No. & Date	Whether JV/Single entity. In case JV, the composition/s hare of bidder should be mentioned	Name & Address of the Employee r/Tel/ Fax/Em ail	Date of award of contract/ Date of Letter of Acceptan ce	Date of completi on of Contract t (DOC)/ Extende d DOC	Latest Sanctio ned cost of Contra ct	Total amount of payment received so far, i.e., up to the date of inviting of tender (NIT date) [Value of actual work done only, i.e., excluding elements of price variation & other statutory variation]	Existing commitments and Balance amount of ongoing works with tenderer including the works which are awarded to tenderer but not yet started up to the NIT Date.
a	b	c	d	e	f	g	h	i	J (h-i)
<b>Total of all works under column 'j' = 'B' value (*)</b>									

\*'B' is the Sum Total of 'Existing commitments and Balance amount of on, going works with awarded to tenderer but not yet started up to the date of inviting of tender(NIT Date)'.

**"Certified that current commitments on all the contracts that have been awarded or for which a letter of intent or acceptance has been received or for the works in progress or the works approaching completion, have been indicated in the above table correctly".**

UDIN		
------	--	--

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

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Name of the audit firm: Seal of the audit firm: Date: Place:	(Signature, name and designation of the Authorized signatory of CA Firm) Membership No/FRN No.: Contact detail:	Signed by Tenderer /s: Name:
---	---	---------------------------------

**Note:**

1. This statement should be submitted duly certified/issued by Chartered Accountant & duly signed by tenderer.
2. In case of no works in hand, a “Nil” statement should be furnished by certified / issued by CA & signed by tenderer.
3. 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.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
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**Part II**

**STANDARD GENERAL CONDITIONS OF CONTRACT**

**1. (1) Definitions:** In these Standard General Conditions of Contract, the following terms shall have the meaning assigned hereunder except where the context otherwise requires:

- (a) "Railway" shall mean the President of the Republic of India or the Administrative Officers of the Railway or of the Successor Railway authorized to deal with any matters which these presents are concerned on his behalf.
- (b) "General Manager" shall mean the Officer in-charge of the General Superintendence and Control of the Railway and shall also include Addl. General Manager, the General Manager (Construction) and shall mean and include their successors, of the successor Railway.
- (c) "Chief Engineer" shall mean the Officer in-charge of the Engineering Department of Railway and shall also include Chief Engineer (Construction), Chief Signal & Telecommunication Engineer, Chief Signal & Telecommunication Engineer (Construction), Chief Electrical Engineer, Chief Electrical Engineer (Construction), Chief Mechanical Engineer and shall mean & include their successors, of the Successor Railway.
- (d) "Divisional Railway Manager" shall mean the Officer in-charge of a Division of the Railway and shall mean and include the Divisional Railway Manager of the Successor Railway.
- (e) "Engineer" shall mean the Divisional Engineer or the Executive Engineer, Divisional Signal & Telecom Engineer, Divisional Electrical Engineer, Divisional Mechanical Engineer in executive charge of the works and shall include the superior officers of Open Line and Construction organisations on the Railway of the Engineering, Signal & Telecom, Electrical and Mechanical Departments, i.e. the Senior Divisional Engineer/Deputy Chief Engineer, Senior Divisional Signal & Telecom Engineer / Dy. Chief Signal & Telecom Engineer, Senior Divisional Electrical Engineer / Deputy Chief Electrical Engineer, Senior Divisional Mechanical Engineer and shall mean & include the Engineers of the Successors Railway.
- (f) "Engineer's Representative" shall mean the Assistant Engineer, Assistant Signal & Telecommunication Engineer and Assistant Electrical Engineer, Assistant

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

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Mechanical Engineer in direct charge of the works and shall include any Sr. Section/Junior Engineer of Civil Engineering/ Signal and Telecommunication Engineering/Mechanical Engineering/Electrical Engineering Departments appointed by the Railway and shall mean and include the Engineer's Representative of the Successor Railway.

- (g) "Contractor" shall mean the Person/Firm/LLP/Trust/Co-operative Society or Company whether incorporated or not who enters into the contract with the Railway and shall include their executors, administrators, successors and permitted assigns.
- (h) "Contract" shall mean and include the Agreement, the Work Order, the accepted Bill(s) of Quantities or Chapter(s) of Standard Schedule or Rates (SSOR) of Railway modified by the tender percentage for items of works quantified, or not quantified, the Standard General Conditions of Contract, the Special Conditions of Contracts, if any; the Drawing, the Specifications, the Special Specifications, if any and Tender Forms, if any.
- (i) "Works" shall mean the works to be executed in accordance with the contract.
- (j) "Specifications" shall mean the Standard Specifications for Materials & Works of Railway as specified by Railway under the authority of the Chief Engineer or as amplified, added to or superseded by Special Specifications, if any.
- (k) Standard Schedule of Rates (SSOR) shall mean the schedule of Rates adopted by the Railway, which includes-
  - 1. "Unified Standard Schedule of Rates of the Railway (USSOR)" 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;
  - 2. "Delhi Schedule Of Rates (DSR)" 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.
- (l) "Drawing" shall mean the maps, drawings, plans and tracings or prints there of annexed to the contract and shall include any modifications of such drawings and further drawings as may be issued by the Engineer from time to time.
- (m) "Constructional Plant" shall mean all appliances or things of whatsoever nature required for the execution, completion or maintenance of the works or temporary works (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
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- (n) "Temporary Works" shall mean all temporary works of every kind required for the execution completion and/or maintenance of the works.
- (o) "Site" shall mean the lands and other places on, under, in or through which the works are to be carried out and any other lands or places provided by the Railway for the purpose of the contract.
- (p) "Period of Maintenance" shall mean the specified period of maintenance from the date of completion of the works, as certified by the Engineer.
- (q) 'Contractor's authorized Engineer' shall mean a graduate Engineer or equivalent, having more than 3 years' experience in the relevant field of construction work involved in the contract, duly approved by Engineer.
- (r) Date of inviting tender shall be the date of publishing tender notice on IREPS website if tender is published on website or the date of publication in newspaper in case tender is not published on website.
- (s) "Bill of Quantities" shall mean Schedule of Item(s) included in the tender document along with respective quantities and rates, accepted by the Railway.

**1. (2) Singular and Plural:** Words importing the singular number shall also include the plural and vice versa where the context requires.

**1.(3) Headings and Marginal Headings:** The headings and marginal headings in these Standard General Conditions are solely for the purpose of facilitating reference and shall not be deemed to be part thereof or be taken into consideration in the interpretation or construction thereof the contract.

**GENERAL OBLIGATIONS**

**2. (1) Execution Co-Relation and Intent of Contract Documents:** The contract documents shall be signed in triplicate by the Railway and the Contractor. The contract documents are complementary and what is called for by anyone shall be as binding as if called for by all, the intention of the documents is to include all labour and materials, equipment and transportation necessary for proper execution of work. Materials or works not covered by or properly inferable from any heading or class of the specifications shall not be supplied by the Railway to the Contractors unless distinctly specified in the contract documents. Materials or works described in words which so applied have a well-known technical or trade meaning, shall be held to refer to such recognized standards.

**2.(2)** If a work is transferred from the jurisdiction of one Railway to another Railway or to a Project authority or vice versa while contract is in subsistence, the contract

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Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

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shall be binding on the Contractor and the Successor Railway/Project in the same manner & take effect in all respects as if the Contractor and the Successor Railway/Project were parties thereto from the inception and the corresponding officer or the Competent Authority in the Successor Railway/Project will exercise the same powers and enjoy the same authority as conferred to the Predecessor Railway/Project under the original contract/agreement entered into.

**2. (3)** If for administrative or other reasons the contract is transferred to the Successor Railway, the contract shall, notwithstanding any things contained herein contrary there to, be binding on the Contractor and the Successor Railway in the same manner and take effect in all respects as if the Contractor and the Successor Railway had been parties thereto from the date of this contract.

**3. (1) Law Governing the Contract:** The contract shall be governed by the law for the time being in force in the Republic of India.

**3.(2) Compliance to Regulations and Bye-Laws:** The Contractor shall conform to the provision of any statute relating to the works and regulations and bye-laws of any local authority and of any water and lighting companies or undertakings, with whose system the work is proposed to be connected and shall before making any variation from the drawings or the specifications that may be necessitated by so confirming give to the Engineer notice specifying the variation proposed to be made and the reason for making the variation and shall not carry out such variation until he has received instructions from the Engineer in respect thereof. The Contractor shall be bound to give all notices required by statute, regulations or bye-laws as aforesaid and to pay all fees and taxes payable to any authority in respect thereof.

**3.(3) Environmental and Forest clearances:**

The Railway represents and warrants that the environmental and forest clearances pertaining to the work commensurate with the progress of work/agreed programme, will be obtained by Engineer. In the event of any delay in securing respective clearances leading to delay in execution of work, the Contractor shall be entitled to Extension of Time for the period of such delay in accordance with the provisions of Clause-17A(ii).

**4. Communications to be in Writing:** All notices, communications, reference and complaints made by the Railway or the Engineer or the Engineer's Representative or the Contractor inter-se concerning the works shall be in writing or e-mail on registered e-mail IDs i.e. the e mail id provided for correspondence in the contract agreement, otherwise email id registered with IREPS and no notice, communication, reference or complaint not in writing or through e-mail, shall be recognized.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

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5. **Service of Notices on Contractors:** The Contractor shall furnish to the Engineer the name, designation and address of his authorized agent and all complaints, notices, communications and references shall be deemed to have been duly given to the Contractor, if delivered to the Contractor or his authorized agent or left at or posted to the address so given and shall be deemed to have been so given in the case of posting on day on which they would have reached such address in the ordinary course of post/e- mail or on the day on which they were so delivered or left. In the case of contract by partners, any change in the constitution of the firm shall be forthwith notified by the Contractor to the Engineer.
6. **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.
7. **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 per cent) of the contract price and shall carry out Works for at least 60% (sixty per cent) of 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-contract Price shall exclude any sub-contract Price shall procurement of goods and equipment like [rails, sleeper and track fitting, 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

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

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equal to at least 30% (thirty per cent) of the Contract Price shall be discharged solely by the Lead Member.}\$

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

\$ May be deleted if the Contractor is not a Consortium / Joint Venture.

- (ii) The subcontractor shall have successfully completed at least one work similar to work proposed for subcontract 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 fulfilment 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 authorized 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.

- (iii) 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.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

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- (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 endeavour 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 subcontractor.

*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.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

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- 8. Assistance by Railway for the Stores to be obtained by the Contractor:** Owing to difficulty in obtaining certain materials (including Tools & Plant) in the market, the Railway may have agreed without any liability therefore to endeavour to obtain or assist the Contractor in obtaining the required quantities of such materials as may be specified in the Tender. In the event of delay or failure in obtaining the required quantities of the aforesaid material, the Contractor shall not be deemed absolved of his own responsibility and shall keep in touch with the day to day position regarding their availability and accordingly adjust progress of works including employment of labour and the Railway shall not in any way be liable for the supply of materials or for the non-supply thereof for any reasons whatsoever nor for any loss or damage arising in consequence of such delay or non-supply.
- 9. Railway Passes:** No free railway passes shall be issued by the Railway to the Contractor or any of his employee/worker.
- 10. Carriage of Materials:** No forwarding orders shall be issued by the Railway for the conveyance of Contractor's materials, tools and plant by train which may be required for use in the works and the Contractor shall pay full freight charges at public tariff rates therefor.
- 11. Use of Ballast Trains:** The Railway may agree to allow the Contractor use of the ballast or material trains under such conditions as shall be specially prescribed, provided that the Contractor shall pay for the use thereof charges calculated at public tariff rates on the marked carrying capacity of each vehicle subject to specified minimum charge per day or part of day and provided further that the Contractor shall indemnify the Railway against any claims or damages arising out of the use or misuse thereof and against any liabilities under the Workmen's Compensation Act, 1923 or any statutory amendments thereto.
- 12. Representation on Works:** The Contractor shall, when he is not personally present on the site of the works place, keep a responsible agent at the works during working hours who shall on receiving reasonable notice, present himself to the Engineer and orders given by the Engineer or the Engineer's representative to the agent shall be deemed to have the same force as if they had been given to the Contractor. Before absenting himself, the Contractor shall furnish the name and address of his agent for the purpose of this clause and failure on the part of the Contractor to comply with this provision at any time will entitle the Railway to rescind the contract under Clause 62 of these Conditions.
- 13. Relics and Treasures:** All gold, silver, oil, other minerals of any description, all precious stones, coins, treasures relics antiquities and other similar things which shall be found in or upon the site shall be the property of the Railway and the Contractor shall duly preserve the same to the satisfaction of the Railway and shall from time to

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time deliver the same to such person or persons as the Railway may appoint to receive the same.

- 14. Excavated Material:** The Contractor shall not sell or otherwise dispose of or remove except for the purpose of this contract, the sand, stone, clay ballast, earth, trees, rock or other substances or materials which may be obtained from any excavation made for the purpose of the works or any building or produced upon the site at the time of delivery of the possession thereof but all the substances, materials, buildings and produce shall be the property of the Railway provided that the Contractor may, with the permission of the Engineer, use the same for the purpose of the works either free of cost or pay the cost of the same at such rates as may be determined by the Engineer.
- 15. Indemnity by Contractors:** The Contractor shall indemnify and save harmless the Railway from and against all actions, suit, proceedings, losses, costs, damages, charges, 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 the execution of the works or in his guarding of the same. All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the actual loss or damage sustained, and whether or not any damage shall have been sustained.
- 16.(1) Security Deposit:** 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.

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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 17B of 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.

**16.(2) (i) Refund of Security Deposit:** 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) **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), in case applicable.

**16. (2) (ii) 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.

**16.(3)** 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 16. (4)(b) of this clause will be payable with interest accrued thereon.

**16.(4) Performance Guarantee**

The procedure for obtaining Performance Guarantee is out lined 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 22<sup>nd</sup> day after the date of issue of LOA. Further, if the 60<sup>th</sup> day 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

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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) in any of the following forms

- (i) A deposit of Cash;
- (ii) Irrevocable Bank Guarantee;
- (iii) Insurance Surety Bond as per Annexure-XVII

**Note:**

**In case of extension of Date of Completion, selection 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;
  - (iv) Pay Orders and Demand Drafts tendered by any Scheduled Commercial Bank of India;
  - (v) Guarantee Bonds executed or Deposits Receipts tendered by any Scheduled Commercial Bank of India;
  - (vi) Deposit in the Post Office Saving Bank;
  - (vii) Deposit in the National Savings Certificates;
  - (viii) Twelve years National Defence Certificates;
  - (ix) Ten years Defence Deposits;
  - (x) National Defence Bonds and
  - (xi) Unit Trust Certificates at 5% below market value or at the face value whichever is less. Also, FDR in favour of FA&CAO (free from any encumbrance) may be accepted.
- (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 60 days.

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- (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 be 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 of bidder which is below the advertised tender value, an additional performance security shall be submitted by the bidder as below:**

<b>Bid quoted in % of advertised cost</b>	<b>Additional Performance Guarantee(%)</b>
<b>Below 0-5% (inclusive)</b>	<b>Nil</b>
<b>Below 5%</b>	<b>5%</b>

- 17. 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.

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**17A 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 endeavours 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 therefor, but in any such case, the Railway

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may grant such extension or extensions of the completion date as may be considered reasonable.

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 17A (i) or/and 17A(ii) or/ and 17A(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.

**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 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) 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 the 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

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

**17C Bonus for Early Completion of Work:** In open tenders having advertised value more than Rs.50 crore 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.

**18.(1) Illegal Gratification:**

**Procuring authorities as well as bidders, contractors and consultants should observe the highest standard of ethics and should not indulge in the following prohibited practices, either directly or indirectly, at any stage during the procurement process or during execution of resultant contracts:**

- i) "corrupt practice": making offers solicitation or acceptance of bribe, rewards or gifts or any material benefit, in exchange for an unfair advantage in the procurement process or contract execution;**
- ii) "Fraudulent practice": any omission or misrepresentation that may mislead or attempt to mislead so that financial or other benefits may be obtained or an obligation avoided. This includes false information for participation in a tender process or to secure a contract or in execution of the contract;**
- iii) "Anti-competitive practice": any collusion, bid rigging or anti-competitive arrangement, or any other practice coming under the purview of the Competition Act, 2002, between two or more bidders, with or without the**

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knowledge of the procuring entity, that may impair the transparency, fairness and the progress of the procurement process or to establish bid prices at artificial, non-competitive levels;

iv) “Coercive practice”: any coercion or any threat to impair or harm, directly or indirectly, any party or its property to influence the procurement process or affect the execution of a contract;

v) “Conflict of interest” (COI): any personal, financial, or business relationship between the bidder and any personnel of the procuring entity who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of the procuring entity directly or indirectly;

vi) “Undue Advantage”: improper use of information obtained by the bidder from the procuring entity with an intent to gain an unfair advantage in the procurement process or for personal gain. This also includes if the bidder (or his allied firm) provided services for the need assessment/procurement planning of the tender process in which he is participating;

vii) “Obstructive practice”: materially impede the procuring entity’s investigation of a procurement process either by deliberately destroying, falsifying, altering; or by concealing of evidence material to the investigation; or by making false statements or by threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to such investigation or from pursuing the investigation; or by impeding the procuring entity’s rights of audit or access to information;

**18.(2) Punitive Provisions:**

Without prejudice to and in addition to the rights of the procuring entity to other penal provisions as per the bid documents or contract, if the procuring entity comes to a conclusion that a (prospective) bidder/contractor directly or through an agent, has violated this code of integrity in competing for the contract or in executing a contract, the procuring entity may take appropriate measures including one or more of the following:

i) If his bids are under consideration in any procurement

a) Forfeiture or encashment of bid security;

b) Calling off of any pre-contract negotiations; and

c) Rejection and exclusion of the bidder from the procurement process

ii) If a contract has already been awarded

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a) **Cancellation of the relevant contract and recovery of compensation for loss incurred by the procuring entity;**

b) **Forfeiture or encashment of any other security or bond relating to the procurement;**

c) **Recovery of payments including advance payments, if any, made by the procuring entity along with interest thereon at the prevailing rate;**

iii) **Provisions in addition to above:**

a) **Removal from the list of enlisted contractors and banning/debarment of the bidder from participation in future procurements of the procuring entity for a period not less than one year;**

b) **In case of anti-competitive practices, information for further processing may be filed under a signature of the Joint Secretary level officer, with the Competition Commission of India;**

c) **Initiation of suitable disciplinary or criminal proceedings or criminal proceeding against any individual or staff found responsible.**

**Any question or dispute as to the commission of any such offence or compensation payable to the Railway under this Clause shall be settled by the General Manager of the Railway, in such a manner as he shall consider fit & sufficient and his decision shall be final & conclusive.**

**EXECUTION OF WORKS**

**19.(1) Contractor's understanding:** It is understood and agreed that the Contractor has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the progress of the works, the general and local conditions, the labour conditions prevailing therein and all other matters which can in any way affect the works under the contract.

**19.(2) Commencement of Works:** The Contractor shall commence the works within 15 days after the receipt by him of an order in writing to this effect from the Engineer and shall proceed with the same with due expedition and without delay

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**19.(3) Accepted Programme of Work:** The Contractor who has been awarded the work shall as soon as possible but not later than 30 days after the date of receipt of the acceptance letter in respect of contracts with initial completion period of two years or less or not later than 90 days for other contracts have to submit the detailed programme of work indicating the time schedule of various items of works in the form of Bar Chart/PERT/CPM. He shall also submit the details of organisation (in terms of labour and supervisors), plant and machinery that he intends to utilize (from time to time) for execution of the work within stipulated date of completion. The programme of work amended as necessary by discussions with the Engineer, shall be treated as the agreed programme of the work for the purpose of this contract and the Contractor shall endeavor to fulfill this programme of work. The progress of work will be watched accordingly and the liquidated damages will be with reference to the overall completion date. Nothing stated herein shall preclude the Contractor in achieving earlier completion of item or whole of the works than indicated in the programme.

In Contracts for works of New Line/Gauge Conversion/Doubling/Railway Electrification, finalized through Tenders having advertised value more than Rs.100 crores, the Contractor shall submit a detailed time programme to the Engineer within 30 days after issue of LOA. The program shall include the physical and Financial Progress vis-à-vis program and forecast cash flow adopting Project Management Software such as **Primavera/Sure Track/MS Project** etc. The program must identify the milestones, interface requirements and program reporting elements. The Contractor shall supply, free of cost one set of authorized software to the Engineer and the soft copy of structured program for the project. This shall be updated every month. The Contractor shall also submit a revised programme whenever the previous programme is inconsistent with actual progress. Each programme shall include:

The order in which the Contractor intends to carry out the Works, including the anticipated timing of each stage, Contractor's Documents, procurement, manufacture of Plant, delivery to Site, construction, erection and testing, each of these stages for work by each Subcontractor, if any, the sequence and timing of inspections and tests specified in the Contract, and a supporting report which includes:

a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and

details showing the Contractor's reasonable estimate for the number of each class of Contractor's Personnel & Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the

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Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Engineer shall be entitled to rely upon the programme when planning their activities.

If, at any time, the Engineer gives notice to the Contractor that a programme fails (to the extent stated) to comply with the Contract or to be consistent with actual progress and the Contractor's stated intentions, the Contractor shall submit a revised programme to the Engineer within 15 days in accordance with this Sub-Clause.

- 19.(4) 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 check these at frequent intervals. The Contractor shall provide all facilities like labour and instruments and shall co-operate with the Engineer's representative for checking of all alignment, grades, levels and dimensions. If, at any time, during the progress of the works any error appear or arise in any part of the work, the Contractor, on being required so to do by the Engineer's representative shall, 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.

- 20.(1) Compliance to Engineer's Instructions:** The Engineer shall direct the sequence in which the several parts of the works shall be executed and the Contractor shall execute without delay all orders given by the Engineer from time to time; but the Contractor shall not be relieved thereby from responsibility for the due performance of the works in all respects.
- 20.(2) Alterations to be Authorized:** No alterations in or additions to or omissions or abandonment of any part of the works shall be deemed authorised, except under written instructions from the Engineer.
- 20.(3) Extra Works:** Should works over and above those included in the contract require to be executed at the site, the Contractor shall have no right to be entrusted with the

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execution of such works which may be carried out by another Contractor or Contractors or by other means at the option of the Railway.

**20.(4) Separate Contracts in Connection with Works:** The Railway shall have the right to let other contracts in connection with the works. The Contractor shall afford other Contractors reasonable opportunity for the storage of their materials and the execution of their works and shall properly connect and coordinate his work with theirs. If any part of the Contractor's work depends upon proper execution or result upon the work of another Contractor(s), the Contractor shall inspect and promptly report to the Engineer any defects in such works that render it unsuitable for such proper execution and results. The Contractor's failure so-to inspect and report shall constitute an acceptance of the other Contractor's work as fit and proper for the reception of his work, except as to defects which may develop in the other Contractor's work after the execution of his work.

**21. Instruction of Engineer's Representative:** Any instructions or approval given by the Engineer's representative to Contractor in connection with the works shall bind the Contractor as though it had been given by the Engineer provided always as follows:

- (a) Failure of the Engineer's representative to disapprove any work or materials shall not prejudice the power of the Engineer thereafter to disapprove such work or material and to order the removal or breaking up thereof.
- (b) If the Contractor shall be dissatisfied by reason of any decision of the Engineer's representative, he shall be entitled to refer the matter to the Engineer who shall there upon confirm or vary such decision.

**22.(1) Adherence to Specifications and Drawings:** The site and the detailed drawings shall be made available to the contractor commensurate with the accepted programme of work submitted under clause 19(3). The whole of the works shall be executed in perfect conformity with the specifications and drawings of the contract. If Contractor performs any works in a manner contrary to the specifications or drawings or any of them and without such reference to the Engineer, he shall bear all the costs arising or ensuing therefrom and shall be responsible for all loss to the Railway.

**22.(2) Drawings and Specifications of the Works:** The Contractor shall keep one copy of Drawings and Specifications at the site, in good order, and such contract documents as may be necessary, available to the Engineer or the Engineer's Representative.

**22.(3) Ownership of Drawings and Specifications:** All Drawings and Specifications and copies thereof furnished by the Railway to the Contractor are deemed to be the

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property of the Railway. They shall not be used on other works and with the exception of the signed contract set, shall be returned by the Contractor to the Railway on completion of the work or termination of the Contract.

**22.(4) Compliance with Contractor's Request for Details:** The Engineer shall furnish with reasonable promptness, after receipt by him of the Contractor's request, additional instructions by means of drawings or otherwise, necessary for the proper execution of the works or any part thereof. All such drawings and instructions shall be consistent with the Contract Documents and reasonably inferable there from.

**22.(5) Meaning and Intent of Specification and Drawings:** If any ambiguity arises as to the meaning and intent of any portion of the Specifications and Drawings or as to execution or quality of any work or material, or as to the measurements of the works the decision of the Engineer thereon shall be final subject to the appeal (within 7 days of such decision being intimated to the Contractor) to the Chief Engineer who shall have the power to correct any errors, omissions, or discrepancies in aforementioned items and whose decision in the matter in dispute or doubt shall be final and conclusive.

**23. Working during Night:** The Contractor shall not carry out any work between sunset and sun-rise without the previous permission of the Engineer. However, if the Engineer is satisfied that the work is not likely to be completed in time except by resorting to night work, he may order the same without confirming any right on the Contractor for claiming any extra payment for the same.

**24. Damage to Railway Property or Private Life and Property:**

The Contractor shall be responsible for all risk to the work and for trespass and shall make good at his own expense all loss or damage whether to the works themselves or to any other property of the Railway or the lives, persons or property of others from whatsoever cause in connection with the works until they are taken over by the Railway, although all reasonable and proper precautions may have been taken by the Contractor. In case the Railway shall be called upon to make good any costs, loss or damages, or to pay any compensation, including that payable under the provisions of the Workmen's Compensation Act or any statutory amendments thereof to any person or persons sustaining damages as aforesaid by reason of any act, or any negligence or omissions on the part of the Contractor; the amount of any costs or charges including costs and charges in connection with legal proceedings, which the Railway may incur in reference thereto, shall be charged to the Contractor. The Railway shall have the power and right to pay or to defend or

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compromise any claim of threatened legal proceedings or in anticipation of legal proceedings being instituted consequent on the action or default of the Contractor, to take such steps as may be considered necessary or desirable to ward off or mitigate the effect of such proceedings, charging to Contractor, as aforesaid; any sum or sums of money which may be paid and any expenses whether for reinstatement or otherwise which may be incurred and the propriety of any such payment, defence or compromise, and the incurring of any such expenses shall not be called in question by the Contractor.

**25. Sheds, Storehouses and Yards:** The Contractor shall at his own expense provide himself with sheds, storehouses and yards in such situations and in such numbers as in the opinion of the Engineer is requisite for carrying on the works and the Contractor shall keep at each such sheds, storehouses and yards a sufficient quantity of materials and plant in stock as not to delay the carrying out of the works with due expedition and the Engineer and the Engineer's representative shall have free access to the said sheds, store houses and yards at any time for the purpose of inspecting the stock of materials or plant so kept in hand, and any materials or plant which the Engineer may object to shall not be brought upon or used in the works, but shall be forthwith removed from the sheds, storehouses or yards by the Contractor. The Contractor shall at his own expenses provide and maintain suitable mortar mills, soaking vats or any other equipment necessary for the execution of the works.

**26. Provision of Efficient and Competent Staff at Work Sites by the Contractor:**

**26.1** 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 & proper manner and shall employ only such supervisors, workmen & labourers in or about the execution of any of these works as are careful and skilled in the various trades.

**26.2** The Contractor shall at once remove from the works any agents, permitted sub-contractor, supervisor, workman or labourer 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.

**26.3** 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 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 as 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.

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**26A. Deployment of Qualified Engineers at Work Sites by the Contractor:**

**26A.1** The Contractor shall also employ qualified Graduate Engineer(s) or equivalent, or qualified Diploma Engineer(s), as prescribed in the tender documents.

**26A.2** In case the Contractor fails to employ the Engineer, as aforesaid in Para 26A.1, he shall be liable to pay liquidated damages at the rates, as prescribed in the tender documents.

**26A.3** No. of qualified Engineers required to be deployed by the Contractor for various activities contained in the works contract shall be specified in the tender documents as 'Special Condition of Contract'.

**27.(1) Workmanship and Testing:** The whole of the works and/or supply of materials specified and provided in the contract or that may be necessary to be done in order to form and complete any part thereof shall be executed in the best and most substantial workman like manner with materials of the best and most approved quality of their respective kinds, agreeable to the particulars contained in or implied by the specifications and as referred to in and represented by the drawings or in such other additional particulars, instructions and drawings given during the carrying on of the works and to the entire satisfaction of the Engineer according to the instructions and directions which the Contractors may from time to time receive from the Engineer. The materials may be subjected to tests by means of such machines, instruments and appliances as the Engineer may direct and wholly at the expense of the Contractor.

**27.(2) Removal of Improper Work and Materials:** The Engineer or the Engineer's Representative shall be entitled to order from time to time:

- (a) The removal from the site, within the time specified in the order, of any materials which in his opinion are not in accordance with the specifications or drawings.
- (b) The substitution of proper and suitable materials, and
- (c) the removal and proper re-execution, notwithstanding any previous tests thereof or on account payments therefor, of any work which in respect of materials or workmanship is not in his opinion in accordance with the specifications and in case of default on the part of the Contractor in carrying out such order, the Railway shall be entitled to rescind the contract under Clause 62 of these conditions.

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- (d) 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.
- 28. Facilities for Inspection:** The Contractor shall afford the Engineer and the Engineer's Representative every facility for entering in and upon every portion of the work at all hours for the purpose of inspection or otherwise and shall provide all labour, materials, planks, ladders, pumps, appliances and things of every kind required for the purpose and the Engineer and the Engineer's Representative shall at all times have free access to every part of the works and to all places at which materials for the works are stored or being prepared.
- 29. Examination of Work before Covering Up:** The Contractor shall give 7 days' notice to the Engineer or the Engineer's Representative whenever any work or materials are intended to be covered up in the earth, in bodies or walls or otherwise to be placed beyond the reach of measurements in order that the work may be inspected or that correct dimensions may be taken before being so covered, placed beyond the reach of measurement in default whereof, the same shall at the option of the Engineer or the Engineer's Representative be uncovered and measured at the Contractor's expense or no allowance shall be made for such work or materials.
- 30. Temporary Works:** All temporary works necessary for the proper execution of the works shall be provided and maintained by the Contractor and subject to the consent of the Engineer shall be removed by him at his expenses when they are no longer required and in such manner as the Engineer shall direct. In the event of failure on the part of the Contractor to remove the temporary works, the Engineer will cause them to be removed and cost as increased by supervision and other incidental charges shall be recovered from the Contractor. If temporary huts are provided by the Contractor on the Railway land for labour engaged by him for the execution of works, the Contractor shall arrange for handing over vacant possession of the said land after the work is completed; if the Contractor's labour refuse to vacate, and have to be evicted by the Railway, necessary expenses incurred by the Railway in connection therewith shall be borne by the Contractor.
- 31.(1) Contractor to Supply Water for Works:** Unless otherwise provided in the Contract, the Contractor shall be responsible for the arrangements to obtain supply of water necessary for the works.
- 31.(2) Water Supply from Railway System:** The Railway may supply 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

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and payable by the Contractor, provided that the Contractor shall arrange, at his own expense, to effect the connections and lay additional pipelines and accessories on the site and that the Contractor shall not be entitled to any compensation for interruption or failure of the water supply.

**31.(3) Water Supply by Railway Transport:** In the event of the Railway arranging supply of water to the Contractor at or near the site of works by travelling water tanks or other means, the freight and other charges incurred thereby, including demurrage charges that may be levied, shall be paid by the Contractor in addition to the charges referred to in Sub-Clause (2) of the Clause provided that the Contractor shall not be entitled to any compensation for interruption or failure of the water supply.

**31.(4)(a) Contractor to Arrange Supply of Electric Power for Works:** Unless otherwise provided in the contract, the Contractor shall be responsible for arrangements to obtain supply of Electric Power for the works.

**(b) Electric Supply from the Railway System:** 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.

**32. Property in Materials and Plant:** The materials and plant brought by the Contractor upon the site or on the land occupied by the Contractor in connection with the works and intended to be used for the execution thereof shall immediately be deemed to be the property of the Railway. Such of them as during the progress of the works are rejected by the Engineer under Clause 25 of these conditions or are declared by him not to be needed for the execution of the works or such as on the grant of the certificate of completion remain unused shall immediately on such rejection, declaration or grant cease to be deemed the property of the Railway and the Contractor may then (but not before) remove them from the site or the said land. This clause shall not in any way diminish the liability of the Contractor nor shall the Railway be in any way answerable for any loss or damage which may

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happen to or in respect of any such materials or plant either by the same being lost, stolen, injured or destroyed by fire, tempest or otherwise.

- 33.(1) Tools, Plant and Materials Supplied by Railway:** The Contractor shall take all reasonable care of all tools, plant and materials or other property whether of a like description or not belonging to the Railway and committed to his charge for the purpose of the works and shall be responsible for all damage or loss caused by him, his agents, permitted sub-contractor, or his workmen or others while they are in his charge. The Contractors shall sign accountable receipts for tools, plants and materials made over to him by the Engineer and on completion of the works shall hand over the unused balance of the same to the Engineer in good order and repair, fair wear and tear excepted, and shall be responsible for any failure to account for the same or any damage done thereto.
- 33.(2) Hire of Railway's Plant:** The Railway may hire to the Contractor such plant as concrete mixers, compressors and portable engines for use during execution of the works on such terms as may be specified in the special conditions or in a separate agreement for Hire of Plant.
- 34.(1) Precaution During Progress of Works:** During the execution of works, unless otherwise specified, the Contractor shall at his own cost provide the materials for and execute all shoring, timbering and strutting works as is necessary for the stability and safety of all structures, excavations and works and shall ensure that no damage, injury or loss is caused or likely to be caused to any person or property.
- 34.(2) Roads and Water Courses:** 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 unauthorized 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's bills/Security Deposit or any other dues of Contractor with the Government of India.
- 34.(3) Provision of Access to Premises:** During progress of work in any street or thoroughfare, the Contractor shall make adequate provision for the passage of traffic, for securing safe access to all premises approached from such street or thoroughfare and for any drainage, water supply or means of lighting which may be interrupted by reasons of the execution of the works and shall react and maintain at his own cost barriers, lights and other safeguards as prescribed by the Engineer, for the regulation of the traffic, and provide watchmen necessary to prevent accidents. The works shall in such cases be executed night and day, if so, ordered by the Engineer and with such vigor so that the traffic way be impeded for as short a time as possible.

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- 34.(4) Safety of Public:** The Contractor shall be responsible to take all precautions to ensure the safety of the public whether on public or railway property and shall post such look out men as may, in the opinion of the Engineer, be required to comply with regulations appertaining to the work. Contractor shall ensure placement of barricading / partitions at the place of work to ensure safety of habitants of adjacent area, failing which Engineer may advise stoppage of work as per his discretion.
- 34.(5) Display Board:** The Contractor shall be responsible for displaying the details of works i.e., name of work, approximate cost, expected date of completion, name and address of the Contractor and address of Engineer on a proper steel Board of size not less than 1m x 1m.
- 35. Use of Explosives:** Explosives shall not be used on the works or on the site by the Contractor without the permission of the Engineer and then also only in the manner and to the extent to which such permission is given. Where explosives are required for the works, they shall be stored in a special magazine to be provided by and at the cost of the Contractor in accordance with the Explosive Rules. The Contractor shall obtain the necessary license for the storage and the use of explosives. All operations in which or for which explosives are employed shall be at the sole risk and responsibility of the Contractor and the Contractor shall indemnify the Railway in respect thereof.
- 36.(1) Suspension of Works:** The Contractor shall on the order of the Engineer, suspend the progress of the works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Engineer. If such suspension is:
- (a) Provided for in the contract, or
  - (b) Necessary for the proper execution of the works or by the reason of weather conditions or by some default on the part of the Contractor, and or
  - (c) Necessary for the safety of the works or any part thereof.
  - (d) Necessary for the safety of adjoining public or other property or safety of the public or workmen or those who have to be at the site, or
  - (e) Necessary to avoid disruption of traffic and utilities, as also to permit fast repair and restoration of any damaged utilities, or

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- (f) Due to instruction of The National Green Tribunal or any other statutory authority due to high level of pollution in the city of worksite.
- 36.(2)** The Contractor shall not be entitled to the extra costs, if any, incurred by him during the period of suspension of the works, but in the event of any suspension ordered by the Engineer for reasons other than aforementioned and when each such period of suspension exceeds 14 days, the Contractor shall be entitled to such extension of time for completion of the works as the Engineer may consider proper having regard to the period or periods of such suspensions and to such compensations as the Engineer may consider reasonable in respect of salaries or wages paid by the Contractor to his employees during the periods of such suspension.
- 36.(3) Suspension Lasting More than 3 Months:** If the progress of the works or any part thereof is suspended on the order of the Engineer for more than three months at a time, the Contractor may serve a written notice on the Engineer requiring permission within 15 days from the receipt thereof to proceed with the works or that part thereof in regard to which progress is suspended and if such permission is not granted within that time the Contractor by further written notice so served may, but is not bound to, elect to treat the suspension where it affects part only of the works as an omission of such part or where it affects the whole of the works, as an abandonment of the contract by the Railway.
- 37. Rates for Items of Works:**
- (i) The rates, entered in the accepted Bill(s) of Quantities of the Contract are intended to provide for works duly and properly completed in accordance with the General and Special (if any) Conditions of the Contract and the Specifications and drawings together with such enlargements, extensions, diminutions, reductions, alterations or additions as may be ordered in terms of Clause 42 of these conditions and without prejudice to the generality thereof and shall be deemed to include and cover superintendence and labour, supply, including full freight of materials, stores, patterns, profiles, moulds, fittings, centering, scaffolding, shoring props, timber, machinery, barracks, tackle, roads, pegs, posts, tools and all apparatus and plant required on the works, except such tools, plant or materials as may be specified in the contract to be supplied to the Contractor by the Railway, the erection, maintenance and removal of all temporary works and buildings, all watching, lighting, bailing, pumping and draining, all prevention of or compensation for trespass, all barriers and arrangements for the safety of the public or of employees during the execution of works, all sanitary and medical arrangements for labour camps as may be prescribed by the Railway, the setting of all work and of the construction, repair and upkeep of all Centre lines, bench marks and level pegs thereon, site clearance, all fees duties, royalties, rent and compensation to owners for surface damage or taxes and impositions payable to

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local authorities in respect of land, structures and all material supplied for the work or other duties or expenses for which the Contractor may become liable or may be put to under any provision of law for the purpose of or in connection with the execution of the contract and all such other incidental charges or contingencies as may have been specially provided for in the Specifications.

However, if rates of existing GST or cess on GST for Works Contract is increased or any new tax /cess on Works Contract is imposed by Statute after the date of opening of tender but within the original date of completion/date of completion extended under clause 17 & 17A and the Contractor thereupon properly pays such taxes/cess, the Contractor shall be reimbursed the amount so paid.

Further, if rates of existing GST or cess on GST for Works Contract is decreased or any tax/cess on Works Contract is decreased / removed by Statute after the date of opening of tender, the reduction in tax amount shall be recovered from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India.

- 38. Demurrage and Wharfage Dues:** Demurrage charges calculated in accordance with the scale in force for the time being on the Railway and incurred by the Contractor failing to load or unload any goods or materials within the time allowed by the Railway for loading as also wharfage charges, of materials not removed in time, as also charges due on consignments booked by or to him shall be paid by the Contractor, failing which such charges shall be debited to the Contractor's account in the hands of the Railway and shall be deducted from any sums which may become due to him in terms of the contracts.

**39.(1) Rates for Extra Items of Works:**

- (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

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(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)”
- ii. Analysis of Rates for “Delhi Schedule of Rates issued by CPWD (DSR)”
- iii. Market Analysis

**39.(2)** Provided that if the Contractor commences work or incurs any expenditure in regard thereto before the rates as determined and agreed upon as lastly hereunto 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.

**40.(1) Handing over of Works:** The Contractor shall be bound to hand over the works executed under the contract to the Railway complete in all respects to the satisfaction of the Engineer. The Engineer shall determine the date on which the work is considered to have been completed, in support of which his certificate shall be regarded as sufficient evidence for all purposes. The Engineer shall determine from time to time, the date on which any particular section of the work shall have been completed, and the Contractor shall be bound to observe any such determination of the Engineer.

**40.(2) Clearance of Site on Completion:** On completion of the works, the Contractor shall clear away and remove from the site all constructional plant, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and works clean and in a workman like condition to the satisfaction of the Engineer. No final payment in settlement of the accounts for the works shall be paid, held to be due or shall be made to the, Contractor till, in addition to any other

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condition necessary for final payment, site clearance shall have been affected by him, and such clearance may be made by the Engineer at the expense of the Contractor in the event of his failure to comply with this provision within 7 days after receiving notice to that effect. Should it become necessary for the Engineer to have the site cleared at the expenses of the Contractor, the Railway shall not be held liable for any loss or damage to such of the Contractor's property as may be on the site and due to such removal there from which removal may be affected by means of public sales of such materials and property or in such a way as deemed fit and convenient to the Engineer.

**40A 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), 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 agency(ies) (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.

**VARIATIONS IN EXTENT OF CONTRACT**

- 41. 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.

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**42.(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.

42.(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 agreement 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;

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- 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, 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 SOR schedule 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).

**42.(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 items/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.

**CLAIMS**

**43.(1) Quarterly Statement of Claims:** The Contractor shall prepare and furnish to the Engineer once in every quarter commencing from the month following the month of issue of Letter of Acceptance, an account giving full and detailed particulars of all claims for any additional expenses to which the Contractor may consider himself entitled to and of all extra or additional works ordered by the Engineer which he has executed during the preceding quarter and no claim for payment for such work will be considered which has not been included in such particulars.

**43.(2) Signing of "No Claim" Certificate:** The Contractor shall not be entitled to make any claim whatsoever against the Railway under or by virtue of or arising out of this contract, nor shall the Railway entertain or consider any such claim, if made by the Contractor, after he shall have signed a "No Claim" Certificate in favour of the Railway in such form as shall be required by the Railway after the works are finally

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measured up. The Contactor shall be debarred from disputing the correctness of the items covered by "No Claim" Certificate or demanding a clearance to arbitration in respect thereof.

**(a) MEASUREMENTS, CERTIFICATES AND PAYMENTS**

**44. Quantities in Bill(s) of Quantities Annexed to Contract:** The quantities set out in the accepted Bill(s) of Quantities with items of works quantified are the estimated quantities of the works and they shall not be taken as the actual and correct quantities of the work to be executed by the Contractor in fulfillment of his obligations under the contract.

**45(i). Measurement of Works by Railway:** The Contractor shall be paid for the works at the rates in the accepted Bill(s) of Quantities and for extra works at rates determined under Clause 39 of these Conditions on the measurements taken by the Engineer or the Engineer's representative in accordance with the rules prescribed for the purpose by the Railway. The quantities for items the unit of which in the accepted Bill(s) of Quantities is 100 or 1000 shall be calculated to the nearest whole number, any fraction below half being dropped and half and above being taken as one; for items the unit of which in the accepted Bill(s) of Quantities is single, the quantities shall be calculated to two places of decimals. Such measurements will be taken of the work in progress from time to time and at such intervals as in the opinion of the Engineer shall be proper having regard to the progress of works. The date and time on which 'on account' or 'final' measurements are to be made shall be communicated to the Contractor who shall be present at the site and shall sign the results of the measurements (which shall also be signed by the Engineer or the Engineer's representative) recorded in the official measurements book as an acknowledgement of his acceptance of the accuracy of the measurements. Failing the Contractor's attendance, the work may be measured up in his absence and such measurements shall, notwithstanding such absence, be binding upon the Contractor whether or not he shall have signed the measurement books provided always that any objection made by him to measurement shall be duly investigated and considered in the manner set out below:

- (a) It shall be open to the Contractor to take specific objection to any recorded measurements or Classification on any ground within seven days of the date of such measurements. Any re-measurement taken by the Engineer or the Engineer's representative in the presence of the Contractor or in his absence after due notice has been given to him in consequence of objection made by the Contractor shall be final and binding on the Contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and Classification of the measurements.

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- (b) If an objection raised by the Contractor is found by the Engineer to be incorrect the Contractor shall be liable to pay the actual expenses incurred in measurements.

45(ii). **Measurement of Works by Contractor's Authorized Representative (in case the contract provides for the same):**

- (a) The Contractor shall be paid for the works at the rates in the accepted Bill(s) of Quantities and for extra works at rates determined under Clause 39 of these Conditions on the measurements taken by the Contractor's authorized Engineer in accordance with the rules prescribed for the purpose by the Railway. The quantities for items the unit of which in the accepted Bill(s) of Quantities is 100 or 1000 shall be calculated to the nearest whole number, any fraction below half being dropped and half and above being taken as one; for items the unit of which in the accepted Bill(s) of Quantities is single, the quantities shall be calculated to two places of decimals. Such measurements will be taken of the work in progress from time to time. The date and time on which 'on account' or 'final' measurements are to be made shall be communicated to the Engineer.

The date and time of test checks shall be communicated to the Contractor who shall be present at the site and shall witness the test checks, failing the Contractor's attendance the test checks may be conducted in his absence and such test checks shall notwithstanding such absence be binding upon Contractor provided always that any objection made by Contractor to test check shall be duly investigated and considered in the manner set out below:

- (i) It shall be open to the Contractor to take specific objection to test checks of any recorded measurement within 7 days of date of such test checks. Any re-test check done by the concerned Railway's authority in the presence of the Contractor or in his absence after due notice given to him in consequent of objection made by the Contractor shall be final and binding on the Contractor and no claim whatsoever shall thereafter be entertained regarding the accuracy and classification of the measurements.
- (ii) If an objection raised by the Contractor is found by the Engineer to be incorrect the Contractor shall be liable to pay the actual expenses incurred in measurements.
- (b) Incorrect measurement, actions to be taken:** If in case during test check or otherwise, it is detected by the Engineer that agency has claimed any exaggerated measurement or has claimed any false measurement for the works which have not been executed; amounting to variation of 5% or more of claimed gross bill amount, action shall be taken as following:

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- (i) On first occasion of noticing exaggerated/ false measurement, Engineer shall recover liquidated damages equal to 10% of claimed gross bill value.
  - (ii) On any next occasion of noticing any exaggerated/false measurement, railway shall recover liquidated damages equal to 15% of claimed gross bill value. In addition, the facility of recording of measurements by Contractor as well as release of provisional payment shall be withdrawn. Once withdrawn, measurements shall be done by railway as per clause 45(i) above.
- 46.(1) "On-Account " Payments:** The Contractor shall be entitled to be paid from time to time by way of "On-Account" payment only for such works as in the opinion of the Engineer he has executed in terms of the contract. All payments due on the Engineer's/Engineer's Representative's certificates of measurements or Engineer's certified "Contractor's authorized Engineer's measurements" shall be subject to any deductions which may be made under these presents and shall further be subject to, unless otherwise required by Clause 16 of these Conditions, a retention of six percent by way of Security Deposits, until the amount of Security Deposit by way of such retentions shall amount to 5% of the total value of the contract provided always that the Engineer may by any certificate make any correction or modification in any previous certificate which shall have been issued by him and that the Engineer may withhold any certificate, if the works or any part thereof are not being carried out to his satisfaction.
- 46.(2) Rounding off Amounts:** The total amount due on each certificate shall be rounded off to the nearest rupee, i.e., sum less than 50 paise shall be omitted and sums of 50 paise and more up to ₹1 will be reckoned as ₹ 1.
- 46.(3) On Account Payments not Prejudicial to Final Settlement:** "On-Account" payments made to the Contractor shall be without prejudice to the final making up of the accounts (except where measurements are specifically noted in the Measurement Book as "Final Measurements" and as such have been signed by the Contractor and Engineer/Engineer's Representative) and shall in no respect be considered or used as evidence of any facts stated in or to be inferred from such accounts nor of any particular quantity of work having been executed nor of the manner of its execution being satisfactory.
- 46.(4)** 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 as under:
- (a): Mobilisation 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.

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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 mobilisation, only after submission of an 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.

**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 installments 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

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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 utilisation of Mobilisation 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.

**46.(4) Manner of Payment:** Unless otherwise specified payments to the Contractor will be transferred electronically to his bank account.

**46A. Price Variation Clause (PVC):**

**46A.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).

**46A.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

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Base month. The Price Variation shall be based on the average Price Index of the quarter under consideration.

**46A.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 Clause 37,
- (b) Payment/recovery for overall market situation as per Price Variation Clause given hereunder.

**46A.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.

**46A.5 No price variation shall be admissible for fixed components.**

**46A.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:

**(I). For Civil Engineering Works**

S N	Classification		1A, 2 & 3A	4A	5A	6A	7	8A	9A	1B, 3B, 4B, 5B, 6B 8B & 9B	1C, 3C, 4C, 5C, 6C, 8C & 9C	3D, 4D, 5D, 6D, 8D & 9D	3E, 4E, 5E, 6E, 8E & 9E
	Components												
1	Fixed	*	15	15	15	15	15	15	15	15	15	15	15
2	Labour	L <sub>c</sub>	20	25	30	20	50	20	20	0	0	10	25
3	Steel	S <sub>c</sub>	0	0	0	0	0	0	0	85	0	50	0
4	Cement	C <sub>c</sub>	0	0	15	0	0	0	0	0	85	0	0
5	Plant Machinery & Spares	PM <sub>c</sub>	30	15	5	20	15	20	30	0	0	10	30
6	Fuel & Lubricants	F <sub>c</sub>	25	15	5	15	15	20	15	0	0	10	20

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7	Other materials	M <sub>c</sub>	10	15	30	30	5	25	20	0	0	5	10
8	Detonators & Explosive	E <sub>c</sub>	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 Item(s) 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 Tunnelling 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

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

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

**7 Permanent Way linking**

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**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 Any Other Works not covered in Classification 1 to 8**

- 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 of Steel

**46A.7 Formulae:** The Amount of variation in prices in various components (labour, material etc.) shall be worked out by the following formulae:

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

$$(ii) \quad M = \frac{(W \text{ or } W_{SF} \text{ or } W_F \text{ or } W_{SFL} \text{ or } W_{FL}) \times (M_Q - M_B) \times M_C}{M_B \times 100}$$

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

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

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

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

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

**(II) For Railway Electrification Works:**

$$(viii) \quad T = [0.4136 \times (C_Q - C_B) / C_B] \times 85$$

$$(ix) \quad R = [0.94 \times (R_T - R_O) / R_O + 0.06 \times (Z_T - Z_O) / Z_O] \times 85$$

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(x)  $N = [(P_T - P_O) / P_O] \times 85$

(xi)  $I = [(I_T - I_O) / I_O] \times 85$

(xii)  $G = [(M_Q - M_B) / M_B] \times 85$

(xiii)  $Er = [(L_Q - L_B) / L_B] \times 85$

Where,

L Amount of price variation in Labour

M Amount of price variation in Materials

F Amount of price variation in

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)

L<sub>C</sub> % of Labour Component in the item(s)

M<sub>C</sub> % of Material Component in the item(s)

F<sub>C</sub> % of Fuel Component in the item(s)

E<sub>C</sub> % of Explosive Component in the item(s)

PM<sub>C</sub> % of Plant, Machinery and Spares Component in the item(s)

S<sub>C</sub> % of Steel Supply item Component in the item(s)

C<sub>C</sub> % 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 W<sub>S</sub> or/and W<sub>C</sub> or/and W<sub>SF</sub> or/and W<sub>F</sub> or/and W<sub>SFL</sub>

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	or/and $W_{FL}$ and cost of materials supplied by Railway either free or at fixed rate,
$W_S$	Gross value of work done by Contractor for item(s) of supply of steel.
$W_C$	Gross value of work done by Contractor for item(s) of supply of cement and /or supply of grout material.
$W_{SF}$	Gross value of work done by Contractor for item(s) of Fabrication & Erection of Structures including supply of Steel.
$W_F$	Gross value of work done by Contractor for Fabrication & Erection of Structures excluding supply of Steel.
$W_{SFL}$	Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders including supply of Steel.
$W_{FL}$	Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders excluding supply of Steel.
$L_B$	Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for the base period
$L_Q$	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
$M_B$	Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the base period
$M_Q$	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
$F_B$	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
$F_Q$	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
$E_B$	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.
$E_Q$	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,

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Department of Industrial Policy & Promotion (DIPP), for the average price index of 3 months of the quarter under consideration.

- PM<sub>B</sub> 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.
- PM<sub>Q</sub> 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.
- S<sub>B</sub> 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.
- S<sub>Q</sub> 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.
- C<sub>B</sub> Index No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the base period
- C<sub>Q</sub> 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
- R<sub>T</sub> IEEMA price index for Steel Blooms (size 150mmx150mm) for the month which is two months prior to date of inspection of material.
- R<sub>O</sub> IEEMA price index for Steel Blooms (size 150mmx150mm) for the month which is one month prior to date of opening of tender.
- P<sub>T</sub> IEEMA price index for Copper wire rods for the month which is two months prior to date of inspection of material.
- P<sub>O</sub> IEEMA price index for Copper wire rods for the month which is one month prior to date of opening of tender.
- Z<sub>T</sub> IEEMA price index for Zinc for the month which is two months prior to date of inspection of material
- Z<sub>O</sub> IEEMA price index for Zinc for the month which is one month prior to date of opening of tender
- I<sub>T</sub> RBI wholesale price index for the sub-group "Insulators" for the month which is two months prior to date of inspection of material
- I<sub>O</sub> RBI wholesale price index for the sub-group "Insulators" for the month which is one month prior to date of opening of tender

**(III) SIGNALING & TELECOMMUNICATION WORKS:**

- (g) The following expressions and meanings are assigned to the value of the work done for signalling and telecommunication works:

SIGWK = Value of signalling works for a stage payment of the item signalling works;

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INVSIG = Value of inventory for signalling works for a stage payment of the item inventory for signalling works;

INTGTESTSIG = Value of integrated testing and commission for signalling works of the Railway Project;

COMWK= Value of telecommunication works for a stage payment of the item telecommunication works;

INVCOM = Value of inventory for telecommunication works for a stage payment of the item inventory for telecommunication works; and

INTGTESTCOM = Value of integrated testing and commission for telecommunication works of the Railway Project.

(b) Price adjustment for changes in cost of signalling works and telecommunication works shall be paid in accordance with the following formula:

(i)  $VSIGWK = 0.85 \text{ SIGWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{POFC} \times (\text{OFC}_i - \text{OFC}_o) / \text{OFC}_o + \text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o + \text{S30C} \times (\text{P30C}_i - \text{P30C}_o) / \text{P30C}_o + \text{S24C} \times (\text{P24C}_i - \text{P24C}_o) / \text{P24C}_o + \text{S19C} \times (\text{P19C}_i - \text{P19C}_o) / \text{P19C}_o + \text{S12C} \times (\text{P12C}_i - \text{P12C}_o) / \text{P12C}_o + \text{S9C} \times (\text{P9C}_i - \text{P9C}_o) / \text{P9C}_o + \text{S6C} \times (\text{P6C}_i - \text{P6C}_o) / \text{P6C}_o + \text{S4C} \times (\text{P4C}_i - \text{P4C}_o) / \text{P4C}_o + \text{S2C} \times (\text{P2C}_i - \text{P2C}_o) / \text{P2C}_o + \text{S12C2.5} \times (\text{P12C2.5}_i - \text{P12C2.5}_o) / \text{P12C2.5}_o + \text{S2C2.5} \times (\text{P2C2.5}_i - \text{P2C2.5}_o) / \text{P2C2.5}_o + \text{S2C25} \times (\text{P2C25}_i - \text{P2C25}_o) / \text{P2C25}_o + \text{QC} \times (\text{PQC}_i - \text{PQC}_o) / \text{PQC}_o];$

(ii)  $VINVSIG = 0.85 \text{ SIGWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o];$

(iii)  $VINTGTESTSIG = 0.85 \text{ INTGTESTSIG} \times [\text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o];$

(iv)  $VCOMWK = 0.85 \text{ COMWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{POFC} \times (\text{OFC}_i - \text{OFC}_o) / \text{OFC}_o + \text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o + \text{S30C} \times (\text{P30C}_i - \text{P30C}_o) / \text{P30C}_o + \text{S24C} \times (\text{P24C}_i - \text{P24C}_o) / \text{P24C}_o + \text{S19C} \times (\text{P19C}_i - \text{P19C}_o) / \text{P19C}_o + \text{S12C} \times (\text{P12C}_i - \text{P12C}_o) / \text{P12C}_o + \text{S9C} \times (\text{P9C}_i - \text{P9C}_o) / \text{P9C}_o + \text{S6C} \times (\text{P6C}_i - \text{P6C}_o) / \text{P6C}_o + \text{S4C} \times (\text{P4C}_i - \text{P4C}_o) / \text{P4C}_o + \text{S2C} \times (\text{P2C}_i - \text{P2C}_o) / \text{P2C}_o + \text{S12C2.5} \times (\text{P12C2.5}_i - \text{P12C2.5}_o) / \text{P12C2.5}_o + \text{S2C2.5} \times (\text{P2C2.5}_i - \text{P2C2.5}_o) / \text{P2C2.5}_o + \text{S2C25} \times (\text{P2C25}_i - \text{P2C25}_o) / \text{P2C25}_o + \text{QC} \times (\text{PQC}_i - \text{PQC}_o) / \text{PQC}_o + \text{PCEQP} \times (\text{CEQP}_i - \text{CEQP}_o) / \text{CEQP}_o];$

(v)  $VINVCOM = 0.85 \text{ SIGWK} \times [\text{PELEX} \times (\text{ELEX}_i - \text{ELEX}_o) / \text{ELEX}_o + \text{PCEQP} \times (\text{CEQP}_i - \text{CEQP}_o) / \text{CEQP}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o];$  and

(vi)  $VINTGTESTCOM = 0.85 \text{ INTGTESTCOM} \times [\text{PLB} \times (\text{LB}_i - \text{LB}_o) / \text{LB}_o + \text{POTH} \times (\text{OTH}_i - \text{OTH}_o) / \text{OTH}_o];$

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(OTH<sub>i</sub> - OTH<sub>o</sub>)/OTH<sub>o</sub>].

Where

VSIGWK = Increase or decrease in the cost of signalling works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINVSIG = Increase or decrease in the cost of inventory for signalling during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINTGTESTSIG = Increase or decrease in the cost of integrated testing and commissioning of signalling works of the Railway Project during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VCOMWK = Increase or decrease in the cost of communication works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINVCOM = Increase or decrease in the cost of inventory for telecommunications works during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

VINTGTESTCOM = Increase or decrease in the cost of integrated testing and commissioning of telecommunication works of the Railway Project during the period under consideration due to changes in the rates for relevant components as specified in sub-paragraph (h);

PCEQP, PELEX, PIC, PLB, POFC, and POTH are the percentages of communication equipment, electronics, PVC insulated cables, labour, optical fibre cables, and other materials respectively;

CEQP<sub>o</sub> = The wholesale price index as published by the Ministry of Commerce and Industry, Government of India (hereinafter called “WPI”) for communication equipment for the month of the Base Month;

CEQP<sub>i</sub> = The WPI for communication equipment for the average price index of the 3 months of the quarter under consideration;

ELEX<sub>o</sub> = The WPI for electronics for the month of the Base Month;

ELEX<sub>i</sub> = The WPI for electronics for the average price index of the 3 months of the quarter under consideration;

P30C<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 30C x 1.5 sq mm signalling cable

P30C<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

S30C = Percentage of size 30C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

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P24C<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 24C x 1.5 sq mm signalling cable

P24C<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

S24C = Percentage of size 24C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P19C<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 19C x 1.5 sq mm signalling cable

P19C<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

S19C = Percentage of size 19C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P12C<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 1.5 sq mm signalling cable

P12C<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

S12C = Percentage of size 12C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P9C<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 9C x 1.5 sq mm signalling cable

P9C<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

S9C = Percentage of size 9C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P6C<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 6C x 1.5 sq mm signalling cable

P6C<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

S6C = Percentage of size 6C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P4C<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 4C x 1.5 sq mm signalling cable

P4C<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

S4C = Percentage of size 4C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

P2C<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 1.5 sq mm signalling cable

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$P2C_o$  = Price per Km of cable as per purchase order/ Contract agreement.

$S2C$  = Percentage of size 2C x 1.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P12C2.5_i$  = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 2.5 sq mm signalling cable

$P12C2.5_o$  = Price per Km of cable as per purchase order/ Contract agreement.

$S12C2.5$  = Percentage of size 12C x 2.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C2.5_i$  = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 2.5 sq mm signalling cable

$P2C2.5_o$  = Price per Km of cable as per purchase order/ Contract agreement.

$S2C2.5$  = Percentage of size 2C x 2.5 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$P2C25_i$  = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 25 sq mm signalling cable

$P2C25_o$  = Price per Km of cable as per purchase order/ Contract agreement.

$S2C25$  = Percentage of size 2C x 25 sq mm signalling cable shall govern the price adjustment of the contract price for signalling and telecommunication works.

$PQC_i$  = Price payable per Km as adjusted in accordance with price variation Clause for size 0.9mm dia, 6 Quad cable.

$PQC_o$  = Price per Km of cable as per purchase order/ Contract agreement.

$QC$  = Percentage of size 0.9mm dia, 6 Quad cable shall govern the price.

$LBo$  = The consumer price index for industrial workers – All India, published by Labour Bureau, Ministry of Labour, Government of India, (hereinafter called “CPI”) for the month of the Base Month;

$LBi$  = The CPI for industrial workers – All India for the average price index of the 3 months of the quarter under consideration;

$OFC_o$  = The WPI for fibre cables for the month of the Base Month;

$OFC_i$  = The WPI for fibre cables for the average price index of the 3 months of the quarter under consideration;

$OTH_o$  = The WPI for all commodities for the month of the Base Month; and

$OTH_i$  = The WPI for all commodities for the average price index of the 3 months of the quarter under consideration.

(c) The following percentages shall govern the price adjustment of the Contract Price for signalling and telecommunication works:

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<div style="text-align: center;">Works</div> <div style="text-align: center;">Component</div>	Signalling			Telecommunication		
	Signalling Works	Signalling inventory	Integrated testing and Commissioning	Telecommunication Works	Telecomm inventory	Integrated testing and Commissioning
Electronics (PELEX)	***0%	***0%	—	***0%	***0%	—
Communication Equipment (PCEQP)	—	—	—	***0%	***0%	—
Optical Fibre Cable (POFC)	***0%	—	—	***0%	—	—
30C x 1.5 sq mm signalling cable(S30C)	***0%	—	—	***0%	—	—
24C x 1.5 sq mm signalling cable (S24C)	***0%	—	—	***0%	—	—
19Cx 1.5 sq mm signalling cable (S19C)	***0%	—	—	***0%	—	—
12C x 1.5 sq mm signalling cable (S12C)	***0%	—	—	***0%	—	—
9C x 1.5 sq mm signalling cable (S9C)	***0%	—	—	***0%	—	—
6C x 1.5 sq mm signalling cable (S6C)	***0%	—	—	***0%	—	—
4C x 1.5 sq mm signalling cable (S4C)	***0%	—	—	***0%	—	—
2C x 1.5 sq mm signalling cable (S2C)	***0%	—	—	***0%	—	—
12C x 2.5 sq mm signalling cable (S12C2.5)	***0%	—	—	***0%	—	—
2C x 2.5 sq mm signalling cable (S2C2.5)	***0%	—	—	***0%	—	—

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2C x 25 sq mm signalling cable (S2C25)	***%	—	—	***%	—	—
0.9 mm dia, 6Quad cable (QC)	***%	—	—	***%	—	—
Labour (PLB)	***%	—	***%	***%	***%	***%
Other materials	***%	***%	***%	***%	***%	***%
Total	100%	100%	100%	100%	100%	100%

*(Note- the percentages may be finalized by tendering authority depending on BOQ)*

FORMULAE FOR SIGNALING & TELECOM CABLE

The price payable for signalling cables is variable as per Price Variation Formula given below:

**For Signalling Copper Cables:**

$$P_i = P_o + CuF (Cu - C_{uo}) + CCFCu(CC - C_{Co}) + FeF (Fe - Fe_o)$$

**For Telecom Copper Cables For Jelly Filled, 0.9 mm dia, 6 quad cable**

$$P_i = P_o + CuF (Cu - C_{uo}) + AlFCu(Al - A_{lo}) + CCFCu (CC - C_{Co}) + FeF (Fe - Fe_o)$$

**For Aluminium Power Cables:**

$$P_i = P_o + AlF (Al - A_{lo}) + CCFAI(CC - C_{Co}) + FeF (Fe - Fe_o)$$

Where,

$P_i$  = Price payable per KM as adjusted in accordance with Price variation clause.

$P_o$  = Price per KM of cable as per Purchase order.

$CuF$  = Variation factor for Copper

$C_{uo}$  = Price of copper Rod in Rs. Per MT

$CCFCu$  = Variation factor for PVC Compound for Copper Signalling & Telecom cable

$C_{Co}$  = Price of PVC Compound in Rs. Per MT

$AlF$  = Variation factor for Aluminium

$A_{lo}$  = Price of EC grade LME Aluminium rods (Properzi rods) in Rs. Per MT.

$CCFAI$  = Variation factor for PVC Compound for Aluminium power cable

$FeF$  = Variation factor for Steel

$Fe_o$  = Price of Steel for Armour (Flat strip 4 mm. x 0.8mm/ Round 1.4mm dia) in Rs. Per MT

**(Prices per MT for  $C_{uo}$ ,  $C_{Co}$ ,  $Fe_o$ ,  $A_{lo}$  as applicable on the 1<sup>st</sup> working day of the month, one month prior to the deadline for submission of bids. The above prices and**

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**indices are as published by IEEMA vide circular reference no. IEEMA (PVC) /CABLE --/--/-- one month prior to the deadline for submission of bids.)**

Cu= Price of Copper Rod in Rs. Per MT.

Cc= Price of PVC Compound in Rs. Per MT.

Fe= Price of Steel for Armouring (Flat strip 4mm x 0.8 mm/ Round 1.4mm dia) in Rs. Per MT.

Al = Price of EC grade LME Aluminium rods (Properzi rods) in Rs. Per MT.

**(Prices per MT for Cu, CC, Fe, Al as prevailing on 1<sup>st</sup> working day of the calendar month covering the date One month prior to the date of inspection call letter will be applicable for the calculation of updated price. The above prices and indices are as published by IEEMA vide circular reference no. IEEMA (PVC) /CABLE --/--/-- one month prior to the date of inspection.)**

The value of variation factors for copper, steel and PVC Compound are different for different sizes of signalling cables. Accordingly, the PVC formula for some of the types of signalling cable is as given under:-

Underground Railway Signalling Cable unscreened and armoured copper conductor

- (i) Size 30 C x 1.5 sq.mm.

$$P30C_i = P30C_o + 0.391(Cu - C_uo) + 0.557(CC - CC_o) + 0.425(Fe - Fe_o)$$

For armouring, price of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

- (ii) Size 24C x 1.5 sq.mm

$$P24C_i = P24C_o + 0.313(Cu - C_uo) + 0.481(CC - CC_o) + 0.398(Fe - Fe_o)$$

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

- (iii) Size 19C x 1.5 sq.mm

$$P19C_i = P19C_o + 0.248(Cu - C_uo) + 0.395(CC - CC_o) + 0.343(Fe - Fe_o)$$

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

- (iv) Size 12C x 1.5 sq.mm

$$P12C_i = P12C_o + 0.157(Cu - C_uo) + 0.277(CC - CC_o) + 0.289(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

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(v) Size 9C x 1.5 sq.mm

$$P9C_i = P9C_o + 0.117(Cu - C_{uo}) + 0.241(CC - CC_u) + 0.383(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(vi) Size 6C x 1.5 sq.mm

$$P6C_i = P6C_o + 0.078(Cu - C_{uo}) + 0.199(CC - CC_u) + 0.329(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(vii) Size 4C x 1.5 sq.mm

$$P4C_i = P4C_o + 0.052(Cu - C_{uo}) + 0.152(CC - CC_o) + 0.277(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(viii) Size 2C x 4 sq.mm(multistrand)

$$P2C_i = P2C_o + 0.073(Cu - C_{uo}) + 0.156(CC - CC_o) + 0.3(Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(ix) Size 12C x 2.5 sq.mm

$$P12C_{2.5_i} = P12C_{2.5_o} + 0.282 (Cu - C_{uo}) + 0.371 (CC - CC_o) + 0.342 (Fe - Fe_o)$$

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

(x) Size 2C x 2.5 sq.mm

$$P2C_{2.5_i} = P2C_{2.5_o} + 0.047 (Cu - C_{uo}) + 0.139 (CC - CC_o) + 0.277 (Fe - Fe_o)$$

For armouring, value of steel wire size 1.4mm dia is to be taken into consideration.

(xi) Size 2C x 25 sq.mm PVC insulated, armoured, Aluminium power cable

$$P2C_{25_i} = P2C_{25_o} + 0.146 (Al - A_{lo}) + 0.303 (CC - CC_o) + 0.306 (Fe - Fe_o)$$

For armouring, value of steel flat strip of size 4mmx0.8mm is to be taken into consideration.

(xii) For Jelly filled, 0.9mm dia, 6 quad cable

$$PQC_i = PQC_o + 0.135 (Al - A_{lo}) + 0.139 (Cu - C_{uo}) + 0.515 (CC - C_{co}) + 0.693 (Fe - Fe_o)$$

For PVC Compound Grade CW-22, is to be taken into consideration.

**46A.8** The demands for escalation of cost shall be allowed on the basis of provisional indices as mentioned above in Clause 46A.7. Any adjustment needed to be done based on the finally published indices shall be made as and when they become available.

**46A.9: (1)** Relevant categories of steel for the purpose of operating Price Variation formula as mentioned in this Clause shall be as under:

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SL	Classification	Rates to be used for calculating SQ or SB
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 10mm thickness 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.

(2). 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

#### 46A.10 Price Variation during Extended Period of Contract

The price adjustment as worked out above, i.e., either increase or decrease shall be applicable up to the stipulated date of completion of work including the extended period of completion where such extension has been granted under Clause 17A of the Standard General Conditions of Contract. However, where extension of time has been granted due to Contractor's failure under Clause 17B 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 17A, the price adjustment for the period of extension granted under Clause 17B 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 17A of the Standard General Conditions of Contract; as the case may be.
- b. In case the indices fall below the indices applicable to the last month of original/ extended period of completion under Clause 17A, as the case may be; then the lower

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indices shall be adopted for the price adjustment for the period of extension under Clause 17B of the Standard General Conditions of Contract.

**47. Maintenance of Works:** 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.

**48.(1) 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 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.

**48.(2) 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

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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.

**48(3) 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.

**49. Approval only by Maintenance Certificate:** No certificate other than Maintenance Certificate, if applicable, referred to in Clause 50 of the Conditions 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.

**50.(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

**50.(2) Cessation of Railway's Liability:** The Railway shall not be liable to the Contractor for any matter arising out of or in connection with the contract for

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execution of the works unless the Contractor has made a claim in writing in respect thereof before the issue of the Maintenance Certificate under this clause.

**50.(3) Unfulfilled Obligations:** Notwithstanding the issue of the Maintenance Certificate the Contractor and (subject to Sub-Clause (2) of this Clause) the Railway shall remain liable for the fulfillment of any obligation incurred under the provision of the contract prior to the issue of the Maintenance Certificate which remains unperformed at the time such Certificate is issued and for the purposes of determining the nature and extent of any such obligations, the contract shall be deemed to remain in force between the parties thereto.

**51.(1) Final Payment:** On the Engineer's certificate of completion in respect of the works, adjustment shall be made and the balance of account based on the Engineer or the Engineer's representative's certified measurements or Engineer's certified "contractor's authorized engineer's measurements" of the total quantity of work executed by the Contractor up to the date of completion and on the rates accepted in Bill(s) of Quantities and for extra works on rates determined under Clause 39 of these Conditions shall be paid to the Contractor subject always to any deduction which may be made under these presents and further subject to the Contractor having signed delivered to the Engineer enclosing either a full account in detail of all claims he may have on the Railway in respect of the works or having delivered No Claim Certificate and the Engineer having after the receipt of such account given a certificate in writing that such claims are not covered under excepted matter i.e. 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) and 62(1), 63(iv) and 63.2.11 of the Standard General Conditions of Contract or in any Clause (stated as excepted matter) of the Special Conditions of the Contract, that the whole of the works to be done under the provisions of the Contracts have been completed, that they have been inspected by him since their completion and found to be in good and substantial order, that all properties, works and things, removed, disturbed or injured in consequence of the works have been properly replaced and made good and all expenses and demands incurred by or made upon the Railway for or in the respect of damage or loss by from or in consequence of the works, have been satisfied agreeably and in conformity with the contract.

**51.(2) Post Payment Audit:** It is an agreed term of contract that the Railway reserves to itself the right to carry out a post-payment audit and/ or technical examination of the works and the Final Bill including all supporting vouchers, abstracts etc. and to make a claim on the Contractor for the refund of any excess amount paid to him till the release of security deposit or settlement of claims, whichever is later, if as a result of such examination any over-payment to him is discovered to have been made in respect of any works done or alleged to have been done by him under the contract.

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**51-A. Production of Vouchers etc. by the Contractor:**

- (i) For a contract of more than one crore of rupees, the Contractor shall, whenever required, produce or cause to be produced for examination by the Engineer any quotation, invoice, cost or other account, book of accounts, voucher, receipt, letter, memorandum, paper of writing or any copy of or extract from any such document and also furnish information and returns verified in such manner as may be required in any way relating to the execution of this contract or relevant for verifying or ascertaining cost of execution of this contract (the decision of the Engineer on the question of relevancy of any documents, information or return being final and binding in the parties). The Contractor shall similarly produce vouchers etc., if required to prove to the Engineer, that materials supplied by him, are in accordance with the specifications laid down in the contract.
- (ii) If any portion of the work in a contract of value more than one crore of rupees be carried out by a sub-contractor or any subsidiary or allied firm or company (as per Clause 7 of the Standard General Conditions of Contract), the Engineer shall have power to secure the books of such sub-contract or any subsidiary or allied firm or company, through the Contractor, and such books shall be open to his inspection.
- (iii) The obligations imposed by Sub Clause (i) & (ii) above is without prejudice to the obligations of the Contractor under any statute rules or orders binding on the Contractor.

**52. Withholding and Lien in Respect of Sums Claimed:** Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the Contractor, the Railway shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in part from the security, if any, deposited by the Contractor and for the purpose aforesaid, the Railway shall be entitled to withhold the said cash Security Deposit or the Security if any, furnished as the case may be and also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security being insufficient to cover the claimed amount or amounts or if no security has been taken from the Contractor, the Railway shall be entitled to withhold and have a lien to the extent of the such claimed amount or amounts referred to supra, from any sum or sums found payable or which at any time thereafter may become payable to the Contractor under the same contract or any other contract with this or any other Railway or any Department of the Central Government pending finalization or adjudication of any such claim.

It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above, by the Railway will be kept withheld or retained as such by the Railways till the claim arising out of or under the contract is

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determined by the arbitrator (if the contract governed by the Arbitration Clause) or by the competent court as the case may be and that the Contractor will have no claim for interest or damages whatsoever on any account in respect of such withholding or retention under the lien referred to supra and duly notified as such to the Contractor. For the purpose of this clause, where the Contractor is a partnership firm or a company, the Railway shall be entitled to withhold and also have a lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner / company, as the case may be whether in his individual capacity or otherwise.

**52-A Lien in Respect of Claims in other Contracts:**

- (i) Any sum of money due and payable to the Contractor (including the Security Deposit returnable to him) under the contract may be withheld or retained by way of lien by the Railway, against any claim of this or any other Railway or any other Department of the Central Government in respect of payment of a sum of money arising out of or under any other contract made by the Contractor with this or any other Department of the Central Government.
- (ii) However, recovery of claims of Railway in regard to terminated contracts may be made from the Final Bill, Security Deposits and Performance Guarantees of other contract or contracts, executed by the Contractor. The Performance Guarantees submitted by the Contractor against other contracts, if required, may be withheld and encashed. In addition, 10% of each subsequent 'on-account bill' may be withheld, if required, for recovery of Railway's dues against the terminated contract.
- (iii) It is an agreed term of the contract that the sum of money so withheld or retained under this Clause by the Railway will be kept withheld or retained as such by the Railway till the claim arising out of or under any other contract is either mutually settled or determined by arbitration, if the other contract is governed by Arbitration Clause or by the competent court as the case may be and Contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this Clause and duly notified as such to the Contractor.

**53. Signature on Receipts for Amounts:** Every receipt for money which may become payable or for any security which may become transferable to the Contractors under these presents, shall, if signed in the partnership name by anyone of the partners of a Contractor's firm be a good and sufficient discharge to the Railway in respect of the moneys or security purported to be acknowledged thereby and in the event of death of any of the Contractor, partners during the pendency of the contract, it is hereby expressly agreed that every receipt by anyone of the surviving Contractor partners shall if so signed as aforesaid be good and sufficient discharge as aforesaid provided that nothing in this Clause contained shall be deemed to prejudice or effect any claim which the Railway may hereafter have against the legal representative of any Contractor partner so dying for or in respect to any breach of any of the conditions of the contract, provided also that nothing in this clause contained shall be deemed to

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prejudice or effect the respective rights or obligations of the Contractor partners and of the legal representatives of any deceased Contractor partners interse.

**LABOUR**

- 54. Wages to Labour:** The Contractor shall be responsible to ensure compliance with the provision of the Minimum Wages Act, 1948 (hereinafter referred to as the “said Act”) and the Rules made thereunder in respect of any employees directly or through petty Contractors or sub-contractors employed by him for the purpose of carrying out this contract.

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

If any moneys shall, as a result of any claim or application made under the said Act be directed to be paid by the Railway, such money shall be deemed to be moneys payable to the Railway by the Contractor and on failure by the Contractor to repay the Railway any moneys paid by it as aforesaid within seven days after the same shall have been demanded, the Railways shall be entitled to recover the same from Contractor’s bills/Security Deposit or any other dues of Contractor with the Government of India.

- 54-A. Apprentices Act:** The Contractor shall be responsible to ensure compliance with the provisions of the Apprentices Act, 1961 and the Rules and Orders issued thereunder from time to time in respect of apprentices directly or through petty Contractors or 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 provisions of the Act.

- 55. Provisions of Payments of Wages Act:** The Contractor shall comply with the provisions of the Payment of Wages Act, 1936 and the rules made thereunder in respect of all employees employed by him either directly or through petty Contractors or sub-contractors in the works. If in compliance with the terms of the contract, the Contractor directly or through petty Contractors or sub-contractors

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shall supply any labour to be used wholly or partly under the direct orders and control of the Engineer whether in connection with the works to be executed hereunder or otherwise for the purpose of the Engineer, such labour shall nevertheless be deemed to comprise persons employed by the Contractor and any moneys which may be ordered to be paid by the Engineer shall be deemed to be moneys payable by the Engineer on behalf of the Contractor and the Engineer may on failure of the Contractor to repay such money to the Railways deduct the same from any moneys due to the Contractor in terms of the contract. The Railway shall be entitled to recover the same from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India all moneys paid or payable by the Railway by way of compensation of aforesaid or for costs of expenses in connection with any claim thereto and the decision of the Engineer upon any question arising out of the effect or force of this Clause shall be final and binding upon the Contractor.

**55-A. Provisions of Contract Labour (Regulation and Abolition) Act, 1970:**

- 55-A.(1)** The Contractor shall comply with the provision of the contract labour (Regulation and Abolition) Act, 1970 and the Contract labour (Regulation and Abolition) Central Rules 1971 as modified from time to time, wherever applicable and shall also indemnify the Railway from and against any claims under the aforesaid Act and the Rules.
- 55-A.(2)** The Contractor shall obtain a valid license under the aforesaid Act as modified from time to time before the commencement of the work and continue to have a valid license until the completion of the work. Any failure to fulfill the requirement shall attract the penal provision of the Act.
- 55-A.(3)** The Contractor shall pay to the labour employed by him directly or through sub-contractors the wages as per provision of the aforesaid Act and the Rules wherever applicable. The Contractor shall notwithstanding the provisions of the contract to the contrary, cause to be paid the wages to labour, indirectly engaged on the works including any engaged by sub-contractors in connection with the said work, as if the labour had been immediately employed by him.
- 55-A.(4)** In respect of all labour directly or indirectly employed in the work for performance of the Contractor's part of the contract, the Contractor shall comply with or cause to be complied with the provisions of the aforesaid Act and Rules wherever applicable.
- 55-A.(5)** In every case in which, by virtue of the provisions of the aforesaid Act or the rules, the Railway is obliged to pay any amount of wages to a workman employed by the Contractor or his sub-contractor in execution of the work or to incur any expenditure on account of the contingent, liability of the Railway due

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to the Contractor's failure to fulfill his statutory obligations under the aforesaid Act or the rules, the Railway will recover from the Contractor, the amount of wages so paid or the amount of expenditure so incurred and without prejudice to the rights of the Railway under the Section 20, Sub-Section (2) and Section 2, Sub-Section (4) of the aforesaid Act, the Railway shall be at liberty to recover such amount or part thereof from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India. The Railway shall not be bound to contest any claim made against it under Sub-Section (1) of Section 20 and Sub-Section (4) of Section 21 of the aforesaid Act except on the written request of the Contractor and upon his giving to the Railway full security for all costs for which the Railway might become liable in contesting such claim. The decision of the Chief Engineer regarding the amount actually recoverable from the Contractor as stated above shall be final and binding on the Contractor.

**55-B. 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.

**55-C (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. 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 in 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 shramikkalyan portal within 15

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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."

**55-D. 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":**

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 by Registering Officer of the concerned State Govt. (Labour Dept.). The Cess shall be deducted from contractor's bills as per provisions of the Act.

- 56. Reporting of Accidents:** The Contractor shall be responsible for the safety of all employees directly or through petty Contractors or sub-contractor employed by him on the works and shall report serious accidents to any of them however and wherever occurring on the works to the Engineer or the Engineers Representative and shall make every arrangement to render all possible assistance.

- 57. Provision of Workmen's Compensation Act:** In every case in which by virtue of the provisions of Section 12 Sub-Section (1) of the Workmen's Compensation Act 1923, Railway is obliged to pay compensation to a workman directly or through petty Contractor or sub-contractor employed by the Contractor in executing the work, Railway will recover from the Contractor the amount of the compensation so paid, and, without prejudice to the rights of Railway under Section 12 Sub-section (2) of the said Act, Railway shall be at liberty to recover such amount or any part thereof from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India. Railway shall not be

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bound to contest any claim made against it under Section 12 Sub-Section (1) of the said Act except on the written request of the Contractor and upon his giving to Railway full security for all costs for which Railway might become liable in consequence of contesting such claim.

- 57-A. Provision of Mines Act:** The Contractor shall observe and perform all the provisions of the Mines Act, 1952 or any statutory modifications or re-enactment thereof for the time being in force and any rules and regulations made thereunder in respect of all the persons directly or through the petty Contractors or sub-contractors employed by him under this contract and shall indemnify the Railway from and against any claims under the Mines Act, or the rules and regulations framed thereunder, by or on behalf of any persons employed by him or otherwise.
- 58. Railway not to Provide Quarters for Contractors:** No quarters shall normally be provided by the Railway for the accommodation of the Contractor or any of his staff employed on the work. In exceptional cases where accommodation is provided to the Contractor at the Railway's discretion, recoveries shall be made at such rates as may be fixed by the Railway for the full rent of the buildings and equipment therein as well as charges for electric current, water supply and conservancy.
- 59.(1) Labour Camps:** The Contractor shall at his own expense make adequate arrangements for the housing, supply of drinking water and provision of latrines and urinals for his staff and workmen, directly or through the petty Contractors or sub-contractors and for temporary creche (Bal-Mandir) where 50 or more women are employed at a time. Suitable sites on Railway land, if available, may be allotted to the Contractor for the erection of labour camps, either free of charge or on such terms and conditions that may be prescribed by the Railway. All camp sites shall be maintained in clean and sanitary conditions by the Contractor at his own cost.
- 59.(2) Compliance to Rules for Employment of Labour:** The Contractor(s) shall conform to all laws, bye-laws rules and regulations for the time being in force pertaining to the employment of local or imported labour and shall take all necessary precautions to ensure and preserve the health and safety of all staff employed directly or through petty contractors or sub-contractors on the works.
- 59.(3) Preservation of Peace:** The Contractor shall take requisite precautions and use his best endeavours to

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- (i) Prevent any riotous or unlawful behavior by or amongst his workmen and other employed directly or through the petty Contractors or sub-contractors on the works and for the preservation of peace and protection of the inhabitants and
  - (ii) Security of property in the neighborhood of the works. In the event of the Railway requiring the maintenance of a Special Police Force at or in the vicinity of the site during the tenure of works, the expenses thereof shall be borne by the Contractor and if paid by the Railway shall be recoverable from the Contractor.
- 59.(4) Sanitary Arrangements:** The Contractor shall obey all sanitary rules and carry out all sanitary measures that may from time to time be prescribed by the Railway Medical Authority and permit inspection of all sanitary arrangements at all times by the Engineer, the Engineer's Representative or the Medical Staff of the Railway. Should the Contractor fail to make the adequate sanitary arrangements, these will be provided by the Railway and the cost thereof recovered from the Contractor.
- 59.(5) Outbreak of Infectious Disease:** The Contractor shall remove from his camp such labour and their families as refuse protective inoculation and vaccination when called upon to do so by the Engineer or the Engineer's Representative on the advice of the Railway Medical Authority. Should cholera, plague, or other infectious disease break out, the Contractor shall burn the huts, beddings, clothes and other belongings of or used by the infected parties and promptly erect new huts on healthy sites as required by the Engineer, failing which within the time specified in the Engineer's requisition, the work may be done by the Railway and the cost thereof recovered from the Contractor.
- 59.(6) Treatment of Contractor's Staff in Railway Hospitals:** The Contractor and his staff, other than labourers and their families requiring medical aid from the railway hospital and dispensaries will be treated as private patients and charged accordingly. The Contractors' labourers and their Families will be granted free treatment in railway hospitals and dispensaries where no other hospitals or dispensaries are available provided the Contractor pays the cost of medicines, dressing and diet money according to the normal scale and additional charges for special examinations such as pathological and bacteriological examination, X-Ray, etc. and for surgical operation.
- 59. (7) Medical Facilities at Site:** The Contractor shall provide medical facilities at the site as may be prescribed by the Engineer on the advice of the Railway Medical Authority in relation to the strength of the Contractor's resident staff and workmen.
- 59. (8) Use of Intoxicants:** The sale of ardent spirits or other intoxicating beverages upon the work or in any of the buildings, encampments or tenements owned,

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occupied by or within the control of the Contractor or any of his employees shall be forbidden and the Contractor shall exercise his influence and authority to the utmost extent to secure strict compliance with this condition.

**59.(9) Restrictions on the Employment of Retired Engineers of Railway Services Within One Year of their Retirement:** The Contractor shall not, if he is a retired Government Engineer of Gazetted rank, himself engage in or employ or associate a retired Government Engineer of Gazetted rank, who has not completed one year from the date of retirement, in connection with this contract in any manner whatsoever without obtaining prior permission of the President and if the Contractor is found to have contravened this provision it will constitute a breach of contract and administration will be entitled to terminate the contract and forfeit his Performance Guarantee as well as Security Deposit.

**60.(1) Non-Employment of Labourers below the age of 15:** The Contractor shall not employ children below the age of 15 as labourers directly or through petty Contractors or sub-contractors for the execution of work.

**60.(2) Medical Certificate of Fitness for Labour:** It is agreed that the Contractor shall not employ a person above 15 and below 19 years of age for the purpose of execution of work under the contract unless a medical certificate of fitness in the prescribed form (Proforma at Annexure-VIII) granted to him by a certifying surgeon certifying that he is fit to work as an adult, is obtained and kept in the custody of the Contractor or a person nominated by him in this behalf and the person carries with him, while at work; a token giving a reference to such certificate. It is further agreed that the responsibility for having the adolescent examined medically at the time of appointment or periodically till he attains the age of 19 years shall devolve entirely on the Contractor and all the expenses to be incurred on this account shall be borne by him and no fee shall be charged from the adolescent or his parent for such medical examination.

**60.(3) Period of Validity of Medical Fitness Certificate:** A certificate of fitness granted or renewed for the above said purposes shall be valid only for a period of one year at a time. The certifying surgeon shall revoke a certificate granted or renewed if in his opinion the holder of it, is no longer fit for work in the capacity stated therein. Where a certifying surgeon refuses to grant or renew a certificate or revoke a certificate, he shall, if so, required by the person concerned, state his reasons in writing for doing so.

**60.(4) Medical Re-Examination of Labourer:** Where any official appointed in this behalf by the Ministry of Labour is of the opinion that any person employed in

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connection with the execution of any work under this contract in the age group 15 to 19 years is without a certificate of fitness or is having a certificate of fitness but no longer fit to work in the capacity stated in the certificate, he may serve on the Contractor, or on the person nominated by him in this regard, a notice requiring that such persons shall be examined by a certifying surgeon and such person shall not if the concerned official so directs, be employed or permitted to do any work under this contract unless he has been medically examined and certified that he is fit to work in the capacity stated in the certificate.

**EXPLANATIONS:**

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

**DETERMINATION OF CONTRACT**

- 61.(1) Right of Railway to Determine the Contract:** The Railway shall be entitled to determine and terminate the contract at any time should, in the Railway's opinion, the cessation of work becomes necessary owing to paucity of funds or from any other cause whatever, in which case the value of approved materials at site and of work done to date by the Contractor will be paid for in full at the rate specified in the contract. Notice in writing from the Railway of such determination and the reasons therefor shall be conclusive evidence thereof.
- 61.(2) Payment on Determination of Contract:** Should the contract be determined under sub clause (1) of this clause and the Contractor claims payment for expenditure incurred by him in the expectation of completing the whole of the work, the Railways shall admit and consider such claims as are deemed reasonable and are supported by vouchers to the satisfaction of the Engineer. The Railway's decision on the necessity and propriety of such expenditure shall be final and conclusive.
- 61.(3)** The Contractor shall have no claim to any payment of compensation or otherwise, howsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of determination of contract.

**62.(1) Determination of Contract owing to Default of Contractor:**

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If the Contractor should:

- (i) Becomes bankrupt or insolvent, or
- (ii) Make an arrangement for assignment in favour of his creditors, or agree to carry out the contract under a Committee of Inspection of his creditors, or
- (iii) Being a Company or Corporation, go into liquidation (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or
- (iv) Have an execution levied on his goods or property on the works, or
- (v) Assign the contract or any part thereof otherwise than as provided in Clause 7 of these Conditions, or
- (vi) Abandon the contract, or
- (vii) Persistently disregard the instructions of the Engineer, or contravene any provision of the contract, or
- (viii) Fail to adhere to the agreed programme of work by a margin of 10% of the stipulated period, or
- (ix) Fail to Execute the contract documents in terms of Clause 8 of the Instructions to Tenderers.
- (x) Fails to submit the documents pertaining to identity of JV and PAN in terms of Clause 17.11 of Tender Form available in the Instructions to Tenderers.
- (xi) Fail to remove materials from the site or to pull down and replace work after receiving from the Engineer notice to the effect that the said materials or works have been condemned or rejected under Clause 25 and 27 of these Conditions, or
- (xii) Fail to take steps to employ competent or additional staff and labour as required under Clause 26 of the Conditions, or
- (xiii) Fail to afford the Engineer or Engineer's representative proper facilities for inspecting the works or any part thereof as required under Clause 28 of the Conditions, or
- (xiv) Promise, offer or give any bribe, commission, gift or advantage either himself or through his partner, agent or servant to any officer or employee of the Railway or to

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any person on his or on their behalf in relation to the execution of this or any other contract with this Railway.

- (xv) Fail to adhere to the provisions of Clause 16 of Tender Form (Second Sheet) of Annexure I of the Instructions to Tenderers.', or provision of above Clause 59(9).
- (xvi) Submits copy of fake documents / certificates in support of credentials, submitted by the tenderer

Then and in any of the **said Clause**, the Engineer on behalf of the Railway may serve the Contractor with a notice (Proforma at Annexure-IX) in writing to that effect and if the Contractor does not within seven days after the delivery to him of such notice proceed to make good his default in so far as the same is capable of being made good and carry on the work or comply with such directions as aforesaid of the entire satisfaction of the Engineer, the Railway shall be entitled after giving 48 hours' notice (Proforma at Annexure-X or XII, as the case may be) in writing under the hand of the Engineer to rescind the contract as a whole or in part or parts (as may be specified in such notice) and after expiry of 48 hours' notice, a final termination notice (Proforma at Annexure-XI or XIII, as the case may be) should be issued.

Note: Engineer at his discretion may resort to the part termination of contract with notices (Proforma at Annexure- IX, XII and XIII), only in cases where progress of work is more than or equal to 80% of the original scope of work.

**62.(2) Right of Railway after Rescission of Contract owing to Default of Contractor:**

In the event of any or several of the courses, referred to in Sub-Clause (1) of this Clause, being adopted:

- (a) The Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any commitments or made any advances on account of or with a view to the execution of the works or the performance of the contract and Contractor shall not be entitled to recover or be paid any sum for any work thereto for actually performed under the contract unless and until the Engineer shall have certified the performance of such work and the value payable in respect thereof and the Contractor shall only be entitled to be paid the value so certified.
- (b) In the contract which has been rescinded as a whole, the Security Deposit already with railways under the contract shall be encashed/ forfeited and the Performance Guarantee already submitted for the contract shall be encashed. The balance work shall be got done independently without risk & cost of the failed Contractor. The failed Contractor shall be debarred from participating in the tender for executing the balance work. If the failed Contractor is a JV or a Partnership firm, then every

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member/partner of such a firm shall be debarred from participating in the tender for the balance work in his/her individual capacity or as a partner of any other JV /partnership firm.

Further the authorized representative of failed Contractor cannot be accepted as authorized representative in new contract.

- (c) In the contract rescinded in part or parts,
- (i) The full Performance Guarantee for the contract shall be recovered. No additional Performance Guarantee shall be required for balance of work being executed through the part terminated contract. The contract value of part terminated contract stands reduced to the balance value of work under the contract.
  - (ii) The Security Deposit of part terminated contract shall be dealt as per these conditions.
  - (iii) The defaulting Contractor shall not be issued any completion certificate for the contract.
  - (iv) The balance work shall be got done independently without risk & cost of the failed Contractor. The failed Contractor shall be debarred from participating in the tender for executing the balance work. If the failed Contractor is a JV or a Partnership firm, then every member/partner of such a firm shall be debarred from participating in the tender for the balance work in his/her individual capacity or as a partner of any other JV /partnership firm.
  - (v) Further the authorized representative of failed Contractor will not be accepted as authorized representative in new contract.
- (d) The Engineer or the Engineer's Representative shall be entitled to take possession of any materials, tools, implements, machinery and buildings on the works or on the property on which these are being or ought to have been executed, and to retain and employ the same in the further execution of the works or any part thereof until the completion of the works without the Contractor being entitled to any compensation for the use and employment thereof or for wear and tear or destruction thereof.
- (e) The Engineer shall as soon as may be practicable after removal of the Contractor fix and determine ex-parte or by or after reference to the parties or after such investigation or enquiries as he may consider fit to make or institute and shall certify what amount (if any) had at the time of rescission of the contract been reasonably earned by or would reasonably accrue to the Contractor in respect of the work then

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actually done by him under the contract and what was the value of any unused, or partially used materials, any constructional plant and any temporary works upon the site. The legitimate amount due to the Contractor after making necessary deductions and certified by the Engineer should be released expeditiously.

**SETTLEMENT OF DISPUTES – INDIAN RAILWAY ARBITRATION AND  
CONCILIATION RULES**

**63. 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.

**63.1 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),

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63(iv) and 63.2.11 of the Standard General Conditions of Contract or in any Clause (stated as excepted matter) of the Special Conditions of the Contract, shall be deemed as 'excepted matters' (matters not arbitrable) 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.

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

**63.2.1** 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.

**63.2.2** 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.

**63.2.3** 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.

**63.2.4** 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.

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63.2.5 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."*

63.2.6 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.

63.2.7 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.

63.2.8 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.

63.2.9 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.

63.2.10 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.

63.2.11 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.

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

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

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63.2.14 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.

**64.(1) : Demand for Arbitration:**

**64.(1)(i):** 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 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.

**64.(1)(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 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.

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

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

**64.(1)(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.

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**64.(1)(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.

**64.(1)(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 under Annexure XV of these conditions.

**64.(1)(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.

**64.(1)(iii)(b):** The claimant shall submit his claims stating the facts supporting the claims alongwith 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.

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

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

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

**64.(1)(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.

**64.(2):** **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.

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**64.(3) : Appointment of Arbitrator:**

**64.(3)(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.

**64.(3)(a)(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 empanelled 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.

**64.(3)(a)(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 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. 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).

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iii. 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.

**64.3.(a).iii:** The serving railway officer working in arbitral tribunal in the ongoing arbitration cases as per clause 64.(3)(a)(i) and clause 64.(3)(a)(ii) above, can continue as arbitrator in the tribunal even after his retirement.

**64.(3)(b):** Two selected arbitrators are free to select presiding arbitrator (3 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.

**64.(3)(c)(i):** 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).

**64.(3) (c) (ii):** (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.

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**64.3(c)(iii):** (i) 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/CBI 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/CBI action while in service on Railways.

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

(iii) While appointing arbitrator(s) under 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 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.

**64.(3)(d)(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 therefrom.

**64.(3)(d)(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.

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- 64.(3)(d)(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.
- 64.(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.
- 64.(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.
- 64. (6):** The cost of arbitration shall be borne 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 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 to these conditions after/ while referring these disputes to Arbitration.
- 64.(7)** Subject to the provisions of the aforesaid Arbitration and Conciliation Act 1996 and the rules thereunder and relevant para of the Standard General Conditions of Contract and any statutory modifications thereof shall apply to the appointment of arbitrators and arbitration proceedings under this Clause.
- 64.(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.

**In case of any Typographical Error/ Discrepancy in the document as produced above, the latest General Conditions of Contract (GCC) circulated by Railway Board till the date of invitation of NIT shall be referred and shall be binding to the contractor.**

Signature of Contractor/s  
Date:

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Western Railway, Jamnagar

**PART-II ANNEXURES**

**ANNEXURE – VII**

Reference Para 17B

Registered Acknowledgement Due

**PROFORMA FOR TIME EXTENSION**

No. \_\_\_\_\_

Dated: \_\_\_\_\_

Sub: (i) \_\_\_\_\_ (*name of work*).

(ii) Acceptance letter no. \_\_\_\_\_

(iii) Understanding/Agreement no. \_\_\_\_\_

Ref: \_\_\_\_\_ (*Quote specific application of Contractor for extension to the date received*) \_\_\_\_\_

Dear Sir,

1. The stipulated date for completion of the work mentioned above is \_\_\_\_\_. From the progress made so far and the present rate of progress, it is unlikely that the work will be completed by the above date (or 'However, the work was not completed on this date').

2. Expecting that you may be able to complete the work if some more time is given, the competent authority, although not bound to do so, hereby extends the time for completion from \_\_\_\_\_ to \_\_\_\_\_.

3. Please note that an amount equal to the liquidated damages for delay in the completion of the work after the expiry of \_\_\_\_\_ (*give here the stipulated date for completion with/without any liquidated damage fixed earlier*) will be recovered from you as mentioned in Clause 17B of the Standard General Conditions of Contract for the extended period, notwithstanding the grant of this extension. You may proceed with the work accordingly.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

4. The above extension of the completion date will also be subject to the further condition that no increase in rates on any account will be payable to you.
5. Please intimate within a week of the receipt of this letter your acceptance of the extension of the conditions stated above.
6. Please note that in the event of your declining to accept the extension on the above said conditions or in the event of your failure after accepting or acting upto this extension to complete the work by \_\_\_\_\_ (*here mention the extended date*), further action will be taken in terms of Clause 62 of the Standard General Conditions of Contract.

Yours faithfully

For and on behalf of the President of India

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

**ANNEXURE – VIIA**

(Reference Clause 40(A))

Registered Acknowledgement Due

**PROFORMA OF 14 DAYS NOTICE FOR OFFLOADING OF PART OF CONTRACT  
WORK**

\_\_\_\_\_ **RAILWAY**

(Without Prejudice)

To

M/s \_\_\_\_\_  
\_\_\_\_\_

Dear Sir,

Contract Agreement No. \_\_\_\_\_

In connection with \_\_\_\_\_

In spite of repeated instructions to you by the subordinate offices as well as by this office through various letters of even no. \_\_\_\_\_, dated \_\_\_\_\_; you have failed to show adequate progress of work so as to complete the contract within the original / extended date of completion of contract and part(s) of contract work are yet to be started/ still lagging behind the agreed program of work, listed as under:

*(Details of part(s) of work which is delayed and can be executed independently, to be mentioned).*

2. Your attention is invited to this office/Chief Engineer's office letter no. \_\_\_\_\_, dated \_\_\_\_\_ in reference to your representation, dated \_\_\_\_\_.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

3. As you have failed to abide by the instructions issued to commence the work /to show adequate progress of work, you are hereby given 14 days' notice in accordance with Clause 40A of the Standard General Conditions of Contract to deploy adequate resources i.e. *(the details of resource requirement, to be mentioned)* and commence / to make good the progress for part(s) of works detailed above, failing which action as provided in Clause 40A of the Standard General Conditions of Contract shall be commenced after expiry of 14 days' notice period viz. to offload few/ all part(s) of work mentioned above to any of the existing or new contractor without your participation and at your Risk & Cost, not exceeding the value of Performance Guarantee of this contract, which may please be noted.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE – VIIB**  
(Reference Clause 40(A))  
Registered Acknowledgement Due

**NOTICE FOR PART OF CONTRACT WORK OFFLOADED**  
**RAILWAY**  
(Without Prejudice)

To

M/s \_\_\_\_\_

Dear Sir,

Contract Agreement No. \_\_\_\_\_

In connection with \_\_\_\_\_

1. Fourteen days' notice under Clause 40A of the Standard General Conditions of Contract was given to you under this office letter of even no., dated \_\_\_\_\_; but you have taken no/inadequate action to deploy adequate resources to commence the part(s) of work/show adequate progress of the part(s) of work, mentioned therein.

As you have failed to abide by the instructions issued to commence the part(s) of work/show adequate progress of the part(s) of work even at the lapse of 14 days' notice period under Clause 40A of the Standard General Conditions of Contract, few part(s) of the work under the contract have been offloaded and being executed by other mode(s) at the cost detailed below:

*Or,*

1. Please refer your request letter no..... dated ....., wherein it was requested under clause 40 A of the Standard General Conditions of Contract to offload part(s) of works at your risk & cost. The details of part(s) of the work under the contract which have been offloaded and being executed by other mode(s) at the cost detailed below:

*(List of Part(s) of work offloaded, Details of mode of execution of such offloaded work alongwith approximate cost thereof to be mentioned)*

2. The final measurement of work(s) already executed for above part(s) of work recorded as per clause 45 (A) or/and 45 (B) of the Standard General Conditions of Contract is enclosed herewith.

3. The Bill(s) of Quantities for Part(s) of work offloaded is enclosed herewith.

4. The additional cost in execution of offloaded work through mode(s) mentioned in para (1) above is determined as Rs. \_\_\_\_\_, over& above the cost of execution under this contract (including the PVC amount payable as per contract, as on the date of issue of this notice). This additional cost shall be recovered from your next on account bill(s) or any other dues payable to you under contract.

5. The Contract value gets reduced to Rs.....:

Signature of Contractor/s

Date:

For Dy. Chief Engineer (C),

Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

6. You are requested to continue with the balance work in the contract subsequent to offloading of above part(s) of work.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

**ANNEXURE – VIII**

Reference Para 60.(2)

**CERTIFICATE OF FITNESS**

1. (a) Serial Number \_\_\_\_\_  
(b) Date \_\_\_\_\_
2. Name of person examined \_\_\_\_\_
3. Father's Name: son/daughter of \_\_\_\_\_  
Residing at \_\_\_\_\_
4. Sex \_\_\_\_\_
5. Residence: \_\_\_\_\_

6. Physical fitness \_\_\_\_\_
7. Identification marks \_\_\_\_\_
8. Date of birth, if available, and/or certified age \_\_\_\_\_

I certify that I have personally examined (name) \_\_\_\_\_ who is desirous of being employed in a factory or on a work requiring manual labour and that his/her age as nearly as can be ascertained from my examination, is \_\_\_\_\_ years.

I certify that he/she is fit for employment in a factory or on a work requiring manual labour as an adult/child.

9. Reasons for :  
(a) Refusal to grant certificate, or \_\_\_\_\_  
(b) Revoking the certificate \_\_\_\_\_

Signature or left hand

Thumb impression of the person examined.

Signature of Certifying Surgeon

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**Note:** In case of physical disability, the exact details and cause of the physical disability should be clearly stated.

.....

**ANNEXURE – IX**

(Reference Clause 62. (1)

Registered Acknowledgement Due

**PROFORMA OF 7 DAYS NOTICE FOR WORKS AS A WHOLE/ IN PARTS  
(DETAILS OF PART OF WORK TO BE MENTIONED)**

\_\_\_\_\_ RAILWAY

(Without Prejudice)

To

M/s \_\_\_\_\_

Dear Sir, \_\_\_\_\_

Contract Agreement No. \_\_\_\_\_

In connection with \_\_\_\_\_

In spite of repeated instructions to you by the subordinate offices as well as by this office through various letters of even no. \_\_\_\_\_, dated \_\_\_\_\_; you have failed to start work/show adequate progress and/or submit detailed programme for completing the work/ part of work (details of part of work to be mentioned).

2. Your attention is invited to this office/Chief Engineer's office letter no. \_\_\_\_\_, dated \_\_\_\_\_ in reference to your representation, dated \_\_\_\_\_.

3. As you have failed to abide by the instructions issued to commence the work /to show adequate progress of work you are hereby given 7 days' notice in accordance with Clause 62 of the Standard General Conditions of Contract to commence works / to make good the progress, failing which further action as provided in Clause 62 of the Standard General Conditions of Contract viz. to terminate your Contract and complete the balance work without your participation will be taken.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

Signature of Contractor/s

Date:

For Dy. Chief Engineer (C),

Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE – X**

Reference Para 62(1)

Registered Acknowledgement Due

**PROFORMA OF 48 HRS. NOTICE FOR WHOLE WORK**

\_\_\_\_\_  
**RAILWAY**  
(Without Prejudice)

To

M/s \_\_\_\_\_  
\_\_\_\_\_

Dear Sir,

Contract Agreement No. \_\_\_\_\_

In connection with \_\_\_\_\_

Seven days' notice under Clause 62 of the Standard General Conditions of Contract was given to you under this office letter of even no., dated \_\_\_\_\_; but you have taken no action to commence the work/show adequate progress of the work.

2. You are hereby given 48 hours' notice in terms of Clause 62 of the Standard General Conditions of Contract to commence works / to make good the progress of works, failing which and on expiry of this period your above contract will be rescinded and the work under this contract will be carried out independently without your participation and your Security Deposit shall be forfeited and Performance Guarantee shall also be encashed and any other consequences which may please be noted.

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE XI**

Reference Para 62.(1)

Registered Acknowledgement Due/Standard Correspondence through IR-WCMS/Email  
on registered IREPS Email

**PROFORMA OF TERMINATION NOTICE**  
**RAILWAY**  
**(Without Prejudice)**

No. \_\_\_\_\_

Dated \_\_\_\_\_

To  
M/s. \_\_\_\_\_

Dear Sir,

Contract Agreement No. \_\_\_\_\_

In connection with \_\_\_\_\_

Forty eight hours (48 hrs.) notice was given to you under this office letter of even no., dated \_\_\_\_\_: but you have taken no action to commence the work/show adequate progress of the work.

Since the period of 48 hours' notice has already expired, the above contract stands rescinded in terms of Clause 62 of the Standard General Conditions of Contract and the balance work under this contract will be carried out independently without your participation. Your participation as well as participation of every member/partner in any manner as an individual or a partnership firm/JV is hereby debarred from participation in the tender for executing the balance work and your Security Deposit shall be forfeited and Performance Guarantee shall also be encashed.

The Final measurements of work executed by you against the said contract will be taken/started on \_\_\_\_\_ at \_\_\_\_\_ hrs. at site. The measurement will be continued till all the measurement are taken. You are advised to be present at site on the above mentioned date and

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

time to witness the measurements, otherwise measurements will be taken ex-parte and thereafter, variation (addendum & corrigendum) & final bill of work executed till date of termination based on ex-parte final measurements shall also be processed ex-parte.

Youn faithfully

For and on behalf of the President of India

**ANNEXURE – XII**

Reference Para 62.(1)

Registered Acknowledgement Due

**PROFORMA OF 48 HRS. NOTICE FOR PART OF THE WORK.....  
(DETAILS OF PART OF WORK TO BE MENTIONED)**

\_\_\_\_\_ RAILWAY  
(Without Prejudice)

To

M/s \_\_\_\_\_

Dear Sir,

Contract Agreement No. \_\_\_\_\_

In connection with \_\_\_\_\_

1. Seven days' notice under Clause 62 of the Standard General Conditions of Contract was given to you under this office letter of even no., dated \_\_\_\_\_; but you have taken no action to commence the work/show adequate progress of the part of work.....(details of part to be mentioned).
2. You are hereby given 48 hours' notice in terms of Clause 62 of the Standard General Conditions of Contract to commence works / to make good the progress of works, failing which and on expiry of this period your above part of work.....(Details of part to be mentioned) in contract will be rescinded and the work will be carried out independently without your participation.
3. Your full Performance Guarantee for the contract shall be forfeited and you shall not be issued any completion certificate for the contract. However, no additional Performance Guarantee shall be required for balance of work being executed through the part terminated contract.
4. The contract value of part terminated contract shall stands reduced to .....

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE – XIII**

Reference Para 62. (1)

Registered Acknowledgement Due

**PROFORMA OF TERMINATION NOTICE FOR PART OF THE WORK.....**

**(DETAILS OF PART OF WORK TO BE MENTIONED)**

\_\_\_\_\_ RAILWAY

(Without Prejudice)

No. \_\_\_\_\_

Dated \_\_\_\_\_

To

M/s \_\_\_\_\_

Dear Sir,

Contract Agreement No. \_\_\_\_\_

In connection with \_\_\_\_\_

1. Forty eight hours (48 hrs.) notice was given to you under this office letter of even no., dated \_\_\_\_\_; but you have taken no action to commence the work/show adequate progress of the part of work.....(details of part to be mentioned).

2. Your above part of work in contract .....(details of part to be mentioned) stands rescinded in terms of Clause 62 of the Standard General Conditions of Contract and the same will be carried out independently without your participation. Your participation as well as participation of every member/partner in any manner as an individual or a partnership firm/JV is hereby debarred from participation in the tender for executing the balance work

3. Your full Performance Guarantee for the contract shall be forfeited and you shall not be issued any completion certificate for the contract. However, no additional Performance Guarantee shall be required for balance of work being executed through the part terminated contract.

4. The contract value of part terminated contract stands reduced to .....

Signature of Contractor/s

Date:

For Dy. Chief Engineer (C),

Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

Kindly acknowledge receipt.

Yours faithfully  
For and on behalf of the President of India

**ANNEXURE – XIV**  
Reference Para 48.(3)

**FINAL SUPPLEMENTARY AGREEMENT**

1. Articles of agreement made this day \_\_\_\_\_ in the year \_\_\_\_\_ between the President of India, acting through the \_\_\_\_\_ Railway Administration having his office at \_\_\_\_\_ herein after called the Railway of the one part and \_\_\_\_\_ of the second part.

2. Whereas the party hereto of the second part executed an agreement with the party hereto of the first part being agreement Number \_\_\_\_\_ dated \_\_\_\_ for the performance \_\_\_\_\_ herein after called the 'Principal Agreement'.

3. And whereas it was agreed by and between the parties hereto that the works would be completed by the party hereto of the second part on \_\_\_\_\_ date last extended and whereas the party hereto of the second part has executed the work to the entire satisfaction of the party hereto of the first part.

4. And whereas the party hereto of the first part already made payment to the party hereto of the second part diverse sums from time to time aggregating to ₹ \_\_\_\_\_ including the Final Bill bearing voucher No. \_\_\_\_\_ dated \_\_\_\_\_ of value \_\_\_\_\_ duly adjusted as per price variation clause, if applicable (the receipt of which is hereby acknowledged by the party hereto of the second part in full and final settlement of all his /its claims under the principal agreement.

And whereas the party hereto of the second part have received sum of ₹ \_\_\_\_\_ through the Final Bill bearing voucher No. \_\_\_\_\_ dated \_\_\_\_\_ duly adjusted as per price variation clause (PVC), if applicable (the receipt of which is hereby acknowledged by the party thereto of the second part) from the party hereto of the first part in full and final settlement of all his/its disputed claims under principal agreement.

Now, it is hereby agreed by and between the parties in the consideration of sums already paid by the party hereto of the first part to the party hereto of the second part against all outstanding dues and claims for all works done under the aforesaid principal agreement excluding the Security Deposit, the party hereto of the second part have no further dues of claims against the party hereto of the first part under the said Principal Agreement. It is further agreed by and between the parties that the party hereto of the second part has accepted the said sums mentioned above in full and final satisfaction of all its dues and claims under the said Principal Agreement.

(Applicable in case Final Supplementary Agreement is signed after release of Final Payment)

**Or**

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

*And whereas the party hereto of the first part already made payment to the party hereto of the second part diverse sums from time to time aggregating to ₹ \_\_\_\_\_ through various On Account Bills (the receipt of which is hereby acknowledged by the party hereto of the second part).*

*And whereas the party hereto of the second part have received sum of ₹ \_\_\_\_\_ through various On Account Bills (the receipt of which is hereby acknowledged by the party thereto of the second part) from the party hereto of the first part and party hereto of the second part have accepted final measurements recorded on Page No..... to Page No.... of Measurement Book No.....and corresponding Final Bill duly adjusted as per price variation clause (PVC), if applicable, for full and final settlement of all his/its disputed claims under principal agreement.*

*Now, it is hereby agreed by and between the parties in the consideration of sums already paid through various On Account Bills and sums to be paid through Final Bill duly adjusted as per price variation clause (PVC), if applicable, based on accepted final measurements including the Security Deposit by the party hereto of the first part to the party hereto of the second part against all outstanding dues and claims for all works done under the aforesaid principal agreement, the party hereto of the second part have no further dues of claims against the party hereto of the first part under the said Principal Agreement.*

*(Applicable in case Final Supplementary Agreement is signed before release of Final Payment)*

5. It is further agreed and understood by and between the parties that the arbitration clause contained in the said principal agreement shall cease to have any effect and/or shall be deemed to be non-existent for all purposes.

Signature of the Contractor/s

for and on behalf of the President of India

Witnesses

ADDRESS: \_\_\_\_\_

Signature of Contractor/s

Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE-XV**

Reference Para 64.3 & 64.6

**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 the Standard General Conditions of Contract.

Signature of Claimant\_\_\_\_\_ Signature of Respondent \_\_\_\_\_

\*Strike out whichever not applicable.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**ANNEXURE-XVI**

Reference Para 64.(3)

**Certification by Arbitrators appointed under Clause 63 & 64 of Indian Railways General  
Conditions of Contract**

1. Name:

2. Contact Details:

3. Prior experience (Including Experience with Arbitrations):

4. **I do not have more than ten on-going Arbitration cases with me.**

5. I hereby certify that I have retired from Railways w.e.f. \_\_\_\_\_ and empanelled as Railway Arbitrator as per 'The Arbitration and Conciliation Act- 1996'.

6. I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind.

Or

I have past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. The list of such interests is as under:

7. 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 in terms of The Arbitration and Conciliation Act-1996.

7. Or

8. I have 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 in terms of The Arbitration and Conciliation Act-1996. The details of such relationship or interests are as under:

9. 8. There are no concurrent Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months.

10. Or

11. There are Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months. The list of such circumstances is as under:

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

**B.New Annexure –XVII, Part-II of GCC -2022 shall be read as under:-**

**Annexure –XVII**  
Reference 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 of bids No XXXX Dated XXXXX, vide Letter of Acceptance No.....

AND

WHEREEAS, 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 authoized representatives of the Surety*], being fully authorized to sign and incur obligationsfor and on behalf of the

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

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.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

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 XXXX 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 2024**

- 15.** The Insurance Surety Bond shall be verified by sending mail to  
[customer.care@sbigeneral. in].

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 the final document.]

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

## **CIVIL ENGINEERING**

### **TECHNICAL SPECIAL CONDITIONS**

**Construction of ICD maintenance facilities including Vande Bharat trains at Ranavav under Bhavnagar Division on Western Railway.**

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

Tender No. **DYCE-C-JAM-RANAVAV-01**

**Name of Work: Construction of ICD maintenance facilities including Vande Bharat trains at Ranavav under Bhavnagar Division on Western Railway.**

**SPECIAL CONDITIONS OF CONTRACT (Technical):**

**1.0. SCOPE OF WORK AND GENERAL FEATURE OF THE TENDER.**

1.1. The following scope of work involved at Ranavav.

i) Construction of following building structures :-

(a) Various Offices

(b) Washing Pit Line.

(c) Cover shed/PEB structure,

(d) Overhead Tank, borewell, sump, septic tank

(e) Track related works etc.

(f) Construction of Bridges & protection works,

(g) Construction of Platform

(h) Construction of Road

(i) Watering, sanitation, drainages, compound wall etc.

Note : Location of offices, structures etc. decided with the approval of Dy. Chief Engineer (Const)

ii) Prior to start execution of work contractor has to be provided barricading along the running line/track as per instruction of the Engineer in charge for safety of running train traffic.

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- iii) Miscellaneous & other works as per requirement and instruction of Engineer in charge in the entire section for successfully completion of Work.
- iv) Lighting arrangement & signage boards for night working should be provided by the contractor and nothing extra will be paid on this account.
- v) Work includes preparation & got approved from Railway authority of structure design of Shed, buildings etc. for execution of work. Nothing extra paid on this account.
- vi) The casting and launching of PSC slab having 18.30m span involved. Hence, contractor has to sufficient experience of casting of post tension PSC girder and launching of equal or more than 18.30m PSC Girder.

1.2 It is imperative that all bidders thoroughly understand and comply with the following tender conditions regarding handing over of land and GAD/structural drawings of Bridges and structures.

**1.3 Incremental handover of GAD & structural drawings of structures:**

To begin with, some GADs and structural drawings of structures will be provided to the successful bidder immediately upon the issuance of LOA to commence the work and all the remaining drawings will be made available gradually to the successful bidder within a span of 3 months from the issue of LOA.

1.4 The total project completion time, as specified in this tender document, is inclusive of the three (3) months period for the provision of drawings in phased and incremental manner. Bidders are expected to plan their work accordingly. No extension of time will be granted due to delays arising from the issuance of the remaining drawings within the stipulated 3 months period. If complete drawings are not handed over within 3 months of issue of LOA, extension to date of completion will be granted under relevant clause of G.C.C.

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- 1.5 The contractor shall prepare the bar chart giving the activity wise details within seven days from the date of issue of acceptance letter. The progress shall be reviewed w.r.t. this bar chart once in fortnight. The contractor shall continue to resubmit revised bar charts in the first week of the beginning of every new month so that completion of each activity matches with stage targets.
- 1.6 For the quality control, the contractor should provide following to ensure quality of the work during the execution of work. The cost of provision of these items are included in the whole cost of the work and nothing extra shall be payable on this account being a part of execution of work for ensuring quality control.**
- (A) One quality control office having minimum 3 rooms (prefab structure) with field testing laboratory at nominated section to ensure quality of the work. The office with field laboratory should be fence with proper fencing and provided with minimum two toilets, watering arrangements etc. Minimum 10 office chairs & 1 table (minimum size 1.20m x 2.40m) in the Meeting Rooms, and for each room one office table (minimum size 0.90m x 1.20m), 4 office chairs, one new desktop computer (of suitable configuration as decided by Engineer-in Charge) with one printer shall be provided. Air Condition & proper lighting arrangement should be provided in all rooms. The office should be maintained round the clock till completion period with defect liability / maintenance period of the entire work.
- (B) For inspection of worksites to check and ensure quality of works, minimum one multiutility vehicles in good condition with driver, sufficient fuel, with all equipment required for the mentioned quality checks as laid down in the Contract Agreement.
- (C) TESTING AND FIELD LABORATORY
- (i) The contractor shall provide a field laboratory for testing of cement; fine aggregate, coarse aggregate and concrete cubes. All testing shall be carried out in presence of Engineer-in-charge or his representative. All the expenditure on this account shall be borne by the contractor and no extra payment shall be made by Railway.
- (ii) The contractor shall get a percentage of samples tested from other approved laboratories as may be directed by Engineer-in-charge as confirmatory test without any extra cost.

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- (iii) In the use of materials procured by the contractor/s testing as required by the codes and specifications shall be arranged by him/them at his/their own cost.
- (iv) Aggregate for concreting will be tested in the beginning and at frequent interval during the course of work.
- (v) The field laboratory must be well equipped to enable testing at site itself the quality of concrete size of aggregate, moisture content and bulking of sand, slump test, cube test up to M-50 grade.

**(D) Bare minimum MACHINERY, TOOLS and PLANTS required to be provided are as under:**

- (i) **For Building Construction:** For building construction work contractor should use Concrete Mixer with weigh batcher, needle vibrator at site for controlled concrete.
- (ii) **For Minor Bridges :**For minor bridges work contractor should use concrete mixer with weigh batcher, needle vibrator & shutter vibrator at site for controlled concrete.
- (iii) **For Major Bridges :**

**(a) General :**Batching plant to be installed at site. Needle vibrator, shutter vibrator is essential. Concrete pump to provide if required. Sufficient Nos. of Transit mixture should be deployed for transportation of concrete.

**(b) Piling Work :**Adequate number of rigs with winch machine, welding generator, motor pump to be provided by contractor. If total pile in a particular work is more than 2500m. at

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least one hydraulic rotary rig for pile of more than 1m dia. to be provided by the contractor. Liner driving equipment is essential at each and every site.

**(c) Prestressing :** The system followed in prestressing are generally Freyssinet, Usha-Ismael, Killick Nixon etc. Elongation and Jack pressure are the two main things to be observed. Suitable jack and pump to be provided by the contractor. For grouting, compressed Air to be passed for which suitable compressor and pump to be provided by the contractor.

**Note: Quality control office with field laboratory & multiutility vehicles shall be provided prior commencement of the work by the contractor. In absence of provision these, work shall not be started by the contractor.**

- 1.7 There may be some changes in design, drawing as per site condition and contractor has to do the same under accepted rates and no extra claims of rates will be entertained on this account.
- 1.8 Tender for the work consists of Thirteen schedules. Schedule 'A' & 'B' based on CPWD Delhi Schedule of Rates 2023 (DSR - Vol.1 & DSR - Vol.2), Schedule 'C', 'D', 'E', 'F' & 'G' based on WR-USSOR-2021, Schedule 'H', 'I', 'J' & 'K' consists of non-schedule items, Schedule 'L' consisting Electrical (TRD) and Schedule 'M' consisting Electrical (General Services) works. The tenderer/s is/are required to quote his/their rates in percentage above/below/at par for each schedule separately.

Railway reserves the right to accept the tender in whole or part or reject any tender of tenderer without assigning reasons for any such action.

- 2.00** Scope of work as mentioned above is tentative and to give fair idea of work. This does not give minute details of activities involved in successful completion of the item. Rate quoted shall be inclusive of such activities not mentioned above and incidental to complete the whole work. The location of site and span may vary according to approved drawings.
- 2.01 The sequence of the work and work site shall be decided by the Engineer in charge depending upon accessibility and availability of land/site.
- 2.02 Work shall be done as per approved drawings and as directed by the Engineer in charge including other incidental works as per the general drawing. As per the site conditions, occasionally the proposal for the bridges may have to be changed and the contractor shall be bound to execute the work at the rates provided in the tender for the increase/decrease of quantities of items due to such changes.

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2.3 The contractors shall note that all excavation if found to slip shall be protected by them with proper shoring or sheet piling at their own cost and nothing extra will be paid on this account. The quoted rates shall be deemed to include cost of any such work and no claim whatsoever on this account shall be entertained from the contractor.

**2.4 Measures to be ensured prior to start the work.**

2.4.01 Before starting the execution of works like earth work, supply of ballast, P.way works, bridge works, precast box launching etc. where the Schedule of Dimension is likely to be infringed, the Officer / Supervisor in charge of construction work (civil engineering, S&T or Electrical) shall ensure the following.

- (i) Inform ADEN/DEN of the section about
  - Name & Address of the contractor assigned to execute the work.
  - Location, duration and timing during which the vehicles are to be plied.
  - Detailed planning of work including protection of track and safety measures proposed to be adopted.
- (ii) Driving licenses are available and record of the drivers and vehicles is kept.
- (iii) Training to supervisor / staff of contractor – Competency certificate as given in Annexure (Safety) -I shall be issued by AXEN / ADEN / Railway Engineer in Charge of Site. The contractor's certified supervisor will not be changed without prior permission. Violation of the clause by contractor will attract penalty.
- (iv) Contractor's supervisor and Railway supervisor shall conduct a survey of site to assess the precautions to be taken at site for working of trains and materials required for protection.

2.4.02 Information as indicated in item 2.4.01 (ii) to (iv) shall be obtained from contractor prior to the start of work.

2.4.03 Sectional ADEN should know the name of supervisor of construction organization / other organization who are going to be in charge of work site.

2.4.04 Before starting of work, the land strip adjacent to running track where road vehicles / machinery is to ply for the work shall be demarcated by line in advance at an appropriate distance from the center of existing track in consultation with Railway Supervisor. Sketches showing the location of marking are given in Annexure (Safety) - II.

2.4.05 Barricading (of portable and reusable type) as per drawing as per design given in Annexure (Safety) - II shall be provided in the complete length of work area along the track. Adequate watchman shall be also provided.

2.4.06 The work site shall be suitably demarcated to keep public and passengers away from area. Necessary signage boards such as "WORK IN PROGRESS" etc. shall be provided at appropriate locations to warn the public/passengers.

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2.4.07 Check list given in Annexure (safety) - IV shall be used to ensure that all the required measures have been taken before start of the work.

**2.5 Measures to be ensured during the execution of the work.**

2.5.01 Contractor has deputed trained supervisors at work site duly certified by ADEN/AXEN/in charge of the work. Drivers of vehicle have been briefed about safety and precautions to be taken while moving/working close to traffic.

2.5.02 Contractor shall ply road vehicles only between Sunrise and Sunset. In case of emergency where it is necessary to work during night hours, sufficient illumination shall be ensured in the entire work area for the safety of public and passengers. Also necessary additional staff shall be posted for night working.

2.5.03 Wherever provided, engineering indicator boards shall be retro-reflective.

2.5.04 Contractor shall ensure that road vehicle/machinery ply in such a way that they do not infringe the line of demarcation.

2.5.05 Lookout man shall be posted where necessary.

2.5.06 In unusual circumstances, where the operator apprehends infringement to track while working truck/machinery near running track, the following action shall be taken:

- (i) The contractors/supervisor/vehicle operator immediately advise the situation to Railway official and assist him in protecting the track.
- (ii) Protections shall be done as for other emergencies.

2.5.07 Individual vehicle/machinery shall not be left unattended at site of work. If it is unavoidable and becomes necessary to stable the road vehicle/machinery at plant near running track, these shall be properly secured against any possible roll-off and always be manned even during non-working hours.

2.5.08 All temporary arrangement required to be made during execution of work shall be made in such manner that moving dimension do not infringe. Necessary checks shall be exercised by site in charge from time to time.

2.5.09 In case, work has been planned to be done within 6M of centre of track but at more than 3.5M it shall be ensured that:-

- (i) Necessary precautions for protection of track have been taken and caution order issued to trains.
- (ii) Look out man has been posted along the track at a distance of 800M from the location of work with red flag and whistle to warn the road vehicles regarding approaching trains.

2.5.10 In case, work is planned to be done within 3.5M of centerline of running track, it shall be ensured that work is done under block protection only and necessary safety precautions for protection to track as per Para No. 806 and 807 of IRPWM are taken.

2.5.11 Mobile phones or walkie talkie sets should be provided where necessary at work sites.

2.5.12 While inspecting the worksite, checklist given in Annexure (Safety) V shall be used to ensure that all the requisite measures have been taken during execution of work.

**2.6.0 Precautions required to be taken during execution of work requiring traffic blocks.**

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- 2.6.01 Any work, when infringing the moving dimensions, shall be started only after block has been imposed and track protected.
- 2.6.02 At locations where night working is unavoidable, proper illumination arrangement should be made.
- 2.6.03 Before closing the work the track shall be left with proper track geometry so that trains run safely.
- 2.6.04 After completion of work, the released sleepers and fittings should be properly stacked away from the track to be kept clear of moving dimensions.
- 2.6.05 Block shall be cleared only when all the temporary arrangements, machineries, tools, plant etc. have been kept clear of moving dimensions.

**2.7.0 Stacking of materials along the track.**

- 2.7.01 The sites for material stacking shall be selected in advance ensuring that no part of the stacked material would infringe the standard moving dimensions. A plan of proposed stacking locations be made and signed jointly by an authorized Railway representative and contractor's representative.
- 2.7.02 The selected locations shall be marked by lime in advance.
- 2.7.03 Presence of an authorized Railway representative during unloading and stacking shall be ensured.
- 2.7.04 The material shall be stacked to such a height that it does not lead to infringement to Schedule Of Dimension in case of accidental roll off.

**2.8.0 Safety aspects to be observed while working in OHE area.**

- 2.8.1 No electrical work close to running track shall be carried out without permission of Railway representative.
- 2.8.2 A minimum distance of 2M has to be maintained between live OHE wire and body part of worker or tools or metallic support etc.
- 2.8.3 No electric connection etc. can be tapped from OHE.
- 2.8.4 Authorized OHE staff should invariably be present when relaying work or any other major work is carried out.
- 2.8.5 Power block is correctly taken and "Permit to Work" is issued.
- 2.8.6 The structure bonds, track bonds, cross bonds, longitudinal rail bonds are not disturbed and is disconnected for the work they are reconnected properly when the work is completed.
- 2.8.7 The track level is not raised beyond the permissible limit during the work.

**Note : No extra payments shall be made for any precautionary measures, deputation of labours for safety.**

**3 CODE OF PRACTICE**

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Date:

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The work will be executed based on provisions in the following Codes and also the structural design to be submitted for launching, erection & temporary arrangements is to conform to the standard codes with the latest amendments till the date of tender opening. Another codes, references made use of by the tenderer/s in execution/design shall be specifically brought out in their tender along with the results and advantages of the same including brief design calculations and plans.

**3.1 Indian Railway Standard specifications/codes of practice**

- (1) Indian Railways Bridges Rules - Rules specifying the loads for design of Superstructure and sub-structure of bridges and for assessment of strength of the existing bridges including Chapter-VII of the Rules for the opening of a Railway - adopted - 1941 - Revised - August 1982 incorporating Correction Slips No.1 to 42 (Hereinafter referred to as the Bridge Rules).
- (2) Indian Railway's Standard (IRS) Bridge Substructures and Foundation Code - Code of Practice for the design of substructure and foundations of bridges - adopted 1936 - Revised - 1985. (Hereinafter referred to as "the Substructure Code") incorporating Correction Slips No.1 to 29.
- (3) IRS Concrete Bridge Code - Code of Practice for Plain, reinforced and prestressed concrete for general bridge construction incorporating Correction Slips 1 to 13 and SI Units - adopted 1936 - Revised 1997 (hereinafter referred to as "the Concrete Bridge Code").
- (4) Indian Railway Schedule of Dimensions -2022 - 1676mm gauge including up to date correction slips.
- (5) Indian Railways Unified Standard Schedule of Rates (IR USSOR-2021) for Bridge Works, Formation Works and P-Way Works with Indian Railways Unified Standard Specifications (Earthwork in Cutting and Embankment, Bridge Works and P-Way Works, IRUSS-2021.
- (6) CPWD Delhi Schedule of Rates 2023 (DSR - Vol.1, DSR - Vol.2, DSR – Horticulture& Landscaping), Analysis of Rates (AOR-Vol.1& AOR-Vol.2) & CPWD Specifications (Vol.1& Vol.2) for execution of Civil Engineering works related to Building Work, Road Works & Horticulture Works etc.
- (6) IRS specifications B-1 and B-2 as per the latest version. This will be applicable for fabrication and erection of mild steel liners, Welded construction shall be used.
- (7) RDSO's Specification No. GE.IR.2 (final) dated July 2005 : Mechanically produced blanketing material for Railway Formation including Guidelines for laying.
- (8) RDSO's Specification No. GE : G1 dated July 2003 : Guideline for Earthwork in Railway project.
- (9) RDSO Specification No. RDSO/2018/GE:IRS 0004 (D) Part-IV

**3.2 Indian Standard codes of Practices.**

- (1) IS :456 :2000 for Plain and Reinforced concrete.
- (2) IS : 2911 - Part I/Section 1 & 2 of 1979 for design and Construction of piles
- (3) IS :2911 -Part I/Section 3 & 4 of 2010 for design and Construction of piles.
- (4) IS :2911 -Part III -1980 for under reamed piles
- (5) IS :2911-Part IV -1979 - Load test on piles.
- (6) IS :1343 -1980 Indian Standard Code of Practice for prestressed Concrete.
- (7) IS :1892 -1979 Codes of Practice for sub-surface investigation (First Revision)
- (8) IS :226 - for Structural (Mild) Steel.
- (9) IS : 1786-2008- High Strength Deformed Steel bars and Wires for Concrete Reinforcement.
- (10) IS :14268-1995 -Uncoated stress relieved low relaxation strand for prestressed concrete.
- (11) IS : 800-1984 - General Construction and Steel.
- (12) IS: 12330-1988- Code of practice for Sulphate Resistance Cement.
- (13) IS : 10262 -1982 – Code of guideline for concrete Mix Design.
- (14) IS: 2062 - 1975 - Specification for structural steel (Standard quality) - First Revision.
- (15) IS: 875 - 1964 - Code of Practice for structural Safety of Buildings and loading standards.
- (16) IS : 1893-1975-Criteria for Earthquake resistant design and structures (Third Revision- 1976).
- (17) IS : 383-1970-Specification For Coarse And Fine Aggregates From Natural Sources For Concrete
- (18) IS : 2386 – 1963 Part I to VIII – Methods Of Test For Aggregates For Concrete
- (19) IS : 9103 – 1999 - Concrete Admixtures – Specification.
- (20) IS : 4925 – 1968 - Specification For Concrete Batching And Mixing Plant.

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- (21) IS : 269 – 1989 Ordinary Portland Cement, 33-Grade - Specification
- (22) IS : 8112 – 1989 - 43Grade Ordinary Portland Cement - Specification
- (23) IS : 12269 – 1987 Specification For 53 Grade Ordinary Portland Cement
- (24) IS : 8041 – 1990 - Rapid Hardening Portland Cement – Specification.
- (25) IS : 455 -1983 – Portland slag cement
- (26) IS : 1489 - 1991 (Part I & II) - Portland-Pozzolana Cement-Specification
- (27) IS : 4031 – 1988 - Method of Physical tests for hydraulic Cement
  
- (28) IS : 10080 – 1982 - Specification For Vibration Machine.
- (29) IS : 2720 – Part I to XLI (with latest update) - Methods of test for soils.
- (30) IS : 1498 – 1970 –Classification and identification of soils for general engineering.
- (31) IS : 6403-1981-Code Of Practice For Determination Of Breaking/Bearing Capacity Of Shallow Foundations.
- (32) IS : 4926 – 2003- Ready Mixed Concrete.

### **3.3 Other references**

- (1) Indian Road Congress (IRC) : - Codes for items not specifically covered by any of the Railway codes or provisions mentioned in these documents.
- (2) UIC 772 - Bearing for rail bridges.
- (3) MOST's Guidelines for Recommended Practice for grouting of post tensioned cables in prestressed concrete bridges.
- (4) Super structure is steel girder. Approved design of steel girder by RDSO for the purpose is available. Following specifications listed in the RDSO drawing for various component of work shall be followed.
  - IS : 9595-96 – Metal arc welding
  - IS : 4000-1992 – HSFG Bolt design
  - BS : 111 (RDSO) – Guideline for HSFG Bolts
  - IS : 1367 (Part 1 to 14) – Bolts, nuts and washers
  - IS : 3935-66, EN ISO: 13918-08, BS EN ISO 6892 – Shear studs
  - IRS-B1 – Steel fabrication
  - IS : 2062-2011- Steel for all member except bearing : E250W grade BO or As specified in IRS-B1In case of clarification about following a particular specification, decision of Engineer in charge shall be final.

**3.4** In the event of any difference of opinion in regard to any item of work not explicitly covered by specifications or Codes or in regard to the interpretation of specifications including Codes, the directions and decisions of the Chief Engineer In charge shall be final and binding on the successful tenderer. All such changes, modifications to designs and decisions shall not be entitled for any claim or compensation for payment. No plea of customs or usage shall be entertained. The tenderer should note that there might be changes after approval of design as per site conditions, which they are bound to carry out and comply with. There may be changes in the design even during the construction stage or before completion of the work and the successful tenderer shall not be entitled for any claim or compensation on this account and shall be bound to carry out without additional liability as covered in agreement, such changes, modifications, revised designs as may be required to suit the completion of this work.

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**3.5 PRIORITY-WISE REFERENCES:**

In case of any discrepancy or disagreement between different specifications to be followed for any item of work, the following preferences shall be adopted in the order of precedence as they appear below: -

- i) Provisions in the NIT as modified/supplemented/ /clarified in the "Technical and Price Bid"
- ii) IRS Codes of Practice/Standard Specifications.
- iii) BIS. Codes.
- iv) Indian Roads Congress specifications.
- v) British Standard Specifications.
- vi) American standard specification;

**Provisions of any other relevant Codes: For items not covered by any of the above standards and specifications sound Engineering Practices as approved otherwise shall be followed. Decision of the Chief Administrative Officer (Construction), Western Railway, Ahmedabad, for the application of any other Code shall be final and binding.**

**4.0 MATERIAL SUPPLIED BY CONTRACTOR: -**

- 4.1 Material conforming to various IS/Railway standards shall only be supplied and used in work after getting the approval for the same in writing from Engineer-in-Charge.
- 4.2 The contractor shall have to submit the cash memo and Challan along with the lot of steel/cement purchased from various retail factory outlets to SE/W(C) in token of proof of purchases of steel or cement from reputed dealers. Steel/Cement shall not be allowed to be used by SE/W(C) without these documents. The test certificate from manufacturer or any other approved laboratory shall be produced at the beginning and subsequently at intervals as decided by the Engineer.
- 4.2.1 Contractor shall remove from site such materials as rejected by the Engineer-in-charge within reasonable time as specified by him.
- 4.2.2 The payment of steel/cement shall be as per quantity calculated and actually used by the Railway according to prescribed specification and approved drawings. If any extra quantity of steel / cement over and above shown in the drawing and standard laid down has been used by the contractor, in the opinion of Engineer-in-charge for any other reasons such as wastage or bad workmanship or any reasons if any, in the opinion of Engineer-in-Charge, then the cost of such material steel/cement shall not be paid by the Railway. All excess consumption shall be borne by the contractor.
- 4.2.3 The list of recommended makes/manufacturers for various construction material being used in the works are as under:-

SN	MATERIAL	MAKES/ MANUFACTURERS OR SIMILAR
1	AAC BLOCK	FINE CREATE / RS GREEN / ULTRATECH / SIPOREX/ AEROCON/ BUILTECH/ INSTABLOCK/ MAGICRETE/ JK/ ASCOLITE/ ASWANI INDUSTRIES PRIVATE LIMITED/ BIGBLOC/ BIRLA AEROCON/ JK LAKSHMI/ JK SMARTBLOX/ MAGICRETE/ MAGICRETE BUILDING SOLUTIONS PVT LTD/ ZETWERK
2	AAC BLOCK JOINTING	FINE CREATE/ FERROUS CRETE/ ULTRATECH / SAINT-

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SN	MATERIAL	MAKES/ MANUFACTURERS OR SIMILAR
	MORTAR	GOBAIN /KERA-COLE/ JK
3	ACOUSTICAL SEAL	DORMA/ GEZE/ HAFFLE/ DORSET/ KICH/ BECKAR
4	ACOUSTICS PANELLING	DIAMOND/ HIMALYAN ACOUSTICS/ HUNTER DOUGLAS/ DEXUNE/ BAUX/TRANQUILL / ANUTONE
5	ACP	ALUCOBOND/ RENUBOND/ ALPOLIC/ ALSTRONG/ ALEX/VIRGO/ ALDEKO
6	ADHESIVE FOR DOOR WORK	FEVICOL/ VAMICOL/ ARALDITE
7	ADMIXTURE FOR CONCRETE	SIKA/ FOSROC/ BASF/ MC- BAUCHEMIE/ MAPEI/ SUPREME/ STARCOATING/ CICO/PIDILITE/ ASIAN LABORATORIES/ ULTRACON/ KRYTON/ CAC/ CHRYSO/ KUNAL/ YASHKA/ FOSROC
8	AIR RELEASE VALVE	KIRLOSKAR/ VENUS/ZOOTO/ LEADER/ SANT
9	ALUMINIUM GLASS PARTITION	OTIC / JEB / BENE/ LINDNER/CLIQPARTITION / VEILS
10	ALUMINIUM LOUVERS	HINDALCO/ BORUKHA/ JINDAL ALUMINIUM
11	ALUMINIUM SECTIONS	HINDALCO/DOMAL/SAPA
12	ALUMINIUM WINDOWS & VENTILATORS SSW	JINDAL ALUMINIUM LIMITED/ TURBO VENT/ CRISPAIR/ HINDALCO
13	ANCHOR FASTNER	HILTI/ FISCHER/ BOSCH/ GWK/ ATUL/ RAWLPLUG
14	ANTI CORROSIVE TAPE FOR PIPE PROTECTION	PYPKOTE/ MAKPOLYKOTE/ JONSON
15	ANTI STATIC EPOXY FLOOR	FOSROC/ BASF/CICO/ SIKA/ NEOLAXE / MAPEI
16	ANTI-TERMITE TREATMENT	BAYER PREMISE/ RALLIS INDIA/ TERMEX/ PEST CONTROL INDIA LTD
17	ASPHALT EMULSION	PARK INDUSTRIES PVT. LTD./ OM TEX CHEMICALS PVT. LTD./ HINDUSTAN COLAS PVT. LTD./ IOCL
18	AUTOMATIC AIR VENT	DANFOSS/ COMFORT/ GIACOMINI
19	BACKER RODS/EXPANSION JOINT FILLER	SAND FIELD / KANTA FLEX / VEXKOLT / CONSTRUCTION SPECIALTIES/ KANTAFLEX/ M/S CAMEO MIGUA EXPANSION JOINT SYSTEMS
20	BALL COCK	ZOOTO/ L&T/ ADVANCE/ GPA/ L&K/ SANT
21	BALL VALVES (15 TO 40 MM)	ZOOTO/ AUDCO / CASTLE/ ADVANCE/ LEADER/ AIP
22	BINDING WIRE/ WARBED WIRE	GUPTA STEELS/ OMKAMAL STEEL (BINDING WIRE)/ SACHI STEEL SOLUTION PVT. LTD (BARBED WIRE)/ SACHI STEEL SOLUTION PVT. LTD (BINDING WIRE)/ SYSTEMATIC GROUP OF COMPANIES (BINDING WIRE)
23	BRASS STOP & BIB COCK	HANS GROHE/ KOHLAR/HINDWARE/ ZOOTO/ SANT/ L&K/ LEADER/ ASTRAL
24	BUTTER FLY VALVE	ZOOTO/ AUDCO / CASTLE/ ADVANCE

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

SN	MATERIAL	MAKES/ MANUFACTURERS OR SIMILAR
25	C.I VALVES (FULL WAY, CHECK AND GLOBE VALVES)	KIRLOSKAR/ SKF/ ZOLTO
26	C.I. FITTING	ELECTROSTEEL/ KESORAM/ NECO/ SKF/ NEEL/ KARTAR
27	C.I. SLUICE VALVE & NON RETURN VALVE	KIRLOSKAR/ IVC/ LEADER/ ZOLOTO/ L&T/ AUDCO/ ADVANCE/AIP
28	C.P. WASTE, SPREADERS	SIMPOLO/ KOHLAR/ GROHE/ URINAL DURAVIT / VITRA/ JAQUAR/ PARKO
29	C.P.FITTINGS& ACCESSORIES	SIMPOLO/ KOHLAR/ GROHE/ DURAVIT / VITRA
30	CALCIUM SILICATE BOARDS	HILUX/ AEROLITE/ NEWAGE/ VEILS/ GYPROC/ BORAL/ ARMSTRONG
31	CALCIUM SILICATE TILES	AEROLITE/ HILUX/ NEWAGE/ DEXUNE / VEILS/ GYPROC/ BORAL/ ARMSTRONG
32	CEMENT BASED PAINTS	BERGER/ NEROLAC/ ULTRATECH/ JOTUN/ SHIRWIN WILLIAMS / SNOWCEM PLUS/ TATA CEM / KAZONBLDULUX
33	CEMENT CONCRETE TILES	ULTRA / EUROCON / NITCO DURACRETE/ UNISTONE/ TERRA FIRMA
34	CEMENT PAINT	BERGER/ NEROLAC/ ULTRATECH/ JOTUN/ SHIRWIN WILLIAMS / SNOWCEM PLUS/ TATA CEM / KAZONBLDULUX
35	CEMENT SHEET	EVEREST/ RAMCO/ KAMDHENU
36	CEMENT(OPC/PPC)	ACC(ASSOCIATED CEMENT CO.)/ ULTRA TECH / GUJRAT AMBUJA CEMENT/ JK/ L&T / JPCEMENT/ WONDERCEMENT./ HATHI/ HI-BOND/ SIDDHI CEMENT/ SANGHI/ JSW/ MP BIRLA
37	CENTRIFUGALLY CAST C.I RAIN WATER FITTING	ELECTROSTEEL/ KESORAM/ NECO
38	CERAMIC TILES	KAJARIA/ HRJOHNSON/ EMCER/ SIMPOLO/ RAK/ NEXION/AGL FROM THEIR AUTHORIZED COMPANY)/ SOMANY/ H&R JOHNSON/ ASIAN (AGL)/ VERMORA/ NITCO
39	CHAIR	FEATHERLITE/ GODREJ/ HAWORTH / HARMANMILLER/ HOF / GEEKEN/ VEILS/ DURIAN/ SLEEP COMPANY/ IKEA/ NILKAMAL
40	CHECK VALVES (DUAL SLIM TYPE)	ZOLOTO/ AUDCO /CASTLE / ADVANCE/ DANFOSS/ KIRLOSKAR
41	CHEQUERED TILES	AGL/ NITCO / KK MANHOLES / KAJARIA/ VYARATILES/BASANT BETONS/ OSWAL INDUSTRIES/ BISAZZA/ UNITILE/ DALAL TILES INDUSTRIES/ UNISTONE
42	CHLORINATOR	THERMAXLTD/ LONEXCHANGE/ SIEMENS/ SUPREME
43	CLAY TILES	UNISTONE/DALALTILES/J.M.B.JHAJJAR / PIONEER / OSWAL INDUSTRIES JAIPUR/PROLAD
44	COCK ROACH TRAP	CHILLY/ GMGR/CAMRY/ SFMC
45	COMPOSITE WALL EXTRNAL CLADDING	SHUSH COMPOSITES / MAPAC TECHNOLOGY / MANKUVA / ALSTONE
46	CONCEALED CISTERN	SIMPOLO/ KOHLAR GROHE DURAVIT / VITRA/ HINDWARE/ ROCA/ GEBERIT
47	COPPER FITTINGS	IBP/ CONEX/ MEXFLOW
48	COPPER PIPES	MEXFLOW/ MANDEV/ JANYA
49	COVER BLOCKS	ASTRA CONCRETE/ CHARBHUJA -CCB/ EPOCH CONCRETE WORK/ INFINITY INCORP/ MENTONE/ MORBOCON INC/ STEMRIGHT/ SUPERIOR CONCRETE PRODUCTS LLP/ VED PMC

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WESTERN RAILWAY  
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Tender No. **DYCE-C-JAM-RANAVAV-01**

SN	MATERIAL	MAKES/ MANUFACTURERS OR SIMILAR
50	CURING AGENTS	SIKA/ FOSROC/ BASF/THERMAX LIMITED / SUPREME / STAR COATING/ MC - BAUCHEMIE/ CICO/ STP/ PIDILITE/ BASF/ CHRYSO
51	DASH FASTENERS	HILTI/KONCEPTM BOSCH/ FISHER
52	DOOR CLOSER	DORMA/ GEZE/ HAFFLE/ DORSET/ KICH/ BECKAR/ GODREJ/ HETTICH/ EVERITE/ HARDWYN
53	DOOR CLOSER /FLOOR SPRING	DORMA/ GEZE/ KICH/ GODREJ/ HETTICH/ EVERITE/ HARDWYN/ DORSET
54	DOOR SEAL- WOOL PILE WEATHER STRIP	ANAND REDDIPLEX/ ENVIRO SEALS / VISION EXIM
55	DOOR STOPPER	DORMA/ GEZE/ HAFFLE/ DORSET/ KICH/ BECKAR
56	DOORS & WINDOWS FIXTURES/ FITTING	DORMA/ GEZE/ KICH/ DORSET/ GODREJ/ HETTICH/ HAFELE/ ASSA ABLOY
57	DRY DISTEMPER	BERGER/ NEROLAC/ ULTRATECH/ JOTUN/ SHIRWIN WILLIAMS / SNOWCEM PLUS/ TATA CEM / KAZONOBOLDULUX
58	DUCTILE IRON FITTINGS (IS:9523)	ELECTRO STEEL/ KESORAM/ TISCO/ JINDAL
59	DUCTILE IRON PIPES (IS:8329)	ELECTRO STEEL/ KESORAM/ TISCO/ JINDAL
60	ELASTOMERIC BEARING	HERCULES/ MAGEBA/ MAURER SANFIELD/ OCEAN RUBBER
61	EPOXY GROUTING	MYK LATIKRATE / DUBOND / SEMITRONE / GLUETITE / MC - BAUCHEMIE/ PIDILITE/ FERROUS CRETE/ KRYTON/ SIKA/ FOSROC
62	EPOXY PAINT	ULTRATECH/ SPECTRUM/ SKK/ OIKOS/ BERGER/ KANSAI NEROLAC/ ASIAN AKZONOBEL/ FOSROC/ ICI
63	EXPANSION JOINT	KANTAFLEX/ M/S CAMEO MIGUA EXPANSION JOINT SYSTEMS
64	EXTERNAL EMULSION PAINT	BERGER/ ASIAN/ ULTRATECH/ DULUX/ NEROLAC/ BERGER
65	FILTER/ SOFTENER	ION EXCHANGE /MAHLE FILTER SYSTEM/ DENSO
66	FILTRATION PLANT SOFTENING PLANT	BIKON WATER/ION EXCHANGE/ THERMAX LIMITED / EUREKA FORBES
67	FIRE RATED GLASS	SANTGOBAIN GLASS/PILKINGTON/ASAHI/MODIGUARD/PYROGUARD/SISECA M
68	FLUSH DOOR SHUTTERS DECORATIVE TYPE	ARCHIDPLY/DURO/ JAYANA/GREEN PLY/ CENTURY/ AIROLAM / NEOLAXE/ ORION/ HAFELE
69	FLUSH DOOR SHUTTERS NON- DECORATIVE TYPE	ARCHIDPLY/ DURO/ JAYANA/ GREEN PLY/ CENTURY/ AIROLAM / NEOLAXE / ORION/ MERINO
70	FLUSH VALVES	ZOLOTOI AUDCO /CASTLE ADVANCE
71	FRP DOORS AND FRAMES	FIBERWAYS TECHNOLOGY /ROOFCLADINFRA/RVINFR/FIBREFILLSYSTEM ENGINEERS/JAYANASAINIK
72	G I STEEL DOOR FRAME	SYNERGY THRISLINGTON / NAVAIR/ SHAKTI / RAPL

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WESTERN RAILWAY  
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Tender No. **DYCE-C-JAM-RANAVAV-01**

SN	MATERIAL	MAKES/ MANUFACTURERS OR SIMILAR
73	G.I.FITTINGS (MALLEABLE IRON)	ZOLOTO-M/SWASTIK/JINDAL HISSAR/ UNIK/ KS/ R-BRAND/ SURYA
74	G.I.PIPES/ M.S.PIPES IS 1239/3589	JINDAL HISSAR /TATA STEEL/ SFMC / SAIL/ SURYA PRAKSH
75	GATE VALVE	ZOLOTO/ AUDCO / CASTLE/ ADVANCE
76	GLASS	AIS / SISECAM GLASS / PILKINTON / EMERATE/SAINT GOBAIN
77	GLASS FILM	3M DINOC FILM/ AVERY/ /GARVEY/ VEILS
78	GLASS MIRROR	MODIGUARD/ SAINTGOBAIN/ ASAHI INDIA SAFETY/ MODI FLOAT/ PILKINGTON/ ATUL/ GLALVERBEL
79	GLASS MOSAIC TILE	CORAL/ BISAZZA/ HYDROBUILD ENTERPRISE/ NITCO/ UNITILE/ DALAL TILES INDUSTRIES/ UNISTONE
80	GLASS MOSAIC TILES	ITALIAS/ BISAZZA/ PACEINDIA/ NITCO/ UNITILE/ DALAL TILES INDUSTRIES/ UNISTONE
81	GLASSED DOORS (MOTORISED)	MODIGUARD/ ST.GOBAIN/ AIS
82	GLAZED TILES	AGL / JOHNSON / KAJARIA /SIMPOLO/NEXION /NITCO/ SOMANY/ VERMORA/ OASIS/ ASIAN GRANITO LIMITED
83	GRAB BARS AND DISABLED HARDWARE	DORMA/ OZONE/ D-LINE/ SIO
84	GRC FLOOR/ WALL TILES	DALAL TILES/ NITCO/ N.T.C. OSWAL INDUSTRIES
85	GRC SCREEN JALI/ PANEL/ COLUMN/ CORNICE	BIRLA GRC / SHENISHA CROP. / DALAL TILES/ OSWAL INDUSTRIES JAIPUR/ UNISTONE/ ECOVISION/ UKTRATECH
86	GROUTING MATERIALS	MYK ARMENT PVT, ARDEX ENDURA ( ARDEX ENDURA FOR NON SHRINK GROUT)/ BASF) SIKA INDIA PVT. LTD./ FAIRMATE CHEMICALS PVT. LTD./ FOSROC CHEMICAL (INDIA) PVT LTD./ KERAKOLL INDIA PVT. LTD. (TILE ADHESIVE)/ ULTRA TECH CEMENT LIMITED
87	GUNMETAL VALVE (FULL WAY VALVE) CLASS-I	ZOLOTO/ AUDCO / CASTLE/ ADVANCE/ KARTAR
88	GYP SUM BOARD	ST. GOBAIN(GYPROC)/ GYPSUMINDIALTD. / INDIA GYPSUM/ LAFFARGE/ BORAL/ DEXUNE
89	GYP SUM PLASTER	FERROUSCRETE/ ULTRATECH/ KERA-COLE/ SAINT-GOBAIN/ ELITE
90	HDPE PIPES/ MOULDED	EMCO/ POLYEFINS/ PIONEER FITTINGS PLYFAB / SUPREME / JAIN IRRIGATION/ FINOLEX/ DUTRON/ ASTRAL
91	HEAT RESISTANT TERRACE TILES	AGL/ THERMATEK/ SWASTIK/ DALAL TILES
92	HOLLOW SECTION	APL/ TATA/ JINDAL
93	HUME PIPE	PATEL/ RS PIPES/ PRANALI/ M/S JAY AMBE INDUSTRIES/ KALTHIA ENGINEERING & CONSTRUCTION LTD
94	INTER LOCKING PAVERS BLOCK	KK MANHOLES/ UNISTONE/ NITCO/ DALALTILES/ OSWAL INDUSTRIES JAIPUR/ ALCOCK
95	LRPC STRAND	TATA/ JSW/ USHA MARTIN
96	M.S. STRUCTURAL WORKS	TATA/RINL/SAIL/JSPL, ESSAR, IISCO/ AM-NS INDIA/ APL/ APOLLO STEEL TUBES/ APL APOLLO TUBES LIMITED PVT LTD/ ARCELOR MITTAL NIPPON STEEL INDIA LIMITED/ HI-TECH PIPES LTD/ JINDAL STEEL AND POWER LTD/ JSW STEEL LTD
97	MINERAL ADMIXTURE	ELKEM/ FERROGLOBE/ KVALITET/ CORNICHE/ NOREMET/

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WESTERN RAILWAY  
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Tender No. **DYCE-C-JAM-RANAVAV-01**

SN	MATERIAL	MAKES/ MANUFACTURERS OR SIMILAR
	(MICRO SILICA)	ULTRAFINE MINERAL & ADMIXTURE PVT. LTD.
98	MINERAL ADMIXTURE (UGGBS)	JSW/ SUYOG/ TATA/ SAIL/ RINL/JINDAL
99	MODULAR FURNITURE	FEATHER LITE/ GODREJ/ HAWORTH/ HARMAN MILLER/ HOF/ GEEKEN / VEILS/ DURIAN/ NILKAMAL
100	MODULAR SS RAILING SYSTEM	KICH / KONCEPT/ DORMA/ JINDAL
101	MOSAIC/TERAZZO TILES	KK MANHOLES / AGL / UNI STONE / NITCO / DALAL TILES /OSWAL INDUSTRIES JAIPUR/ BISAZZA/ UNITILE
102	MOULD RELEASING AGENT	ADO ADDITIVE TECHNOLOGIES LTD./ CHRYSO INDIA PVT LTD/ EASTTO (EASTERN PETROLEUM PRIVTE)/ FOSROC CHEMICAL (INDIA) PVT LTD./ MAPEI CONSTRUCTION PRODUCTS INDIA PVT. LTD./ MEKUBA PETRO PRODUCTS/ SIKA INDIA PVT. LTD.
103	NON METALLIC HARDENER COMPOUND	CICO/ RECRON/ FAIRMATE/ SIKA
104	NON RETURN VALVE	SANT/LEADER/ZOOTO/AUDCO/ ADVANCE/ KARTAR
105	NUTS AND BOLTS	AGARWAL FASTNERS/ DEEPAK FASTENER/ KIRTI FASTENER/ KWALITY FORGE
106	OIL DISTEMPER/ ACRYLI/ WASHABLE	BERGER/ NEROLAC/ ULTRATECH/ JOTUN/ SHIRWIN WILLIAMS / SNOWCEM PLUS/ TATA CEM / KAZONOBULDULUX
107	OTHER PAINTS/ PRIMER	BERGER/ NEROLAC/ ULTRATECH/ JOTUN/ SHIRWIN WILLIAMS / SNOWCEM PLUS/ TATA CEM / KAZONOBULDULUX
108	PAVEMENT TILES	PAVIT/ AGL/ ULTRA DESIGNER TILES
109	PIPE COAT MATERIAL(PIPE PROTECTION)	RPG RAYCHEM / PYPKOTE /MAKPHALT/ IWL LTD. STP
110	PLASTIC EMULSION PAINT	BERGER/ ASIAN/ ULTRATECH
111	PLASTIC W.C. SEATS COVERS	SIMPOLO/ KOHLAR GROHE DURAVIT / VITRA
112	PLYWOOD/ BLOCK BOARD/ PLY BOARD	DURO/ GREENLAM/ JAYANA/ ARCHIDPLY/ AIROLAM/ BLACK COBRA/VIRGO/ ORION/ MERINO
113	POLY SULPHIDE SEALANT	BASF PIDILITE/ FOSROC/CHOKSEY/ CICO /SIKA /STARCOATING/MC-BAUCHEMIE/ STP LIMITED
114	POLYCARBONATE SHEETS	DPI /GE/ POLYGEL/ GALLINA/ DPI DAYLIGHTING
115	POLYETHYLENE STORAGE TANKS	SINTEX/ SFMC/ SUPREME
116	POLYMER EMULSION	SOJITZ CORPORATION (NICHIREKI)/ ASAIN PAINTS/ ACROLITE POLYMERS PVT. LTD./ PIDILITE
117	PRE-COATED GALVANISED STEEL SHEET	TATA/ BLUE SCOPE/ LLYOD INSULATIONS INDIA LTD / S.R.METALS
118	PRE-ENGINEERED BUILDING (PEB) WORKS	ZETWERK MANUFACTURING BUSINESS PVT. LTD/ ARCEDES BUILDING INDIA LLP/ EUROCOUSTIC PRODUCTS LIMITED/ MODERN PREFAB SYSTEMS PVT. LTD./ R.D.ENGINEERING WORKS/ STEELFAB BUILDING SYSTEMS/ STRUCTEN PRE FAB

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

SN	MATERIAL	MAKES/ MANUFACTURERS OR SIMILAR
		PVT. LTD
119	PRESSED STEEL DOORS FRAME	SUKRITI/ GODREJ/ NAVAIR/ RAPL
120	PRESSURE GAUGE	FIEBIG/ H-GURU/ ALTOP/ DK INSTRUMENTS/ BAUMER
121	PRESSURE REDUCING VALVE (PRVS)	ZOLOTOI AUDCO CASTLE ADVANCE/ DANFOSS/ HONEY WELL
122	PU WATER PROOFING	SIKA/ PHOSROC/ THARMAX/ SOPERMA / MAPEI
123	PVC FLOORING	POLYFLOR / ARMSTRONG GERFLOOR / FORBO/ TARQET/ LG
124	PVC FLUSHING CISTERN	COMMANDER/ JOHNSON PEDDER/ DURALITE/ GEBERIT/ CERA/ HINDWARE/ PARRYWARE/ JAQUAR/ SUPREME
125	PVC WATER STOPS	PRINCE/ SUPREME/ FINOLEX
126	REBAR COUPLER	SANFIELD/ DEXTRA/ KRIDHAN
127	REINFORCEMENT BAR	TATA/ RINL/ SAIL/ TISCO/ JINDAL/ RINL/ ESSAR/ IISCO/ JSW/ ARCELAR MITTAL (ONLY PRIMERY MANUFACTURE)
128	RESIN BASED PAINTS	BERGER/ NEROLAC/ ULTRATECH/ JOTUN/ SHIRWIN WILLIAMS / SNOWCEM PLUS/ TATA CEM / KAZONOBOLDULUX
129	ROLLER BLINDS	D-DECOR / DECK / HUNTERDOUGLAS/ AEROLUX/ VISTA
130	ROLLING SHUTTER	GATEMAN/ GODREJ/ AVIANS
131	SEISMIC STOPPER	L&T PIPING CENTRE/ HAZIRA/ ALLMARC/ AHMEDBAD/ GERB/ MAGEBA ENGINEERING/ KOLKATA
132	SENSOR OPERATED AUTO FLUSHING SYSTEM	SIMPOLO/ KOHLAR/GROHE / DURAVIT/VITRA
133	SFRC MANHOLE COVER & FRAMES	DALAL TILES / NITCO / KK MANHOLES/ DAYA SPUN/N.T.C.I MODERNTILES/OSWAL INDUSTRIESJAIPUR/ OCR/ PARGATI/ T-CON
134	SHEATHING DUCT	ASTRAL/ DYNAMIC/ PES.TEC/ TIRUPATI
135	SHUTRING OIL	SIKA/ FOSROC/ BASF/ THERMAX LIMITED / SUPREME / STAR COATING/ MC - BAUCHEMIE
136	SILICA SAND	SHREE SILICAAM MINERALS LLP/ RESICO INDIA PVT. LTD./ SHIV SHAKTI MINERALS
137	SILICON SEALANTS/WEATHER SEALANT	GE-SILICON/ PIDILITE/ CHOKSEY/ WACKER/ FORSOC/ CICO/ DOW CORNING / SIKA /STARCOATING
138	SLUICE VALVE/NRV	ZOLOTO/AUDCO / CASTLE / ADVANCE
139	SOIL, WASTE & RAIN WATER PIPES & FITTINGS-UPVC.	SUPREME/ SFMC PVC UPVC PIPE/ FLOW GUARD / ASTRAL / FINOLEX/ AKG/ UNITED FORGE/ METRO FORGE/ M/S METAL LLYOD INDUSTRIES
140	SOIL, WASTE WATER PIPES FITTINGS	NICO/SFMC PVC UPVC PIPE/ KAGECO / FINOLEX
141	SS FLOOR DRAIN, JALI, TRAPS	NEER/ JAYNA/ HINDWARE
142	SS GRATINGS, SOAP DISH TOWEL RAIL ETC.	CAMRY/ GLACIER/GEM
143	SS PLATE/SHEET	JINDAL/ BRG GROUP/ VIRAJ
144	STAIN LESS STEEL BOLTS, WASHERS AND NUTS	KUNDAN/ PUJA/ KONCEPT
145	STAINLESS STEEL	SALEM STEEL/ ARCELOR MITTAL/ TATA/ JINDAL ALLOYS/ SAIL

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WESTERN RAILWAY  
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SN	MATERIAL	MAKES/ MANUFACTURERS OR SIMILAR
146	STAINLESS STEEL CLAMPS	HILTI/ INTELLOTECH/ KONCEPT
147	STAINLESS STEEL CP GRATING	CHILLY/ CAMRY/ KONCEPT/ ALUBOND
148	STAINLESS STEEL D-HANDLES	D-LINE / KONCEPT / DORMA / KICH / GEZE/ ORION
149	STAINLESS STEEL FRICTION STAY	EARL BIHARI/ SECURISTYLE/ EBCO
150	STAINLESS STEEL PRESSURE PLATE SCREWS	KUNDAN/ PUJA/ ATUL/ KONCEPT
151	STAINLESS STEEL SCREW FOR FABRICATION	KUNDAN/ PUJA/ ATUL/ KONCEPT
152	STAINLESS STEEL SINKS	FRANKE/ CARYSIL/ NEELKANTH/ ALLEX/ NIRALI/ JAYNA/ CERA/ ANUPAM/ FRANKE FABRE
153	STONE WARE PIPES & GULLY TRAPS	PERFECT/ R.K/HIND/ ANAND/ BURN
154	SUPER PLASTICIZER	CICO/ PIDILITE INDUSTRIES / THERMAX LIMITED/ STAR COATING/ MC-BAUCHEMIE/ FOSROC/ SIKA/ BASF/ ASIAN LABORATORIES/ ULTRACON/ KRYTON
155	SYNTHETIC ENAMEL PAINTS	BERGER/ NEROLAC/ ULTRATECH/ JOTUN/ SHIRWIN WILLIAMS / SNOWCEM PLUS/ TATA CEM / KAZONOBOLDULUX
156	TACTILE TILES	AGL/ JOHNSON/ RAK/ NITCO/ PAVIT/ KAJARIA/ ORIENT BELL
157	TERRACOTTA TILE FOR EXTERNAL WALL CLADDING	TERREAL/HUNTER DOUGLAS/ SOLADRIHO / VEILS
158	TEXTURE PAINT	ULTRATECH/ SPECTRUM/ SKK/ OIKOS/ AKZONOBEL (DULUX)/ NEROLAC KANSAI (EXCEL)/ SPECTRUM/ ASIAN
159	THERMAL INSULATION SANDWICH BLOCK	VYARA TILES/ SUPER TILES/ BASANT BETONS/ DALAL TILES/ OSWAL INDUSTRIES JAIPUR
160	TILES/GRANITE ADHESIVE	FERROUSCRETE / THERMAX / PIDLITE / ULTRATECH / KRRAKOLL/ MYK LATCRETE/ FOSROC/ BASF/ KRYTON
161	TOILET CUBICLES	GREENLAM/TRESPA/CENTURY/ VEILS/ MERINO/ T-LINE/ DORMA,
162	UPVC DOOR & WINDOW	ALUPLAST/ FENESTA/ JAYANA/ PSP / KOMMERLING/ WINTECH/ WINDOWMAGIC/ RAJSHRI
163	UPVC PIPES/FITTINGS AND VALVES	ASTRAL/ SUPREME/ FYBEL/ AKG/ FINOLEX/ SURYA PRAKASH/ VECTUS/ SFMC
164	VITREOUS CHINA SANITARY WARE	SIMPOLO/ KOHLAR GROHE DURAVIT / VITRA
165	VITRIFIED TILES	KAJARIA/ HR JOHNSON/ SIMPOLO/ RAK/ NEXION/ EMCER/ AGL(SUPPLY TO BE MADE FROM THEIR AUTHORIZED COMPANY)/ SOMANY/ H&R JOHNSON/ ASIAN (AGL)/ VERMORA/ NITCO/ NITCO/ SOMANY
166	WALL PUTTY	BIRLA WHITE/J.K./ GRASIM
167	WATER METER	KAYCEE/ SANT/ZENNER/ PRIMA/ ZOLOTO/ LEADER/ CAPSTAN/ LEHRY
		BASF/ THERMAX / FOSROC / SIKA / SOPERMA / STARCOATING

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WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

SN	MATERIAL	MAKES/ MANUFACTURERS OR SIMILAR
168	WATER PROOFING COMPOUND	/ MC - BAUCHEMIE/ PENETRON/ KRYTON FIRE STONE/ PIDILITE/ CARLISLE/ ARMSTRONG CHEMICALS PVT LTD/ EFFCO FINISHES & TECHNOLOGIES PVT LTD/ MYK ARMENT PVT. LTD./ PENETRON/ PIDILITE INDUSTRIES LTD/ STP LIMITED
169	WATERPROOFING MATERIALS	ARMSTRONG CHEMICALS PVT LTD/ EFFCO FINISHES & TECHNOLOGIES PVT LTD/ MYK ARMENT PVT. LTD./ PENETRON/ PIDILITE INDUSTRIES LTD/ STP LIMITED
170	WEATHER SEALANT	BASF/ THERMAX / FOSROC / SIKA / SOPERMA / STARCOATING/ NEROLAC/ BERGER/ AKZONOBEL/ M.C.BAUCHEMIE/ WACKER/ STP
171	WELDING ELECTRODES	ADOR WELDING LIMITED/ D&H SECHERON ELECTRODES PVT LTD/ ESAB GROUP/ GEE LIMITED
172	WHITE CEMENT	BIRLA WHITE/ J.K./ GRASIM/ LAFARGE/ DALMIA/ ULTRATECH

## 5.0 Cement :

- 5.1 The cement shall be 53 Grade Ordinary Portland conforming to IS-12269-1987.
- 5.2 Whenever possible, cement of each type shall be obtained from one constant source throughout the contract. Cement of different types shall not be mixed with one another. The cement shall be procured as per the approval of Engineer in Charge. Different brands of cement, or the same brand of cement from different sources, shall not be used without prior approval of the Engineer in Charge at site.
- 5.3 Packaged cement shall be delivered at the site in original sealed bags, which shall be labeled with the date of manufacture, weight, name of manufacture, brand and type. Cement received in torn bags shall not be used. Moreover, bags of cement, which vary in weight by more than 3% shall not be accepted.
- 5.4 All cement shall be fresh when delivered and at ambient atmospheric temperature.
- 5.5 The cement shall be storage in elevated platform on dry area and stacking should not more than 10bags one above other.
- 5.6 In fair faced elements, the cement used in the concrete for any complete element shall be from a single consignment. All cement for exposed concrete shall be from the same approved source and uniform in color.
- 5.7 With each and every delivery of cement, the contractor shall provide manufacturers certificate that the cement conforms to the relevant Indian standard.
- 5.8 Total chloride content in cement shall in no case exceed 0.05 percent by mass of cement. Also, total sulphur content calculated as sulphuric anhydride (SO<sub>3</sub>), shall in no case exceed 2.5 percent and 3.0 percent when tri-calcium aluminate per cent by mass is upto 5 or greater than 5 respectively.

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

5.9 Important properties:

- a) Initial Setting time: As per Indian Standard, the minimum initial setting time is 30 minutes. Considering the hot weather conditions prevailing in India, it is all the more necessary to use cement with higher initial setting time, e.g. at least 60 minutes.
- b) Fineness of Cement: IS Code provides for a minimum specific surface of 225 m<sup>2</sup>/Kg. The upper limit shall be 280 m<sup>2</sup>/Kg

6.0 **Steel**

- 6.1 Steel bars Fe 500D shall be used for this work conforming to IS : 1786-2008 as indicated in the Drawing and shall be free from loose mill scales, rusts and coats of paints, oil mud and other coating which may reduce or destroy bond.
- 6.2 If MS bars are supplied in coils, then the contractor will have to straighten these before cutting and bending etc. within the contract rate and no extra payment will be made on this account.
- 6.3 The contractor shall have to produce test certificate about the quality from the Government Recognized Institution. Railway Administration may also get the steel brought at site tested from time to time in the Government Recognized Institutions/ reputed laboratories as and when required at the cost of the contractor.
- 6.4 Proper detailing of reinforcement is essential as any cracking caused by defective detailing of reinforcement accelerates corrosion. Importance shall be given to ensure proper drainage, water proofing of the surface with protective coating is necessary.
- 6.5 The contractor shall make necessary arrangement for clearing and removing rust, etc. from reinforcement before the material are put to actual use.
- 6.6 Steel reinforcement shall be stored in such a way as to avoid distortion and to prevent deterioration by corrosion. When directed by the Engineer the reinforcement bars shall be given a cement wash before stacking to prevent scale and rust.
- 6.7 All ends of binding wire shall be carefully turned inwards so that they do not project out of concrete to start rusting action.
- 6.8 The contractor shall maintain a register of reinforcement indicating the size, diameter, number of bars used in the work.
- 6.9 Before concrete for RCC work the contractor/s must sign the record for reinforcement used, failing which he/they will have to accept the railway figure.
- 6.10 Frequency for testing.

For checking nominal mass, mechanical properties, bend test and rebend test, test specimen of sufficient length shall be cut from each size of the finished bar/wire at random at a frequency not less than that specified below:-

	Quantity
--	----------

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Nominal size	For Casts/Heat Below 100 tonnes	For Casts/Heat of 100 tonnes& more
For all sizes	2 per cast	3 per cast

Note: - The frequency for chemical analysis for steel to be decided by the Engineer-in-Charge as per the requirement.

**6.11 Chemical properties of TMT bars:**

Constituent	Percent, Maximum (Fe-500 D)
Carbon	0.25
Sulphur	0.040
Phosphorous	0.040
Sulphur and phosphorus	0.075

**6.12 Mechanical properties of TMT bars: (d = nominal size of test piece)**

Properties	(Fe-500 D) (Limit)
0.2 percent proof stress / Yield stress (minimum) N/mm <sup>2</sup>	500 N/mm <sup>2</sup>
Ultimate tensile stress Mpa (minimum)	565
Elongation percentage (minimum)	16
Bend upto including 20mm	3d
Over 20mm	4d
Rebend up to including 10mm	4d
Over 10mm	6d

**6.13 Tolerances on Nominal Mass**

Nominal Size Mm	Tolerance on the Nominal Mass, Percent		
	Batch	Individual Sample	Individual Sample for Coils Only
Up to and including 10	+/-7	-8	+/-8
Over 10 up to and including 16	+/-5	-6	+/-6
Over 16	+/-3	-4	+/-4

**6.14 Splicing**

- a) Where it is necessary to splice reinforcement the splices shall be made by lapping, by welding or by mechanical means.
- b) If the Contractor proposes to use welded splices in reinforcing bars, the equipment, the material and all welding and testing procedures shall be subject to the approval of the Engineer-in-Charge. The contractor shall also carry out test welds as required by the Engineer-in-Charge.
- c) In case of welded splices for reinforcing bars conforming to IS: 1786-2008 welding shall be done in accordance with IS: 9417-1979. For reinforcing bars conforming to IS: 432 (part-I)-1982 welding shall be done in accordance with IS: 2751-1979. Electrodes for manual metal arc welding shall conform to IS: 814 (Part-I) 1974 and IS: 814 (Part-II)-1974. Mild steel filler rods for Oxy-

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acetylene welding shall conform to IS: 1278-1972 provided they are capable of giving a minimum butt weld tensile strength of 41 kg/mm<sup>2</sup>.

d) Full standard length of various sizes of reinforcing bars should be utilized, wherever it fulfills drawing of the structure generally. Payment for overlaps shall be admissible where it is unavoidable as per drawings, type of component of structures & design & detailing of reinforcement of element of structure and the decision of Engineer in charge or his authorized representative shall be final.

**6.15 Care of Placed Reinforcement and Concrete**

Where reinforcement bars are bent aside at construction joints and afterwards bent back into their original position care shall be taken to ensure that at no time the radius of the bend is less than 6 times diameter (6D) for deformed bars and 4 times diameter (4D) for plain mild steel bars. Care shall also be taken, when bending such bars to ensure that the concrete around the bars is not damaged. Care shall also be taken to remove the silted materials around the bars.

**7.0 Aggregates**

7.1 All aggregates shall comply with requirements of IS : 383 – 1970.

7.2 The tests for aggregates shall be done in accordance with IS : 2383 (Part-I) to IS : 2386 (Part – VIII).

7.3 Course and fine aggregates shall be batched separately

**8.0 Water**

8.1 Water for washing for aggregate and for mixing & curing shall be clean and free from injurious amount of oils, acids, alkalis, salt, sugar, organic materials or other substances that may be deleterious to concrete or steel. Normally potable water may be considered satisfactory.

8.2 The pH value of water shall generally be not less than 6.

8.3 Permissible limits for solids when tested in accordance with IS: 3025 shall be given as below

	Maximum permissible Limit
Organic	200 mg/l
Inorganic	3000 mg/l
Sulphate(asSO <sub>4</sub> )	500 mg/l
Chlorides (asCl)	2000 mg/l for plain concrete works, 1000 mg/l for reinforced concrete works and 500 mg/l for prestressed concrete

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	Maximum permissible Limit
	works.
Suspended matter	2000 mg/l

- 8.3 Water found satisfactory for mixing is also suitable for curing concrete. However, water used for curing should not produce any objectionable stain or unsightly deposit on the concrete surface. The presence of tannic acid or iron compounds is objectionable.

## 9.0 Admixtures

- 9.1 Admixture may be used with the approval of Engineer in charge. **However, any admixture containing chlorides in any form is prohibited.**
- 9.2 The admixtures shall confirm to IS : 9103 – 1999.

Note: Above mentioned guide lines for at a glance, but the Special conditions and specifications shall also be followed as per the Special Conditions of Contract of materials and work laid down by the Railway in the Special Conditions/Indian Railways Unified Standard Specifications (Works & Material)- 2021 & CPWD Specifications (Vol.1& Vol.2) for execution of Civil Engineering works related to Building Work, Road Works & Horticulture Works etc. along with all correction slips issued up to date of opening of tender shall be followed.

## 10.0 Reinforcement Steel :

- a) The HYSD/TMT bars of grade Fe-500 D/550 D confirming to IS: 1786 -2008 shall be used as reinforcement for concrete.
- b) **The contractor shall furnish BIS manufacturer's test certificate along with test results for each category for every lot brought to the site of work.** The manufacturer's test results shall be from the manufacturer's lab only. The test results from other lab shall not be accepted and the consignment will be rejected. Testing of all material supplied & utilized shall be carried out as per relevant IS and endorsed by the respective SSE & AXEN.

## 11.0 SPECIFICATIONS FOR CC/RCC/PSC WORK, FOUNDATION, SUBSTRUCTURE AND SUPER STRUCTURE

### 11.1 CC /RCC/PSC WORK QUALITY CONTROL:

- 11.2 The contractor/s will be required to exercise effective quality control over production, placement, compaction and curing of concrete at site. They will ensure a proper specification as laid down in IS 456-2000. No extra payment for this quality control shall be admissible.

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- 11.3 Samples from fresh concrete shall be taken as per IS-1192 (1959) Method of sampling and analysis of concrete and cubes shall be made, cured and tested in accordance with IS: 516(1959) - 'Method of Test for strength of concrete'. The contractor/s shall arrange for testing of cubes at his own cost in accordance with IS: 516(1959) in presence of the Engineer's representative. No extra payment for carrying out such test will be made to the contractor.
- 11.4 The test cubes of 15cm x 15cm x 15cm of size will have to be prepared by the contractor. The number of cubes from any batch of concrete shall be as per IS: 456-2000.
- 11.5 The contractor/s will maintain quality control charts at site of work based on the test results, which should be made available to the inspecting officers on demand
- 11.6 Aggregate, sand and water to be used for CC/RCC should conform to relevant ISI standard. Testing shall be made at contractor's cost to ensure quality.
- 11.7 No concreting will be allowed till reinforcement and shuttering work are properly checked and okayed by the Engineer's representative.
- 11.8 All concreting to be done for CC/RCC work shall mechanically mix by use of concrete mixer and properly compacted by use of vibrators.
- 11.9 Concreting for CC/RCC work shall also be permitted from nearby RMC/batching plant with Railway's approved concrete design mix. The ready mixed concrete may be used whenever required shall confirmed to the specification of the concrete as laid down in the Indian Railway Concrete Bridge Code. For other aspect which are not cover in the Indian Railway Concrete Bridge Code, IS : 4926-2003, IS : 5892-1970 etc. may be referred.

**11.9.0 Specifications for RMC/RCC/CC (for foundation, substructure and super structure).**

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11.9.1 Cast in situ/RMC from own/private batching plant for all major concreting works: Depending upon the requirement and as directed by the Engineer-in-charge, the contractor is required to use RMC or install his own batching plant of suitable capacity at suitable location. All the concrete shall be manufactured at this location in presence of the Engineer-in-charge or his representative. The concrete shall be required to be transported to the location of concreting by means of transit mixtures and shall be poured by gravity / pumping as the requirement may be. No separate charges for pumping of concrete are admissible. Railway land for putting up the temporary batching plant if available, may be allocated free of cost.

11.9.2 The land will have to be cleared from all encumbrances after completion of the work. In a situation, where there is difficulty in transportation, the contractor may be allowed to provide mini automatic batching plant for concreting work.

11.9.3 In extreme case, if RMC / batching plant is not practicable, at least a mini batching plant may be allowed at the sole discretion of the Engineer in charge.

11.9.4 The loss in workability and strength during the transit time from batching plant to the place of work shall be determined and shall be accounted for while designing the concrete mix.

11.9.5 Special conditions for use of RMC

11.9.5.1 In case the tenderer plans to use RMC for the work, he should ensure that these conditions are complied with by his RMC manufacturer. It would be in his interest, if these conditions are incorporated in his agreement entered with the RMC supplier.

11.9.5.2 RMC means concrete produced by completely mixing cement, aggregates, admixtures, if any and water at a central batching and mixing plant and delivering in fresh condition to purchaser at site of construction.

11.9.5.3 Necessary information to be furnished by Railway for guidance of manufacturer of RMC —

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**(Respective details shall be furnished by Railway after design submitted by the contractor is approved.)**

- (a) \_\_\_\_\_ type of cement conforming to IS:\_\_\_\_\_ shall be used for manufacturing of RMC.
- (b) \_\_\_\_\_ maximum size of natural aggregates confirming to IS: 383 shall be used.
- (c) Water proposed to be used in concrete shall be in accordance with clause No. 4.3 of IRS Concrete Bridge Code.
- (d) The contractor/ manufacturer may use any suitable admixture (i.e. Water reducing agent / retarded etc.) of reputed make. The suitability of the admixture shall be tested in accordance with requirements specified in IS: 9103. Records of all the tests, carried out to judge the suitability of admixture, shall be furnished by the RMC manufacturer to Railways. For judging the suitability of admixture, tests for workability, time of setting, compressive strength at 7 and 28 days shall be carried out under the supervision of Railway's representative. However, in case of small works, if RMC supplier has adequate record for judging suitability of admixture for the same design mix for the same brand of cement, the record may be relied upon.
- (e) The minimum compressive strength and slump/compacting factor required for workability at the placement of concrete shall be as laid down in IRS Concrete Bridge Code.
- (f) The test cubes shall be tested at the age as laid down in IRS Concrete Bridge Code. The frequency and number of tests shall be made in accordance with clause No. 8.7.2 of IRS Concrete Bridge Code

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(g) Other miscellaneous requirements including durability requirements:

- i) Only design mix concrete shall be used for production of the required grade and strength of concrete.
- ii) Minimum cement content and Maximum cement content shall be as laid down in IRS Concrete Bridge Code.
- iii) Maximum water cement ratio shall be as laid down in IRS Concrete Bridge Code
- iv) Maximum total chloride content shall be restricted to 0.15% / 0.06% by mass of cement for RCC/ prestressed concrete works respectively.
- v) The total amount of soluble sulphate content shall be less than 4% by mass of cement.
- vi) Permeability test shall be conducted as per the requirement of Appendix-G of IRS Concrete Bridge Code (DIN: 1048). The maximum moisture penetration depth in the test specimen shall not exceed 25 mm.
- vii) Initial setting time for design mix shall be as laid down in IRS Concrete Bridge Code.

**11.9.5.4 Quality control:**

The producer of RMC should adopt proper quality assurance programme. It shall cover forward control, immediate control and retrospective control. It shall have necessary laboratory facilities to carry out necessary tests to ensure quality control at each stage during production of concrete. In case, few tests are done outside. Which are not required frequently, the record of test results shall be available with the

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RMC manufacturer.

**11.9.5.5 Approval of Design Mix Concrete:**

Only design mix concrete shall be produced for the required grade and strength of concrete. For design of concrete mix, IS: 10262 or any other standard may be used for guidance. The design mix computation shall be submitted in advance to the Railways by the contractor. Based on the proposed design mix, cubes shall be cast and tested under the supervision of Railway's representative. In addition to strength, proposed design mix shall be tested for workability, initial setting time, permeability, total chloride content & sulphate content. Only after satisfying the requirements of initial setting time, workability, strength, permeability, total chloride & sulphate content, the design mix shall be approved by the Railways. In case there is any change in ingredients or in the process/ plant, design mix shall be redesigned and got approved by Engineer-in-charge.

**11.9.5.6 Loss in workability and strength of concrete during transportation:**

The loss in workability and strength of concrete during the transit time involved in transportation of concrete, from mixing plant to the place of work, shall be determined before hand. The loss of workability and strength shall be accounted for while designing the concrete mix.

**11.9.5.7 Access to Railway's officers/officials to RMC plant:**

- i) The contractor shall have to arrange RMC from RMC producing plants of repute.
- ii) Notwithstanding the approval granted by Engineer-in-charge, the contractor shall be fully responsible for quality of concrete including input control, transportation and placement etc.

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- iii) The Engineer-in-charge shall reserve the right to inspect at any stage and reject the concrete if he is not satisfied about quality of product at the user's end.
  
- iv) The Engineer-in-charge reserves the right to exercise control over:-
  - a) Calibration check of the RMC plant.
  
  - b) Weight and quantity check on the ingredients, water and admixtures added for batch mixing.
  
  - c) Time of mixing of concrete.
  
  - d) Testing of fresh concrete, recording of results and declaring the mix fit or unfit for use. This will include continuous control on the workability during production and taking corrective action, if required.
  
- v) For exercising such control, the Engineer-in-charge shall periodically depute his authorized representative at the RMC plant. It shall be responsibility of the contractor to ensure that all necessary equipment, manpower & facilities are made available to the Engineer-in-charge and or his authorized representative at the RMC plant.
  
- vi) All required relevant records of RMC shall be made available to the Engineer-in-charge or his authorized representative. The Engineer-in-charge shall, as required, specify guidelines & additional procedures for quality control and other parameters in respect of material production & transportation of concrete mix which shall be binding on the contractor and the RMC producer. Only concrete as approved in design mix by the Engineer-in-charge shall be produced in the RMC plant and transported to the site.
  
- vii) The contractor shall have to produce a copy of Delivery Ticket (as per Annexure) as a documentary proof in support of supply of RMC before releasing

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payment.

**11.9.5.8 Temperature of concrete:**

Temperature of produced concrete shall not be less than 5°C and shall not exceed 35°C.

**11.9.5.9 Transportation of concrete:**

The concrete shall be transported in concrete transit agitators conforming to IS: 5892. Agitating speed of the agitators during transit shall not be less than 2 revolutions per minute nor more than 6 revolutions per minute.

**11.9.5.10 Transit time and placement of concrete:**

- a) The concrete shall be delivered at the site of work and discharge shall be completed within one and half hours of adding mixing water to the dry mix of cement and aggregate. Concrete received after the transit time, as specified above, shall not be accepted.
- b) Concrete, there after, shall be placed in position within the designed initial setting time. At the end of initial setting time, the left over portion of concrete, if any, shall be rejected.

**11.9.5.11 Re-tempering:**

Under any circumstances, addition of any water shall not be allowed after the initial mixing of concrete.

**11.9.5.12 Testing for workability and strength at the time of placement of concrete:**

The concrete shall be tested for the required workability and strength at the time of placement. Concrete shall be deemed to satisfy/ comply with the strength requirement when it fulfils the criteria laid down in clause No. 8.7.6 of IRS Concrete

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Bridge Code.

11.9.5.13 Testing of concrete:

The expenditure required to be incurred for taking the samples, conveyance, packing etc. shall be borne by the contractor.

11.9.6.14 Dosing of admixtures at site of concreting:

After arrival of RMC at site, additional dose of admixture, if provided for in the approved mix design, shall be added in presence of Railway supervisors.

11.9.5.15 The rates quoted by the contractor in the schedule of quantities shall be inclusive of all arrangements to be made for transportation of RMC to the site of work including rehandling, pumping etc. & no claim of the contractor regarding narrow streets and unapproachable sites shall be entertained.

11.9.5.16 Any other aspects not covered in above paras shall be governed by IS: 4926.

11.9.6 Other miscellaneous provisions:

- i) RMC item is available in the tender including the cost of cement, the payment of item can be made straight away, or
- ii) If RMC is allowed to use in lieu of concrete item available in the tender including the cost of cement, the payment of item can be made straight away, or
- iii) If concrete item is available in the tender excluding the cost of cement, the quantity of cement consumed as per mix design report or actually consumed will be reimbursed for payment of cement item.

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**11.9.7 Measurement of concrete:**

Measurements of concrete work so done will be based on finished concrete work. No measurement shall be done for green concrete.

11.10 Generally admixture, like water reducing agent retarder etc. are used in Ready Mix concrete for retention of desired workability and to avoid setting of concrete. In such cases, admixture should be tested for their suitability as per IS: 9103 at the time of finalizing mix design.

11.11 The concrete shall be delivered completely to the site of work within 1½ hours (when the atmospheric temperature is above 20°C) and within 2 hours (when the atmospheric temperature is at or below 20°C) of adding the mixing water to the dry mix of cement and aggregate or adding the cement to the aggregate, whichever is earlier. In case, location of site of construction is such that this time period is considered inadequate, increased time period may be specified provided that properties of concrete have been tested after lapse of the proposed delivery period at the time of finalizing mix design.

11.12 Contractor shall ensure one stretch concreting during one shift of concreting. Any rest/pauses such as for meals etc. should be adjusted accordingly with the consent of the Engineer's representative.

11.13 During placing of concrete, free fall of concreting shall not be more than 1.50 metre and concrete shall be cured as per the satisfaction of the site Engineer. +

11.14 Sufficient number of spare vibrators in working condition should be available at site.

11.15 Removal or de-shuttering of formwork shall be as per IS- 456-2000 and in the presence of Site Engineer and no patch repair or finishing surface shall be done without approval of Engineer in Charge. Any such rectifications will be done by the contractor at his own risk and expenses.

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- 11.16 Any part of the RCC which does not come up to the standards or is damaged during any operation of the work shall be fully made good by the contractor at his own cost.
- 11.17 Construction joint may be provided only after approval of Engineer and will be prepared as under. The entire lattice which has come on the surface will be removed by wire brushing before hardening of the concrete in such a manner that aggregate are exposed but not disturbed from their position. Surface should be cleaned by water jetting.
- 11.18 Contractor shall provide only approved type of formwork preferably of steel and the same shall be got approved by the Railway before use in work.
- 11.19 Any loose mill scale or loose or scaly rust must be completely removed before the reinforcement is placed in position. Sufficient number of concrete/cover blocks of size equal to minimum cover specified in drawing shall be provided before placing the reinforcement in position.
- 11.20 For all concrete work, the aggregate will be tested as per standard tests prescribed to IS-2384 Pt. I & II, IS-383 and Indian Railways Unified Standard Specifications (Works & material) Vol. I & II - 2021 to determine their properties and their grading. As far as possible, stock piling of the aggregates shall be done in accordance with the standard practices to enable standard analysis being made of such batch that is brought to the site. The design of the mix will be carefully done from representative samples of the aggregate. The preliminary test results along with analysis of aggregates and mix design calculations should be sent to the Engineer for his approval. The contractor/s will modify/carry out the mix design to the satisfaction of the Engineer if so required and get his final approval. Such approval, however, does not relieve the contractor/s of his/their responsibility and obligations regarding the minimum strength requirement.
- 11.21 All controlled concrete of mix M-25 & richer shall be weigh batched. Concrete mixers with devices for automatic weighing facilities for aggregates shall be used. Moisture content in the aggregates shall be taken into consideration. Standard measuring boxes can be used after proper calibration for unit weight.

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- 11.22 Foundation trenches for temporary supports to the casting bed of PSC girder must be passed by the Engineer-in-charge before any concrete is placed in them. The bottom of the foundation and trenches shall be accurately excavated to the form of permanent work as specified in drawings and be carefully leveled and thoroughly cleaned.
- 11.23 Centering and shuttering for all major RCC & CC work are required to design by contractor properly and submit his/their design with drawings for approval of the Engineer in charge. No concreting will be done unless such drawings have been approved by the Engineer in charge.
- 11.24 All the joints between shuttering plates and concrete surface shall be water tight by application of sponge or any other suitable materials.
- 11.25 Form work pattern provided shall be to the satisfaction of Engineer-in-charge. No claim will be entertained on this account.
- 11.26 Quantity of reinforcement as required for the work will not be a matter of dispute for RCC work and no extra payment for using higher reinforcement will be admissible over basic RCC rate.
- 11.27 Coarse aggregate for RCC - (6mm to 20mm) only crushed broken stone metal of approved quality shall be permitted.
- 11.28 Slab concrete shall be placed vibrated and finished in such a way to required slope so as to avoid any possibility of leakage.
- 11.29 Ground level for bridge abutment, wings, returns, piers etc. will be determined as the mean of actual ground level available at the individual site of each structure like piers, abutments, wings etc.

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11.30 Methods of computing volume of concrete and masonry will be calculated by the mean area method or high piers prismatic formula as decided by the Engineer's representative.

**12.0 CURING OF RCC/CC WORK.**

12.1 Contractor will have to make sufficient arrangement for water required for curing purposes. However, the curing of concrete can also be done by application of curing compound as per the direction of site Engineer-in-charge of work and nothing extra shall be paid for this.

12.2 The contractor/s will have to submit the test results from a reputed Engineering College/Laboratory regarding efficiency of the curing compound and the curing compound shall be allowed to be used only after obtaining written approval from Engineer-in-charge of work.

12.3 Approximate coverage of about 4 meter square per litre will be required for the concrete surface to be cured. In order to ensure a continuous impervious membrane, it would be necessary to apply two coats of curing compound by moving the spray nozzle back and front in one direction followed by flowing likewise at right angle. The nozzle should be held at about 300-600mm from the surface.

12.4 When a curing compound is applied to a vertical surface, it should be applied immediately after removal of form work. If the surface is not still green and has dried out, it should be saturated with application of water and the curing compound then applied while the concrete surface is still damp. Curing compound should not be applied to a dry surface because the compound may be absorbed and cause staining.

**13.0 MACHINERY, TOOLS AND PLANTS**

13.01 **For Building Construction:** For building construction work contractor should use Concrete Mixer with weigh batcher, needle vibrator at site for controlled concrete.

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**13.02 For Minor Bridges :**For minor bridges work contractor should use concrete mixer with weigh batcher, needle vibrator & shutter vibrator at site for controlled concrete.

**13.03 For Major Bridges :**

**(i) General :**Batching plant to be installed at site. Needle vibrator, shutter vibrator is essential. Concrete pump to provide if required. Sufficient Nos. of Transit mixture should be deployed for transportation of concrete.

**(ii) Piling Work :**Adequate number of rigs with winch machine, welding generator, motor pump to be provided by contractor. If total pile in a particular work is more than 2500m. at least one hydraulic rotary rig for pile of more than 1m dia. to be provided by the contractor. Liner driving equipment is essential at each and every site.

**(iii) Prestressing :**The system followed in prestressing are generally Freyssinet, Usha-Ismael, Killick Nixon etc Elongation and Jack pressure are the two main things to be observed. Suitable jack and pump to be provided by the contractor. For grouting, compressed Air to be passed for which suitable compressor and pump to be provided by the contractor.

#### **14.0 TESTING AND FIELD LABORATORY**

**14.1** The contractor shall provide a field laboratory for testing of cement; fine aggregate, coarse aggregate and concrete cubes. All testing shall be carried out in presence of Engineer-in-charge or his representative. All the expenditure on this account shall be borne by the contractor and no extra payment shall be made by Railway.

**14.2** The contractor shall get a percentage of samples tested from other approved laboratories as may be directed by Engineer-in-charge as confirmatory test without any extra cost.

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- 14.3 In the use of materials procured by the contractor/s testing as required by the codes and specifications shall be arranged by him/them at his/their own cost.
- 14.4 Aggregate for concreting will be tested in the beginning and at frequent interval during the course of work.
- 14.5 The field laboratory must be well equipped to enable testing at site itself the quality of concrete size of aggregate, moisture content and bulking of sand, slump test, cube test upto M-50 grade.

### **15.0 FORMWORK AND FALSE WORK**

Form work and false work are very important for all concrete structures in question for these have influence on shape, strength and durability of the structures. For this reason, details must be correctly designed and installed. The design of the formwork shall take account of the required surface conditions (appearance, compatibility with the required finish). The formwork and false work together must provide safe working conditions. Safe access must be provided using additional scaffolding as necessary. The drawing of formwork only or and false work shall be got approved by Railway.

### **16.0 CONSTRUCTION JOINT**

No extra payment will be made for gaps between old and new masonry or between abutment or return or wings in new or old bridgework.

- 16.1 The Contractor/Contractors is/are required to take every care and precaution so as not to disturb the existing bridge in any way whatsoever while carrying out the construction of the bridge.
- 16.2 The bridgework includes dry rubble filling behind the abutments, wings and the return walls and dry stone pitching in floor and slope of bank. The contractor/s should carry out the back filling behind the bridge abutments, wings and return walls. The Contractors will be paid for such work under USSOR/NS item for his own rubble.

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**17.0 PUMPING/BAILING OUT OF WATER, COFFER DAMS ETC.**

- 17.1 No extra payment shall be made for pumping out or bailing out of surface water when any work done below water level except for work in foundation where subsoil water is required to be bailed out during execution.
- 17.2 The rate quoted by the contractor/s shall be deemed to include provision of coffer dams, diversion, bunds, approach roads to the site of work etc. and such other works necessary for setting out and execution of work in different phases as ordered by the Engineer-in-charge. No extra payment shall be made for such works or for phase works carried out which are necessary for satisfactory execution of works.
- 17.3 Any timbering works required to be done for retaining earth during excavation for foundation will have to be arranged by the contractor which shall conform to the provision laid down in Indian railways Unified Standard Specifications (Works & materials) 2021 for which no extra payment shall be admissible.
- 17.4 The contractor shall be responsible for the maintenance of Bench mark mattams in his jurisdiction of work during course of execution under the guidance of Engineer's representative.
- 17.5 While excavating the foundation, the contractor shall ensure that no damage is caused to underground sewer line pipes, cables etc. He should also ensure the stability of the adjoining lines, building, roads etc. Damage to any of the underground services or any adjoining structures if caused during the course of work shall be fully made good by the contractor at his own cost.

**18.0 REMOVAL OF REJECTED MATERIAL**

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Any filling materials (including stone) which are rejected by the Engineer for any reason before or after placing shall be re-excavated and removed from site at the contractor's expenses.

### **19.0PRE BLOCK ACTIVITIES**

19.1 Contractor shall make a complete foot to foot survey of track, terrain, approach roads accessibility for road cranes, vehicles etc. and locations of ballast stacks or plot where ballast supply is in progress, PRC sleepers stacks, new rails lying along the track or in Depots etc. so as to have a complete idea of the section before quoting the rates.

19.2 Based on L-Section and Yard Plans, which are available in the office of Engineer-in-charge and the same can be seen during working hours of the office, the contractor shall fix reference pegs of center lines of tracks in main line and loop lines, location of stock Rail Joints of different points, traps, dead ends, SEJs, Glued joints etc. Center line peg shall be fixed on the cess at 3 M away from the center line with the help of theodolite at the interval of 100 meters besides at very change of grade, beginning of transition of curve, beginning of circular curve, other obligatory points such as bridges, level crossing, points and crossing. The contractor shall be provided with LWR plan and based upon that plan, he shall insert SEJ's exactly at same locations. The centerline pegs and reference pegs/Pillars shall be made by the contractor himself, which shall be either of wood or MS rods. The paint mark shall be given on the reference pillars indicating formation level, proposed rail level. **The contractor shall ensure that minimum 6 Nos. of Pegs per Km of track in straight portion and in curve at every 20 Mt. shall be provided, otherwise recovery @ 1000/- per Km and Rs. 5000/- per Curve will be made.** However, no extra payment shall be made for these activities.

The Contractor, after fixing such locations shall get it approved by Engineer-in-Charge before going ahead with the work.

3.3 The Contractor shall arrange for spreading of about 25% to 35% of total quantity of fresh ballast stacked along MG cess into the existing M.G. track on shoulders as per direction of Engineer-in-Charge. In case of new line ballast shall be spread in thickness not more than 200 mm and got compacted by mechanical means before laying of new track.

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- 19.4 The PRC sleepers lying either on ground in stacks along the track/new line alignment, shall be leaded /lifted and uniformly spread, so that block period track linking work can progress expeditiously. For spreading of PRC sleepers no dragging shall be permitted. These are to be handled with the help of cranes. However, where accessibility of crane is not possible, manual handling shall be permitted. If the cess of formation gets disturbed while placing the sleepers, the contractor shall make good the same at his own cost.
- 19.5 Advance work for linking of loops, points and crossings etc. where space is available, shall be completed in pre block period.
- 19.6 Before starting dismantling of track during block period, the contractor shall ensure that joint inspection, as per special conditions, is completed.
- a. 19.7 The Contractor shall arrange for sufficient numbers of supervisors and labours, plants, equipments, like crane, tractors and P. Way tools and small machines before commencement of any operations to suit the Stage Targets specified by the Railway.
- b. 19.8 The contractor shall arrange for sufficient labour, T&P and machinery to complete the work in stipulated time. These plants/equipment and tools are to be kept in good serviceable order at all times during the progress of work.

Tools and plants

1.	Walky talkey	:	1 Set
2.	Material Trolley	:	2 Sets
3.	Pick Axe	:	Number of labour/3
4.	Rail Tong	:	Number of labour /3
5.	Level Gauge	:	2 Nos.
6.	Sleeper Tong	:	12 Nos.
7.	Beater	:	12 Nos.
8.	Crow bar	:	Number of labour

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- |     |                           |   |                          |
|-----|---------------------------|---|--------------------------|
| 9   | Spanner                   | : | 10 Nos.                  |
| 10. | Wire Claw or Ballast rake | : | Number of labour /2 Nos. |
| 11. | Phowrah                   | : | 10 Nos.                  |
| 12. | Box range                 | : | 04 Nos.                  |
| 13. | Tong range                | : | 20 Nos.                  |
| 14. | Hammer                    | : | 10 Nos.                  |

Machineries

- |      |   |   |                    |      |
|------|---|---|--------------------|------|
| (1)  | JCB   | : | 1                  | No.  |
| (2)  | Truck/Tractor                               | : | 8                  | Nos. |
| (3)  | Road Crane                                  | : | 3                  | Nos. |
| (4)  | Roller (2 to 8 Tonne)                       | : | 2                  | Nos. |
| (5)  | Cutting Blades                              | : | Sufficient numbers |      |
| (6)  | Drilling bits for 20mm,<br>28mm & 32mm dia. | : | Sufficient numbers |      |
| (7)  | Versine measuring kit                       | : | 1                  | No.  |
| (8)  | Rollers for de Stressing                    | : | 100                | Nos. |
| (9)  | ERC Applicators                             | : | 1                  | No   |
| (10) | Chamfering equipments                       | : | 2                  | Nos. |
| (11) | Rail drilling machines                      | : | 4                  | Nos. |
| (12) | Rail cutting machines                       | : | 4                  | Nos. |
| (13) | Rail lifting Jack                           | : | 10                 | Nos. |
| (14) | Box spanners for P & C                      | : | 6                  | Nos. |
| (15) | Gauge Cum Level                             | : | 4                  | Nos. |
| (16) | Rail Dollies                                | : | 4                  | Nos. |

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This list of machines/T&P is for guidance and making advance actions for arrangement of the same. However any other materials which may be required for linking of track, shall also be arranged by him. It is the responsibility of the contractor to keep all P.WAY tools and plants in safe custody after days work. Railway shall not be responsible at all for loss or theft.

## 200

20required/formationB5

### 3.0 (B) Activities of BLOCK period:

- 3.1 The duration for gauge conversion block shall be 30 (Thirty) days or as decided by the Chief Engineer (C) –HQ, Churchgate.

The working in block period shall have to perfectly match with targets laid down for each individual activity indicated in the bar charts submitted by the contractor and shall adhere to all stage targets. Any delay in any of the activity shall not be accepted on any account. On account of any such delays, **Railway Administration reserves the right of terminating part/full contract by issuing only 48 hours notices** and the balance work can be got executed departmentally or by some other agency at the risk and cost of defaulting agency.

- 3.2 The activities during block period shall be as under:
- 3.3 With the start of block, the contractor shall arrange for dismantling of existing MG track. The released materials shall be properly shifted and stacked so that space can be made available for linking of new BG track. A separate team shall be organized by the contractor for transportation and stacking of released P. Way materials as per details given in special conditions of the relevant item.
- 3.4 After dismantling of the MG track the core of ballast on the old track shall be broken by ploughing with the cultivators attached to a tractor. After breaking cores, the ballast shall be spread and leveled to the BG profile by using a suitable scarifying tool attached to a tractor. At this stage there shall not be any dips or humps in the track. Thereafter, some more quantity of ballast shall be spread on the bed to achieve minimum thickness of ballasted bed as 200 mm, which shall form a clean cushion to the new B.G. track.

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20. After spreading of ballast on new embankment, a roller of 2 to 8 tonnes capacity or so shall roll the complete ballast bed uniformly with number of passes as decided of the Engineer-in-charge.
20. Spreading of PRC sleepers for linking of track on rolled ballast bed shall be permitted by the Engineer in charge or his authorized representative after verifying the quality of spreading and rolling of old/new ballast bed.
- 20.4 The PRC Sleepers shall be laid on the approved ballast bed with the help of road cranes except where accessibility of such cranes is not possible, manual laying of sleepers shall be permitted by Engineer in charge or his representative. But no dragging of sleepers shall be permitted.
- 20.5 When linking of BG track in mid section shall be in progress, at the same time linking/insertion of P&C and loop lines shall also be in progress in station yards - for which separate team shall work.
20. The newly laid BG track shall be properly aligned and leveled including on curves, on approaches of bridges and LCs. Then, further spreading of ballast shall be taken in hand so that both crib and shoulder portion of track is properly filled with ballast so that track machine can work.
- 20.7 The Contractor shall unload of ballast from hopper before tamping etc.
- 20.8 The contractor shall provide consumables like High speed Diesel oil, grease, seals/filters etc. reconditioning of worn out tools for working of Track machines along with the sufficient labour to work with track machines for pre-tamping and post-tamping operations and to work along the tamping machines. The Track machine shall make **three hree rounds of packing to achieve 100/110 KMPH**. Contractor shall also ensure sufficient labour for recoupmnt of ballast aspect of each round of tamping.
- 20.9 The Contractor shall do linking of track on Curves, LCs, Bridges including fixing of guard rails and check rails along with insertion of SEJs and Glued joints.
- 20.10 During the course of linking of B.G. track, any earthwork (with Railway's own earth) in cutting or filling shall have to be done by the Contractor for which payment shall be made under relevant NS / USSOR items.

201The contractor shall complete all activities of GC block period within 30 days and make necessary arrangements so that BG diesel locomotive can pass through the section at a minimum speed of 30 KMPH.

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20.12 After completion of all rounds of packing by track machines, the contractor shall make good the deficiency of ballast in cribs and shoulders and arrange for final dressing of ballast as per BG profile i.e. all the pre/during/post tamping operation shall be carried out.

20.13 Contractor shall ensure for "Zero missing fittings" and its tightening from time to time during different track operations. After completion of work, the contractor shall return the excess/surplus fittings and materials to the Railways at nominated **P.Way Depot**.

204 Providing of various boards, de-stressing of LWR etc. shall be done. Contractor shall complete all activities for putting up section for Engineer in Charge inspection.

205 The linking on new line alignment shall be done simultaneously after making the surface good by cutting /filling of earth, spreading of ballast up to a thickness up to 350mm etc. as mentioned in above para.

## **21**

- 21.1 All the deficiencies noted during Engineer in charge's inspection shall be rectified by the contractor.

- 21.2 Contractor shall hand over all the surplus materials to Railways immediately after completion of linking work.

21.4 Work as per special conditions for different items of Schedule shall also be completed fully at this stage.

21 Providing of various boards has to be completed before Engineer in charge's inspection.

### **225.0 Deposit of P.WAY Materials (Released and New) with Railway:**

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The contractor shall deposit the released materials as well as excess issued new materials in due course of time with the Railway. As far as released materials are concerned, the same shall be deposited within three months from the date of dismantling of released material. A register shall be maintained which shall clearly indicate the date and quantity of material dismantled and the period of three month shall be reckoned from the date of dismantling as mentioned in the register. If the materials are not deposited within the three months, the recovery shall be made as mentioned under the condition of relevant item.

**Rate of recovery for released and new materials:**

**No shortfall whether for new or released materials shall be accepted from the contractor and in case of shortfall, the rate of recovery shall be as under:**

**Released material (SH) :**

In case of fittings like Dog spikes/Rail screws/Plate screws/cotters/Keys/Anti canted bearing plates/MS plates/Fish plates excluding fish bolts/ etc and other fittings of similar type, for shortfall upto 2 % of total quantity of such materials, the recovery shall be made @ Rs. 30/KG plus freight charges (@ 7 %) along with 12.50 % supervision charges. The weight shall be in KG. and for shortfall beyond 2 %, the recovery shall be made @ Rs. 60/KG plus 7 % as freight charges along with 12.50 % supervision charges. For e.g., if there is a shortfall of more than 2 %, then for the first 2 % shortfall, the rate shall be Rs. 30/Kg plus other charges and beyond 2 %, rate shall be Rs. 60/Kg plus other charges.

However, for materials other than fittings as stipulated above, the condition of shortfall up to 2 % and beyond 2 % shall not hold good but the recovery for actual short fall shall be made and rate shall be Rs. 40/KG plus 7 % freight charges along with 12.50 % supervision charges.

The other rates of recovery for materials as per theoretical standard weight minus 5 % wear & tear. Where theoretical weight is not available, then actual average weight shall be taken in weighing machine and in that case no deduction for wear and tear shall be made. Rate of recovery is as under:

**Rate of Recovery of released and New P.WAY Materials along with fittings**

**(A) Released Material**

Sr. No,	Description	Unit	Rate in Rs.	Remarks
1.	Fittings up to 2 %	KG	30/-	The rates have been worked out after multiplying by 2, so at the
2.	Fittings beyond 2 %	KG	60 /-	

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3.	Rail (SH)	KG	76/-	time of recovery, these need not be doubled, however, in addition to this, there shall be 7 % freight charges including incidental charges along with 12.50 % supervision charges.
4.	PRC Sleepers (BG) Excluding fittings (SH)	Each	2285/-	
5.	New Fish Plates (BG)	Kg	90/-	
6.	Switch (BG) 1 in 12 Excluding fittings	Set	238537/-	
7.	Crossings (BG) 1 in 12 Excluding fittings	Each	229363/-	
8.	Switch (BG) 1 in 8 ½ Excluding fittings	Set	229363/-	
9.	Crossings (BG) 1 in 8 1/2 Excluding fittings	Each	183226/-	
10.	PRC Sleepers sets 1 in 12	Set	470778/-	
11.	PRC Sleepers sets 1 in 8 1/2	Set	324766/-	
12.	ERC Clips (BG)	Each	66/-	
13.	GFN Liners (BG)	Each	30/-	
14.	MS Liners (BG)	Each	15/-	
15.	Grooved Rubber Sole Plate	Each	47/-	

The rates for the P. WAY materials which have not been covered above, shall be decided at the time of finalization of work and shall be final and binding on contractor. The rates shall be on the basis of prevailing market rates or procurement rates whichever is more.

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**(B) New Materials:**

The rate of recovery shall be twice the procurement price plus 7 % freight charges including 12.50 % supervision charges. In case procurement price is not be available, then the rate list of Railway Board for that particular year (Year of execution) for the purpose of estimating shall be taken into consideration.

- 23.0 **The contractor shall make the stacks of dismantled P.WAY materials as per direction of Engineer in charge. The rails in stacks shall be both in X and Y directions alternately and the height of stack shall not be more than 0.75 M and shall be at least 0.15 M above the Ground level or as directed by Engineer at site. He shall erect the indicating boards of MS steel and that board should exhibit the salient details i.e. Lot number, date of making stack, quantity of rails with their respective section both in Nos. and in weight. Payment for indicating boards shall be made under relevant NS item. The boards shall be neatly painted with black back ground and letter painted on them with white paint. There shall be sufficient space between two adjacent stacks. The stacks shall be quite distinctive. The size of boards shall be 50 cm x 50 cm and height of indicating boards shall be minimum 1.0 M. The different sections of rails shall be stacked separately. Length of each rail shall be marked at the end of each rail in white letters with black background. No extra payment for measurement and painting for letters shall be admissible.**

The stacks for fittings shall be prepared as per their nomenclature i.e. fish plates, fish bolts, keys, cotters etc and shall be heaped separately. There shall also be indicator boards on each stack giving salient details about the materials viz. Lot Nos., quantity, nomenclature etc.

**The quantities of materials in stacks should tally with the corresponding minus HRs. No separate payment for stacking the released materials shall be made, but for steel required for boards such as MS sheets, angles etc shall be payable only.**

After completion of track linking work, the leftover / scattered / remaining new PRC sleepers should be collected and stacked at nearest loading point.

**24.0 MODE OF PAYMENT:**

**Final Bill shall be paid only after the compliance of Engineer in charge's and Commissioner of Railway Safety's Observations i. e. High/Low cess, Ballast Deficiencies, Track Deficiencies, Level Crossing Deficiencies, Bridge Deficiencies, P & C Deficiencies, LWR Deficiencies, & Other Track related Deficiencies. No claim shall be entertained on this account.**

- 25.0 NS/1 (Schedule "K"): Construction of RCC overhead water tank (2.25 lacs/1 lac litre) on 20 meter high RCC staging:**

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1. The tenderers are expected to have visited the site to assess the nature of the soil, depth and variation of the sub soil water and the problems that are likely to be encountered in construction or /are likely to affect the design before filling in the rates.
2. Drawings to be submitted by the contractors. The following drawings shall be submitted by the contractor
  - A.) With tender a dimensioned sketch showing general arrangement of the various components of the structure.
  - B.) After acceptance of the tender the contractor shall submit 8 copies of the following sets of drawings within 15 days from the date of receipt of acceptance letter
    - i) General sketch showing dimensions of the various components of the structure.
    - ii) A general detailed and dimensioned sketch of the foundation showing all the details of the reinforcement the details of the foundation slab, raft and columns should also been given separately and enlarged scale.
    - iii) A detailed sketch of the columns, with details of reinforcement and their joints with the foundation, bracing and the ring beam.
    - iv) A detailed sketch of the bottom and top ring beams with details of reinforcement
    - v) A detailed sketch of the bracings, with details reinforcements and its joints with the columns or of the shaft
    - vi) A detailed sketch of the Tank body with details of reinforcement. The details of the bottom dome, conical dome, vertical wall and top dome, in case of intz, tanks should be given separately on an enlarged scale that each details clearly understandable. In other cases, also the details of various details components should also be given separately.
3. The following details will be given in the detailed drawings referred to above

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- a) Detailed dimension of each component and section of the structures.
  - b) Details of reinforcement which shall include the position of diameter and spacing of bars in each component or section the position and the details of curtailment and bonding of bars i.e. overlapping of bars and length of bars.
  - c) The tender should use M-30/35 concrete mix for the entire RCC component unless otherwise specified the contractors should carefully note that no drawings or drawings with incomplete details will be accepted and the contractor shall be responsible for any delay or loss of time in correspondence between him and the engineer on this account.
4. All the eight sets of drawings to be submitted by the contractor shall be properly bound in separate cover. In two sets out of the eight the drawings shall be pasted on cloth on a good quality so that they can withstand frequent and rough use.
  5. The contractor shall submit detailed design calculation along with drawings as mentioned in clause -3 (b) above duly checked and certified only by recognized engineer college. In the calculation references consulted or where ever any formulas on tables are used should be mentioned in the design. The work shall be started only after approval of the drawing by railways.

6. COMPLETION DRAWINGS

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

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

7. List of the samples to be submitted by the contractor without demanding any cost within a fortnight from the date or order to the contractor to start the work.

i) Shingle/Stone ballast (Various graded) =0.1m<sup>3</sup>

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- |  |   |
|--|---|
| ii) Coarse sand                                      | =0.1m <sup>3</sup>                        |
| iii) Rubber insertion                                | =0.5m <sup>2</sup>                        |
| iv) Binding wire                                     | =1.00m                                    |
| v) Steel (along with brand)                          | =1.00m long 3 pieces of each size of bars |
| vi) Nuts and bolts                                   | =5.00 Nos                                 |
| vii) Any components which is to be mixed with cement |   |

8. The tank on completion shall be water tight and free from any defects such as cracks or unsightly patches and shall be tested by filling in with water to full supply level and maintaining the level for three (3) days. The tank shall be deemed to have stood the water tightness test if the fall in the level of water does not exceed 6 mm in 24 hrs .and there is no sweating or patches of dampness on the outer surface of the tank. The contractor shall have to make his own arrangements of water for testing. Payment of tenderer shall be made on completion of this test only.

If at any time within twelve months from the date of handing over of the tank for use, any defect such as cracks, sweating, patches of dampness or leakage is observed, contractor shall rectify all such defects at his own cost. The work on the rectification of such defects shall have to be started within ten days from the receipt of information from the Engineer by the Contractor.

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A final test shall be held at the end of the maintenance period before final clearance certificate is given by the Engineer. The contractor shall make his own arrangement for the filling up the tank for purpose of testing and shall bear full expenses on this account

9. The contractors responsibility shall however not end till the maintenance for a period of twelve months from the date of handing over or one complete rainy season, whichever is later have passed.

**SPECIFICATIONS PART-A**

**1. GENERAL**

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

**2. GENERAL ARRANGEMENT AND SETTING OUT THE WORKS**

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

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

**3. ERECTIONS AND CHECKING OF WORK:**

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

**4. TESTS:**

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

**5. SAMPLES**

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

**6. WANT OF KNOWLEDGE:**

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

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

**7. OCTROI:**

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

**8. WATER SUPPLY FOR WORK AND DRINKING PURPOSES.**

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

**9. PUMPING DURING CONSTRUCTION**

The contractor shall provide all appliance, pumps, Engineering machinery, suction and delivery pipes fasteners fuel, lubricant, waste and labour necessary bailing out springs,

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flood or sub-soil water that may be encountered during the construction of the works and shall make his rates sufficiently comprehensive to cover all costs in the connection.

**10. DATE OF COMPLETION**

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

**11. MEASUREMENTS**

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

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

**12. STANDARD AND DETAILED SPECIFICATIONS**

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

**13. FLUCTUATIONS IN RATES**

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

**14. EMPLOYMENTS AND REMOVING OF CONTRACTOR EMPLOYEES**

The contractor shall employ for the execution of the work only, such persons who are skilled and experienced in the trades .The engineer shall have authority to instruct contractor to remove immediately from the works any persons employed by him on or in this connection with the execution of works who in the opinion of the engineer, shows misconduct or are incompetent in the proper performance of their duties .The contractor himself or his authorized representatives should be available at site to receive the instruction from engineer or his representative all the time during which the works is in progress.

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15. **FENCING AND WATCHING:** The contractor shall be responsible for fencing of excavation works and materials at site. He shall also be responsible for lighting in proper manner at nights. The portion of works, which are open, or under construction and he shall always maintain sufficient number of watchman on duty when his staff is not actually working.
16. The lump sum tender includes the supply of all materials, labour and construction of RCC over head tank of capacity and staging maintained in tender schedule and all approved works and described herein –after.  
The contractor shall provide supply and include in his prices costs of all labour, machinery, mixer vibrators, engine pumps, shuttering templates, screens, straight, edge edging, tools, timber, rails, tackles, scat folding, planking, centering, moulds, profiles, posts, putting out pegs and all water for mixing materials and curing cement, work, all fencing, lighting necessary for the safety and convenience of the public during the progress of the work and temporary plant and appliances and permanent work.
17. The details of RCC tank and its appurtenances are as follows,

**A) DETAILS OF TANKS**

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

**B) FOUNDATION**

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

**C) RCC STAIR CASE**

RCC staircase shall be provided with suitable landing and railings .The width of staircase shall be one meter and it shall run spirally around from base to balcony .The landings shall be at suitable points, but not exceeding a vertical distance of 2.25m c/c. The landing shall be 0.8 meter wide X 1 meter long .The treads and rise of the stair case will be 25cm and

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15 cm respectively. The height of railing on staircase shall be kept at 1.0metre up to 10 metre height and 1.25metre beyond it. There should be no cut in the balcony for providing access, cantilever should be provided for the purpose.

**D) M. S. GATE AND BBCC CABIN.**

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

**E) MS LADDER**

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

**F) BALCONY**

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

**G) RAILING**

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

**H) WATER LEVEL INDICATOR**

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

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**I) LIGHTENING CONDUCTOR**

i) An Elevation Rod

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

ii) Down conductor

It shall consists of 25 x 25mm continuous copper tape with its upper end attached to the base of the elevated rod carried down to the side of the tank on a suitable teak wood battens to 1.0 metre below ground level, then laid directly about 6.0 metre away from the tank in a trench and then taken down to the earth plate which to be buried 1.0metre below summer subsoil level, the copper tape shall be fastened to the wells of the tank in the following manner.

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

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

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

iii) **EARTHPLATE**

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

**J) TESTING WIRE:**

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

**K) VENTILATOR**

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

**L) MANHOLE OPENING**

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

**M) FLOOR**

Floor shall be provided in panels with glass script in the plan of the tank (i.e. projection of periphery of balcony) with apron of one meter all round the tank floor.

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

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

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

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

**O) COLOUR WASH**

The tank when finally finished and tested shall be given three coats of cement paint of approved shade by Engineer on whole surface of tank structure. The cement paint shall be

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of approved standard companies such as Burger, Asian paints, Nerolac etc. The pipes and special railings and all metallic surfaces shall be painted with coats of approved paints. Capacity of tank and name of the station will have to be painted on the container of tank as per instructions of Engineer in charge for which no extra payments will be made.

**18. MIXER AND VIBRATOR:**

The concert mixer and vibrator shall invariably be used for mixing and compaction of concert. As a part from this the contractor will also use mechanically operated winches for lifting concert for placing it at heights of more than 10m. The contractor will maintain at site logbooks for mixer and vibrator (mechanical/electrical) since starting of concerting work to the end. Contractor has to arrange standby arrangement of suitable mixer and vibrator, which can be used in case of failure of earlier one.

**EXCAVATION**

The excavation for foundation shall be carried out in accordance with the relevant approved drawing. If shuttering timbering, sheet piling is required; the same shall have to be provided by the contractor at his own cost. In case of sub soil water pumping shall have to be done the rates of contractors must be comprehensive enough to include all such works, as no extra amount shall be paid for this. The excavation rate shall hold good for excavation in all types of strata.

The contractor shall be liable for a damage done to any adjacent property or to any of the work by settlement or movement of ground is in the Assistant Engineer view attributable to the excavation work. The contractor shall also be responsible for all slips and shall not be paid extra for their removal. He shall also make good all damage due to slips ET on completion of works.

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

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**19. CONTRACTOR'S RESPONSIBILITY FOR SAFETY:**

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

**20.COARSE AGGREGATES:**

The coarse aggregates used in various concrete and RCC works shall be screened, or broken stone ballast of approved quality shall be obtained from an approved source. The screening shall be screened is so as no flaky laminated pieces and splint remains in it. The contractor shall have to do double screening so that material obtained properly graded and free from the above defect. If the contractor fails to provide shingle of that description, he shall have to use broken ballast 6 mm to 20 mm gauge without any extra charges. The coarse aggregates used in cement concrete 1:3:6 or other weaker concrete shall be as per Rly. specifications.

**21. SAND**

The sand used for ordinary masonry plaster, pointing, shall be the best quality from an approved source. the sand used shall be coarse and shall be obtained from sources approved by the Engineer-in-charge.

**22. STEEL**

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

**23. REINFORCEMENT**

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

The cover of concrete to the reinforcement shall be as per IS code or described on the drawings and shall be provided by means of cover blocks of cement mortar. The cover blocks of same shall be grade of concrete as the member, but with lesser aggregate size.

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The vertical distance required between successive layers of bars on beam or similar members shall be maintained by mild steel slicer bars. No bar shall be less than 3m in length except where it cannot be avoided.

**24. SHUTTERING:**

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

**25.CONCRETEING:( ONLY APPROVED DESIGN MIX CONCRETE IS TO BE USED):**

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

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

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

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

**26. FINISHING:**

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

**27. CURING:**

All the concrete work shall be adequately cured for 21 days. The site in charge shall have authority to employ without notice departmental labour to make good short falls in the contractors arrangement for curing operation at contractor's cost. The certificate of site in charge in writing shall be conclusive evidence to this office.

**28. MODE OF PAYMENT:**

The following detailed payment schedule shall be applicable for payments,

Sr.No.	Particulars	Breakup	Commutative
1.	After approval of detailed design calculations & drawings.	2%	2%
2.	After casting PCC (1:3:6) for leveling course	4%	6%
3.	After casting foundations	10%	16%
4.	After casting half of the staging.	10%	26%

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5.	After casting full of the staging (Excluding ring beam)	10%	36%
6.	After casting ring beam tank base and Slant slab.	10%	46%
7.	After casting beam vertical walls of tank	14%	60%
8.	After casting dome & staircase	15%	75%
9.	After completion of Misc item such as fittings like ladder railing fixing ventilators WL indicators lighting conductor etc.	15%	90%
10.	After fixing vertical water pipe including all fittings such as sluice valve, non-return valve, clamps etc. finishing of work to the satisfaction of Engineer in charge & testing tank after water fillings.		
11.	After successful operation of water tank for three consecutive months without defect.	10%	100%

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

29. The contractor shall make his own arrangement at his own cost for housing his staff and store for the work. However, open space will be provided by the Rlys if needed.
30. The contractor shall have to do dewatering, bailing out of ground water/rain water if any or what so ever water encountered at his own cost and for which no payment will be admissible.

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31. No claims, compensation of charges shall be considered for payment to contractor due to any reason such as labour strike, lockout or any other unforeseen contingency at the site of work or labour camp.
32. The tank shall have to be tested for the water tightness and testing shall be done as per provisions in ISS (with upto date revision) and it shall be the responsibility of the contractor to make it water tight. The arrangement for water shall be done by the contractor at his own cost for testing purpose. Testing for the water tightness of the tank shall be done before the painting of the tank. Two coats of anti-corrosive painting should be done inside the container and roof slab after the tank is tested for with tightness snow-cem or durocem paint of similar approved quality paints and Colour duly approved by Engineer should be use.
33. Water proof plaster of 20mm thickness should be done inside the container water leakage according to I.S. Specification to avoid.
34. The contractor shall make his own arrangement for transport handling and storage and insurance of all materials. He should also arrange all tools and equipment necessary etc required for the project execution of work.
35. Cement used for ancillary or contingent work such as construction of working platform and construction of water sump, central line pillars etc. which are necessary for due completion of work in the opinion of the competent authority shall be treated as the requirement of cement for the works and necessary quantity of cement will be arranged by contractor at his own cost.
36. All the Iron and Steel required for the work shall be arranged by contractor at his own cost. Steel for reinforcement shall conform to IS 1876 for steel (with upto date revision) and IS 1139 – 1966, IS 1876 for steel (with upto date revision). The contractor is required to produce the test certificate of the manufacturers before use of steel for the work. No untested steel shall be allowed to be use under any circumstances.
37. All concrete shall be mixed in concrete mixer and contractor by suitable mechanical vibrators at contractor's own cost. Slump tests shall be carried out during concreting and sample test cubes prepared and tested in due course. The testing will be carried out by the Engineer-in-charge at contractor's expenses and if the results of this be unsatisfactory, the contractor will be bound to dismantle and reconstruct the particular portion of work which has given unsatisfactory test result. For all cement concrete work coarse river sand shall only be used with relevant grades, no other sand shall be used.
38. No lead for water or any other material shall be paid and tendered amount should be inclusive of all lead and lift for the materials.

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39. Detailed calculations of designs and drawings duly checked and certified by Designer will have to be submitted by the contractor for scrutiny and approval of the competent authority within one month of issue of acceptance letter. Detailed designs shall include calculation at least for,
- i. Foundation depth, design of foundations, containers walls columns, beams, slabs and etc. complete.
  - ii. Structural designs of all components of the reservoir with corrosions considerations.
  - iii. Lighting conductor, electrical (and mechanical equipment).
40. The designs will be subject to the approval of the Railway and can be altered to suit the structural safety of the work and contractor shall make no extra claim on the account. The responsibility for the designs execution commissioning and testing to entire satisfaction of the Engineer-in-charge will, however, rest solely with the contractor, contractor will have to rectify the defects immediately within a fortnight as and when noticed during the construction period and also after constructions till the defect liability period is over at his own risk and cost. (The liability period should not be less than 12 months)
41. Any defects, shrinkage or other results which may appear within 12 months from the completion date of the time arising out of defective or improper material or workmanship are upon the direction of the Engineer-in-charge/competent authority to be amended and made good by the contractor at this own cost and in case of default, competent authority may recover from the contractor the cost of making good the works.
42. The foundation designs shall be based on test result and bearing capacity of soil plate load test etc. made by Govt. recognized College / NABL approved test laboratories.
43. Nothing extra shall be paid for wastage of any material including cement and steel etc.
44. The type of tank shall be circular RCC intez tank with staging of columns and bracings or shaft.
45. The work of construction of RCC overhead tank involves specialized workman ship, hence, requirements of higher standard than general concrete work is essential.
46. The structural design shall provide and shall take into account for the leads of single-story residential building to be constructed the ground floor of the proposed tank. For this a suitable bracing shall be provided and constructed at the level on which the residential

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building shall be constructed by the department later. These ground level beams to connect every column shall be the part of the contract.

47. The tenderers submitting their offer shall submit the drawings of proposed RCC over head tank as mentioned earlier showing tentative site of various elements along with other technical details. The contractor shall further be required to submit detailed drawing as specified earlier design and calculation within fifteen days from the date of acceptance of their tender for scrutiny and approval of the Engineer incharge of the work, the responsibility of the design, construction, structural stability, safety and water tightness for this water tight structure shall rest solely with the contractor and he shall have to make good any damage or loss to the structure if any of the above mentioned works.
48. The contractor shall be required to fix these pipes up to the ground level including the duck foot. Bend which too shall be supplied by the contractor the necessary joining material shall also be provided by the contractor.
49. The contractor shall find out safe bearing capacity for the design of foundation of RCC Tank accordingly and he shall be solely responsible for the safety of the structure. The above information is given only as a general guidance and the tender must be quoted upon the actual safe bearing capacity at site and the contractor shall not be entitled for any compensation/ claim for any change in the safe bearing capacity of the soil as per actual trial pit conducted after the tender is awarded. The foundation shall be provided only as per the design based on trial pit details submitted by reputed engg. college/ NABL approved laboratory.
50. The contractor shall have to make his own arrangement for requirement of electric power, telephone connection for construction.
51. The contractor shall have to make his own arrangement for water required for execution, Testing of the works, the department shall render only recommendatory assistance, if necessary.
52. For blasting, if required in foundation, the contractor will make his own arrangement for license / permits and material from competent authority. No claim shall however be entertained if permission for such blasting is not granted by the competent authority.
53. a) RCC stair case for the flight from floor level of service reservoir to the top of service reservoir shall comprise of suitable landing and RCC railing. Necessary gate with locking arrangement at floor level and balcony shall be provided.
54. a) The FI manhole cover and frames and the ventilators shall be of approved quality as per IS specification. The minimum number of manholes to be provided shall be four.

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- b) Air vents where provided for, shall be 100mm dia swank type. The minimum number of these shall be twelve.
55. a) The tank shall have one meter wide RCC gallery all round at the ring beam level. RCC railing ground the gallery shall be provided by the contractor. In the railing, posts of 100mm dia and 1.00m long shall be provided. Same specifications for railing shall be adopted wherever necessary e.g. stair etc.
- b) The minimum thickness of the container shall not be less than 150mm & minimum thickness of top dome shall not be less than 100 mm.

**56. WORKMAN SHIP:**

- (a) Excavation: The depth of excavation will generally be guided by the underground strata and the safe bearing capacity of the foundation soil as directed by the Engineer- in charge. Strata chart of trail pit section is made available for the purpose of design. The tenderer shall however verify the actual site conditions before tendering for the work and shall ascertain while execution of contract as the case may be.
- i.) A minimum 20mm, thick plaster in cement mortar 1:2 shall be provided on the inside surface of the container i.e. on wall as from inside, column and beams inside the container and the bottom floor of the container after mixing suitable water proofing compound.
- ii.) Minimum thickness of the top dome slab shall not be less than 100 mm with 40 mm clear cover from inside i.e. water side.
- iii.) **Measuring:** The quantity of cement shall be determined by weight. The quantity of fine and coarse aggregate shall be determined by weight.

The contractor shall have to submit the concrete mix design for the approval and test cubes to confirm the mix will have to be tested in the presence of Engineer-in-charge through some Engg. College or NABL approved lab for which no extra payment will be paid to the contractor.

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- iv.) **Mixing:** Concrete shall be mixed in a mechanical mixer, mixing shall be continued till there is a uniform distribution of the in gradients and the mass is uniform in colour and consistency, but in no case shall the mixing be done for less than two minutes.
- v.) **Transporting:** concrete shall be handled from the place of mixing to the place of final placement as rapidly as practicable by methods which will prevent segregation loss of any in gradient. If segregation occur during transport, the concrete shall be pre mixed before being placed, if permitted by the Engineer-in-charge.

The concrete shall be placed and compacted before getting set and shall not be subsequently disturbed. Method of placing shall be such that there is no segregation. Concreting shall be carried out continuously up to construction joints, position and agreement, which shall be re determined by the designer and approved by the department.

- vi.) When the work has to be resumed on a surface, which has hardened, such surface shall be roughened. It shall than be swept clear, thoroughly wetted and covered with 13mm(or1/2") layer of mortar, composed of cement and sand in the same ratio as the cement and sand in the concrete mix. This 13mm (or 1/2") layer of mortar shall be freshly mixed and placed immediately before the placing of the concrete.
- vii.) Where the concrete has not fully hardened all laitance shall be removed by scrubbing the wet surface with wire or bristle brushes, care being taken to avoid dislodgement or particles aggregate. The surface shall be thoroughly wetted and all free water removed. The surface then is coated with neat cement grout. The first layer of concrete to be placed in their surface shall not exceed 15cms in thickness, and shall be well rammed against old work particular attention being paid to corners and close spots.
- viii.) **Mechanical vibration:** When mechanical vibrators for compacting concrete are used, reduced water contents should be adopted. Vibration of very wet mixes is harmful and shall be avoided.
- ix.) **Curing:** The concrete shall be covered with a layer of empty gunny bags, canvas or similar absorbent material and kept constantly wet for at least 7 days from the date of placing of concrete. Concrete cubes shall be taken for every day of concreting by the engineer in charge. These cubes shall be kept on the same member of the structure from where these samples are taken, till the samples are tested in the testing lab. These shall be suitably tied with wire in case of columns. This is to ensure same curing of samples that of the main structure.  
It would be essential for the contractor to install a suitable pump at the site of work, the pumping head of which shall be adequate for curing the highest part, i.e. up to roof slabs height of the tank. A suitable sump shall also be constructed at the site of work where this pump shall be installed; arrangements of adequate water shall be the responsibility of the contractor.

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**(d) Form work:**

- i) The form work shall confirm to the shape lines and dimensions as shown on the approved drawings and be so constructed as to remain sufficiently rigid during the placing and compacting of the concrete and shall be sufficiently water tight to prevent loss of liquid from the concrete. It shall have enough strength to withstand the weight of the concrete and the laboures working on it.
  - ii) The formwork shall be cleaned off all rubbish particularly chipping shavings and sawdust before the concrete is placed. Heavy type of steel shuttering made out of new, plain and smooth steel places shall be used.
  - iii) Striking of forms:-In no circumstances shall forms be struck until the concrete reaches strength of at least twice the stress to which the concrete may be subjected at time of striking.
57. All the cast iron or pies shall be double flanged pipes and specials shall be of (LA Class) i.e. tested for a head of 12kg/cm<sup>2</sup> required for inlet, outlet overflow and scour, puddle collar pieces and joining materials shall be supplied by the contractors. These pipes shall be supplied and specials shall be required to be fixed in position e.g. from inside level of the tank to duck foot bend below GL, including testing of the fitting by the contractor. All gasket joints shall be flanged joints. All the fittings shall be as per ISS. The agreements for inlet, outlet, overflow and scour shall be such that each is independent of the other .All the pipes and specials required for above shall be fixed during concreting .The dimensions of inlet, outlet scour and overflow pipe shall be as under.
- 58.
- 1. Inter GI                -2 pipes of 100mm dia 50m long along GL
  - 2. Out let pipe        -1 Pipe of 150mm dia -50m long along GL
  - 3. Scour pipe CI    -150mm dia
  - 4. Overflow pipe -150mm dia
59. The tank shall have to be tested for the water tightness and testing shall be done as per provision in the ISS (With up to date revision) and it shall be the responsibility of the contractor to make it water tight .The arrangement for water shall be done by the

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contractor at his own cost for testing purpose .If available water will be supplied by Rly and necessary charges will be paid by the contractor. However rly is not bound to supply the water to the contractor at any stage and no extension will be granted on account of water supply. The testing shall be done as directed by the Engineer – in –charge and in such a manner that not more than 30cms of water shall be filled up in the tank per day.

The contractor shall have to give a test of watertight ness of reservoir to the entire satisfaction of the department. Test for settlement shall have to be furnished .The responsibility shall also rest solely with the contractor .

60. The work shall be treated a complete when the same is completely tested handed over to the department including site clearance.

In normal circumstances that is, at temperature above 21 degree C (or 70F) forms may be struck after expiry of the following periods.

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

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

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

g) **Test for compression strength of concrete:**

Testing of compressive strength of concrete will be carried out as per IS 456 and other relevant codes.

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61. Contractor shall provide architectural effect to the structure and approval of the same have to be obtained from the Railway no extra cost shall be payable for such architectural effect.
62. Major items of work:(Lump Sum tender):
1. Excavation of foundation (as per actual site condition)
  2. Filling foundations leveling course in cement concrete 1:3:6 with 20 mm size aggregate.
  3. Reinforced Cement Concrete M-30/35 approved mix for footing and foundation etc. including reinforcement and centering.
  4. Reinforced cement controlled concrete M-30/35 with 12mm size well graded BT metal for tank floor, ring beams, container walls, inside column, bracing i.e. all members which retain water etc. including reinforcement and centering.
  5. All concrete proportions are tentative for calculation purposes. Actual proportions are to be fixed after proper design of concreting by the contractor and approved by Railway.
  6. Supplying and fixing of tested quality for reinforcement fixed in position including cost of binding wire and labour for cutting bending and binding of bars (including overlap) as per standard specifications.
  7. Cement paint painting two coats of approved quality and shade by Engineer-in-charge of site.
  8. Filling foundation with moorum rammed and watered (including collection of moorum)
  9. Anticorrosive paints two coats inside the container
63. PIPE CONNECTION AND MISCELLANEOUS ITEMS
1. Providing, fixing, laying and joining the following Duck foot / cast iron GI pipes and Duck foot F bends etc. including testing of pipes and joints and cost of joining materials all complete.
  2. A. Puddle collar specials for outlet, inlet, scour and overflow pipe connection, including provision of puddle collar and specials.
    - B. Inlet pipes.
    - C. Outlet pipes
    - D. Overflow pipes.
    - E. Scour pipes.
    - F. Duck foot bend 90 degree (medium class)
    - G. Supplying and fixing in position of ironwork for clamps to support vertical cast iron pipes.
  3. Water level indicator with float guide pulleys etc as per specification, supplied, fitted, fixed, built in painted etc. complete.
  4. A. Lightening conductor, 4.5 metre long aluminium solid rod of 25mm diameter with base complete as per specification.
    - B. Supplying & fixing aluminium earth plate 600X600X6 mm size with aluminium.
    - C. Supplying & fixing earth connection for the earthing with 30 X 3 mm copper cradle and nails on jetties.
  5. Laying, fixing and joint CI / MS pipes with special class 'L' indicating testing of joints pipes specials and jointing materials all complete for railing where necessary.
  6. Supplying and fixing air vents, as per specification.

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7. Providing and fixing chamber covers with frame and locking arrangement etc. complete on the inspection manhole chambers as per specifications.
8. Staircase-outside/inside the tank as per instruction of Engineer-in-charge.

64. SPECIFICATIONS REFERRED TO :

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

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

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

65. (a) BLASTING

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

(b) DEWATERING:

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

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

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

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

Referred Indian Standards specification with upto date amendments:

Sr. No.	IS Specification	Description
1	IS 3370 (Pt.II, III & IV)	Structure for the storage of liquid

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Part-I – General requirement

Part-II – Reinforce concrete

Part-III – Structure

Part-IV – Design

TABLE

2	IS 456	Code of practice for plain & reinforced concrete.
3	IS 269, IS 455	Cement-Ordinary Portland cement or rapid hardening Portland cement blast. Furnace slag cement.
4	IS 388, IS 515	Aggregate – Aggregate coarse & from natural sources for concrete.
5	Relevant IS	Water – Water used both for mixing & curing shall be free from injurious amount of deleterious materials. Potable water shall be used.
6	a) IS 432 (Pt.I)	Reinforcement – Mild steel & medium tensile steel bars & hard drawn steel wire.
	b) IS	Deformed bars.
	c) IS 1786	Cold twisted steel bars.
	d) IS 1566	Hard drawn steel wire fabric.

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7	Water tightness Test of Hydraulic Structures IS 3370 (Pt.I)	Code of practice for the concrete structures for the storage of specifies water tightness test at supply level as described in clause 10.1.1, 10.1.2 & 10.2.3. of the standard.
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The contractor will be required to see that usual working hours are adhered to .No work should be done in the night without the permission of the engineer in charge except when it is absolutely necessary for the savings of life or property or for the safety of the work in which case the contractor shall immediately inform the engineer and shall obtain his prior approval.

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

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

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

## **2. GENERAL REQUIREMENTS:**

### **2.1 STAGING:**

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

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

Top Dome = 100mm

Bottom Dome = 150mm

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Vertical wall of Container = 150mm

Shaft wall = 150mm

Slant Slab = 200mm

(Slope 45 degrees)

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

### **3. LOADS:**

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

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

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

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

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

### **3.6 Increase Permissible Stresses:**

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

## **4 DESIGN**

4.1 RCC tank shall be designed for Seismic zone V and 'Severe' exposure conditions. Shape of the structure shall be Intz tank as directed by Engineer-in-charge.

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- 4.2 Following general description and salient features of the design shall be mentioned in the beginning of detailed design calculations:
- (i) Capacity.
  - (ii) Height of the Tank.
  - (iii) Safe bearing capacity should be taken as minimum of following:
    - (a) Safe bearing capacity of the soil based on visual inspection along with strata chart of trail pit.
    - (b) OR, safe bearing capacity of soil for Design purpose shall be taken as 15.00 Tonnes/SQM.
    - (c) OR, additional safe bearing capacity based on chemical analysis of subsoil water and soils where possibility of brackish/saline water is anticipated.
- 4.2.1 However, detailed foundation design should be done on the basis of safe bearing capacity as found out by actual site investigation done in field.
- 4.3 Line diagram showing dimensional, sectional elevation shall be given.
- 4.4 Stability of the structure shall be checked as per provision of Clause 19 of 1A 456-1978.
- 4.5 Design shall be based on the worst possible combination or various loads, moments, shears and resultant stresses in the tank for the following two cases:
  - i) Tank Full
  - ii) Tank EmptyTank full means depth of water inside the container up to full height of the container without consideration of free board.
- 4.6 Design shall be based on accepted basis and methods of design as well as the provision of IS: 3370-1965, IS: 456-1978, IS: 1343-1960 code of practice for pre-stressed concrete IS: 2210-1962 criteria for the design of reinforced concrete shall structures and forced plates IS: 2204-1962 code of practice for construction of reinforced concrete shall roof etc or their latest revision. However, methods based on experimental investigations as mentioned in para 18.2 C in IS: 456-1978 shall not be entertained.

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4.7 The parts of the structure neither in contact with the liquid on any face not enclosing the space above the liquid as in the case of staging of a tower shall be designed on working stress method in accordance with the requirement of IS: 456-1978, staging should be further checked for ultimate load conditions to ensure the desired margin of safety as per Clause 46.300 IS: 456-1978 or its latest (BLS) revision.

4.8 Design of member other than those excluded by clause 4.4 above (i.e. roof, walls, floor etc of the container) shall be based on consideration of adequate resistance to cracking as well as adequate strength. Calculation of stresses shall be as per para 3.3.3 of IS: 3370 – (Para II) of 1965 or its latest revision.

4.8.1 Permissible stress in concrete for Resistance to Cracking:

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

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

4.8.2 For Strength Calculation:

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

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

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

4.9 Permissible Stresses in Steel:

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- 4.9.1 For strength calculation (Concrete assumed to be cracked): the permissible stresses in reinforcement shall be as per Table-2 of IS: 2370 (Part II) – 1965 or its latest revision. For Torsion Steel, the stresses shall be as per IS: 1786-1979 cold worked steel high strength deformed bar, for concrete reinforcement or its latest revision.
- 4.10 The analysis of staging of the tank shall be done by using any established method such as moment frame method etc. The staging shall be analyzed for combination of dead loads, live loads and wind or seismic loads. The effect of continuity of beams at the junction shall be properly accounted and column reaction worked out for different combination of loading axial forces, shear forces, bending moments and torsion shall be calculated in members.

**4.11 Shaft:**

- 4.11.1 For load bearing shaft minimum thickness should be 200mm shaft and it should be designed in M30/35
- 4.11.2 Shaft supporting a water tank must be designed as given under the stresses in circular supporting walls at page 84 of the Book. "Concrete Water Towers Bunkers Silos and other Elevated Structures" by Gray and Manning 5<sup>th</sup> edition published by cement and concrete Association. The vertical cantilever of hollow circular section and has to resist a bending moment and shearing forces. In addition to main stresses caused by the wall acting as a hollow circular vertical cantilever the wind flowing on one face tends to flatten that face distorting the circle into an oval. Horizontal reinforcement is provided to resist the bending moment.  $M = +0.035 P D$  producing tension on the inside face and a moment  $M = -0.031 P D$  causing tension on the outside face, where  $P$  = Unit wind pressure in KN/Sq m and  $D$  = Diameter of shaft in meters.
- 4.11.3 Shaft shall be checked for combined axial load and bending due to wind or seismic loads and shall satisfy the tank empty conditions.
- 4.11.4 Horizontal construction joints in shaft shall be as minimum as possible.
- 4.11.5 Age factor increasing strength shall not be considered.
- 4.11.6 Shaft should be checked for tensile stress in worst condition for combination of axial tension on bending axis tension on bending axis due to wind or seismic load for tank full and tank empty conditions.
- 4.11.7 On account of minor inaccuracies in construction of the shaft the allowable direct compressive stress shall be reduced by multiplying with 0.85 factor. On account of buckling reduction factor if any shall be multiplied to the value 0.85 for the calculation of direct compressive stress the contribution of steel shall be neglected.
- 4.11.8 For buckling calculations reduced value of modulus of elasticity due to creep shall be maximum 0.4 times in value as per IS 456-1978.

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**5. FOUNDATION:**

- 5.1 Trial pit at site of elevated tank shall be taken. S.B.C. of the soil or allowance bearing pressure on soil shall be established on the basis of actual strata met with LSB test result.
- 5.2 The permissible increase in bearing pressure for different types of foundation shall be as per Table-1 of IS: 1893-1975 or its latest revision, when seismic forces are considered and for wind forces it shall be as per IS: 1904-1966 or its latest revision.
- 5.3 For the purpose of the design of foundation the loading data shall give the magnitude of vertical load, lateral load and moments at top of roofing (foundation) level. The data shall be made available for both the cases, as per Para 4.5 above.
- 5.4 The foundation area for individual column footings, combined footings, annual rafts and solid rafts shall be worked out on the basis of lower most value of the safe bearing capacity or allowable bearing pressure values as derived from IS 1904-1978 code of practice for structural safety buildings shallow foundations IS: 6402-1971 code of practice for determination of allowable bearing pressure on shallow foundation IS 8009-1980 code of practice for calculation of foundation or their latest revision.
- 5.5 In case of purely cohesive and C- $\phi$  type of soil particular attention should be given to IS: 1904-1978 Clauses 6 & 7 Settlement shall be circulated as per IS: 8009 (Part-I) 1976 for foundation.
- 5.6 In case of concession-less soil foundation shall be designed for safe bearing capacity and shall be checked for permissible total as well as differential settlement values as given in relevant IS.
- 5.7 In case, the soil beneath the footings is not of the same characteristic the footings shall be designed for the soil having lowest S.B.C. or A.B.P. as the case may be in such conditions the permissible limits of total as well as differential settlement shall be limited to 75% of the permissible limits given in ISS.
- 5.8 For special type of foundations like well foundations under beam pile foundation etc. decision of Engineer-in-charge shall be final and binding to the designer.
- 5.9 Classification of soil and all characteristics of soil relevant to S.B.C. and A.B.P. shall be as per the solid investigation reports of Government Institutions or Government approved institution/ NABL approved laboratories.

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- 5.10 For the design of foundations of annual or solid raft type the "Plate Theory" shall be adopted.
- 5.11 The foundation should be checked for negative pressure on soil due to combined direct and bending stress negative pressure shall not be allowed on the foundation soil.

## **6. DETAILING:**

### **6.1 Minimum Reinforcement for Water Bearing Members:**

The minimum reinforcement in walls, floors, roofs in area of 0.3% of the concrete section in that direction for sections up to 100mm thick. For section of thickness greater than 100mm but less than 450mm the minimum reinforcement in each of the two directions shall be linearly reduced from 0.3% for 100mm thick section to 0.2% for 450mm thick section. For 100mm thick section to 0.2% for 450mm thick section. For sections of thickness greater than 450mm minimum reinforcement in each direction shall be kept at 0.3% in concrete sections of thickness 225mm or greater two layers of reinforcing steel shall be placed one over each face of the section to make up the minimum reinforcement specified in this clause.

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

### **6.2 Cover of Reinforcement:**

6.2.1 Minimum clear cover to reinforcement shall be 40mm.

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

### **6.3 Spacing of Reinforcement:**

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

Spacing of lateral ties for column shall satisfy the provision of Para 25.5.3.2 "C".

Reinforcing steel, which accounts for resisting moments tension etc.i.e. other than temperature and shrinkage steel shall comprise of minimum 8 mm dia for ribbed bars and

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10mm dia for mild steel bars. For compressive members the minimum dia of main reinforcement shall not be less than 12mm dia.

**IMPORTANT NOTE**

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

**GENERAL SPECIFICATIONS**

**1. DATA:**

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

1.1 Data for preparation of Design of RCC OHT:

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

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**2. GENERAL**

- 2.1 The contractor shall quote the rate as per schedule of quantities for the complete construction work of RCC OHT to be carried out as per his own design based on above data including providing and fixing pipes, lightening conductor, CI manhole frame and cover, water level indicator, cowl type ventilators etc. complete with contractor's own design and drawings.
- 2.2 The contractor shall submit the name, qualifications and experience of Design Engineer who has prepared detailed RCC Design or will prepare Design and Drawings on acceptance of the Tender.
- 2.3 The Design Engineer has to prepare and submit the design calculations and drawings within 15 days of acceptance of the tender. However, along with the Tender an Inception Note on design of RCC OHT has to be prepared and submitted in the same cover duly signed and as per design criteria of RCC ESR.
- 2.4 The Design Engineer will be required to attend the meeting at office of the Railway for preliminary discussion of scrutiny remarks etc whenever required with all reference data, books, IS specification etc at his own cost.
- 2.5 It will be the duty of the Design Engineer of the contractor to clarify, modify, redesign, finalize and submit the design and drawings as per scrutiny remarks offered by the Railways within 15 days of the issue of acceptance letter.
- 2.6 On approval of design, contractor shall supply free of cost 6 sets of Design & drawings duly bound for the use of the Railways.
- 2.7 The instructions contained in Criteria or Design of RCC OHT shall be strictly followed and the contractor shall submit his design based on acceptance of these criteria on scrutiny. The Designer shall have to modify his design as per these criteria without any charge in the Tender cost submitted, if required.
- 2.8 The contractor shall have to comply the remarks raised within 15 days from the date of intimation of remarks or earlier by the Railway.

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- 2.9 Actual work order for construction will be given only on approval of Design of lowest or any other tenderer whose tender is accepted.

3. **PETTY ITEM INCLUDED:**

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

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

**26.0 TECHNICAL CONDITIONS AND/OR SPECIFICATION OF BORE WELL WORK  
(Schedule "I")**

1. PRODUCTION OF TEST CERTIFICATE.

The contractor shall have to produce Test Certificate for every items of material used in the work to establish that the material/s confirm to the specification for the work. The contractor shall have to conduct various tests and shall have to use various methods to supply potable water from the bore well and all the test certificates, test results and detail reports of various methods shall have to submit along with progress bills and final bill.

2. SELECTION OF BORE WELL LOCATIONS :-

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To avoid bore well failure, and to get sweet potable water, necessary information by using hydro-geological and geophysical techniques should be furnished to the Engineer in Charge of concern work by the contractor to enable to select the Bore well location in advance.

3. METHOD FOR BORE WELL :-

For hard soils, the hydraulic rotary method and percussion method of drilling and for soft soils, the hydraulic jet method, the reverse rotary recalculation method and sludger method are commonly used. Necessary approval of concern Engineer in charge should be obtained before using the method of Bore well.

4. PIPES :-

Contractor will have to supply heavy duty **seamless M.S. DRAWN SOLID pipes and M.S. SOLID DRAWN strainer pipe** confirming to latest version of IS and necessary test certificate shall have to produce before lowering the pipe. Contractor shall have to supply pipe and strainer made of slotted mild steel pipes core and coated with special anti-corrosive paint confirming to ISS duly approved by concern Engineer in charge. Necessary test certificate shall have to be submitted along with bills, Concern Executive Engineer shall have to conduct **100% test check** to release the payment

5. GRAVEL :-

Gravel confirming to the latest version to IS : 4097 to be used to provide multiple filtering system of Bore well. The coarse aggregate envelope under heath the collecting pipe shall be detailed below:

- (a) First layer of filtering medium near pipe line 38mm broken stone.
- (b) Second layer of filtering medium – 38mm to 29mm broken stone.
- (c) Third layer of filtering medium – 12mm to 8mm broken stone.

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- (d) Forth layer of filtering medium – 8mm to 5mm broken stone.
- (e) Fifth layer of filtering medium – coarse sand passing through a sieve of 3.35mm size and retained on a sieve of 1.70mm size.
- (f) Last layer of filtering medium – Fine sand retained on 70 micron sieve and passing through 1.70mm sieve.

Gravel should be preferably allotted from **nearby river** and duly approved by concern Railway Engineer of work shall be used. Gravel should be properly stacked and concern Engineer shall have to conduct 100% test check of stacked gravel and after deducting the shrinkage of 8% of the cubic contents, Necessary record of the correct quantity of gravel put in the bore well shall be maintained and this instruments or Records shall be submitted in the strata duly signed by the contractor and concern Executive Engineer and Engineer-in-charge of the work.

6. DEVELOPING & TESTING OF THE BORE WELL :-

To remove silt, fine sand and other such materials from a zone immediately around the well screen and to create larger passages in the formation through which sand free water at the maximum capacity can flow more freely towards the bore well, well development is done which includes the operations of flushing testing and equipping the bore well before they are put into service.

7. VERTICALITY TEST :-

A tube well out of alignment, plumpness & containing kinks will summarily be rejected and payment of any item will not be made to the contractor. Tube well is to be tested for alignment and plumpness just after completion of drilling but immediately after the housing pipes are installed and prior to commencing the gravel filling, Verticality test shall be conducted according to the method recommended in IS : 2800-of latest version and test results duly signed by the contractor and concerned Executive Engineer shall have to be submitted along with progress bill and/or final bill to release the payment to the contractor against USSOR item of tender schedule.

8. PUMPING TEST :-

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Before bore well is accepted by concern Engineer in Charge it shall be pumped by means of bore hole submersible pump, for **a period of minimum 72 Hours, or, till sand free and mud free water is flow from the bore well.**

The bore hole submersible pump shall be fitted with a device from measuring the pumping levels which shall be recorded every hour by Engineer-in-charge and contractor during the test, complete test report containing the records of hourly discharge and pumping level should be submitted for the approval of concern Divisional Engineer.

9. ACCEPTANCE OF THE BORE WELL :-

A Bore well shall be offered for acceptance by the contractor only after the following tests are completed and on submission of necessary test results to concern Engineer in Charge.

(A) STEP DRAWDOWN TEST.

(B) AQUIFIER PERFORMANCE TEST.

(C) YIELD TEST.

(D) BACTERIOLOGICAL TEST.

(E) COMPRESSION TEST.

(F) Any test prescribed in the latest version of IS code No.IS-2800 and as desired by concern Executive Engineer/Dy. Chief Engineer.

10. GUARANTEE PERIOD :-

Contractor shall have to give guarantee of tube well for the period of two years from date of completion of this tender.

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All the necessary repairing work of bore well will be carried out by the contractor as informed by the concern Engineer in Charge within 15days or such notice failing which, Railway shall carry out such repair from other agency and double cost of such repairs shall be recovered from the security deposit against this schedule.

11. REMARKS :-

1. No extra payment will be made to the contractor for conducting above mentioned tests and submitting necessary details and records.
2. The contractor shall have to follow the latest version of IS code of practice and other instructions as given by the concern Executive Engineer or his representatives.
3. The diameter of well shall means the internal dia of the tube well pipe. Nothing extra shall be paid for cutting a larger bore to accommodate the well pipe and the casing where required.
4. In USSOR item no. 171520/NS item, the work is required to be done in alluvial strata, the bore is required to be drilled shall be additional diameters according to Para 9.2.1 of IS code No. 2800 part I 1991. **For making payment under these items, quantities shall be calculated on the basis of inner diameter of tube well i.e. 25cms and nothing will be paid for getting larger diameter of base required to be done for gravel packing.**

**26.0 NS1(Schedule "H"): RCC of M-35/40 Grade.**

26.01 This item is for providing abutment, piers, pile cap, well cap, returns, bed blocks, pier & abutment cap, pedestal, girders, deck slab, ballast retainer, crest barrier, parapets, RCC Box etc as per approved drawing and specifications. These items include tamping, vibrating, curing etc. complete with formwork, scaffolding, shoring, shuttering, all lead& lift, materials, use of admixtures, labours, machinery, tools& plants etc. complete.

26.02 **The mix design for RCC should be submitted and got approved by the Engineer in Charge before commencement of work at his own cost.**

26.03 The cement and reinforcement shall be payable separately under relevant USSOR item

**26.03 Mode of Payment/Measurement:**

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The payment shall be made on actual work done at site and Cum shall be the mode of measurement. Nothing extra shall be payable other than the rates accepted. In case of pre-cast work, 50% payment shall be made on casting and made available at site within section and balance 50% after launching and placing in position.

**27.0 NS2(Schedule "H") : Providing Hand Packed Stone Pitching.**

27.1 The rates include the stone pitching work in 1:6 cement mortar.

27.2 The minimum thickness of hand packed stone pitching shall be 15 Cm.

27.3 The stone shall be sound, hard and durable.

27.4 No stone shall be less than 15 Cm. in any direction except smaller stones for filling gaps.

27.5 The rate includes the cost of cement.

27.6 The mode of payment shall be in Cum.

**28.0 NS3 (Schedule "H") - Safety Fencing : Providing and fixing 1.25m high fencing 1.8m long RCC post**

28.1 The work of Safety fencing is required to work as a guidance for defining limit beyond which contractor's machinery shall not ply (towards existing track). Accordingly this item is required to be executed before work of earthwork etc. starts. The distance from centre line of track at which this barricading shall be provided shall be decided with consultation with Engineer in charge or his representative.

28.2 Minimum height of 1.25m above ground level & sufficient depth below ground level should be ensured.

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- 28.3 The rate covers the required excavation and refilling & proper compaction with excavated earth for erection of fencing.
- 28.4 The rate includes painting with three bands of yellow luminous paint in the width of 55mm on top, middle and bottom 500mm apart maintain in good condition for the entire period of working.
- 28.5 During execution of work if fencing has to be relocated as per site condition and instruction of Engineer in charge or his representative, this shall be done and no extra claim will be entertained. If safety fencing is no longer required as decided by Engineer in charge, it should be removed and released material will be the property of Contractor. The site should be cleared immediately after removing the Safety fencing.
- 28.6 The rate includes the supply of RCC posts of minimum section 125mm x 100mm x 0.55m long at bottom and 100 x 100mm in remaining length (with +/- 10mm) as per drawing approved by Engineer in charge.
- 28.7 This item includes all type of maintenance during the complete period of execution i.e. right from erection to the final removing the fencing.
- 28.8 Mode of Measurement : The unit of measurement shall be RM.
- (a) 70% of the accepted rate shall be paid against the actual erection of the fencing including painting, fixing of barbed wire complete.
  - (b) Balance 30% of the accepted rate shall be paid only after removing of fencing and clearing the site complete.

**29.0 NS4 (Schedule "H") - Providing & laying a layer of three dimensional cellular confinement system GEOCELL**

- 29.01 The scope of work is to lay the transition system in the approaches of bridges, as per the drawing approved by IIT-Chennai including additional repairs which is enclosed herewith in the tender document.
- 29.02 Three layers of geo-cell of 150mm thick each layer of different sizes as per the drawing has to be laid suitably with blanketing material filled inside as per the sketch. Each layer has to be separated by 25mm thick blanketing cushion. Geo cell shall confirm to IS-17483 Part-I, 2020 corrected and revised up to date which is enclosed in the tender document.
- 29.03 The geocell supplied shall strictly be in conformity with the Item description and IS 17483. All the tests as prescribed in the IS 17483 shall be carried out on the Geocell and if it qualifies the standards then only it shall be used in the work. All the test results shall be enclosed with as a proof with each running bill.
- 29.04 Mode of Measurement & Payment: The unit of measurement shall be Sqm. and payment shall be made on Pro-rata of minimum of theoretical & actual work done.

**30.0 NS1I: Dismantling of existing BG track:**

This item is for dismantling of BG track in running / non running lines. The following works shall be under the scope of this item:

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- i) Before dismantling the existing BG track, the entire lines to be dismantled shall be jointly inspected by foot to foot by SE(C) P. WAY, Account's representative (Stock verifier) and representative of contractor. The joint inventory shall be taken. The inventory register shall bear the signature of SE(C) P. WAY, Stock verifier and contractor. The inventory shall be comprehensive i.e. the inventory register shall be duly supported with the sketches of yard and it shall cover all the major as well as minor fittings and fastening.
- ii) The released rails and sleepers after dismantling shall be placed on cess or in Railway land **within lead of 1.0Km** so as not to interfere with other operations of work. Noting extra shall be paid on this account. However, as per site requirement, the dismantled rails / sleepers / other fittings may be utilized for miscellaneous works as directed by Engineer-in-charge.
- iii) The released rails, which shall not be reused in track, shall be transported by contractor in his own vehicle & stacked in the respective yard or any other location as directed by Engineer in charge and shall be paid under relevant NS Item of Schedule "C". The rail panels shall be cut into the length of 11 M to 13 M by using rail cutting machines. Cutting of rails with rail cutting machines with contractor's own hack saw blades, shall be payable under relevant NS Item of schedule "B" if lead is beyond 1.0Km.
- iv) The released CST-9 / ST / Wooden / PRC sleepers shall not be reused in track and shall be transported by contractor in his own vehicle and stacked in the respective yard or nearest loading point as directed by Engineer in charge with proper accoutals, shall be paid under relevant NS itemof Schedule B if lead is beyond 1.0Km.
- v) Released track fittings like keys, cotters, fish plates, loose jaws, dog spikes, screws / rail spikes, bolts, pendrol clips, rubber pads, liners etc. will have to transported by contractor in his own vehicle and stacked in nearest PWI **nominated P.Way Depot**. Nothing extra shall be paid on this account. If above released fittings are required to be deposited other than nearest PWI **nominated P.Way Depot**, the payment shall be made for its transportation under relevant items.

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- vi) The released rails and sleepers which are required to be reused in the same location payment for transporting of rails shall be made under relevant NS item for the lead beyond 1.0Km and payment for leading of sleepers beyond 1.0Km shall be paid under relevant item. Lead chart for this shall be prepared and shall be signed by PWI/C, XEN/AEN(C) and Contractor and payment shall be made as per the lead chart only.
- vii) This item shall include dismantling of SEJs, Glued joints, block joints, trap points, guardrails, Level crossing with checkrails of running lines (along with dismantling of road surface) and for which no additional payment will be made.
- viii) Payment for dismantling shall be made per RM of track measured along the centerline of track. **In case of dismantling in traffic block the payment shall be made at the rate of 1.5 times the accepted rates. In case dismantling of MG Track is involved, payment shall be made @ 75% of accepted rate.**
- ii) For recovery purpose, the measurement shall be, as per the theoretical weight minus 5 % wear and tear shall be considered, for metal sleepers, rails etc. and for wooden sleepers shall be in numbers. Where theoretical weight is not available, average actual weight shall be considered and in that case, nothing shall be deducted for wear and tear.

**Mode of Payment:**

- (a) 35% payment against this item will be made after dismantling of track and making space for proposed alignment.
- (b) 65% payment against this item will be made after complete released materials are lifted from site to respective locations with proper accountal of materials. It will be the sole responsibility of the contractor to deposit the entire material arising out of dismantling to the Railway supervisor who will in turn give minus HRs to contractor in token of acceptance of the material handed over to him by the contractor. The quantity shown in minus HRs should exactly tally with the material deposited. It would be sole responsibility of Railway supervisor to submit one copy of minus and plus HRs invariably to the office of the Dy. Chief Engineer (Const.) without fail for releasing of payment.

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**31NS2I3: Fabricating and Erecting dead Ends, Rail fencing:**

i) **This item includes fabricating and erecting dead ends and rail fencing as per RDSO plans or as directed by Engineer in charge with contractor's own labour, plants, equipment etc. However, Railway shall provide rails, fish plates with nuts & bolts free of cost from nominated depot. No extra payment for transportation of these items is admissible.**

ii) **The item includes painting of two coats of approved quality synthetic enamel paint and one coat of red oxide primer with contractor's own paint and other incidental materials.**

**Mode of Payment/Measurement:**

a) The payment shall be made on prorata basis and MT shall be the basis of measurement. Theoretical weight minus 5% wear & tear shall be considered for the purpose of payment. Nothing extra shall be payable other than the rate accepted.

i. b) 80 % payment shall be made after fixing the dead ends, Rail fencing and remaining 20 % payment shall be released after completing the work such as painting of two coats of approved quality anti corrosive paint etc.

ii. c) In case shifting of existing Rail fencing, dead ends, height gauges etc. is done then payment @50% of the accepted rate will be made.

**32NS3I9: Tamping of track with Railway's Tie tamping machines and contractor's consumable items:**

Following track structures and track geometry standard shall be ensured before deployment of track machines.

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1. Track laying standard in respect of gauge , joints , expansion gaps and spacing of sleepers as specified in Para No.316 IRPWM should be followed.
2. The pre-tamping and post tamping operations as specified in Chapter 3 Of IRTMM should be followed.
3. A minimum cushion of 150mm of clean ballast along with adequate ballast on shoulders and cribs should be ensured before deploying the tamping machines.
4. The track geometry prior to deployment of track machines for new works of new line , doubling , gauge conversion etc. should be as under.

Peak value of Unevenness : 15mm on 3.60 m Chord.

Peak value of Twist : 15mm on 3.60 m Chord

Peak value of Alignment : 15mm on 7.20 m Chord

The above track geometry standards are not safety/slow down tolerances but are only a prerequisite for deployment of track tamping machines for better machine productivity and their optimum .

- i) The scope of work under this item includes tamping of track with Railway's tie tamping machines with crews to give minimum three three rounds of packing, as directed by Engineer-in-charge.
- ii) Railway will provide tie-tamping machines free of cost along with operators. The contractor shall arrange for all consumables for the working of the track machines besides arranging adequate numbers of labourers.
- iii) The contractor shall arrange for all the labours for doing pre-tamping, during tamping and post tamping works as per IRTMM and for working along with the machine for tamping minimum three rounds of packing and also for works such as picking up of slacks to raise the speed of the section to 100/110 KMPH or sectional speed whichever is more. The contractor shall provide all labours, consumable items except crew for tamping. The day-to-day routine maintenance cost of minor value if any shall also be borne by the contractor.
- iv) Tamping of track will be required to be done for BG main line, loop lines, Turn outs, SEJs, GJs, LCs, ballasted deck bridges.

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- v) This item includes tamping with special tie tamping machines (UNIMAT) for points & crossings for BG and for the purpose of payment, of one set of points & crossings will be counted as Two times the length of ordinary track. The length of points & crossings will be measured from stock rail joint to heel of crossings.
- vi) Tamping of switch expansion joints, trap, Glued joints and level crossings etc. shall be considered as tamping of ordinary track and no extra payment shall be made.
- vii) Tamping of Point & Crossing, trap, level crossing etc. shall be done by removing of check rail and after tamping the check rail shall be inserted at proper location. No extra payment shall be made on this account.
- viii) The tamping shall be done only after sufficient ballast, as required, has been put in the track.
- ix) The track will be rolled with Railway. Engine after each round of packing, subject to availability of BG engine. DGS may be deployed along with TTM. The track shall be made fit for the speed mentioned below after each round of packing.

First round of packing	-	50	KMPH.
Second round of packing	-	75	KMPH.
Third round of packing	-	100/110	KMPH.

- x) Even after making three rounds of packing by tie tamping machines, if the track standards are not achieved as per IRPWM or track does not become fit for 100/110 KMPH, then extra rounds of tamping shall have to be done. The contractor shall have to arrange for labours and consumable for such additional rounds of tamping, under this item but no payments shall be made for these additional rounds. Fitness for 100/110 KMPH shall be judged by speed trial with OMS apart from track parameters.

**If track parameters and its fitness are found satisfactory for 100/110KMPH and additional round of tamping is required to be done, payment shall be made as per accepted rate of third round tamping.** The contractor shall have to arrange for labours and consumable for such additional round of tamping.

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If contractor fails to deploy the sufficient labours, then Railways shall deploy his own labours and give consumables and recovery of such labours deployed and consumables shall be recovered from the contractor as per extant rules.

- xi) The contractor shall provide consumables like High speed Diesel oil, grease, seals/filters etc reconditioning of worn out tools for working of Track machines along with the sufficient labours to work with track machines for pre-tamping and post-tamping operations and to work along the tamping machines. The Track machine shall make three three rounds of packing to attain min. 100/110KMPH. Contractor shall also ensure sufficient labours for recoument of ballast before of each round of tamping and rolling of Track.

**Mode of Measurement/Payment:-**

- a) The payment shall be made on prorata basis i.e. Actual work done at site. Track Running Metre shall be the unit for measurement. Rate is inclusive of all activities and nothing extra shall be payable other than the rate accepted. Railway's Engineer at site shall certify the fitness of track for speed as indicated above after each round of packing.
- b) Manual packing shall be done for MG track, P&C, trap, LCs etc. if desired by Engineer in charge, for which payment shall be made @ 75 % of the rate of respective BG tie tamping.

**33NS/4I9: Fabrication, assembly of in situ G3(L) type glued insulated Rail joints**

1. Manufacturing/Fabrication of glued joints shall be strictly as per Manual for glued insulated Rail joints issued by RDSO-Lucknow 1998 edition with latest amendments issued time to time if any.
2. Under this contract contractor shall manufacture 60 Kg (UIC) rail section glued joints as per Drawing No. RDSO/T-2572 having end post thickness of 6mm namely G3(L) type having six bolts. .
3. The required materials for fabrication of glued joints shall only be procured from RDSO approved suppliers only.
4. Project is being done in phases, glued joints are to be fabricated as and when requirement arise as per site condition and as decided by Engineer in charge.
5. The rail piece shall be cut in the middle with a rail cutting machine. It shall be ensured that the cut is square and the rail are square, plane and smooth.

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6. The edges of the rail ends at the out shall be finished smooth with a flat file. All burrs shall be removed properly.
7. Holes in the rail pieces shall be drilled at locations following the relevant drawing with a precision drill using jigs to ensure accuracy. It shall be ensured that the holes drilled are not skew.
8. The burrs around holes shall be removed. The edges of the drilled holes shall be chamfered using the appropriate chamfering tools.
9. The fish plates shall have correct profile as per standard drawing so that contact with rail on the fishing surface and web is proper. Drilling of holes in fish plates shall be done by a precision drill using jigs. The edges of drilled holes shall be cleaned of burrs. It shall be ensured that the holes drilled are not skew.
10. The markings of rail designation, rolling details etc., occurring in the zone of contact of rail and fish plates, shall be ground with a grinder so as to merge with the parent profile/contour, perfectly aligned both laterally and vertically. The two rails shall then be held firmly in position by clamps. The distance between two rail ends shall be marginally more than the thickness of the end post to be used to enable insertion of the end post.
11. The application of glue shall be commenced only when the finished rails and fishplates have been properly cleaned & have dried completely.
12. The resin and hardner shall be mixed as per suppliers instructions in a suitable container. The constituents shall be thoroughly mixed to get a homogenous mixture. The glue shall be used within its pot life prescribed by the supplier.
13. A thick layer of the glue shall be applied on Kittling surface of the fish plates simultaneously by two teams of workmen.
14. One piece of clean glass cloth carrier shall be placed on the fish plates and evenly pressed so that the glue squeezes out through the glass cloth. The oozing glue shall be uniformly spread over. A layer of glue shall then be applied on the inside of the insulating liners followed by their placement on the glued glass cloth carrier on the two fish plates.

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15. A layer of glue shall then be applied on the outside of the insulating liners and a clean piece of glass cloth carrier shall be laid. The ooxing glue shall be uniformly spread over.
16. Glue shall be supplied to both the faces of the end post, before placing it between the two rail ends. Adequate pressure shall then be applied by using screw clamps at the rail ends so that no gap is left between the end post and the rails.
17. The insulating bushes duly dipped in glue shall be placed in the rail holes. The bonding surfaces of the rails shall then be coated with a layer of glue and the fish plates made ready as described in Para 13 to Para 15 above, shall be placed in position in contact with the rail web.
18. Bolts, washers and nuts shall then be placed in position and tightened with a torque wrench. The torque shall be increased gradually on all the bolts in stages of 35 kg-m per bolt. Care should be taken to tight inner bolts first and the outer bolts. Finally all the bolts shall be tightened with a torque of 105 Kg-m.
19. About 20 minutes after the initial tightening of bolts, the bolts shall be re-tightened with a torque wrench until a torque of 105 Kg-m is attained.
20. Every fabricated/assembled joint shall be checked for vertical and lateral alignment with 1 m long straight edge. The tolerance permitted shall be as under:-
  - (i) **Vertical alignment:-**Variation at the joint shall be within +1mm and -0mm measured at the end of 1 m straight edge placed at the top of rail head.
  - (ii) **Lateral alignment:-**Variation at the joint shall not be more than +0.5mm measured at the center of 1 m straight edge placed along the gauge face.
- 21 All the other tests shall be carried out only if the joints are dimensionally satisfactory.

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22. Each joint shall be subjected to insulation resistance test in dry condition. A meggering voltage of 100 V DC shall be applied across the joint, the value of the insulation resistance shall not be less than 25 mega ohms.
23. **PULL-OUT TEST:-**Only of the joint found satisfactory in dimension check Para 20 (i) & (ii) above and insulation resistance test in dry condition in Para 22 above, the pull-out test shall be conducted.

The pull out test shall be conducted by suitably gripping the two rail pieces of the joint and subjecting the joint to axial tension.

One method of conducting the test is to hold on end of the glued joint with the help of fish plates as fixed end. The other end of the glued joint is held to a moving frame with the help of a wedge inserted in slot cut in the glued joint through the moving frame brackets as per the Manual for glued insulated Rail joints issued by RDSO-Lucknow 1998 edition with latest amendments

The other method of conducting the test is to hold the glued joint with the help of fish plates at both the ends of the testing frame. One end of the testing frame remains fixed and the other is moved with the help of two hydraulic jacks operated simultaneously as per the Manual for glued insulated Rail joints issued by RDSO-Lucknow 1998 edition with latest amendments. Manufacturer can adopt any other method also with the prior approval of RDSO.

The pull out tested joints shall be dismantled soon after the inspection, fish plates may be re used in subsequent fabrications of their condition is satisfactory.

Para 3.4.4 of Manual for glued insulated Rail joints issued by RDSO-Lucknow 1998 edition with latest amendments stands modified as under in terms of CTE-CCG's letter No. W 632/0(Policy) Vol. VII dated 23.5.2.13

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On a lot of each 50 joints or part thereof one test piece Glued joint shall be fabricated by agency at site on cess with similar materials and quality control measures and with same set of equipments. This test piece will be subjected to pull out test as explained in Para 23 above. If strength of test piece is found passed as per 3.4.3 of Manual for glued insulated Rail joints issued by RDSO-Lucknow 1998 edition with latest amendments, then full payment shall be made. In case joint fails at load less than prescribed then following procedure shall be adopted:-

- (i) If strength is 99 to 80% of desired then 80% payment of full lot of 50 joints or part thereof shall be made.
- (ii) If strength found <80% then no payment shall be made for complete lot of 50 joints or part thereof.

The test joint shall be treated part of lot and will be paid accordingly to agency. The expenditure of testing including transportation to be borne by the agency.

24. DISPOSAL OF REJECTED LOT:-Each joint of rejected lot shall be marked with two "O" marks with yellow paint on web of rail both side, so that SSE/JE maintenance can keep them under observation.

25. SPECIFICATION OF MAERIALS:-

25.1 FISH PLATES:-Steel of fish plates shall conform to IRST-I. The dimension of fish plates shall conform o the relevant drawing of the glued joint.

25.2 HTS BOLTS & NUTS:-HTS bolts and nuts hall comply with the following specifications. The Hex Bolts shall be as per IS:1363 conforming to property clause 10.9 of IS:1367. The Hex nuts shall be as per IS:1363 conforming to property clause 12 of IS:1367.

25.3 PUNCHED WASHERS:-Steel of punched washers shall confirm to IS:2062.

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25.4 INSULATING BUSHES/SLEEVES, LINERS AND END POSTS:-The insulating components viz. bushes/sleeves, liners and end posts shall be made as per the Manual for glued insulated Rail joints issued by RDSO-Lucknow 1998 edition with latest amendments.

25.5 GLASS-CLOTH CARRIER REINFORCEMENT:-Glass-cloth carrier reinforcement shall conform to IS:11273:1992 clause 4, 5 type C for the properties not covered below:-

- (a) Nominal weight :-360+36 gm/sq.m.
- (b) Nominal thickness : 300+30 microns
- (c) Construction :-Ends per inch :15.5±2.5%, Picks Weave per inch :14±2.5% plain

26. MAINTENANCE OF RECORD:-A detailed record for the traceability of each Glued Joint must be kept as per the format show under:-

Sr. No.	Date of Fabrication	Location as per TMS guide lines	Line Up Dn SL	Block Time	Name of the agency	Name of the supervisor of agency	Name of Rly. Supervisor	Resistance value of Glued joint in dry condition (In megahms)	Signature of Railway Supervisor.
1	2	3	4	5	6	7	8	9	10

**34.0 NS/6 of Schedule "I" : Flash butt welding of all type of 20 rail panels/ free rails/2 rail panel/3 rail panel**

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- 1.0 This work is for flash butt welding of all type of rails / rail panels i.e. 20 rail panels/ free rails/2 rail panel/3 rail panel [60 kg/52 Kg, 72/90 UTS, New /SH/ in service] in situ / in cess using own Rail cum Road bound, Mobile Flash Butt Welding Plants.
- 1.1 Welding process and methodology will be governed by the latest edition of "Manual for Flash Butt Welding of rails" including latest corrections slips, issued by RDSO, Ministry of Railways, hereinafter referred to as the Manual.
- 1.2 The welds shall be finished to final profile by controlled grinding as approved by the Engineer. The finished weld alignment shall be as per specified tolerance in Manual. Rail head profile grinding to produce the finished alignment shall not extend more than 300 mm (three hundred) on either side of the weld.
- 1.3 All welds shall be indelibly marked with an individual number as prescribed in the Manual. This weld number shall be painted on the rail web. The number, once painted in the rails, shall be maintained until taking over of the work.
- 1.4 All surfaces of welds shall be ground Flash. Any defects or irregularities in welds which, in the opinion of the Engineer cannot be rectified by grinding shall be rejected.
- 1.5 All defective joints shall be cut out from a suitable distance on either side of weld and re welded in the presence of Railway official. No payment will be made for making cuts & re-welding for replacement of defective welds.
- 1.6 All welds are to be tested as per provisions / instructions in the Manual. Ultrasonic Testing of the welds is to be done as per latest edition of 'Manual For Ultrasonic Testing of Rails and Welds' including latest corrections slips. Scope also includes preparation & testing of test welds as per the manual.
- 1.7 Normally, 20 rail panels will be offered for welding after insertion into track & fixed to sleepers with prescribed fittings. Scope of the work will also include opening of fittings, fixing of rollers, handling of rail panel for desired alignment & gap before welding and fixing the panel back to the sleepers with the necessary fittings. If requested by contractor, 20 rail panels lying on cess may also be allowed for welding but, nothing extra will be paid for handling of the panels in this case.
- 1.8 Free rails/2 rail Panel/3 rail Panel will be offered for welding either lying inside the track or after insertion into track. In case the rails / rail panels are already inserted in track, scope of the work will also include opening of fittings, handling of rails / rail panels for desired alignment & gap before welding and fixing the rail/rail panel back to the sleepers with the necessary fittings.
- 1.9 The work shall be performed mainly in various construction projects over entire section of CAO/C/W Railway. It is not necessary to give the scope from one end to other in a continuous stretch. Contractor may require shifting of the MFBW plant from one project to other & at different work location of a project, as per availability of rails & priority of

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welding. Contractor may also require to deploy more than one mobile FB welding plant as per priority in commissioning and availability of rails in different projects over the jurisdiction of CAO/C/ADI. Shifting charges, if ordered in wetting will be paid as per terms of Railways.

**2.0 DEFINITIONS:**

2.1 Following special conditions shall apply to this contract. Where they differ from the General conditions, the special conditions shall override the General conditions. 2.2 The term "work" means all the work specified or set forth and required in and by the said specifications, drawings and "Schedule of Quantities", hereto annexed or to be implied there from or incidental there to or to be hereafter specified or required in such explanatory instructions and drawings (being in conformity with the said original specification(s), drawings, and "Schedule of Quantities" and also in such additional instructions and drawings not being in conformity as aforesaid, shall from time to time, during the progress of the work hereby contracted for as are supplied by the purchaser. 2.3 The term "Test" shall mean such test or tests as prescribed by the specifications(s) to be made by the Railway Administration, or his nominee during inspection.

**3.0 RATES FOR ITEMS OF WORK:**

3.1 Tenderer/s will quote his/their rates after full inspection of site and site conditions made known to him/them.

3.2 The rates quoted by the tenderer/s shall be deemed to include work necessary for setting out of works in the different phases as ordered by the Engineer's representative.

**4.0 GENERAL:**

4.1 Work to be executed by a robust and sturdy mobile self-propelled Flash Butt Welding plant (Rail cum Road bound) (hereafter called the MFBWP) and necessary attachments/engagements, which should be suitable for aligning, pulling & welding of rails panels / rails and shearing upset welding metal to produce long welded rails and capable of substantially high output under different situations, as laid down in the specifications.

4.2 The MFBWP shall be kept ready to commission the work within 15 (Fifteen) days from the date of issue of acceptance letter.

4.3 If required, Contractor may have to deploy more than one Mobile Flush Butt Welding Plant, to meet the targets.

4.4 The contractor will specifically note that in case any accident takes place due to the carelessness of the tenderer/s then the Railway administration may terminate the present

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contract and Railway reserve the right to recover the cost of damages due to such accident from the rescinded contractor.

- 4.5 The contractor shall execute the work at site with full caution. Contractor shall remove the track P-Way fittings if required, during welding of joints and re-fixing the same in track and re-space the track sleeper in running/newly laid track, if flash butt welded joints falls on the sleeper for which nothing extra shall be paid. Any loss of P-way fittings shall be recovered from the contractor as per rates prescribed in Para 15 (ii) below.

5.0 DIMENSIONAL AND OPERATING REQUIREMENTS.

- 5.1 The profile of the complete system longitudinally and in cross section during transfer in train formation or self-propelled or during working, shall be within the latest Indian Railways Standard BG schedule of Dimensions, corrected up-to-date.

- 5.2 Adequate clearance shall be allowed so that no component infringes the minimum clearance of 102 mm (One Hundred and Two) from rail level while travelling.

- 5.3 MFBWP shall be capable of continuous operation during the varying atmospheric and climatic conditions occurring throughout the year.

- 5.4 Fuel tank capacity/ consumable storage capacity shall be adequate for travelling of long distances/ working as the case may be.

- 5.5 It shall be capable of working without requiring power block in electrified section 25 KVA current is used for traction through an overhead wire at 5.5mm above rail level. On bridges and tunnels, the height is restricted to 4.8m.

- 5.6 It shall not infringe the adjoining track in yard or double/multiple lines and it shall be possible to permit trains at full speed with 4.72 m minimum spacing of track.

- 5.7 The provisions of the Motor Vehicles Act –1988 shall be complied with while moving on road. It shall be the responsibility of the manufacturer to obtain the technical certification of roadworthiness of the vehicle from the authorized agencies in India, prior to the registration of the vehicle.

5.8 Flash Butt Welding Plant:

The important characteristics of the Flash butt welding plant shall be as under:

- (i) The Flash butt welding machine shall be mobile type capable of doing in-situ welds.
- (ii) The welding clamps of rails shall provide contact area along the entire web of rail and shall be fitted with spring-loaded balls for optimum alignment of rails ends.
- (iii) The welding head shall be equipped with an integrated shearing device for shearing of the weld seam automatically, immediately after the welding process has been finished.

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- (iv) The arrangement shall be capable of handling/ pulling of rail Panels up to 260 metre length.
- (v) The clamping jaw construction should be such that sleeper around the rail joint should not hinder the welding process under opened out fastening condition.
- (vi) During welding process, rail ends shall be adjusted to a pre-design over-lift to avoid dip at weld. The bidder of the machine for this purpose shall give the design over lift values for respective rails. A positive confirmation for the over lift should also be possible.
- (vii) A recorder system shall be provided for the simultaneous recording of butting pressure, upset and magnitude current and duration of welding. Printout of the record shall be submitted by the contractor along with the bill. Graphical records and data showing the instantaneous current, butting forces, time cycle and other relevant welding parameter shall also be submitted in soft copy.

**6.0 PLACEMENT OF RAILS:**

The contractor shall ensure that the handling of rails or welded rail panels shall be such that the sleepers suffer no damage. Rails or welded rail panels shall not be dropped into place. If rail is being welded away from the exact location of their use, the welded rail panels will be stacked on levelled and well drained platform suitably supported in head on position, till their transportation of the site of their use. The welded rail panels should not have contact with soil.

**7.0 OPERATIONS:**

The contractor shall employ qualified and experienced personnel to weld the rails and shall carry out regular test with his own machine, plants and inspections to ensure that the welds comply with the specifications detailed herein. The contractor shall qualify his welding team and welding process by undertaking the qualification tests by RDSO / Butt Welding Organization of Zonal Railways or any other authorized agency competent to do so, as approved by the Engineer. If one member of the team is replaced, the team shall not lose its qualified status. However, if more than one member of the team is replaced the entire team shall be required to re-qualify.

**8.0 PREPARATION OF RAILS TO BE WELDED:**

- 8.1 Ends of all rail Panels / free-rails to be welded, shall be examined prior to welding. Rails not meeting with the rail end geometry as per Manual shall be straightened as approved by Engineer without causing any damage or indentation to the rails. Any rail which cannot be straightened to within the prescribed tolerances shall be cut back to a sufficient distance to

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get the required alignment. All straightening or cutting shall be done prior to welding. The rails shall be cut clean and square by means of rail saws or abrasive cutting disks. Gas torch cutting of rails is prohibited. The payment for cutting of the rails shall be made separately in the relevant item of schedule.

- 8.2 Before welding, end faces and both sides (electrode contact location) of the web of the rails shall be thoroughly cleaned of loose scales, rust, paint, etc. by mechanized brushing. Oil and grease, if present, shall be removed by Carbon Tetrachloride or Benzene. If any internal defects such as piping are noticed during cleaning, the rail shall not be welded.
- 8.3 The rail ends shall be cleaned up to a length as prescribed by the welding machine manufacturer before placing them on rollers. The gap between the rail ends to be welded shall be according to the supplier's specification.
- 8.4 Contractor to ensure that geometrical standards of the rail ends to be welded & cleaning / preparation of ends is as per Manual for Flash Butt Welding of Rails, with latest edition/ correction slips.
- 8.5 The rail ends shall be perfectly aligned in both horizontal and vertical planes. To compensate for lowering of joints due to thermal contraction, the two ends to be welded shall be raised by appropriate amount as specified by the bidder or as gained by the experience of the welding team.

9.0 TESTING OF WELD:

It shall be the responsibility of the plant in-charge and the quality control supervisors to device adequate stage inspections before final acceptance tests are conducted. Causes for failure either of weld or in heat affected zone at any stage in production shall be investigated and corrective action taken before regular welding is continued. Acceptance test has to be performed as per Manual for Flash Butt Welding of Rails, with latest edition/ correction slips. Results of all the test shall be maintained in register by the plant in-charge assisted by quality control supervisor.

10.0 TESTS FOR EVERY JOINT:

All welds be subjected to Visual inspection & dimensional check as per "Manual for Flash Butt Welding of rails" and Ultrasonic test (USFD) as prescribed in 'Manual For Ultrasonic Testing of Rails and Welds'. If any other test is subsequently added to the Manual, same will also have to be done without any extra cost.

10.1 Visual inspection:

After finish grinding, all welds shall be visually inspected for possible cracks, lack of fusion and other surface defects like notching, damage in heat affected zone etc. Welds with visible defects shall be rejected. This test will be arranged by Railway before releasing 60% payment (Stage-I).

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**10.2 Dimensional check:**

All welds shall be inspected for compliance of geometrical standards as prescribed in the Manual. Welds not meeting these standards, if rectifiable by grinding can be re grinded, failing which they shall be rejected. Results shall be maintained as per standard proforma. Test will be arranged by tenderer and results put up to Railway in prescribed proforma for claiming 20% payment (Stage-II). Railway will randomly check 20% of the welds before releasing stage-II payment, if any discrepancies is found between measurements recorded by Railway & tenderer, 100% welds will be checked by Railway for releasing stage-II payment.

**10.3 Ultrasonic test (USFD):**

All welds shall be subjected to ultrasonic testing as per 'Manual for Ultrasonic testing of rails & welds' and its latest correction slip, for detecting presence of internal defects in the weld. Welds having defects shall be rejected. Results shall be maintained as per standard proforma. This test will be arranged by the tenderer with his own USFD machine, competent USFD operator, labour, materials and consumable etc. and results put up to Railway in prescribed Proforma for claiming 15% payment (Stage III). Tenderer will arrange random check of 20% of the welds in the presence of Railway Officials before releasing stage-III payment. If any discrepancies are found between USFD results recorded in the random check, 100% welds will be checked by tenderer in the presence of Railway officials for releasing stage-III payment. Defective joint shall be distinctly marked and removed as specified for defective welds

**11.0 TESTS ON SAMPLE JOINTS:**

Presently, Manual specifies Hardness test, Transverse Test & MACRO Examination on Sample test joints. If any other test is subsequently added to the Manual, same will also have to be done without any extra cost. Sample test joints shall be made on pieces of rails of similar section and conforming to the same specifications as the rails being welded. The length of each piece shall not be less than 750mm. Rails for making the test piece will be provided by Railways free of cost. Tests shall be carried out on sample test joints at a frequency prescribed in Manual. These tests shall also be carried out whenever there is a change in type of rail being welded. In case a sample joint does not comply with the requirements of the test, two more samples will be made and tested. If, both the sample joints meet the requirement of the test, welding may continue. In case of failure of any of the retest joints, RDSO would be consulted for investigation and fixing revised welding parameters. These tests will be arranged by the tenderer at the nearest Railways Flash butt welding plants/CMT lab or BIS recognised / NABL accredited lab. Necessary charges for testing sample joints in outside lab will be borne by the tenderer. The results of this test

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will be furnished by the tenderer to the railway in prescribed proforma for releasing 05% payment (stage-IV). No payment will be made for welds executed by tenderer for making sample test joints. Rails test pieces after testing shall be deposited back to railways.

**11.1 Hardness Test:**

Brinell hardness test shall be conducted on the test weld sample before conducting transverse load test. The hardness value in HAZ shall not vary from the hardness of the parent rail by more than +20 HB. Results shall be maintained as per standard proforma.

**11.2 Transverse Test:**

The finished test weld sample, not less than 1.5 m long with the weld at centre shall be subjected to transverse load test in a transverse testing machine as prescribed in Manual. The test joints shall qualify the parameters prescribed in Manual, without showing any signs of cracking or failure. The results shall be maintained as per standard proforma.

**11.3 MACRO Examination:**

Test joint out of welded joints shall be subjected to macro examination as per Manual. 150 mm length of rail with weld at centre shall be cut and the sample shall be sectioned in vertical longitudinal direction through the weld. One of the sections shall be etched with 5-10% Nitric acid and also subjected magna flux test to ensure freedom from cracks, lack of fusion or oxide inclusion. Extent of heat affected zone shall be maintained as per proforma in the Manual.

**12.0 QUALITY CONTROL:**

Contractor has to arrange approval of RDSO for the 'Quality Assurance Programme' for the MFBWP plant deployed in compliance to the provisions of the Manual. Contractor will also be responsible for maintaining the records of welding as prescribed in Manual. The proposed proforma for the maintenance of weld & various tests records shall be submitted by the contractor for approval.

**13.0 TRANSPORTATION AND IMPORTATION OF MFBWP:**

**13.1** Transportation of the MFBWP shall be the responsibility of the contractor including customs and other clearances, taxes payable and all other related formalities and charges which may be required for the import and export of the MFBWP and also other equipment, spares, consumable, etc. which may be required during the contract.

**13.2** Contractor shall bear the cost of transfer of the MFBWP or any of its part, when transported in train formation on Indian Railway network for any reason on contractor's account like repairs, maintenance schedules, etc.

**14.0 TERMS OF PAYMENTS:**

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The rates for welding shall be valid irrespective of welding being conducted during day times, nights, Saturdays, Sundays, holidays, etc.

14.1 Payment Schedule will be as under-

- (i) 60% payment (Stage-I) shall be made after welds are cleared through visual inspection.
- (ii) 20% payment (Stage-II) shall be made after the welds are finished to specified dimensions after grinding and marking as per specifications.
- (iii) 15% payment (Stage-III) will be made after successful USFD testing of the joints.
- (iv) Balance 5% payment (Stage-IV) will be made after painting, numbering, testing of sample joints and completion of work as per special conditions.

14.2 No payment will be made for welds executed by tenderer for making sample test joints.

14.3 Shifting charge of MFBWP, if ordered in writing & required by road, will be paid by Railways for the shortest road distance, at a fixed rate of Rs. 80.00 (Eighty) per km. No other payment / claims will be admissible for the shifting of the MBFWP.

14.4 It should be specifically noted by the tenderers that no separate loading, unloading and leading charges for materials (which are supplied by the Railway) shall be paid for by the Railways and the rates quoted by the tenderer/s shall be inclusive of all these charges.

15.0 MATERIAL SUPPLIED BY THE RAILWAY:

- (i) The railway materials such as rails etc. will be supplied at nominated depot/ Go-down of sectional Engineer, North Western Railway as per availability. The contractor will make his/their own arrangement to carry the materials to the site of work and return the surplus materials at his/their own cost to the Senior Section Engineer (Construction) at the places of stores.
- (ii) If any extra quantity of any other Railway material over standard scale have been issued to the contractor due to wastage, bad workmanship or any other reason or in the opinion of in-charge the Railway material have not been accounted for by the contractor/s satisfactorily or have not been used on bonafied Railway works allotted to the contractor/s, the cost of such railway material will be recovered from the contractor/s @ 1.5 times the cost of procurement plus freight @ 7%.
- (iii) The tenderer shall be responsible to see that the materials, if any, supplied by the Railway are utilized for the sole purpose for which they have been issued to him

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failing it, he is liable to be dealt with according to the law for any misuse of these commodities by himself, his agents or workmen etc.

**16.0 Defective joints and test welds:**

The Railway shall only pay for one joint even in case it becomes necessary to make two joints for eliminating defective/ failed weld. No payment shall be made for the defective / failed joint in case the number of defective/ failed welded joints exceed 1% of the total number of joints, penalty as mentioned in para below shall be recovered from the contractor:- No recovery on account of the cost of the work will be made from the contractor in case of joints failed during the execution of work in respect of joints marked defective by USFD or other causes up to a limit of 1% of joints welded. For the failure beyond this limit a recovery shall be made from the contractor's bill @ Rs. 1500/- per joint for supervision done by the Railway and for loss of Rail in addition to re-welding of joints by contractor. No payment will be paid for sample welds for the purpose of testing and towards the cost of testing whose cost is to be borne by the contractor. But the rails required for such tests shall be given free of cost.

**35. NS1 (Schedule-J) : PEB PRE-ENGINEERED BUILDINGS**

**1.1 SCOPE OF WORK**

The work content in this contract consists (but not limited to) of:

Fabrication, Supply and erection of PEB structures, wherever required.

The work is to be constructed and maintained as per relevant Codes, Particular Specifications, and approved Drawings and/or as directed by the Engineer-in-charge.

The following requirements are to be followed by the Contractor:

- a. All aspects of quality assurance, including procurement & testing of materials and other components of the work, as specified or as directed;
- b. Clearing of site and handing over of all the Works, as directed;
- c. Maintenance of the completed Work during the maintenance period.
- d. Submission of completion (i.e. 'As-Built') drawings and other related documents as specified;
- e. Interfacing work such as Supply of anchor bolts to Civil contractor, Interfacing with crane supplier etc.
- f. All goods and materials to be incorporated in the works should be new and of the recent or current models, and they should incorporate all recent improvements in design and materials unless provided for otherwise in the contract. The specifications mentioned, shall be prime governing.

**Associated Works**

Works to be performed shall also include:

- a. All general works preparatory to the PEB buildings and EOT cranes of sheds.
- b. Works of any kind necessary for the due and satisfactory construction, completion and maintenance of the works to the intent and meaning of the drawings adopted, technical specifications, to best

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- Engineering standards and orders that may be issued by the Engineer from time to time, compliance by the agency with all Conditions of Contract,
- c. Supply of all materials, apparatus, plants, equipment, tools, fuel, water, strutting, timbering, transport, offices, stores, workshop, staff, labour and the provision of proper and sufficient protective works, diversion, temporary fencing, lighting and watching required for the safety of the public and protection of works within site and on adjoining land;
  - d. Figured dimensions on drawings shall only be followed and drawings to a large scale shall take precedence over smaller scale drawings. All dimensions shall be checked on site prior to execution. The dimensions where stated do not allow for waste, laps, joints, etc. but the Contractor shall provide at his own cost sufficient labour and materials to cover such waste, laps, joints, etc.
  - e. The levels, measurements and other information concerning the existing site as shown on the drawings are believed to be correct, but the Contractor should verify them for himself and also examine the nature of the ground as no claim or allowance whatsoever will be entertained on account of any errors or omissions in the levels or the description of the ground levels or starts turning out different from what was expected or shown on the drawings.
  - f. The contractor shall visit the site and ascertain the local conditions, entry and traffic restriction, and all obstructions in the area and also ascertain all site conditions. The contractor shall allow for extras likely to be incurred due to such conditions and no claim shall be entertained on this account under any circumstances from the contractor

Materials and workmanship of the best quality are to be employed & the instructions of the Engineer are to be complied with.

**LIST OF CODES AND SPECIFICATIONS**

The codes and standards generally applicable to the work of this section are listed below. These are in addition to all relevant Indian Standard Codes as specified in the referred documents.

IS: 800 Code of practice for General Construction in Steel.

IS: 801 Code of practice for use of Cold Formed Light Gauge Steel Structural Members in General Building Construction.

IS: 1024 Code of Practice for use of welding in bridges and structural subject to dynamic loading.

IS: 1363 Hexagonal head bolts, screws and nuts (Grade "C").

IS: 1364 Hexagonal head bolts, screws and nuts (Grade A & Grade B).

IS: 2062 Steel for general structural purpose.

Note:- The list given above is indicative, contractor may suggest if any other BIS and IRS codes pertaining to the work are applicable. Always latest copy of all codes with up to date amendments shall be used issued up to last date of tender acceptance.

**1.2.0 DESIGN**

- 1.2.1 **The design shall be carried out by contractor and get approved by the Railway and will be required to execute the work as per the design and drawings approved by the railways.**

**1.3.0 DRAWINGS**

1. Structural design drawings will be issued showing the statutory requirement for the sheds and structures. However, detailing of design drawings shall then be developed in to final "Shop Drawings" by the Contractor and shall approved by Railway.
2. Drawings furnished to the Contractor shall form a part of these specifications. The Contractor shall consult these in detail for all the information contained therein, which pertains to and is required for his work.

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3. Revisions to drawings, even after release for preparation of shop drawings, are likely to be made to reflect additional data, or, additional details defining updated requirements. Revisions to drawings and any new drawings made to include additional work for the Contractor shall be considered a part of this specification and contract. Extra claims by the contractor on this account shall not be entertained.
4. It shall be clearly understood that the drawings are only informative drawings and are not intended to show exact and final information or specific connection details. The detail drawings will contain exact information.
5. In case of variations in 'Drawings' and 'Specifications', the decision of the Engineer shall be final and binding. Should the Contractor during the execution of his work, find discrepancies in the information furnished to him, he shall refer such discrepancies to the Engineer before proceeding with such work.
6. If required Contractor shall prepare all fabrication and erection drawings necessary for completing the work satisfactorily.
7. Drawings shall be of one standard size, and shall be clear and legible. All dimensions are to be given in SI system.
8. Shop drawings shall include, but not be limited to:
  - (a) Detailed marking plans.
  - (b) Details of member connections and connections to other structures/components of buildings.
  - (c) Detailed dimensions for fabrication indicating dimensional modifications required for field conditions.
  - (d) Welding and bolting procedures to be used both at shop and field.
  - (e) Cambers required to be provided, and permissible tolerances in fabrication.
  - (f) Assembly and erection sequences indicating components to be connected at field.
  - (g) Complete bill of materials for each component (preferably drawing wise).
  - (h) Erection methodology for structures.
9. If necessary the drawings can be revised by the Railway at any time and the tenderer shall be bound for such changes for which no any claim of tenderer will be entertained.
10. While the shop drawings prepared by the railways, represent the correct interpretation of work to be done, the contractor is not relieved of his responsibilities for:
  - (a) Dimensional accuracy
  - (b) Correctness of engineering and design of connections
  - (c) Fit of parts
  - (d) Details
  - (e) Errors or omissions
  - (f) Material and workmanship
  - (g) Methodology of fabrication and erection
  - (h) Safety of performance

#### **1.4.0 SUBMITTALS**

On commencement of the Project, the Contractor shall submit the following to the Engineer:

- A. Prior to the technical submittals, the contractor shall submit detailed baseline program and methodology indicating the proposed overall schedule for documentation such as calculations, shop/ working drawings, plant/procedures and records. Submission of samples, process of fabrication/delivery to site storage yard for the approval of the Engineer

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- B. Complete fabrication drawings, materials lists, cutting lists, bolt lists, welding schedules and QC schedules, based on the design drawing furnished to him and in accordance with the approved schedule. design stage.
- C. Results of any tests, as and when conducted and as required by the Engineer.
- D. Manufacturer's mill test reports in respect of steel materials , bolts, nuts and electrodes, wires as may be applicable.

### **1.5.0 MATERIALS**

#### **Structural Steel**

1. Built up sections like column, beams, portal shall be made from structural steel conforming to IS: 2062 having yield stress 350 Mpa / ASTM – 572 (Grade – 50) having minimum yield strength of 345 Mpa. The plates shall be joined together on one side of the web by a continuous automatic submerged arc welding process to produce the section required. All secondary members such as purlins, rafters, bracings, sag rods etc shall conform to IS 2062 and IS 1161 (for tubular sections) having yield stress 250 Mpa.
2. The steel column strut of PEB and RCC pedestal interface shall be designed as a fixed base with a minimum of 20 mm dia anchor bolt according to the design calculation

### **1.6.0 STEEL SUPPLIED BY THE CONTRACTOR**

The Contractor shall furnish to the Engineer all mill orders covering the material ordered by him for this project and also the test reports received from the Mills for his approval and information. It is not intended that all the steel materials to be supplied by the Contractor for the work shall be specially purchased from the rolling mills. The Contractor's stock material may be used, provided the mill test reports identified with the materials, satisfactorily demonstrate the specified grade and quality. The Engineer shall have the right to test random samples to prove authenticity of the test certificates produced by the Contractor, at the Contractor's cost.

All steel materials supplied by the Contractor shall be in a sound condition, of recent manufacture, free from defects, loose mill scale, slag intrusions, laminations, pitting, flaky rust, etc. and be of full weight and thickness specified.

Wherever the Contractor, in order to accommodate his other materials in stock, desires to substitute structural steels or plates for the sizes shown on drawings, such substitutions shall be made only after authorization in writing by the Engineer.

The Engineer may direct that substitution be made, when he considers such substitutions is necessary.

### **1.7.0 THREADED FASTENERS**

Technical supply conditions for bolts and nuts shall comply with IS: 1367. Bolts and nuts shall be of property class 4.6 of IS: 1367. Unless specified otherwise, the bolts and nuts shall be hexagonal.

All anchor bolts and nuts shall be of class 4.6 (Grade-B) of IS: 1364, and foundation bolts shall conform to IS: 5624. All nuts shall be hexagonal, and shall conform to property class compatible with the property class of the bolt used.

High strength friction grip bolts and nuts shall conform to IS 3757 and IS 6623 respectively

Plain washers shall conform to IS: 5369, unless otherwise specified. One washer shall be supplied with each bolt and, in case of special types of bolts, more than one washer as needed for the purpose shall be supplied. An additional double coil helical spring washer, conforming to IS: 6755, shall be provided for bolts carrying dynamic or fluctuating loads and those in direct tension.

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### **1.8.0 ELECTRODES**

Mild steel electrodes shall conform to IS: 814 and high tensile steel electrodes, if required, to IS: 1442. The contractor shall furnish to the purchaser a certificate issued by the manufacturer to the effect that the electrodes supplied are in accordance with the above specifications. For welding in any particular position, the electrodes used shall be those recommended by the manufacturer for use in that position.

### **1.9.0 Gutters and Downspouts**

All elements of the roof drainage system viz., size and slope of gutters, dia and spacing of downspouts etc., shall be adequately designed to prevent water overflow over the sides of the building.

It is to be noted that the integrity of a roof drainage system is influenced by the design of its gutters and downspouts and by the proper spacing of the downspouts. Gutter may be cold-formed "channel shaped" member and should be designed to carry water from the roof of the building to the downspouts. Gutters may be either Eave gutters or Valley gutters. Eave gutters may be uniquely shaped to create a distinctive look along the eave of the building as per architectural elevations.

A downspout shall be hollow cold-formed section and shall adequately be supported from the portal frame using strips. The downspouts may have fluted sides adding stiffness to their shape.

Unless otherwise mentioned in the BOQ, downspouts shall be provided upto the FGL.

### **1.10.0 Flashing, Trim and Closures**

Flashing and trim has to be furnished at the rake, corners, eaves, framed openings and wherever necessary to provide weather tightness and finished appearance. Colour-coated, aluminium sheet for flashing metal closure, trim and other miscellaneous uses shall be minimum 26 gauges.

### **1.11.0 HANDLING AND STORAGE**

Proper storage of steel (sections and fabricated members) at the job site shall be the responsibility of the Contractor.

Structural steel shall be stored out of mud and dirt. Proper drainage of the storage area shall be provided. These shall be protected from damage or soiling by adjacent construction operations.

Fabricated steel shall not be handled until the paint has thoroughly dried. Care shall be taken to avoid paint abrasions and other damage. Steel work shall be transported in such a way so as not to over stress the fabricated sections. All pieces bent or otherwise damaged shall be rejected and shall be replaced by the contractor at his own cost.

Checking and inspection of fabricated structural steel work by the Engineer shall be done at various stages of completion of fabrication work. The contractor is required to ensure that fabricated steel work is properly stacked such that all joints of all members are either visible or accessible for inspection at all stages of inspection work. Care should also be taken to ensure that fabricated members are not subjected to stresses due to defective stacking.

### **1.11.0 FABRICATION**

All fabrication of structural steel work shall be in accordance with IS: 800 and as per the approved drawings unless otherwise specified. The fabrication shall be carried out in a state of the art manufacturing facility for Pre-engineered structures with minimum following machines:

- Automatic beam welding line
- Plate shearing line
- Radial drilling machines
- Z C & Eave strut Cold forming line.
- Hydraulic press
- Shot blasting machines

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The tolerances of fabrication of steel structures shall be in accordance with IS: 7215 unless otherwise specified.

**1.12.0 HOLING**

Holes shall preferably be done by drilling. All holes shall be made at right angles to the surface of the member. Holes shall be clean cut without any torn or jagged edges. Holes shall be done by drilling. Punching shall not be resorted to, unless previously approved by the Engineer. In any case, punching of holes in materials having a thickness in excess of the connector diameter, or, for materials thicker than 16 mm, the hole shall be punched 3 mm less in diameter than the required size and then reamed to the full size. Holes shall not be formed or enlarged by burning or gas cutting under any circumstances.

**1.13.0 ASSEMBLY**

All connections shall be either bolted or welded as shown on the drawings. The contractor shall not redesign or alter any connection without prior approval of the Engineer. The component parts shall be assembled in such a manner that they are neither twisted nor otherwise damaged and shall be prepared such that the specified cambers, if any, are provided. Drifting done during assembly shall not distort the metal or enlarge the holes. Poor matching of holes shall be cause of rejection. However, if permitted by the Engineer. Holes that must be enlarged due to mismatching shall be reamed.

**BOLTING**

All steel work which is bolted together shall be in close contact over the whole surface. Where two bolted surfaces are to be in permanent contact after assembly, each shall be thoroughly scraped free of loose scales, dirt & burrs and a heavy coat of red oxide, zinc chrome or other approved paint applied after cleaning and drying.

All bolts shall be provided with washers under the nuts and the washers shall be tapered on the inside of the flanges of R.S. Joists and channels. Bolts and studs shall project not less than one full thread through the nut after tightening. Unless otherwise specified, the ends of the bolts shall be burred after erection to prevent the removal of nuts.

**WELDING**  
**GENERAL**

In general only Automatic submerged arc welding will be used for fabrication.. The welding and welded work shall generally conform to IS: 816 and IS: 9595 unless otherwise specified. All welding work shall be carried out in shop and the layout and sequence of operations shall be so arranged as to eliminate distortion and shrinkage stresses.

The welding procedure shall be arranged by the contractor to suit the details of the joints as indicated in the drawings and the position at which welding has to be carried out. Welding procedures shall cover the following:

- Type and size of electrodes.
- Current and (for automatic welding ) arc voltage.
- Length of run per electrode, or (for automatic welding) speed of travel.
- Number and arrangement of runs in multi run welds.
- Position of welding.
- Preparation and set up of parts.
- Welding sequence.
- Pre or post heating.
- Any other relevant information.

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### **1.14.0 INSPECTION OF WELDS**

All welds shall be inspected for flaws by any of the methods described in these specifications, and as per IS: 822. The choice of the method to be adopted, shall be determined by the Engineer. The Contractor shall arrange for all tests as called for in the Bill of quantities, at his own cost. In case the tests uncover defective work, such tests shall be at the Contractor's cost and the Contractor shall correct such defects at his own cost, and prove the soundness of rectified work. The correction of defective welds shall be carried out as directed by the Engineer without damaging the parent metal. When a crack in the weld is removed, magnetic particle inspection or any other equally positive means as prescribed by the Engineer shall be used to ensure that the whole of the crack and material up to 25mm beyond each end of the crack has been removed. Cost of all such tests and operations incidental to correction shall be to the Contractor's account.

### **1.15 Workmanship**

- All workmanship shall be equal to the best practice in modern structural shops. Greatest accuracy shall be observed in the manufacture of every part of the work and all similar parts shall be strictly interchangeable.
- All materials shall be straight and if necessary before work shall be straightened and/or flattened by pressure unless required to be of curvilinear form and shall be free from twists.
- The erection clearance for cleated ends of members connecting steel to steel should not be greater than 2mm at each end. The erection clearance at ends of beams without web cleats should not be more than 3mm at each end, but where for practical reasons a greater clearance is necessary, suitably designed seating or connections shall be provided.
- Chipping of angles, flanges and edges of plates wherever necessary shall be done without damaging the parent metal. Chipped edges shall be ground to a neat finish and sharp corners and hammered rough faces shall be rounded off.
- The edges end ends of all flange plates and web plates of plate girders and built-up columns, of plates forming chords or web members of lattice girders, and all cover plates, the ends of all angles, tees, channels and other sections forming the flanges of plate girders and columns, and chords and web members of lattice girders shall be planned. Edge preparation for welding may be done by machine controlled flame cutting with edges free of burrs clean and straight.
- The top ends of all intermediate stiffeners shall be planed or ground to fit tightly to the main angles or flanges. Care shall be taken to ensure a full bearing of the stiffeners at the supports and at other points where concentrated load is applied. The ends shall not be drawn or caulked.
- The butting surfaces at all joints of girders or columns shall be planned so as to butt in close contact throughout the finished joint. Holes for bolts shall be drilled to conform to clause 10 of IS: 7215. AH holes, except as stated hereunder, shall be drilled to the required size or sub-punched 3mm less in diameter and reamed thereafter to the required size. Thickness of the material for sub- punching shall not be greater than 16mm. All matching holes for bolts shall register with each other so that a gauge of 0.8mm less in diameter than the hole can pass freely through the members assembled for bolting in the direction at right angle to such members. All holes for turned and fitted bolts shall be drilled undersize of 1 mm and after assembly, reamed to a tolerance of +0.13mm to 0mm unless otherwise specified. The parts shall be firmly bolted together during such block drilling and taken apart for removal of burrs after drilling.
- All parts assembled for bolting shall be in close contact over the whole surface and all bearing stiffeners shall bear tightly at both top and bottom without being drawn. The component part shall be so assembled that they are neither twisted nor otherwise damaged. Specified chambers, if any, shall be provided.
- Trial assemblies shall be carried out after fabrication to ensure accuracy of workmanship and those checks shall be witnessed by the purchaser/consultant.
- All turned and fitted bolts shall be carefully turned and shall be parallel throughout the barrel. The following limits of tolerance shall be permitted upon the diameter of the barrels of turned bolts and holes, which they are to fit.

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	Barrel of bolt	hole
Limit of tolerance	High 0.00mm	+0.13mm
Low -0.13mm		0.00mm

There are more than four in any joint; they shall be tightened from the centre of the joint outwards.

**1.16.0 INSPECTION**

- The Contractor shall give due notice to the Engineer in advance of the materials or workmanship getting ready for inspection.
- All rejected material shall be promptly removed from the shop and replaced with new material for the Engineer's approval inspection. The fact that certain material has been accepted at the Contractor's shop shall not invalidate final rejection at site by the Engineer, if it fails to be in proper condition or has fabrication in-accuracies which prevent proper assembly. No materials shall be painted or dispatched to site without inspection and approval by the Engineer unless, such inspection is waived in writing by the Engineer.
- Shop inspection by the Engineer or his authorized representative, or, submission of test certificates and acceptance thereof by the Engineer, shall not relieve the Contractor from the responsibility of furnishing material conforming to the requirements of these specifications. Nor shall it invalidate any claim, which the Engineer may make because of defective or unsatisfactory workmanship.
- The Contractor shall provide all the testing and inspection services and facilities for shop work except where otherwise specified. For fabrication work carried out in the field, the same standard of supervision and quality control shall be maintained as in shop fabricated work. Inspection and testing shall be conducted in a manner satisfactory to the Engineer.

**1.17.0 TESTING**

**MATERIAL TESTING**

If mill test reports are not available for any steel materials, the same shall be got tested by the Contractor to the satisfaction of Engineer to demonstrate conformity with the relevant specification.

**1.18.0 SHOP MATCHING**

Some steel work, particularly columns along with tie beams, bracings etc. may have to be shop assembled to ensure satisfactory fabrication. If the Engineer so desires, he may order such assembly at shop for verification. The Contractor shall comply with such instructions without claiming any extra cost.

**1.19.0 SHOP ASSEMBLY**

The steelwork shall be temporarily shop assembled, as necessary, so that the accuracy of fit may be checked before dispatch. The parts shall be shop assembled with a sufficient number of parallel drifts to bring and keep the parts in place.

Since parts drilled or punched, with templates having steel bushes shall be similar and, as such, interchangeable, such steelwork may be shop erected in part only as agreed by the Engineer.

**ASSEMBLY**

All parts assembled for bolting shall be in close contact over the whole surface.

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The component parts shall be so assembled that they are neither twisted nor otherwise damaged. Specified cambers, if any, shall be provided.

All parts of bolted and welded members shall be held firmly in position by means of jigs or clamps while bolting or welding. No drifting of holes shall be permitted, except to draw the parts together and no drift used shall be larger than the nominal diameter of the bolt. Drifting done during assembling shall not distort the metal or enlarge the holes.

Trial assemblies shall be carried out at the fabrication stage to ensure accuracy of workmanship, and these checks shall be witnessed by the Engineer/ Authorised inspecting agency. Such trial assemblies shall be at the cost of the contractor.

#### **1.20.0 FIELD BOLTS**

- Requirements stipulated under bolting shall apply for field bolts also. Field bolts nuts and washers shall be furnished by the Contractor in excess of the nominal numbers required. He shall supply the full number of bolts, nuts and washers and other necessary fittings required completing the work, together with the additional bolts, nuts and washers totaling to 10% of the requirement subject to minimum of 10 Nos.
- At the time of assembly, the surfaces in contact shall be free of paint or any other applied finish, oil, dirt, loose rust, loose scale, burrs and other defects which would prevent solid seating of the parts or would interfere with the development of friction between them.
- If any other surface condition, including a machined surface is specified; it shall be the responsibility of the Contractor to work with in the slip factor specified for the particular case.
- Each bolt and nut shall be assembled with washers of appropriate shape, quality and number in cases where plane parallel surfaces are involved. Such washers shall be placed under the bolt head or the nut, whichever is to be rotated during the tightening operation. The rotated nut or bolt head shall be tightened against a surface normal to the bolt axis, and the appropriate tapered washer shall be, used when the surfaces are not parallel. The angle between the bolt axis and the surface under the non-rotating component (i.e. the bolt head or the nut) shall be  $90 \pm 3$  degree. For angles outside these limits, a tapered washer shall be placed under the non-rotating component. Tapered washers shall be correctly positioned.
- No gasket or other flexible material shall be placed between the holes. The holes in parts to be joined shall be sufficiently well aligned to permit bolts to be freely placed in position. Driving of bolts is not permitted. The nuts shall be placed so that the identification marks are clearly visible after tightening. Nut and bolts shall always be tightened in a staggered pattern and where there are more than four bolts in anyone joint, they shall be tightened from the centre of the joint outwards.
- If, after final tightening, a nut or bolt is slackened off for any reason, the bolt, nut and washer or washers shall be discarded and not used again.

#### **1.21.0 MARKING OF MEMBERS**

After checking and inspection, all members shall be marked for identification during erection. This mark shall correspond, to distinguishing marks on approved erection drawings and shall be legibly painted and stamped on it. The erection mark shall be stamped with a metal dye with figures at least 20 mm high and to such optimum depth as to be clearly visible, even after a member is galvanized.

All erection marks shall be on the outer surface of all sections and near one end, but clear of bolt-holes. The marking shall be so stamped that they are easily discernible when sorting out members. The stamped marking shall be encircled boldly by a distinguishable paint to facilitate easy location. Erection marks on like pieces shall be at identical location. Members having lengths of 7.0 m or more shall have the erection mark at both ends.

Each fabricated member, whether assembled prior to dispatch or not so assembled, shall bear an erection mark, which will help to identify the member and its position in respect of the whole structure, to facilitate re-erection at site. This erection mark shall be incorporated in the shop detail and erection drawings.

#### **1.22.0 ERRORS**

Any error in shop work which prevents proper assembling and fitting up of parts in the field by moderate use of drift pins or moderate amount of reaming will be classified by the Engineer as

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defective workmanship. All charges incurred by the Engineer either directly or indirectly because of the poor workmanship will be deducted from the amount due to the Contractor before payment is made. The amount of such deduction will consist of the sum total of the costs of labour direct or indirect, material, plant, transportation, equipment rental and overhead expenses. In case the Engineer chooses to reject the material because of poor workmanship, the cost of all handling and returning the material to the Contractor, if he so desires, shall entirely be to the Contractor's account. All the replacement materials shall be supplied free and in all such cases, the cost of handling, transport and delivery to site shall be borne by the Contractor.

### **1.23.0 ERECTION**

Erection of structural steel fabricated components shall be done generally in accordance with provisions of IS: 800.

Before starting of erection work, the contractor shall ensure the fulfillment of the following activities:

- a) The contractor shall submit, for examination by the Engineer, detailed particulars of his proposed methods of erection of the superstructure steelwork, together with complete calculations relating to strength and deflection. If the erection scheme necessitates the attachment of strength steelwork the permanent steel work, the contractor shall submit, for approval of the Engineer, the methods he proposes for making good the permanent steelwork after removing the temporary work. The contractor shall also submit the design and fabrication drawings including detailed calculations of temporary nose, counter weight ,all temporary support, staging, braces etc. required for safe erection, for approval of the Engineer.
- b) The contractor shall provide all construction and transport equipment, tools, tackle, and consumables, materials, labour and supervision required for the erection of the structural steelwork.
- c) Handling, assembling, bolting, welding and satisfactory installation of all fabricated structural steel materials in proper location, according to approved erection drawings and/or as directed by the Engineer.
- d) Setting out, aligning, plumbing, leveling, bolting, welding and securely fixing the fabricated steel structures in accordance with the erection scheme, or as directed by the Engineer.

Grouting under base plates shall be done after erection of the structural steel, unless otherwise approved by the Engineer. All bearing plates and bearing assemblies shall be set level and to the elevations shown on drawings. These shall be shimmed with approved means and grouted to ensure full bearing on the supporting substrate regardless of the tolerances otherwise permitted. The grout to be used in superstructure or stanchion bases, shall be shrink resistant grouting compound of approved make and manufacture and shall have a 28 days compressive strength of at least 30 N/sqmm. The surfaces which has to receive the grout shall be thoroughly cleaned immediately prior to the grouting operation. The grout shall be carefully worked under the base plates and shall completely fill the space under the base plates. After the grout has had its initial set, the grout shall be cut back flush with the base plate as shown in drawings and surplus grouting material removed. The surplus material thus removed shall not be re-used. If inserts in concrete are required, the contractor shall furnish all inserts including any reinforcement required for embedding in the concrete to the concrete contractor. It should include providing layout drawings to the concrete contractor for placement of such inserts into concrete. The grouting shall be done by civil contractor.

### **1.23.1 ERECTION TOLERANCES**

Erection tolerances shall be as per table-1 of ANNEXURE-A.

### **1.24.0 QUALITY CONTROL & TESTING REQUIREMENTS**

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The Quality Assurance Plan shall be followed as per direction of Railway Engineer in charge.

Quality Control through established testing norms of the welded structural steelwork by Engineer

The Contractor shall submit the following:

- Proposed overall schedule for documentation of shop drawings. plan/procedures and records, submission of procedure of fabrication.
- The contractor shall himself inspect all materials and shop work to satisfy the specified tolerance limits and Quality norms before Engineer inspects the same.

The contractor shall through appropriate planning and continuous measurements in the workshop and the erection at site, ensure that the tolerance specified in ANNEXURE-A are strictly adhered to.

Fabricating agency shall have in house facilities for all testing of weld.

#### **1.24.1 TESTING**

##### **MATERIAL TESTING**

If mill test reports are not available for any steel materials, the same shall be got tested by the Contractor to the satisfaction of Engineer to demonstrate conformity with the relevant specification.

##### **TEST FAILURE**

At any stage, in the event of any material or work failing to meet an inspection or test requirement, which is not overseen by the Engineer, the Contractor shall notify the Engineer immediately. The Contractor must obtain permission from the Engineer before repair is undertaken. The quality control procedures to be followed to ensure satisfactory repair shall be subject to approval by the Engineer. The Engineer has the right to specify additional inspection or testing as he deems necessary, and the additional cost of such testing shall be borne by the Contractor. The Contractor shall maintain records of all inspection and testing which shall be made available to the Engineer on demand.

#### **1.24.2 VISUAL EXAMINATION**

The contractor shall conduct visual examination and measurement of the external dimensions of welds for all joints. Before examining the welded joints, areas close to it on both sides of the weld for a width not less than 20 mm shall be cleaned of slag and other impurities. Examination shall be done by a magnifying glass which has a magnification power of ten (10) and measuring instrument which has an accuracy of  $\pm 0.1$  mm or by weld gauges. Welded joints shall be examined from both sides. The contractor shall examine the following during the visual checks.

- i) Correctness and shape of the welded joints
- ii) Incomplete penetration of weld metal.
- iii) Influx
- (iv) Burns
- (v) Unwelded craters
- (vi) Undercuts
- vii) Cracks in welded spots and heat affected zones
- viii) Porosity in welds and spot welds
- ix) Compression in welded joints as a result of electrode impact while carrying out contact welding
- x) Displacement of welded element

The contractor shall, document all data as per sound practices.

In order to exercise proper control of the quality of the welding, Contractor shall enforce methods of control as tabulated below:

<b>Purpose</b>	<b>Control subjects</b>	<b>Methods of control</b>
1. Control of welding materials and basic metal quality	Quality control of electrodes, welding wire, flux and protective gases.	Weldability test to determine the technological properties of materials.

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	Checking of quality and Weldability of the basic metal and welded members.	Mechanical test of weld metal  Metal graphical investigations of welds macro-structure and microstructure  Checking of weld metal resistance for inter crystalline corrosion. Study if weld metal solidity by physical control methods.
2. Checking of welders qualifications	Welding of specimens for quality determination	Mechanical tests, metallographically investigation & checking of welded joints by physical control methods
3. Control of welded joint quality	Control of assembly accuracy and technological welding process	Checking of assembly quality & centering of welded members  Checking of welding equipment conditions. Checking correctness of welding procedure. Visual examination of welds.

**1.24.3 Mechanical Test**

The Contractor shall carry out various mechanical tests to determine weld-ability, metal alloy ability, nature of break, correct size and type of electrodes, degree of pre-heat and post-heat treatment. The type, scope and sample of various mechanical tests shall be determined in agreement with the purchaser. The number of tests conducted shall depend on the result obtained to satisfy the Engineer that the correct type and size of electrode, degree of pre-heating and post-heating and weld-ability of metal are being followed. Engineer may at his discretion reduce the frequency of .such tests depending on the performance record of earlier tests.

**1.24.4 Dye Penetration Test**

All welds {100 %) shall be tested by "Dye Penetration test" as per current practices. Engineer may at his discretion reduce the frequency of .such tests depending on the performance record of earlier tests.

**1.24.5 Radiography Test**

Radiography test shall be conducted by the contractor to determine gas inclusion (blow holes, hollows) slag inclusion, shallow welds and cracks for 100% lengths all butt joints. Before conducting the examination the welded joints shall be cleaned of slag and scales and visually examined. The welds shall be marked into separate portions depending on the length of photograph. The length of photograph shall be such as to ensure that there are no distortions and shall reveal the defect correctly. The length shall not be more than 0.75 of the focal distance and the width of the photograph would depend on the width of the welded joint plus 20 mm on either side of the weld. The cassette with film shall be protected by sheet of lead or equivalent of proper thickness against incidental, diffused and secondary radiation. The direction of

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the ray with relation to the film shall be as specified hereunder. Welds of butt joints without edge slopes with edge processing shall be examined by central ray directed at right angles to the weld.

In special cases examination of welds with inclined rays directed along edge slopes may be permitted by the Engineer/ Authorised inspecting agency. Lap joints shall be examined by directing rays at 45 degree to the bottom plate. Welds in T -joints, without any edge preparation shall be examined by rays directed at 45 degree to the weld. Angle welds in lap and tee-joints shall be examined by the rays in opposite direction, i.e. the film will be on the side of the weld. Weld in angle joints shall be checked by directing ray along the bisector of the angle between the welded elements. Opposite direction of the ray and location of the film may also be permitted by the Employer. Only 15% of butt welds shall be tested by radio graphic examination. Engineer may at his discretion reduce the frequency of .such tests depending on the performance record of earlier tests.

#### **1.24.6 Ultrasonic Test**

Ultrasonic test shall be conducted by the contractor to detect gas inclusion (pores), slag inclusion, shallow welds, cracks, lamination and friability etc for the fillet joints. Prior to starting of ultrasonic test the welded joint shall be thoroughly cleaned of slag and other material. Surface of the basic metal adjacent to welded joint on both sides shall be mechanically cleaned by the grinder or a metal brush to provide the contact of the whole ultrasonic probe surface with surface of basic metal. The width of the clean surface shall be as directed by the Engineer/ Authorised inspecting agency. The welded joint then shall be covered with a thin coat of transformer oil, turbine or machine oil to ensure acoustic contact. The joints so treated shall be marked and the marks shall be entered into the documentation, subsequent to this, ultrasonic test shall be carried out as directed by the Engineer. Unless otherwise directed by the Engineer 10% of welds shall be subjected to ultrasonic testing. Engineer may at his discretion reduce the frequency of .such tests depending on the performance record of earlier tests.

#### **1.24.7 Magnetic particle Test**

Based on other test results, or considerations that raises doubts on welded joints at important locations in the structure, the Engineer may call for Magnetic Particle Tests of joints. The Contractor shall comply with such requirements, and arrange for such tests at his own cost. Engineer may at his discretion reduce the frequency of .such tests depending on the performance record of earlier tests.

#### **1.25.0 PAINTING OF STRUCTURAL STEEL WORK**

##### **Paint**

1. All paint delivered to the fabrication shop shall be ready mixed, in original sealed containers, as packed by the paint manufacturers. Addition of thinners shall not be permitted.
2. Opened containers of Paint shall be stirred frequently to keep the pigment in suspension

##### **Storage of Paints**

1. All paints shall be stored strictly in accordance with the requirements laid down by the paint manufacturers. The storage area shall be well ventilated and protected from sparks, flame, direct exposure to sun or excessive heat, preferably located in an isolated room or in a separate building.
2. All paint containers shall be clearly labeled to show paint identification, date of manufacture, batch number, order number and special instructions in legible form. The containers shall be opened only at the time of use. Paints that have liveried, gelled or otherwise deteriorated during storage, shall not be used. Paints for which the shelf life specified by the supplier has expired, shall not be used without inspection and approval by the Engineer.

##### **Execution**

#### **Paint System (High Performance Polysiloxane System)**

Sand blasting shall be carried out in accordance with IS:1477. Painting work shall be carried out as follows:

#### **DESCRIPTION**

#### **SURFACE**

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**Fabrication  
Shop**

**External Surfaces**

**Internal Surfaces**

Surface  
Treatment

Abrasive Blast to SA 2.5(ISO 8501-1:1988). If oxidation occurs between blasting and application of paint, the surface shall be reblasted to the specified standards.

Abrasive Blast to SA 2.5(ISO 8501-1:1988) or SSPC SP-6, near white metal blasting

Ist Coat

Providing & applying two component high build Zinc Rich Epoxy Primer Poly amide cured with approximate volume Solids of 60%, and a product weight of approximately 2.50 kg/liter, minimum recoat interval of not more than three hours at 25 deg C. The primer can be like Interzinc 52 of International Paints or approved equivalents.

**DFT-75 microns**

The primer shall be applied by Conventional/Airless Spray only in Shop.

Surface Tolerant Epoxy with minimum Volume Solids of 80%, minimum recoat interval of not more than 24 hours at 25 deg C and a product weight of 1.6kg/liter like. The primer can be like Interseal 670 HS of international paints or approved equivalent

**DFT-150 microns**

2<sup>nd</sup> Coat

Providing and applying two component Hi Build Epoxy intermediate Coat pigmented with Micaceous Iron oxide with minimum Volume Solids of 80%, minimum recoat interval of 6 hours at 25 deg C and a product weight of approximately 2 kg/liter- like Intergard 475 HS of international paint or approved equivalent.

**DFT-150 microns**

The coat shall be applied by Conventional/Airless Spray only in Shop

**Erection Site**

Touch up Primer

Power Tool Cleaning to ST 2 standards followed by Surface Tolerant Epoxy with

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minimum Volume Solids of 80%, minimum recoat interval of not more than 24 hours at 25 deg C and a product weight of 1.6kg/liter like Interseal 670 HS of International Paints or approved equivalent. This primer shall be applied as touch up wherever damages have occurred on account of welding or Transportation & Erection.(Stripe Coat)-The DFT shall not be included in the Total DFT of System

**DFT-75 microns**

The primer shall be applied by Conventional/Airless Spray only at site

Finish Paint Providing and applying two components Hi Gloss Acrylic Polysiloxane Finish Paint with minimum Volume Solids of 70%.The product shall hard dry in not more than 5 hours at 25 deg C like Interfine 979 of International Paints or approved equivalent. This product should exhibit Gloss Retention following a minimum of 3000 hours to U.V-A florescent lamp when checked as per ASTM-523

**DFT-125 microns**

The paint shall be applied by Conventional/Airless Spray only at site.

The total Average DFT of External Surface is 350 microns

The total Average DFT of Internal Surface is 150 microns

**DFT measurements should be done in accordance with Specifications SSPC PA 2.**

INTERNAL SURFACE = Internal surface are those which will become inaccessible after fabrication and are not prone to humidity and moisture from the atmosphere.

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EXTERNAL SURFACE = All other surfaces which are prone to humidity and moisture from the atmosphere.

The following precautions must be taken:

- a. *After abrasive blast cleaning, the first undercoat (primer coat) should be applied well before surface deterioration.*
- b. *Over coating intervals, application parameters shall conform to manufacturer's instruction manual.*
- c. *The DFT (Dry film thickness) shall be measured after completion of each coat.*
- d. *Over coating intervals, application parameters shall conform to manufacturer's instruction manual.*

**Protection of Paintwork**

1. The Contractor shall provide measures as necessary to prevent damage to the work and to other property or persons from all cleaning and painting operations. Paint or paint stains which result in other unsightly appearance on surfaces not designated to be painted shall be removed or obliterated by the contractor at his cost.
2. All painted surfaces that in the opinion of the Engineer/ Authorised inspecting agency are damaged in anyway, shall be repaired by the contractor at his cost with materials and to a condition equal to that of the requirements specified in these specifications.
3. Upon painted surfaces that in the opinion of any other work that would cause dust, grease or foreign materials to be deposited upon the painted surfaces, the surfaces shall be thoroughly cleaned.
4. The areas for high-strength bolts shall be protected by masking tape undercoat application at the fabrication shop. Immediately prior to erection any rust in the paint area shall be removed by power wire brushing to a standard equivalent to SA3

**Contractor shall make provision for requisite site painting to all fabricated steelwork, as per requirements of related specifications of the painting.**

**1.26.0 FIELD MODIFICATIONS**

Corrections to accommodate minor misfits in steel structure by moderate use of drift pins and reaming will be permitted. Errors that cannot be corrected by these measures, but require modifications must be reported immediately to the Engineer along with contractor's proposed solution.

**1.27.0 METHOD OF MEASUREMENT OF PAYMENT**

For the purpose of payment, quoted rates apply to the weight of steel work calculated from final drawings based on theoretical weights given in the latest IS codes. No deductions being made for holes or notches. Each gusset shall be measured as equivalent to the dimension of the smallest enclosing rectangle & weight of gusset plate so calculated shall be paid.

2% of the weight of the members as calculated above shall be added for weight of field connections such as high strength bolts & payment of these bolts shall be made as 2% of the quantity of stanchion, columns, beams, purlins, gusset plates etc.

**1.28.0 STAGE PAYMENT SCHEDULE FOR PEB STRUCTURES**

	Stage Payment for BOQ item of PEB structures :	% amount
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	Stage Payment for BOQ item of PEB structures :	% amount
i	Procurement & testing of steel quantities on receipt in fabrication workshop against documentary evidence of purchase from approved supplier subject to a maximum of quantities as indicated in approved fabrication drawing and also as Indicated in schedule.	25% of BOQ Item.
ii	On completion of fabrication of steel work quantities and testing of fabricated members including painting as per specifications and its approval by Engineer in charge.	25% of BOQ Item.
iii	On transportation and receipt of fabricated material In good condition at site, approval of Engineer in charge regarding physical receipt of fabricated materials in good condition.	10% of BOQ Item.
iv	Final erection and fixing of the pre engineered steel buildings at designated site location in all respects by the contractor and aligning them in proper position over the respective supports and its approval by the engineer in charge	Balance 40% of BOQ Item.
-	The payment for Items (i) & (ii) above shall be against the Bank Guarantee duly executed in a form acceptable to the employer for an amount equivalent to the payment. The payment for Item (iii) shall be against an indemnity bond duly executed in a form acceptable to the Employer.	
-	The Bank Guarantee shall initially be valid for a minimum six months. It should be subsequently extended from time to time depending upon the progress of work.	
-	The Bank Guarantee shall be released to the extent to the final erection of the pre engineered steel building on completion of activity (iv) in good condition and certified by Engineer in charge to this effect.	

**1.29 .0 GURANTEES FOR BUILDING MAINTENANCE:-**

The contractor shall guarantee for structural stability of Pre-engineered buildings for their successful performance for the periods of 20 years. The contractor shall indemnify the Engineer for

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a similar period against any damage to property and injury to persons on account of any defective work. The format and text of the Guarantee and the Indemnity Bond shall be given by the Engineer.

**36.00 NS2 (Schedule-J) : Providing, Fabricating & laying of colour coated Galvalume (Proflex system roofing)**

This item is for Providing, Fabricating & laying of colour coated Galvalume sheets material for self-supported roofing system (Technology similar to Proflex system provided by M&B engineering Pvt. Ltd., Ahmedabad or any other ISO approved firm), Material shall be of following specification, BMT 0.90mm to 1.00mm, APT 0.95mm Tolerance +/- 0.02mm thick, width 605 mm or as decided by Railway (Tolerance +/- 2mm), including supplying, loading, transporting,

unloading and staking at site, fabricating and laying with all contractor's tools, plants, machineries materials and fixtures labours including all lead and lift and laps/ wastage if any etc. complete. The colour of sheet will be decided by Railway. The rate is also inclusive of designing of roofing system, proof checking and providing execution drawing.

Fabrication and installation of self-supported roofing technology similar to Proflex System provided by M&B engineering Pvt. Ltd., Ahmedabad or any other ISO firms decided by engineer-in-charge, as per site requirement.

1. The roofing system should be self-supported roofing system (i.e. without trusses, purlins or any ancillary supports shall be designed by the Contractor through the consultant and got duly proof checked from Govt. Institution or Govt. Recognized Institution.
2. Design and drawing will be approved by Railways. For design of roofing system relevant load parameters of IS code of practice to be adopted.
3. The cost of designing and proof checking of design and drawings will not be paid separately and these charges are deemed to be included in rates of this item.
4. The rates shall also inclusive of preparation of necessary auto cad drawing required for execution of roofing system should be 100% leak proof, resistant to corrosion and maintenance free.

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5. The cost is inclusive of all labour, materials including transportations, lead, lift etc. complete, no extra payment shall be made except as mentioned in the schedule and accepted by C.A.
6. The roofing materials with fittings & accessories and its fabrications & erections shall be as per relevant IS code. Before fixing the self- supported roofing sheets, contractor shall provide 'C' shaped channel/ plate over the top of already constructed RCC Wall. The 'C' shaped channel/plate shall be fixed by drilling hole through the RCC wall & shall be bolted and nuts shall be welded with plate. Structural steel columns shall be welded over the 'C' shaped channel/plate to fix the self-supported roofing sheets. No extra payment for drilling of holes shall be made, however, payment for holding down bolts and nuts shall be made under relevant item.

**MODE OF PAYMENT / MEASUREMENT:**

The payment shall be done as per actual work done at site. Sqm shall be the base for measurement.

**37.00 NS3 (Schedule-J) : Providing & fixing in position 2 mm thick Polycarbonate clear sheet:**

Providing & fixing in position 2 mm thick Lexan amassed Polycarbonate clear sheet for strip lighting in roof to suit the same profile of colour coated metal sheet used in roofing inclusive polycarbonate bolts & nuts, neoprene washers / self tapings screws with suitable washers etc. including all lead and lifts with fixing accessories etc. complete. Work shall be carried out to the satisfaction of Engineer at site. **(Overlapping of sheets will not be paid).**

**Mode of Payment/Measurement:**

The payment shall be done as per actual work done at site. The RM shall be the base for measurement.

**38.00 NS4 (Schedule-J) : Supplying, fixing and commissioning of wind driven turbo ventilators**

This item is for Supplying, fixing and commissioning of wind driven turbo ventilators of average capacity of 1500 – 2000 CFM having a neck dia of 600mm, Overall belly dia 700 – 750mm and 42 Nos of fins. Top plate and bottom ring shall be made of high grade stainless steel (SS-304) and fins to be made of high grade aluminum (H-14) of minimum thickness 0.71mm. The base and hopper shall be constructed of UV stabilized FRP of minimum thickness 3mm matching existing roof sheet as per requirement of Railway. The rate shall include cutting hole in old sheet, fixing of FRP base along with ventilator and making it totally water tight etc. all complete as per direction of engineer in charge. The item all labour, transportation, tools, plant etc. complete, nothing extra shall be payable except the accepted rate against this item.

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Hi-tech pivot system enabling frictionless rotation. The fins shall aerodynamically profiled rigid roll formed curved turbo fins / vanes to help smooth and trouble free operation even at very low and velocities.

**GUARANTEE AGAINST SMOOTH WORKING OF TURBO VENTILATOR**

The contractor shall also give guarantee for the wind driven turbo ventilator against smooth and trouble free operation, etc. for a period of five years on a Rs 100/- legal paper.

**Mode of Payment :** The payment shall be made as per actual work done at site on prorated basis, unit for measurement is per each. Payment shall be made after fixing and commissioning.

**39.00 NS5 (Schedule-J) : Fixing 52 kg/90 R rails over a pit line on RCC wall/ steel columns with ACB/MSCB plate**

This item is for Fixing 52 kg / 90 R rails over a pit line with ACB/MSCB plate as directed by Engineer-in-charge to corrected spacing, gauge, alignment and level of track with necessary fittings and duly providing full components of rail fittings with all lead and lifts with contractor's labour, tools and plants etc. complete as per specification and as directed by the Engineer-in-charge. Fittings i.e. Fish plate, fish bolts, ACB/MSCB plates will be supplied by Railway free of cost.

**Mode of payment/measurement:**

The payment shall be done as per actual work done at site. The TRM shall be the base for measurement.

**40.00 NS6 (Schedule-J) : Manufacturing and supplying MS clits with bolts for fixing 60Kg/52 Kg rails on RCC wall / steel columns**

The material shall be of approved quality and shall be got approved by Engineer-in-Charge.

**Mode of Payment/Measurement:**

The payment shall be made on the pro rata basis i.e. actual work done at site and each set shall be the basis of measurement.

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**41.00 NS7 (Schedule-J) : Providing and fixing 150 mm GI pipe 'B' class**

- 41.1. The GI pipe of 'B' class 150mm dia. shall be made by reputed company and confirming to relevant IS.
- 41.2. The cost is inclusive of its fittings like Tee 150 x 150 x 40mm & 150 x 150 x 150mm reducers, socket, flange and spurn yarn with labour charges for fixing in position transportation, lead, lift with all taxes.
- 41.3. The cost of Tees required at 2-3 meter c/c and other Tee for connection are inclusive in cost, the thread cutting for the same is also included in the rate.
- 41.4. The entire work will be done as per instruction of Engineer at site and testing for leakage also carried out as per his instruction.
- 41.5. Contractor should also follow the safety rules while working between tracks for safety of labour as the work should be executed between running platform line.
- 41.6. No traffic block shall be granted for the work.

**Mode of payment/measurement:**

The payment shall be done as per actual work done at site. The RM shall be the base for measurement.

**Additional special condition to Contract**

- 1.0 "If required by Railway during any accident/natural calamities, Railway Administration can utilize the tools and plants along with machineries of the contractor working as required as the situation warrants. The hire charges shall be payable to contractor. In this connection a new NS item will be operated by the Railway Administration. No claim shall be entertained on this account".
- 2.0 The contractor has to submit the list of tools, plants and machineries available at site to the Engineer – In – Charge at the time of starting the work at site other than specified elsewhere in the Tender Documents.
- 3.0 **OTHER COMMON SPECIAL CONDITIONS AT A GLANCE FOR THIS TENDER:**
- 3.1 The excavation for structures (i.e. other than bridges and wherever not included in rates) to be paid in relevant USSOR items.

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3.2 The surplus earth to be disposed off as directed by Engineer in charge within the limit of 1Kml and no extra payment will be made on this account.

3.3 Contractor shall be responsible for giving proper layouts/markings center lines of structures and bridge and these shall only be checked by the Railway representative. Payment will be made in relevant item in case of item made available in the tender schedule while giving offer, otherwise payment will not be made on this account.

**4.0 The following views shall be kept in mind while submitting the Running / Final bill for technical check:**

- i) The Contractor and concerned staff shall ensure that every Running bill & Final Bill shall be technically checked before making payment.
- ii) Level books, steel registers, HRs, Test certificates where as required etc. shall be maintained carefully and shall submit along with Running / final bill for technical checking.
- iii) Contractor should be produced original invoice showing the details such as name of agency, name of project, site location etc. along with necessary test reports for each procured material. The invoices & test reports should be signed by SSE/JE & AXEN/XEN to confirm their acceptance.
- iv) Royalty clearance certificate by contractor from concerned Revenue authority / collector for supply of ballast, earth, blanketing materials along with final bill shall be submitted.
- v) Prior starting the earthwork & blanketing, original level books & detailed calculation for assessment should be deposited in the Dy.CE office.

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**Annexure (Safety) – I**

**COMPETENCY CERIFICATE**

Certified that Shri \_\_\_\_\_ P. way supervisor of  
M/s \_\_\_\_\_ has been examined regarding P. way working on  
\_\_\_\_\_ work. His knowledge has been found satisfactory and he is capable of  
supervising the work safely.

Assistant Engineer  
Date:

Signature of Contractor/s  
Date:

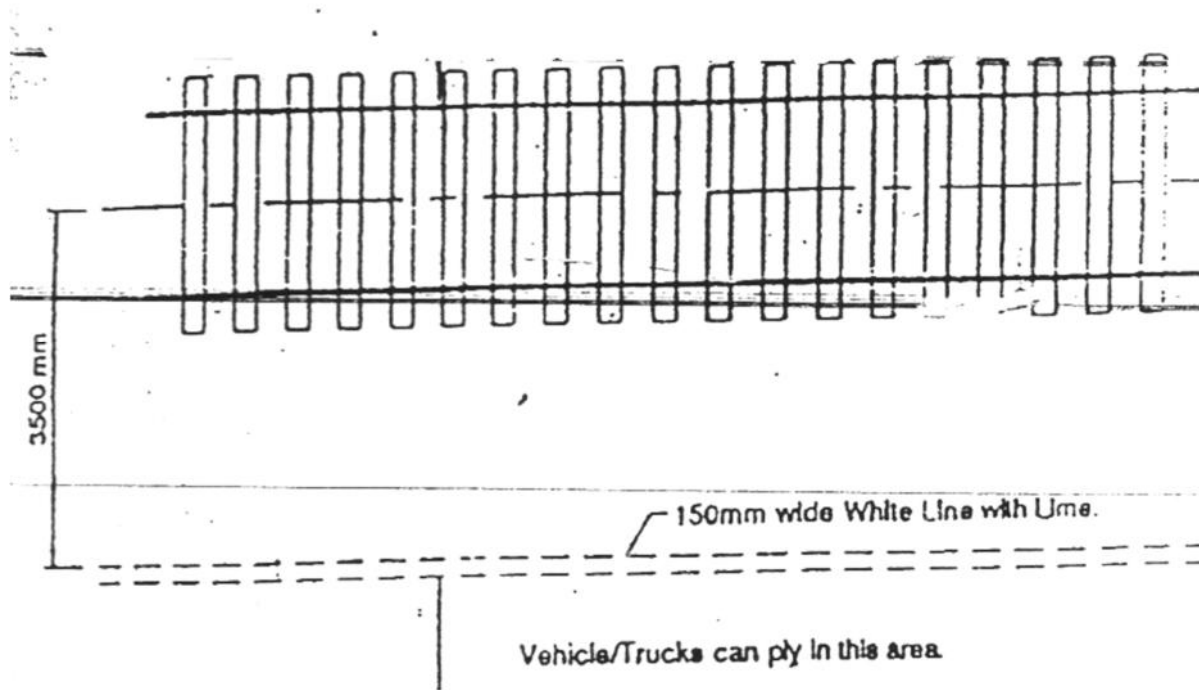
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**Annexure (Safety) – II**

**(A) Marking of White Line with Lime**



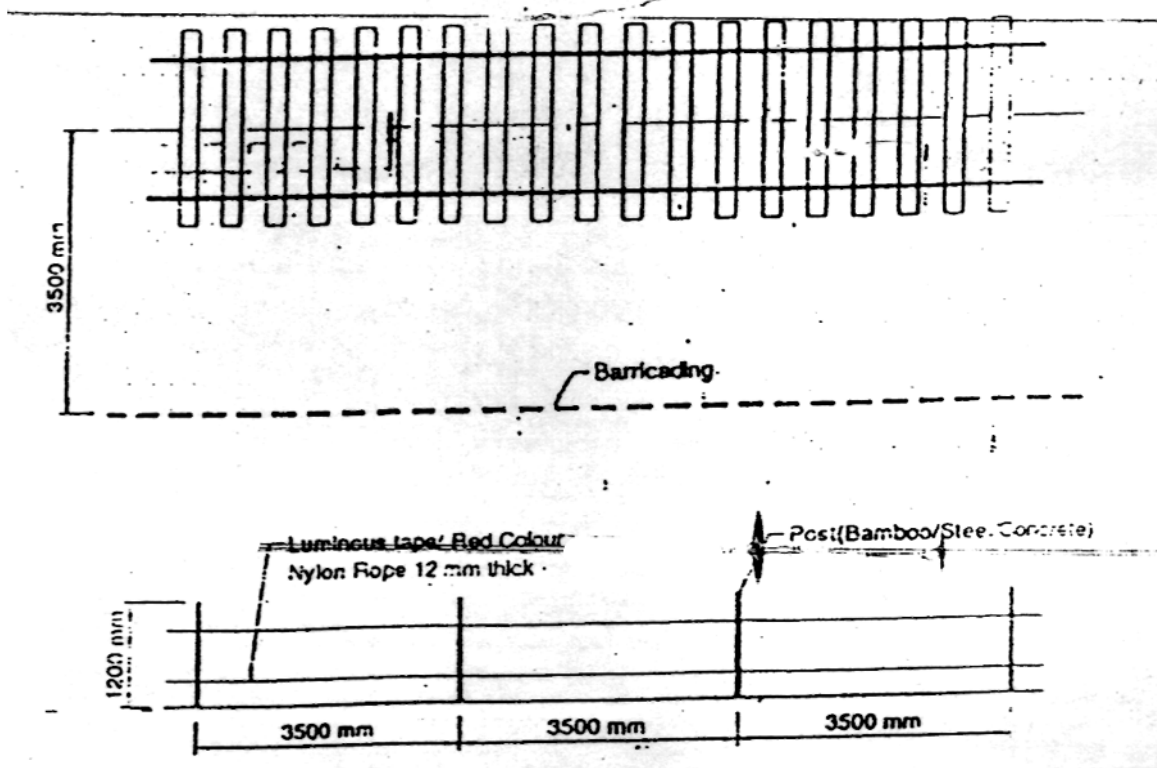
**(B) Provision of Barricading**

Signature of Contractor/s  
Date:

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Signature of Contractor/s  
Date:

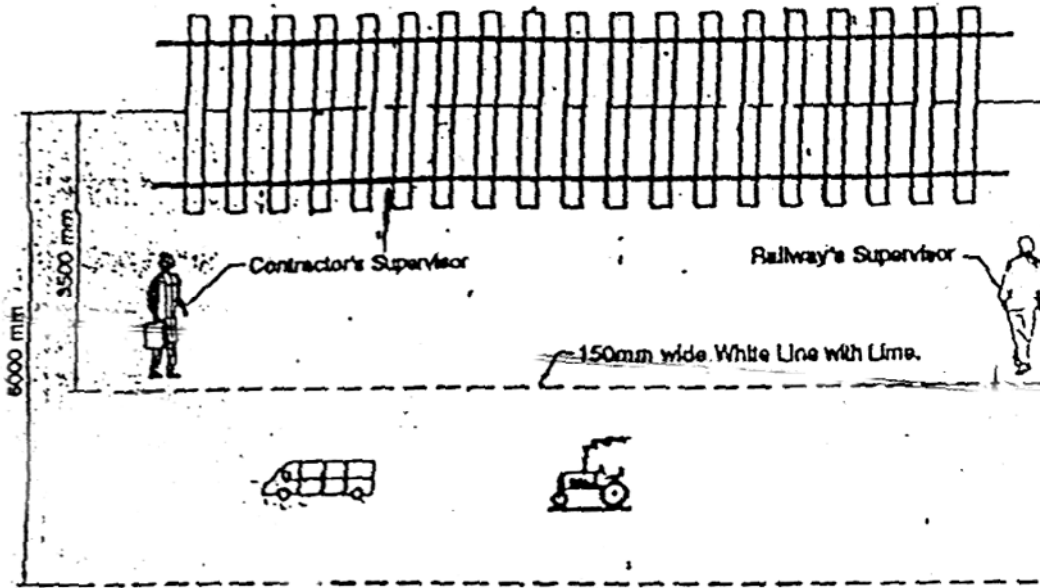
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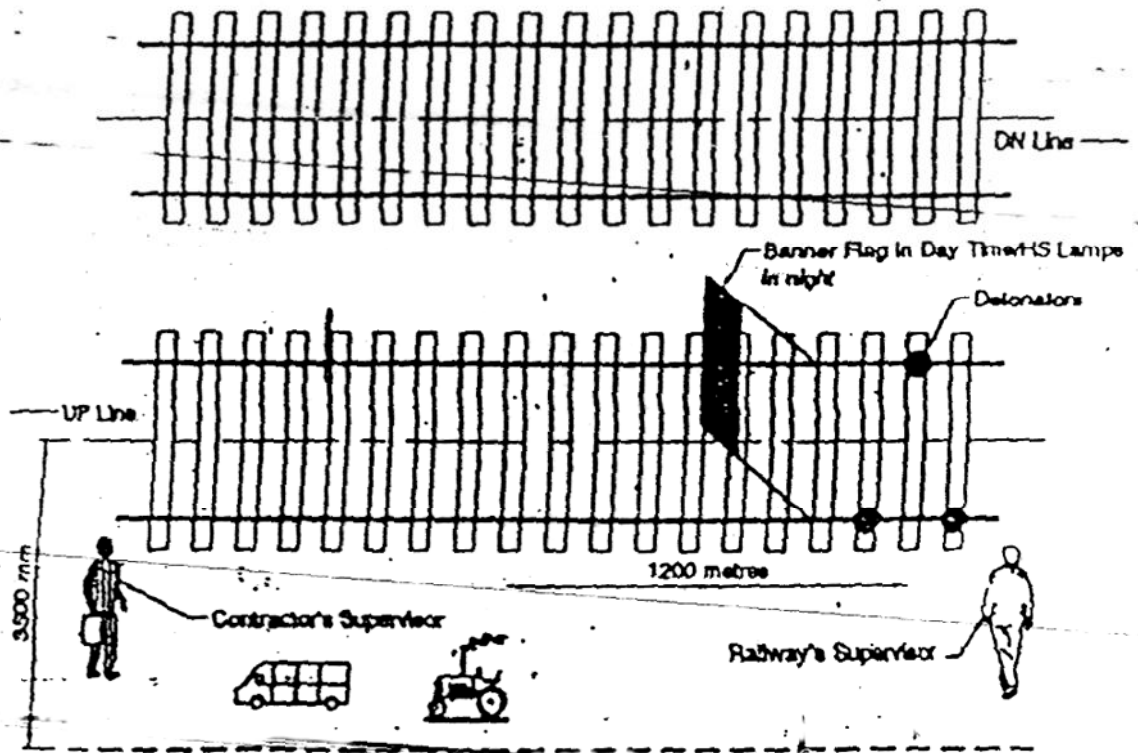
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**Annexure (Safety) – III**

**(A)** Plying of Vehicles/Machinery between 3.5Mts. to 6.0Mts. from Centre of track



**(B)** Plying of Vehicles/Machinery within 3.5Mts. from centre of track



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**Annexure (Safety) – IV**

**CHECK LIST**

(Before starting the work)

Name of Work : \_\_\_\_\_

Location : \_\_\_\_\_

Duration of work : From \_\_\_\_\_ To \_\_\_\_\_

Sr. No.	Description	Yes	No
1	Contractor's supervisor identified /selected. Who is going to be site in charge?		
2	Training imparted to contractor's supervisor & certificate issued.		
3	Work site inspected by construction supervisor / other departments supervisors along with contractor's supervisor.		
4	Precautions to be taken, identified and listed.		
5	Plan of work drawn out by contractor's supervisor in consultant with Railway supervisor.		
6	Plan of work, brought to the knowledge of open line AEN, IOW / PWI.		
7	Before start the work, proper line marking/barricading done at site of work.		
8	Men deputed for protection of track along with safety equipment.		
9	Caution order issued for the train drivers in case work is being done within 6m of center of running track.		
10	Drivers of vehicle/machinery being used have been identified.		
11	Drivers of vehicle/machinery briefed about the safe working.		
12	Sufficient lighting provided at site of work for night working.		
13	Infringements checked.		
14	Sectional (open line) AEN/PWI/IOW have satisfied themselves regarding safety arrangement.		
15	Availability of Walkie-Talkie sets for communication.		

Signature of Construction/  
Other department's supervisor  
Date:

Signature of Open Line  
Supervisor  
Date:

Signature of Contractor/s  
Date:

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**Annexure (Safety) – V**

**CHECK LIST**

(While work is in progress)

Name of Work : \_\_\_\_\_

Location : \_\_\_\_\_

Duration of work : From \_\_\_\_\_ To \_\_\_\_\_

Date of Inspection : \_\_\_\_\_

Sr. No.	Description	Yes	No
1	Does the contractor's supervisor have the certificate		
2	Is the knowledge of contractor's supervisor on safety of track & work site up to the mark		
3	Is Railway's supervisor of construction organization/other department available at site.		
4	Is knowledge of Railway supervisor O.K.		
5	Has lime marking/Barricading been done?		
6	Are adequate safety precautions taken		
7	Are communication facilities (Walkie-Talkie sets) available at site		
8	Are only identified drivers driving the vehicles/machinery?		
9	Is whole worksite safe for working of men/vehicle & train		
10	Is adequate lighting arrangement done at site?		
11	Are adequate protection equipments available at site?		
12	Is caution order to trains being issued?		
13	Are train drivers following the enforced temporary speed restrictions?		
14	Has work permit been taken for working in electrified territory/station yard (P&C areas)		

Signature of Inspecting Officer  
Designation :

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C),  
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(SURVEY & CONSTRUCTION)**

Tender No. **DYCE-C-JAM-RANAVAV-01**

**Mode of Payment for USSOR Items for P.way Works.**

USSOR item	Brief Description	Unit	Mode of Payment
123030	Spreading of ballast, from existing stacks available along formation on top or at cess,	Cum	Payment shall be made on prorata basis and actual work done at site satisfactorily.
122010	Shifting & pairing of rails / panels unloaded alongside existing running		Payment shall be made on prorata basis and actual work done at site satisfactorily.
122016	For rails/panels of more than 40m length - Under Conditions not requiring Traffic Block	RM	
123040	Linking of BG track (except at LC, Bridges and SEJs) with any type of rail section and sleeper of specified density		(1) 40% payment shall be made after making track fit for 30 kmph speed.
123041	For sleeper density of 1660 sleepers per km	Track Metre	(2) 20% payment shall be made after making track fit for 75 kmph
123042	For sleeper density of 1540 sleepers per km	Track Metre	(3) 25% payment shall be made after putting requisite ballast in to track and making track fit for 110 kmph. &complete accountable of material including stacking as directed by engineer in charge.  (4) 15 % payment shall be made with final bill.
123050	Linking of track at level crossing locations	Track Metre	(1) 40% payment shall be made after making track fit for 30 kmph speed.
123060	Linking of BG track (with guard rail ) over ballasted deck bridges	Track Metre	(2) 50% payment shall be made after making track fit for 75 kmph and complete accountal of material including stacking as directed by engineer in charge.
65030	Assembling and Laying of Improved Switch Expansion Joint (SEJ)		(3) 10 % payment shall be made with final bill.
65031	Under Conditions not requiring Traffic Block	Set	
123090	Shifting / Slewing the existing or newly assembled track		Payment shall be made on prorata basis and actual work done at site

Signature of Contractor/s  
Date:

For Dy. Chief Engineer (C)  
Western Railway, Jamnagar

WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

USSOR item	Brief Description	Unit	Mode of Payment
123091	Maximum Shifting / Slewing up to 1 metre	Track Metre	satisfactorily.
161010	Quick cutting with abrasive rail cutter of all types of rail		Payment shall be made on prorata basis and actual work done at site satisfactorily.
161014	60 Kg - 110/90 UTS - On Running Line	Each	
161015	52 Kg - 90 UTS- On Running Line	Each	
161040	Drilling holes of 16 mm to 32 mm dia. with Rail Drilling		Payment shall be made on prorata basis and actual work done at site satisfactorily.
161041	Outside Track	Each	
161042	On Running Line	Each	
161020	Cutting of rails with Rail Cutting Machine (Saw type)		Payment shall be made on prorata basis and actual work done at site satisfactorily.
161022	60 Kg - 90 UTS - Outside Track	Each	
161023	52 Kg - 90 UTS - Outside Track	Each	
61020	Dismantling and removing rail of all section & length from track		Payment shall be made on prorata basis and actual work done at site satisfactorily.
61021	For Through Rail Renewal work	TRM	
61030	Insertion of rails of all types & length in track,		Payment shall be made on prorata basis and actual work done at site satisfactorily.
61031	For Through Rail Renewal work	TRM	
			Payment at 80% of accepted rates will be made for traffic block not involved for the Insertion of rails work.

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**WESTERN RAILWAY  
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Tender No. **DYCE-C-JAM-RANAVAV-01**

USSOR item	Brief Description	Unit	Mode of Payment
62010	Through Sleeper Renewal (TSR) with PSC sleepers		Payment shall be made on prorata basis and actual work done at site satisfactorily.
62011	For location of work not involving deep screening	Each	
72010	Assembling complete BG Turnout on staging,.		(1) 25 % payment shall be made points & xing laid on final location
72012	1 in 12 Turnout	Set	(2) 60 % payment shall be made after adjustment of throw and setting of switch with the satisfaction of S&T department.  (3) 15% payment shall be made after complying deficiency pointed out and making track fit for 110 kmph with final bill.
81010	Manual deep screening of Plain track/ turnouts		Payment shall be made on prorata basis and actual work done at site satisfactorily.
81014	Depth of 300 mm below bottom of sleeper of Plain Track	TRM	
83010	Lifting and packing for regrading the existing PSC sleeper	TRM	Payment shall be made on prorata basis and actual work done at site satisfactorily.
83020	Regrading the existing track by lowering up to required depth	TRM	Payment shall be made on prorata basis and actual work done at site satisfactorily.
83030	Boxing and profiling of ballast as per procedure prescribed	TRM	Payment shall be made on prorata basis and actual work done at site satisfactorily.
83040	Removing, screening and salvaging ballast from track,	Cum	Payment shall be made on prorata basis and actual work done at site satisfactorily.
84040	Unloading of ballast from Railway's Hopper Wagons,		Payment shall be made on prorata basis and actual work done at site satisfactorily.
84042	Under Conditions not requiring Traffic	Cum	

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WESTERN RAILWAY  
(SURVEY & CONSTRUCTION)

Tender No. **DYCE-C-JAM-RANAVAV-01**

USSOR item	Brief Description	Unit	Mode of Payment
	Block:		
92010	25mm gap 'in-situ' welding during traffic block		Payment shall be made on prorata basis and actual work done at site satisfactorily.
92011	For 60 Kg - 90 UTS Rail	Each	
92013	For 52 Kg - 90/72 UTS Rail	Each	
92040	25mm gap Cess Welding and finishing of weld		Payment shall be made on prorata basis and actual work done at site satisfactorily.
92041	For 60 Kg - 90 UTS Rail	Each	
92043	For 52 Kg - 90/72 UTS Rail	Each	
131030	First or Second Through Packing of track of all sleeper density		Payment shall be made on prorata basis and actual work done at site satisfactorily.
131032	For PSC Sleeper Track with Sleeper Density of 1660	TRM	
135010	De-stressing of LWR/CWR track of any density		(1) 70% payment shall be made after complete destressing of track  (2) 20 % payment shall be made after welding of SEJ.  (3) 10% Payment shall be made with final bill.  (4) Payment at 80% of accepted rates will be made for traffic block not involved for the De-stressing work.
135013	Without Rail tensor	TRM	
136010	Fixing Joggled Fish Plates with bolt / clamp		Payment shall be made on prorata basis and actual work done at site satisfactorily.
136011	With 2 bolts	Set	

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WESTERN RAILWAY  
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Tender No. **DYCE-C-JAM-RANAVAV-01**

If accepted rates are with traffic block and traffic block not involved for execution of work, the payment at 80% of accepted rates will be made for traffic block not involved the work.

Note:-

1. Payment for Centering and shuttering including strutting, propping etc. and removal of form for normal walls also shall be made under CPWD-DSR item No. 5.9.2 and contractor should be quote the rate accordingly during the tender.
2. All materials, fitting etc. shall be handed over to contractor and received back released/residual with Hand Receipt at Nominated Depot. Nothing extra shall be paid for handling/transportation in the section from/to nominated depot.

**END OF DOCUMENT**

Signature of Contractor/s  
Date:

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Western Railway, Jamnagar