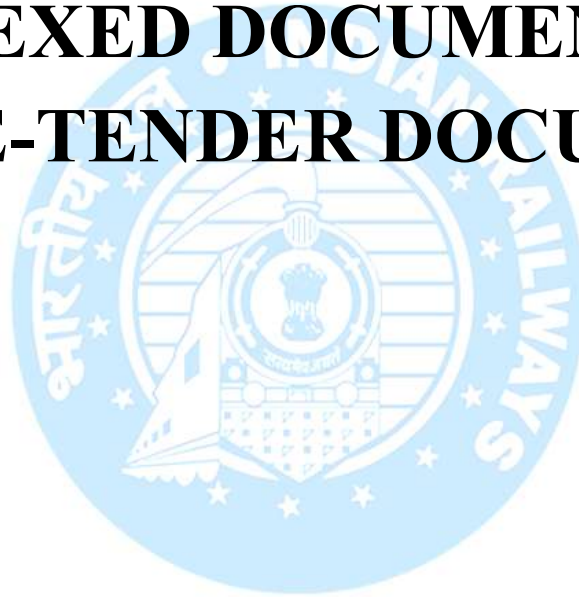


**EAST COAST RAILWAY  
CONSTRUCTION ORGANISATION**

**ANNEXED DOCUMENT TO  
THE E-TENDER DOCUMENT**



**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****INDEX**

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**CHAPTER-1****EAST COAST RAILWAY CONSTRUCTION ORGANISATION****TOP SHEET-1**

1.	Tender Notice No.	CAOCRSPBBS-36-2026
2.	Bidding System.	Two Packet System
3.	Pre-bid Conference ( <i>Applicable in tender having advertised value more than Rs. 50 Crores</i> )	Not Applicable.
4.	Name of Work:	Construction of Road Over Bridge with 1 × 24.0 m composite girder (Sanakastulli side) + 1 × 42.0 m composite girder (Railway span) + 1 × 24.0 m composite girder in Railway portion at Km 592/16–18 in lieu of LC No. 302, and proposed span of 4 × 24.0 m RCC T-beam girder on Sanakastulli side and 14 × 24.0 m RCC T-beam girder on Mandiapalli side for approach portion at Km 592/20–22 between Chatrapur (CAP) and Jagannathpur (JNP) stations (Khurda–Palasa section) on the Howrah–Visakhapatnam Main Line under Khurda Road Division.
5.	Dy. Chief Engineer (Con) Unit	Dy. CE (Con)/RSP/BBS Mobile No. 8455889281
6.	Chief Engineer (Con) Unit	O/o. Chief Admin. Officer (Con)/RSP E. Co. Railway, Bhubaneswar,
7.	Applicability of Eligibility Criteria	Applicable
8.	Applicability of Bid Capacity ( <i>Applicable in tender having advertised value more than Rs. 10 Crores</i> )	Applicable
9.	Permissibility of Participation of Joint Venture Firms ( <i>Applicable in tender having advertised value more than Rs. 10 Crores</i> )	Permitted
10.	Applicability of Reverse Auction ( <i>Applicable in tender having advertised value more than Rs. 50 Crores.</i> )	Not Applicable
11.	Applicability of Price Variation Clause ( <i>Applicable in tenders having advertised value above Rs. 2 Crores</i> )	Applicable
12.	Applicability of Advances to the Contractor. ( <i>Applicable in tender having advertised value more than Rs. 50 Crores.</i> )	Applicable
13.	Measurement of Works by Railway/ Measurement of Works by Contractor	Measurement of Works by Contractor
14.	Estimate No. & Allocation No.	Estimate No. RSP/23/2026
15.	Location of work site (Dist & State)	Ganjam Distt. in Odisha State
16.	Address for physical submission of original B.G. towards Bid Security. ( <i>Refer Para- (3) of Chapter-2</i> )	Dy. Chief Engineer (Con)/RSP Annex, Building, Rail Vihar, Chandrasekharapur, Bhubaneswar - 751023
17.	Special Instructions, if any	1) For Schedule wise/Item wise Instructions/ Notes, please refer Chapter -9 of this Annexed Document.

**TOP SHEET-2****CHECK LIST FOR SUBMISSION OF TENDERS**

<b>1</b>	All Optional documents to be submitted before signing of Contract Agreement/or at the time of submission of Bid.
<b>2</b>	<b>List of documents which are to be submitted by the tenderer along with their offer failing which the tender shall be summarily rejected.</b>
2.1	If Bid Security is submitted through mode of Bank Guarantee then submission of scanned copy of the Bank Guarantee towards Bid Security of the bid on e-tendering portal (IREPS) and original of above Bank Guarantee before closing for submission of bids(i.e. excluding the last date of submission of bids) as per Para-5 of Instructions to Tenderers (ITT) in Chapter-2 and Para-6, Annexure-I in Chapter-2 of Annexed Document.
2.2	Technical Eligibility Criteria as per Para 10.1 & Para 17.15.1 of Chapter-2
2.3	Financial Eligibility Criteria as per Para 10.2 & 17.15.2 of Chapter-2 along with Certificate issued from Chartered Accountant.
2.4	Bid Capacity as per Para 10.3 & 17.15.3 duly filled up Annexure-G, Chapter-7 of Annexed Document.
2.5	Certificate as per the proforma enclosed vide Annexure-A, Chapter-7 of the Annexed Document.
2.6	Power of attorney duly notarized and in in favour of a single individual should be submitted. As per Para 14, 15, 17 & 18 of SGCC.
<b>3</b>	<b>List of important documents which are to be submitted by the tenderer along with their offer.</b>
3.1	Certificate of familiarization to the work site as per Chapter-6 of the Annexed Document.
3.2	Certificates regarding contractual payments received, along with duly filled up Annexure-B, Chapter-7 of Annexed Document, to this effect which may be an attested Certificate from the concerned department/client or Audited Balance Sheet duly certified by the Chartered Accountant duly supported by Audited Balance Sheet.
3.3	List of Plant & Machinery available on hand and proposed to be inducted and hired for the tendered work as per the format vide Annexure-D, Chapter-7 of Annexed Document.
3.4	List of personnel/organisation on hand and proposed to be engaged for the tendered work as per the format vide Annexure-E, Chapter-7 of the Annexed Document.
3.5	Details of works completed/substantially completed during previous 07 years ending last day of month previous to the one in which tender has been invited as per the format vide Annexure-F, Chapter-7 of the Annexed Document.
3.6	All documents reflected as Mandatory in the Commercial Compliance are to be submitted otherwise the offer is liable to be rejected.

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****Instructions to Tenderers (ITT)****TENDERS FOR WORKS**

**1. 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.

**2. 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.

**3. 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 to the nearest ₹100. This Bid Security shall be applicable for all modes of tendering.
- (ii) Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as 'Startups' shall be exempted from payment of Bid Security detailed above.
- (iii) Labour Cooperative Societies shall submit only 50% of above Bid Security detailed above.
- (b) It shall be understood that the tender documents have been issued to the tenderer and the tenderer is permitted to tender in consideration of stipulation on his part, that after submitting his tender he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to the Engineer. Should the tenderer fail to observe or comply with the said stipulation, the aforesaid amount shall be liable to be forfeited to the Railway.
- (c) If his tender is accepted this Bid Security mentioned in sub clause (a) above will be retained as part security for the due and faithful fulfilment 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 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-Q of Chapter-7** and shall be valid for a period of 90 days 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.
  - viii. If the envelope is not sealed and marked as instructed above, the Railway assumes no responsibility for the misplacement or premature opening of the contents of the Bid submitted and consequent losses, if any, suffered by the Bidder.
- (4) The **e-Bank Guarantee (e-BG)** shall be submitted in accordance with **Appendix-1 of Chapter-7**. For detailed guidelines and additional information, bidders are advised to refer to **Railway Board Letter No. 2026/W-III/GCC/2(e-BG) (3533120) dated 16.06.2026**, which has been enclosed in the "**List of Documents Attached with the Tender.**"

#### 4. 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 collected as GST to the Indian Railways along with interest and penalties, if any imposed by the authorities, in case GST input tax credit of Indian Railways is denied/rejected by the tax authorities due to reasons mentioned below but not limited to:

Wrong/incorrect invoices issued by Contractor;  
 No-filing of GST returns;  
 Non-payment of GST collected from Indian Railways to the authorities;  
 Any other non-compliance done by Contractor;

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

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

- (b) When work is tendered for by a firm or company, 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.

**4.1** 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-A of Chapter-7**. In addition to Annexure-A, in case of other than Company/Proprietary firm, **Annexure-A-1** shall also be submitted by each member of a Partnership Firm/ Joint Venture (JV)/ Hindu Undivided Family (HUF)/ Limited Liability Partnership (LLP) etc. as the case may be. Non-submission of above certificate by the bidder shall result in **summary 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.

## CONSIDERATION OF TENDERS

**5. 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.

**5A. 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.

**5B. 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.

**5C. 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.

**5D. 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.

**5E. Clarification of Bids:** To assist in the examination, evaluation & comparison and prequalification 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.

**6. 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 (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. The Contract Agreement shall be entered into by Railway only after submission of valid Performance Guarantee by the Contractor. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the tender. 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.

**7. 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 for appear in person if agreement is signed digitally).

(a) 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-2 of Chapter-8**.



**EAST COAST RAILWAY  
(CONSTRUCTION ORGANISATION)  
TENDER FORM (First Sheet)**

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

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

To

The President of India

Acting through the Chief Administrative Officer (Con), East Coast Railway

I/We \_\_\_\_\_ have read the various conditions to tender attached hereto and agree to abide by the said conditions. I/We also agree to keep this tender open for acceptance for a period of \_\_\_\_\_ days from the date fixed for opening the same and in default thereof, I/We will be liable for forfeiture of my/our "Bid Security". I/We offer to do the work for East Coast Railway, at the rates quoted in the attached bills of quantities and hereby bind myself/ourselves to complete the work in all respects within \_\_\_\_\_ months from the date of issue of letter of acceptance of the tender.

2. I/We also hereby agree to abide by the Indian Railways Standard General Conditions of Contract, with all correction slips up-to-date and to carry out the work according to the Special Conditions of Contract and Specifications of materials and works as laid down by Railway in the annexed Special Conditions/Specifications, Standard Schedule of Rates (SSOR) with all correction slips up-to-date for the present contract.

3. A Bid Security of \_\_\_\_\_ has already been deposited online/submitted as Bank Guarantee bond. Full value of the Bid Security shall stand forfeited without prejudice to any other right or remedies in case my/our Tender is accepted and if:

- (a) I/We do not submit the Performance Guarantee within the time specified in the Tender document;
- (b) I/We do not execute the contract documents within seven days after receipt of notice issued by the Railway that such documents are ready; and
- (c) I/We do not commence the work within fifteen days after receipt of orders to that effect.

4. (a) I/We am/are a Startup firm registered by ..... Department of Industrial Policy and Promotion (DIPP) and my registration number is ..... valid upto ..... (Copy enclosed) and hence exempted from submission of Bid Security.

5. We are a Labour Cooperative Society and our Registration No. is ..... with .....and hence required to deposit only 50% of Bid Security.

6. Until a formal agreement is prepared and executed, acceptance of this tender shall constitute a binding contract between us subject to modifications, as may be mutually agreed to between us and indicated in the letter of acceptance of my/our offer for this work.

\_\_\_\_\_  
Signature of Tenderer(s)

Date \_\_\_\_\_

Address of the Tenderer(s)  
\_\_\_\_\_

## ANNEXURE - 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 (as per E-Tender Document)
- (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 (Con) or obtained from the office of the Chief Engineer (Con), East Coast 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 (Con) or obtained from the office of the Chief Engineer (Con), East Coast 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 (Con) 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 East Coast Railway as applicable to Engineering Department (Construction) 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**.

**3.1** In addition to check list given in E-Tender Document under 'Compliance' the tenderer should check once more on important items as under:

- i) Whether the tender offer is accompanied by Power of Attorney and it is accepted by Power of Attorney holder.
- ii) Whether the details submitted in required format duly signed by tenderer and Chartered Accountant as in Annexure-B, G & G1.
- iii) Whether all other mandatory documents uploaded without which tender offer is to be summarily rejected or is liable to be rejected.

**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.

4.1 The tender shall be finalised based on submitted documents & no post tender correspondence shall be entertained. However, if any clarification is required, the Railway at its discretion may sought such clarification from the Tenderers.

The Railway's request for clarification and the response of the contractor shall be in writing. No change in substance of the Bid shall be sought, offered or permitted Except required clarification needed by Railway during evaluation. If the Bidder does not provide clarifications of its Bid by the date and time set in the Railway's request for clarification then his/their offer(s) shall be dealt based on available information with Railways interpretation only.

4.2 While submitting offers the tenderer(s) generally commit mistakes in submitting the mandatory documents like Certificates regarding contracting experience, Audited Balance Sheet duly certified by the Chartered Accountant, Certificate in respect to true and factuality of documents, information in connection with evaluation of bid capacity, Power of Attorney, submission of tenders by authorised signatory, JV related documents etc. As such, the tenderer(s) should go through the tender document very carefully before submitting his/their offer and accordingly upload all the mandatory documents and other relevant documents as per the formats annexed in the tender document. **The tender shall be finalised based on submitted documents & no post tender correspondence shall be entertained. However, if any clarification is required, the Railway at its discretion may sought such clarification from the Tenderers.**

The Railway's request for clarification and the response of the contractor shall be in writing. No change in substance of the Bid shall be sought, offered or permitted Except required clarification needed by Railway during evaluation. If the Bidder does not provide clarifications of its Bid by the date and time set in the Railway's request for clarification then his/their offer(s) shall be dealt based on available information with Railways interpretation only.

5. The works are required to be completed within a period of months as mentioned on the NIT Header of E-Tender document from the date of issue of acceptance letter.

#### 6. Bid Security:

(a) Subject to exemptions provided under para 5(1) (a) of Part-1 (ITT) of this document, the tender must be accompanied by a Bid Security as mentioned in tender documents, failing which the tender shall be summarily rejected.

(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 the Chief Engineer/Dy. Chief Engineer/Divisional Engineer of East Coast Railway (Construction). 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 fulfilment 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 fulfilment 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.

**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:

Three similar works each costing not less than the amount equal to **30%** of advertised value of the tender, or

Two similar works each costing not less than the amount equal to **40%** of advertised value of the tender, or

One similar work each costing not less than the amount equal to **60%** of advertised value of the tender.

(b) (1) 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:

Three similar works **each** costing not less than the amount equal to **30%** of advertised value of each component of tender, or

Two similar works **each** costing not less than the amount equal to **40%** of advertised value of each component of tender, or

One similar work **each** costing not less than the amount equal to **60%** of advertised value of each component of tender.



Note for b (1): Separate completed works of minimum required values shall also be considered for fulfilment of technical eligibility criteria for different components.

(b) (2) In such cases, what constitutes a component in a composite work shall be clearly pre-defined with estimated tender cost of it, as part of the tender documents without any ambiguity.

(b) (3) To evaluate the technical eligibility of tenderer, only components of work as stipulated in tender documents for evaluation of technical eligibility, shall be considered. The scope of work covered in other remaining components shall be either executed by tenderer himself if he has work experience as mentioned in clause 7 of the Standard General Conditions of Contract or 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 notarised, 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 fulfil 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. Organisation, work experience certificate issued by Public listed company having average annual turnover of Rs. 500 crores and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, incorporation/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 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-B of Chapter-7** 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-G & G1 of Chapter-7**.

**10.4** 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 10.4 - Eligibility Criteria:*

*1. Substantially Completed Work means an ongoing work in which payment equal to or more than 90% of the present contract value (excluding the payment made for adjustment of Price variation (PVC), if any) has been made to the contractor in that ongoing contract and no proceedings of termination of contract on Contractor's default has been initiated. The credential certificate in this regard should have been issued not prior to 60 days of date of invitation of present tender.*

*2. In case a work is started prior to 07 (seven) years, ending last day of month previous to the one in which tender is invited, but completed in last 07 (seven) years, ending last day of month previous to the one in which tender is invited, the completed work shall be considered for 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 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 other 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 East Coast Railway shall submit along with his / their tender:

- (i) Certificates and testimonials regarding contracting experience for the type of job for which tender is invited with list of works carried out in the past.

- (ii) Certificates which may be an attested Certificate from the client, Audited Balance Sheet duly certified by the Chartered Accountant etc regarding contractual payments received in the past.
- (iii) The list of personnel / organization on hand and proposed to be engaged for the tendered work. Similarly list of Plant & Machinery available on hand and proposed to be inducted and hired for the tendered work.
- (iv) A copy of **certificate** stating that they are not liable to be disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the **certificate** to be submitted by the bidder is enclosed as **Annexure-A of Chapter-7**. In addition to Annexure-A, in case of other than Company/Proprietary firm, **Annexure-A-1** shall also be submitted by each member of a Partnership Firm/ Joint Venture (JV)/ Hindu Undivided Family (HUF)/ Limited Liability Partnership (LLP) etc. as the case may be. Non-submission 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 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 years.  
(b) In case of any information submitted by tenderer is 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 upto two year.

**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 Engineer (Con)/Dy. Chief Engineer (Con), East Coast Railway for carrying out the work according to Standard General Conditions of Contract, Special Conditions / Specifications annexed to the tender and Standard Specifications (Works and Materials) of Railway as amended/corrected up to latest correction slips, mentioned in tender form (First Sheet).

**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 of Para 10 of the Tender Form (Second Sheet) above.

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

- (i) A copy of LLP Agreement
- (ii) A copy of Certificate of Incorporation
- (iii) A copy of Power of Attorney/Authorization issued by the LLP in favour of the individual to sign the tender on behalf of the LLP and create liability against the LLP.
- (iv) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.
- (v) All other documents in terms of Para 10 of the Tender Form (Second Sheet) above.

**(g) Registered Society & Registered Trust:**

- (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, 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 submit the tender, and further to deal with the Tender/ Contract up to the stage of signing the agreement except in case where such specific person is authorized for above purposes through a provision made in the partnership deed / Memorandum of Understanding / Article of Association /Board resolution, failing which tender shall be summarily rejected.

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

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

**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



## THEN

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

- b) In case, upon successful award of contract, should a tenderer depute for execution of the works under or to deal matters related with this contract, any retired Engineer of gazette rank or retired gazetted officer working before his retirement in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, and now in his employment, then the tenderer will ensure that retired Engineer or retired gazetted officer had retired from government service at least 1 year prior to the date of his employment with tenderer and in case he had retired from service within a year then he possesses the requisite permission from the President of India or any officer, duly authorized by him in this behalf, to get associated with the tenderer.
- c) Should a tenderer or Contractor being an individual, have member(s) of his family or in the case of partnership firm/ company / joint venture (JV) / registered society / registered trust etc. one or more of his partner(s)/shareholder(s) or member(s) of the family of partner(s)/shareholder(s) having share of more than 1% in the tendering entity employed in gazetted capacity in the Engineering or any other department of the railway, then the tenderer at the time of submission of tender, will inform the authority inviting tenders the details of such persons.

Note: -If information as required as per 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 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 upto 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 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 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 along with the tender, shall be got registered before the Registrar of the Companies under 'The Companies Act - 2013' (in case JV entity is to be registered as Company) or before the Registrar/Sub-Registrar under the 'The Indian Partnership Act, 1932' (in case JV entity is to be registered as Partnership Firm) or under 'The LLP Act 2008' (in case JV entity is to be registered as LLP). A separate PAN shall be obtained for this entity. The documents pertaining to this entity including its PAN shall be furnished to the Railways before signing the contract agreement for the work. In case the tenderer fails to observe/comply with this stipulation within 60 days of issue of LOA, contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The entity so registered, in the registered documents, shall have, inter-alia, following Clauses:

**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 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 (duly registered as per prevailing law) 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
- (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.**

**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 fulfilment 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

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 (nonlead) 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.*
- (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.

18.4 Once the tender has been submitted, the constitution of the firm shall not 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 EMD 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.

(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 partnership Deed or a copy of the Partnership deed registered with the Registrar.

(ii) A notarized or registered copy of Power of Attorney (duly registered as per prevailing law) 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 / any State Govt. from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm 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.

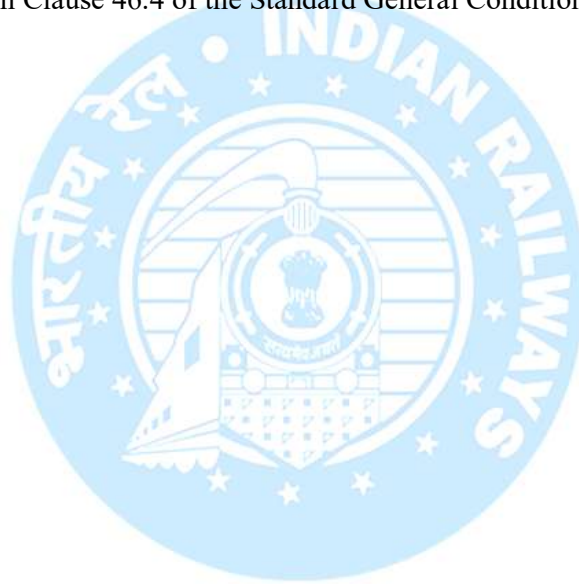
(iv) All other documents in terms of **Para 10 of the Tender Form (Second Sheet) above.**

#### **18.12 Evaluation of eligibility of a partnership firm:**

Technical and financial eligibility of the firm shall be adjudged based on satisfactory fulfilment of the eligibility criteria laid down in **Para 10 of the Tender Form (Second Sheet) above.**

#### **19. 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 @ **RBI Bank Rate + 5% (Ref- Rly Board's Lr. No. 2018/CE-I/CT/1 dtd. 10.03.2022).** 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.



**EAST COAST RAILWAY CONSTRUCTION ORGANISATION**  
**EXCERPTS OF STANDARD GENERAL CONDITIONS OF CONTRACT**

**GENERAL OBLIGATIONS**

**1. (1) Law Governing the Contract:** The contract shall be governed by the law for the time being in force in the Republic of India. (Para-3. (1) of SGCC-2022)

**1.(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. (Para-3. (2) of SGCC-2022)

**1.(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) of SGCC-2022. (Para-3. (3) of SGCC-2022)

**2. 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 and no notice, communication, reference or complaint not in writing or through e-mail, shall be recognized. (Para-4 of SGCC-2022)

**3. 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. (Para-5 of SGCC-2022)

**4. 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. (Para-6 of SGCC-2022)

**5. 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 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 Standard General Conditions of Contract 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 the total Contract Price directly under its own supervision and through its own personnel. The Parties expressly agree that for the purposes of computing the value of sub-contracts under this Clause 3.2.1, the Contract Price shall exclude any sub-contract for the procurement of goods and equipment like [rails, sleepers and track fittings, signalling and telecommunication & Power supply equipment). The Parties agree that all obligations and liabilities under this Agreement for the entire Railway Project shall at all time remain with the Contractor. {The Parties agree that works equal to at least 30% (thirty 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 or procuring entity will not mean sub-contracting.

\$ 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/Organisation shall be considered. Further, Work Experience Certificate issued by a Public listed company shall be considered provided the company is having average annual turnover of Rs 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, registered at least 5 years back from the date of submission of proposal by Contractor to Railway and work experience certificate issued by a person authorised by the Public Listed Company to issue such certificates.

**Note:** for subletting of work costing up to Rs 50 lakh no previous work experience shall be asked for by the Railway.

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

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

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

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

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

(e) Once having entered into above agreement, Contractor shall discontinue such arrangement, if he intends to do so at his own or on the instruction 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 sub-contractor.

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

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

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

(k) The permitted subcontracting of work by the Contractor shall not establish any contractual relationship between the sub-contractor and the Railway and shall not relieve the Contractor of any responsibility under the Contract. (Para-7 of SGCC-2022)

**6. 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. (Para-8 of SGCC-2022)

**7. Railway Passes:** No free railway passes shall be issued by the Railway to the Contractor or any of his employee/worker. (Para-9 of SGCC-2022)

**8. 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. (Para-12 of SGCC-2022)



**9. 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, 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. (Para-14 of SGCC-2022)

**10. 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. (Para-15 of SGCC-2022)

**11.(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 fulfilment of the contract by the Contractor. Provided further that, if Contractor submits the Cash or Term Deposit Receipt issued from a Scheduled commercial bank of India or irrevocable Bank Guarantee Bond from a Scheduled commercial bank of India, either towards the Full Security Depositor the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security, to the Contractor.

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

The Irrevocable Bank Guarantee submitted towards Security deposit shall be initially valid up to the stipulated date of Maintenance period plus 60 days and shall be extended from time to time, depending upon extension of contract granted in terms of Clause 17A and 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. (Para-16(1) of SGCC-2022)

**11.(2)(i) Refund of Security Deposit:** Security Deposit mentioned in sub clause (1) above shall be returned to the Contractor after the following:

- (a) Final Payment of the Contract as per clause 51.(1) of GCC and
- (b) Execution of Final Supplementary Agreement or Certification by Engineer that Railway has No Claim on Contractor and
- (c) Maintenance Certificate issued, on expiry of the maintenance period as per clause 50.(1) of GCC in case applicable. (Para-16.(2)(i) of SGCC-2022)

**11.(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. (Para-16.(2)(ii) of SGCC-2022)

**11.(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 11.(4)(b) of this clause will be payable with interest accrued thereon. (Para-16.(3) of SGCC-2022)

#### **11.(4) Performance Guarantee**

The procedure for obtaining Performance Guarantee is outlined below:

- (a) The successful bidder shall have to submit a Performance Guarantee (PG) within 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 upto 60 days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 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 is terminated railway shall be entitled to forfeit Bid Security and other dues payable against that contract. In case a tenderer has not submitted Bid Security on the strength of their registration as a Start-up 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) e-BG per **Appendix-2-S of Chapter-7**
  - (iv) Insurance Surety Bond as per **Annexure-S of Chapter-7**

Note: -

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

- iv) Government Securities including State Loan Bonds at 5% below the market value;
- (v) Pay Orders and Demand Drafts tendered by any Scheduled Commercial Bank of India;
- (vi) Guarantee Bonds executed or Deposits Receipts tendered by any Scheduled Commercial Bank of India;
- (vii) Deposit in the Post Office Saving Bank;
- (viii) Deposit in the National Savings Certificates;

- (ix) Twelve years National Defence Certificates;
  - (x) Ten years Defence Deposits;
  - (xi) National Defence Bonds and
  - (xii) Unit Trust Certificates at 5% below market value or at the face value whichever is less.  
Also, FDR in favour of FA&CAO (free from any encumbrance) may be accepted.
- (c) The Performance Guarantee shall be submitted by the successful bidder after the Letter of Acceptance (LOA) has been issued, but before signing of the contract agreement. This P.G. shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case, the time for completion of work gets extended, the Contractor shall get the validity of P.G. extended to cover such extended time for completion of work plus 60 days.
- (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 in addition to forfeiture of Security Deposit available with railway.
- (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. (Para-16.(4) of SGCC-2022)
- (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:**

Bid quoted in % of advertised cost	Additional performance guarantee (%)
Below 0 – 5% (inclusive)	NIL
Below 5%	5%

**12. 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. (Para-17 of SGCC-2022)

**12–A 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 and in any case not less than one month before the expiry of the date fixed for completion of the works.
- (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 Standard General Conditions of Contract 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 neighbouring 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. The Engineer on receipt of such request from the Contractor shall consider the same and shall grant 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.



- (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 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 12A(i) or/and 12A(ii) or/and 12A(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. (Para-17A of SGCC-2022)

**12-B 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 12 and 12-A, the Railway may, if satisfied that the works can be completed by the Contractor within reasonable short time thereafter, allow the Contractor for further extension of time (Proforma at Annexure-VII of Standard General Condition of Contract) as the Engineer may decide. On such extension the Railway will be entitled without prejudice to any other right and remedy available on that behalf, to recover from the Contractor as agreed damages and not by way of penalty for each week or part of the week, a sum calculated at the *rate of Liquidated Damages as decided by Engineer, between 0.05% to 0.30% of contract value of the works for each week or part of the work.*

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

Provided further, that if the Railway is not satisfied that the works can be completed by the Contractor and in the event of failure on the part of the contractor to complete the work within further extension of time allowed as aforesaid, the Railway shall be entitled without prejudice to any other right or remedy available in that behalf, to appropriate the contractor's Security Deposit and rescind the contract under Clause 62 of GCC, 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 12B, further request(s) for extension of time under clause 12A can also be considered under exceptional circumstances. Such extension(s) of time under clause 12A shall be without any Liquidated damages, but the Liquidated damages already recovered during extension(s) of time granted previously under clause 12B shall not be waived. However, Price variation during such extension(s) shall be dealt as applicable for extension(s) of time under clause 12B.

(Para-17B of SGCC-2022)

**12-C Bonus for Early Completion of Work:** In case of open tenders having value more than Rs. 20 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 3% of original contract value. The completion date shall be reckoned as the date of issuance of completion certificate by Engineer. (Para-17C of SGCC-2022)

### **EXECUTION OF WORKS**

**13.(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. (Para-19. (1) of SGCC-2022)

**13.(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. (Para-19. (2) of SGCC-2022)

**13.(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 endeavour to fulfil 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 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. (Para-19. (3) of SGCC-2022)

**13.(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. (Para-19. (4) of SGCC-2022)

**14.(1) Compliance to Engineer's Instructions:** The Engineer shall direct the order 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. (Para-20. (1) of SGCC-2022)

**14.(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 instructions from the Engineer. The Contractor shall be responsible to obtain such instructions in each and every case in writing from the Engineer. (Para-20. (2) of SGCC-2022)

**14.(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 execution of such works which may be carried out by another Contractor or Contractors or by other means at the option of the Railway. (Para-20. (3) of SGCC-2022)

**14.(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. (Para-20.(4) of SGCC-2022)

**15. 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. (Para-21 of SGCC-2022)

**16.(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 13(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. (Para-22.(1) of SGCC-2022)

**16.(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. (Para-22.(2) of SGCC-2022)

**16.(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 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. (Para-22.(3) of SGCC-2022)

**16.(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 therefrom. (Para-22.(4) of SGCC-2022)

**16.(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. (Para-22.(5) of SGCC-2022)



**17. Working during Night:** The Contractor shall not carry out any work between sun-set 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. (Para-23 of SGCC-2022)

**18. 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 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. (Para-24 of SGCC-2022)

**19. 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 equipments necessary for the execution of the works. (Para-25 of SGCC-2022)

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

**20.1** 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.

**20.2** 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.

**20.3** 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 Standard General Conditions of Contract. (Para-26 of SGCC-2022)

**21A. Deployment of Qualified Engineers at Work Sites by the Contractor:**

**21A.1** The Contractor shall also employ qualified Graduate Engineer(s) or equivalent or qualified Diploma Engineer(s), as prescribed in the tender document.

**21A.2** In case the Contractor fails to employ the Engineer, as aforesaid in Para 21A.1, he shall be liable to pay liquidated damages at the rates, as prescribed in the tender document.

**21A.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.' (Para-26A of SGCC-2022)

**22.(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. (Para-27.(1) of SGCC-2022)

**22.(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 GCC.

(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. (Para-27. (2) of SGCC-2022)

**23.(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. (Para-31. (1) of SGCC-2022)

**23.(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 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 of failure of the water supply. (Para-31. (2) of SGCC-2022)

**23.(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. (Para-31. (3) of SGCC-2022)

**23.(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. (Para-31. (4) (a) of SGCC-2022)

**(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. (Para-31. (4) (b) of SGCC-2022)

**24.(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. (Para-33. (1) of SGCC-2022)

**24.(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. (Para-33. (2) of SGCC-2022)

**25.(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. (Para-34. (1) of SGCC-2022)

**25.(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. (Para-34. (2) of SGCC-2022)

**25.(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 vigour so that the traffic way be impeded for as short a time as possible. (Para-34. (3) of SGCC-2022)



**25.(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. (Para-34. (4) of SGCC-2022)

**25.(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. (Para-34. (5) of SGCC-2022)

**26. 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. (Para-35 of SGCC-2022)

**27. Rates for Items of Works:**

(i) The rates, entered in the accepted Schedule of Rates 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 Standard General Condition of Contract 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, centerings, 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 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 of Standard General Conditions of Contract 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. (Para-37 of SGCC-2022)



**28.(1) Rates for Extra Items of Works:** 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). However, the cumulative value of all such extra item(s) together (modified by the respective tender percentage) shall not exceed 10 % of the original contract value.

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

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

The assessment of rates for extra items shall be arrived at based on the prevailing rates and by taking guidance from the following documents in order of priority.

- (i) Analysis of Rates for "Unified Schedule of Rates of Indian Railways (USSOR)"
- (ii) Analysis of Rates for "Delhi Schedule of Rates issued by CPWD (DSR)"
- (iii) Market Analysis (Para-39. (1) of SGCC-2022)

**28.(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. (Para-39. (2) of SGCC-2022)

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

- (i) Such Offloading of works (up to 5% of original contract value) would enable successful completion of contract/work,
- (ii) Termination/ Part termination of the contract at this stage is not be in the interest of the Railway/work; and
- (iii) The anticipated additional cost for execution of such works through other mode would not be substantial and can be recovered from the pending dues of the contractor;

The Contractor shall be informed, in due course, by the Engineer of the mode and cost of execution of such offloaded work through other 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. (Para-40A of SGCC-2022)

### VARIATIONS IN EXTENT OF CONTRACT

**30. 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. (Para-41 of SGCC-2022)

**30.(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. (Para-42(1) of SGCC-2022)

**30.(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 upto 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 upto 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 upto 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 upto 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 upto 200% of the agreement quantity of the concerned minor value item, shall be paid at 98% of the rate awarded for that item in that particular tender;

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

(iv) In case of earthwork, 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 (Non-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). (Para-42(2) of SGCC-2022)

**30.(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 Bills 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 Standard General Conditions of Contract. (Para-42(3) of SGCC-2022)

### CLAIMS

**31.(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. (Para-43(1) of SGCC-2022)

**31.(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 measured up. The Contractor shall be debarred from disputing the correctness of the items covered by "No Claim" Certificate or demanding a clearance to arbitration in respect thereof. (Para-43(2) of SGCC-2022)

### MEASUREMENTS, CERTIFICATES AND PAYMENTS

**32. Quantities in Bills of Quantities Annexed to Contract:** The quantities set out in the accepted Bills 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 fulfilment of his obligations under the contract. (Para-44 of SGCC-2022)

**33(i). Measurement of Works by Railway:** The Contractor shall be paid for the works at the rates in the accepted Bills of Quantities and for extra works at rates determined under Clause 39 of Standard General Conditions of Contract 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 Bills 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 Bills 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.

(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. (Para-45(i) of SGCC-2022)

**33(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 Bills of Quantities and for extra works at rates determined under Clause 39 of Standard General Conditions of Contract 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 Bills 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 Bills 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 not be withstanding 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:

- (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 33(i) above. (Para-45(ii) of SGCC-2022)

**34.(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 Standard General Conditions of Contract, a retention of ten 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. (Para-46(1) of SGCC-2022)

**34.(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 upto ₹1 will be reckoned as ₹ 1. (Para-46(2) of SGCC-2022)

**34.(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. (Para-46(3) of SGCC-2022)

**34.(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.

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 instalments on each "on account bill" will be on pro-rata basis.

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

(ii) The advances shall be used by the Contractor for the purpose of the Contract, and for the purpose for which they are paid. Under no circumstances, shall the advances be diverted for other purposes. Any such diversion shall be construed as a breach of the Contract and the Contractor shall be asked to return the advance at once and pay interest at 15% per annum till the advance is recovered back from him. The Contractor shall return the advance and pay the interest in one go without demur. The Contractor, if required by the Engineer shall provide the details of 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. (Para-46(4) of SGCC-2022).

**34.(5) Manner of Payment:** Unless otherwise specified payments to the Contractor will be transferred electronically to his bank account. (Para-46(5) of SGCC-2022).

**35. Price Variation Clause (PVC):** (Para-46A of SGCC-2022)

**35.1 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).

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

**35.3 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 of Standard General Conditions of Contract,
- (b) Payment/recovery for overall market situation as per Price Variation Clause given hereunder.

**35.4** 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.

**35.5** No price variation shall be admissible for fixed components.

**35.6** 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
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

**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****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

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

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

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

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

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

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

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

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

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

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

SL	Classification	Rates to be used for calculating 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

### 35.10 Price Variation during Extended Period of Contract

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

- In case the indices increase above the indices applicable to the last month of original completion period or the extended period under Clause 17-A of Standard General Conditions of Contract, the price adjustment for the period of extension granted under Clause 17-B of Standard General Conditions of Contract shall be limited to the amount payable as per the Indices applicable to the last month of the original completion period or the extended period under Clause 17-A of the Standard General Conditions of Contract; as the case may be.
- In case the indices fall below the indices applicable to the last month of original/ extended period of completion under Clause 17-A of Standard General Conditions of Contract, as the case may be; then the lower indices shall be adopted for the price adjustment for the period of extension under Clause 17-B of the Standard General Conditions of Contract. (Para-46A of SGCC-2022)

**36. 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. (Para-47 of SGCC-2022)

**37.(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 upto 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 Standard General Conditions of Contract 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(i), 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 63.2.211 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. (Para-51. (1) of SGCC-2022)

## LABOUR

**38. 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. (Para-54 of SGCC-2022)

**38-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. (Para-54-A of SGCC-2022)

**39. 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 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. (Para-55 of SGCC-2022)

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

**39-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. (Para-55-A. (1) of SGCC-2022)

**39-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 fulfil the requirement shall attract the penal provision of the Act. (Para-55-A. (2) of SGCC-2022)

**39-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. (Para-55-A. (3) of SGCC-2022)

**39-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. (Para-55-A. (4) of SGCC-2022)

**39-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 to the Contractor's failure to fulfil 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. (Para-55-A. (5) of SGCC-2022)



**39-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. (Para-55-B of SGCC-2022)

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

- (a) Contractor shall apply for onetime registration of his company/firm etc. in the Shramikkalyan portal with requisite details subsequent to issue of Letter of Acceptance. Engineer shall approve the contractor's registration in the portal within 7 days of receipt of such request.
- (b) Contractor once approved by any Engineer, can create password with login ID (PAN No.) for subsequent use of portal for all Letter of Acceptance (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 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." (Para-55-C of SGCC-2022)

**39-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' Welfare Cess Act, 1996 and rules made thereto by the concerned State Govt., and submit certificate of Registration issued from the Registering Officer of the concerned State Govt. (Labour Dept.). The Cess shall be deducted from contractor's bills as per provisions of the Act. (Para-55-D of SGCC-2022)

**40. 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. (Para-56 of SGCC-2022)

**41. 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 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. (Para-57 of SGCC-2022)

**41-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. (Para-57-A of SGCC-2022)

**42. 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 equipments therein as well as charges for electric current, water supply and conservancy. (Para-58 of SGCC-2022)

### DETERMINATION OF CONTRACT

**43.(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. (Para-61. (1) of SGCC-2022)

**43.(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. (Para-61. (2) of SGCC-2022)

**43.(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. (Para-61. (3) of SGCC-2022)

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

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 GCC, 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 (Second Sheet) of Annexure I 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 GCC, or
- (xii) Fail to take steps to employ competent or additional staff and labour as required under Clause 26 of GCC, 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 GCC, 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 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 Clause 59(9) of General Conditions of Contract.
- (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 of SGCC) 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 of SGCC, 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 of Standard General Conditions of Contract, 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 of Standard General Conditions of Contract), only in cases where progress of work is more than or equal to 80% of the original scope of work. (Para-62. (1) of SGCC-2022)

**44.(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 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 clause 16(2) of SGCC.

(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 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. (Para-62. (2) of SGCC-2022)

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**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****SPECIAL CONDITIONS OF CONTRACT****1 Maintenance Period: -**

- 1.1 The successful tenderer/contractor will have to maintain all works excepting supply of ballast for a period of 06 (six) Calendar months unless otherwise specified in the Tender Conditions from the certified date of completion without any extra cost to the Railway.
- 1.2 In case of P.Way works, the contractor shall maintain the same till six months from completion of the work or till allowing regular train services on the track whichever is earlier.

**2. PRICE VARIATION CLAUSE (PVC)**

**Price variation Clause (PVC) shall be applicable only in tender having advertised value above Rs. 2 Crores.**

**3. UTILIZATION OF RAILWAY STONES:**

- 3.1 Notwithstanding the inclusion of some of the rates in the schedules with contractor's stones/aggregate, the Contractor(s) shall utilize the Railway's usable surplus stones, if available for use as such or by converting them into aggregate of sizes required. The cost of boulder shall be recovered for one cubic metre net of such stones as per the prevailing rate of the area or @ Rs. 375/- per cum or as may be decided by the Railway (after deducting 30% for voids). The Contractor(s) shall collect the boulders from locations within the limit of contract section wherever they are offered to him within the section limits. The rate per cubic metre net includes royalty, collection as required. The rate also includes loading, transportation of cut spoils which has to be done by the Contractors at his/their own risk and cost and the rate is towards the cost of cut stone available on "as is and where is basis". The boulder issued to the Contractor(s) for the above purpose will be used only for the works of the agreement and shall neither be disposed off nor be used for any other agreement.

**4. REGISTRATION WITH LABOUR DEPARTMENT OF STATE GOVERNMENT:**

**The tenderers for carrying out any construction work in Odisha/Andhra Pradesh/ Chhattisgarh must get themselves registered from the Registering Officer under Section-7 of the Building and Other Construction Workers' (Regulation of Employment and Conditions of Service) Cess Act 1996 and Rules made thereto. The tenderer shall be required to submit certificate of Registration issued from the Registering Officer of the Govt. of Odisha/Andhra Pradesh/ Chhattisgarh (Labour Department). The cess shall be deducted from the contractor's bills as per provisions of the Act.**

**5. USE OF PATENTED ITEMS**

- 5.1 In case, the agency supplying the patented item is not the contractor to whom the work is assigned and these items are being procured by the Contractor, the concerned contractor will obtain prior approval from the Engineer-in-charge of the work (Min. JA Grade Officer), who will ensure that all design and safety aspects are taken care of. For any specify requirement concerning execution, warranty etc., an agreement/MOU is to be entered between the main contractor and the party supplying the patented items, clearly bringing out the responsibility of party supplying such patented items. A copy of such MOU will be furnished to the Engineer-in-charge by the main contractor to whom work has been assigned by the Railway and after the approval of Engineer-in-charge, such item can be used in work.
- 5.2. The agency supplying the patented item shall provide complete details/specifications/ drawings of the items including the manner in which it is to be used.

- 5.3. During the installation of such patented items, authorised representative of the firm supplying such patented/propriety items shall be present and after the execution of work, a certificate to be issued by the firm supplying the patented item indicating its proper installation. Such certificate will have to be kept in record by the concerned Engineer-in-charge executing the contract, before releasing payment for the work done. (Ref: Rly Board's Lr. No. 2018/CE-I/Innov/1 dtd. 18.01.2018)

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

- 6.1 Vulnerable locations where construction work adjacent to running line can cause accident should be protected by suitable strong barrier which should be included as a paid item in contract schedule. These locations should be decided by Executive In-charge of the work at the beginning of construction and intimated to contractor in writing.
- 6.2 The barrier should be painted by retro-reflective paint at suitable interval to give warning at night.
- 6.3 No work adjacent to running track should be carried out at night without express written authority from the Engineer In-charge of the work. In fact, no contractor should do any kind of night working unless the Executive Engineer In-charge of the work gives the specified spots according to priority of work where night working has to be done. These spots should be well lit at night. In addition, the work should always; be done under supervision of Railway supervisors in addition to Contractor's supervisors. Suitable Railway personnel should be posted at site with safety equipment's like banner flags, hand signal flags, hand signal lamps and detonators to arrange protection of trains. The Railway supervisors in charge of such work should also give suitable message to adjacent stations as well as through control for issuing caution orders to the trains approaching the work site. For this purpose, he should be equipped with field telephone/walkie talkie set.
- 6.4 The Contractor shall not allow any road vehicle belonging to him or his suppliers etc., to ply in railway land next to the running line. If for execution of certain works viz, earthwork for parallel Railway Line and supply of ballast for new or existing rail line gauge conversion etc., road vehicles are necessary to be used in Railway land next to the railway line, the Contractor shall apply to the Engineer-in –Charge for permission giving the type & No. of individual vehicles, names and License particulars of the drivers, location, duration & timings for such work/movement. The Engineer in Charge or his authorised representative will personally counsel, examine & certify, the road vehicle drivers, Contractor's flagmen & supervisor and will give written permission giving names of road vehicle drivers, Contractor's flagmen and supervisor to be deployed on the work, location, period and timing of the work. This permission will be subject to the following obligatory conditions.
- (i) The road vehicles will ply only between sunrise & sunset.
  - (ii) Nominated vehicles & drivers will be utilised for work in the presence of at least one flagman & one supervisor certified for such work.
  - (iii) The vehicles shall ply 6m clear of track. Any movement/work at less than 6m and up to minimum 3.5m clear of track centre, shall be done only in the presence of railway employee authorised by the Engineer-in-Charge. No part of the road vehicle will be allowed at less than 3.5m from track centre. Cost of such railway employee shall be borne by the Railway.
  - (iv) The Contractor shall remain fully responsible for ensuring safety & in case of any accident, shall bear cost of all damages to this equipment and new and also damages to railway & its passengers.

- (v) The Contractor shall also be bound by the provisions of this agreement to ply the road Vehicle only with adequate margin of safety, well clear of the fixed structure profile of infringement, as stipulated in the rules made under the Indian Railway's Act and to seek and be guided by the Signals and other directions of any look-out men or other personnel retained for the purpose of ensuring safety, and to ensure extra care and vigilance while turning, reversing or moving the road Vehicles in any other manner at an inclination to the running Railway Track or the siding as the case may be. The Contractor shall employ necessary look-out; men also at his own cost, irrespective of any other arrangement that Railway may make in this regard.
- (vi) Any breach of these conditions by the Contractor and/or his agents affecting the safety of movement of Trains, Engines, or other rolling stock of the Railway shall constitute a breach of Contract by the Contractor entailing liability with termination of contract for default on the part of the Contractor.

**7.0 Mode of Payment Through Letter of Credit (LC) as option in works contract having advertised cost of Rs. 10 lakhs and above: -**

- 7.1 (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 LC 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 LC shall be a sight LC.
  - (b) The contractor shall select his Advising/Negotiating bank for LC. The incidental cost towards issue of LC and its operation thereof shall be borne by the contractor.
  - (c) SBI, New Delhi, Main Branch will be the nodal branch for issue of LC's based on online requests received from Railway Accounts Units for tenders opened in financial year 2018-19. SBI branches where the respective Railway Accounts Office has its Account (Local SBI Branch) will be the issuance/reimbursing branch for LC issued under this arrangement. The Bank shall remain same for this tender till completion of contract. The incidental cost @ 0.15% per annum of LC value, towards issue of LC and operation thereof shall be borne by the contractor and shall be recovered from his bills.
  - (d) The LC shall be opened initially for duration of 180 to 365 days in consultation with contractor. The LC shall be extended time to time as per the progress of the contract, on the request of the contractor. The value of LC to be opened initially as well as extended thereafter shall be finalized by the engineer in consultation with the contractor on the basis of expected progress of work.
  - (e) The LC terms and conditions shall inter-alia indemnify and save harmless the Railway from and against all losses, claims and demands of every nature and description brought or recovered against the Railways by reason of any act or omission of the contractor, his agents

or employees, in relation to the letter of Credit (LC). All sums payable/borne by 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-N of Chapter-7**) 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 Authorisation.

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

(i) On issuance of Document of Authorisation, a copy of Document of Authorisation shall be posted on IREPS for download by the contractor. A digitally signed copy of Document of Authorisation 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 Authorisation available on IREPS and present his claim to his bank (advising Bank) for necessary payments as per LC terms and conditions. The claim shall comprise of copy of Document of Authorisation, Bill of Exchange and Bill.

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

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

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

(n) Any number of bills can be dealt within one LC, provided the sum total 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 PVC amount, if any, to the contractor.

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

7.2. For opening of LC, executive department shall make a request letter to concerned Accounts Department on a format, placed as **Annexure-1 of Chapter-4**.

## 8. **Public Procurement (Preference to Make in India), Order-2017: -**

Whereas it is the policy of the Government of India to encourage 'Make in India' and promote manufacturing and production of goods and services in India with a view to enhancing income and employment, and

Whereas procurement by the Government is substantial in amount and can contribute towards this policy objective, and

Whereas local content can be increased through partnerships, cooperation with local companies, establishing production units in India or Joint Ventures (JV) with Indian suppliers, increasing the participation of local employees in services and training them.

Now therefore the following Order is issued:



8.1. **This Order is issued pursuant to Rule 153(iii) of the General Financial Rules 2017.**

8.2. **Definitions:** For the purposes of this Order:

*‘Local Content’* means the amount of value added in India which shall, unless otherwise prescribed by the Nodal Ministry, be the total value of the item procured (excluding net domestic indirect taxes) minus the value of imported content in the item (including all customs duties) as a proportion of the total value, in percent.

*‘Local Supplier’* means a supplier or service provider whose product or service offered for procurement meets the minimum local content as prescribed under this Order or by the competent Ministries/Departments in pursuance of this Order.

*‘L 1’* means the lowest tender or lowest bid of the lowest quotation received in a tender, bidding process or other procurement solicitation as adjudged in the evaluation process as per the tender or other procurement solicitation.

*‘margin of purchase preference’* means the maximum extent to which the price quoted by a local supplier may be above the L 1 for the purpose of purchase preference.

*‘Nodal Ministry’* means the Ministry or Department identified pursuant to this order in respect of a particular item of goods or services.

*‘Procuring entity’* means a Ministry or department or attached or subordinate office of or autonomous body controlled by, the Government of India and includes Government companies as defined in the Companies Act.

8.3. **Requirement of Purchase Preference:** Subject to the provisions of this Order and to any specific instructions issued by the Nodal Ministry or in pursuance of this Order, purchase preference shall be given to local suppliers in all procurements undertaken by procuring entities in the manner specified hereunder:

**a.** In procurement of goods in respect of which the Nodal Ministry has communicated that there is sufficient local capacity and local competition, and where the estimated value of procurement is Rs. 50 Lakhs or less, only local suppliers shall be eligible. If the estimated value of procurement of such goods is more than Rs. 50 Lakhs, the provisions of sub-paragraph b or c, as the case may be, shall apply.

**b.** In the procurement of goods which are not covered by paragraph 8-(3a) and which are divisible in nature, the following procedure shall be followed.

**i.** Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a local supplier, the contract for full quantity will be awarded to L1.

**ii.** If L1 bid is not from a local supplier, 50% of the order quantity shall be awarded to L1. Thereafter, the lowest bidder among the local suppliers, will be invited to match the L1 price for the remaining 50% quantity subject to the local supplier’s quoted price falling within the margin of purchase preference, and contract for that quantity shall be awarded to such local supplier subject to matching the L1 price. In case such lowest eligible local supplier fails to match the L1 price or accepts less than the offered quantity, the next higher local supplier within the margin of purchase preference shall be invited to match the L1 price for remaining quantity and so on, and contract shall be awarded accordingly. In case some quantity is still left uncovered on local suppliers, then such balance quantity may also be ordered on the L1 bidder.

**c.** In procurements of goods not covered by sub-paragraph 8-(3a) and which are not divisible, and in procurement of services where the bid is evaluated on price alone, the following procedure shall be followed.

- i. Among all qualified bids, the lowest bid will be termed as L1. If L1 is from a local supplier, the contract will be awarded to L1.
  - ii. If L1 is not from a local supplier, the lowest bidder among the local suppliers, will be invited to match the L1 price subject to local supplier's quoted price falling within the margin of purchase preference, and the contract shall be awarded to such local supplier subject to matching the L1 price.
  - iii. In case such lowest eligible local supplier fails to match the L1 price, the local supplier with the next higher bid within the margin of purchase preference shall be invited to match the L1 price and so on and contract shall be awarded accordingly. In case none of the local suppliers within the margin of purchase preference matches the L1 price, then the contract may be awarded to the L1 bidder.
- 8.4. **Exemption of small purchases:** Notwithstanding anything contained in paragraph 8.3. procurements where the estimated value to be procured is less than Rs. 5 lakhs shall be exempt from this Order. However, it shall be ensured by procuring entities that procurement is not split for the purpose of avoiding the provisions of this Order.
  - 8.5. **Minimum local content:** The minimum local content shall ordinarily be 50%. The Nodal Ministry may prescribe a higher or lower percentage in respect of any particular item and may also prescribe the manner of calculation of local content.
  - 8.6. **Margin of Purchase Preference:** The margin of purchase preference shall be 20%.
  - 8.7. **Requirement for specification in advance:** The minimum local content, the margin of purchase preference and the procedure for preference to Make in India shall be specified in the notice inviting tenders or other form of procurement solicitation and shall not be varied during a particular procurement transaction.
  - 8.8. **Government E-market place:** In respect of procurement through the Government E-market place (GeM) shall, as far as possible, specifically mark the items which meet the minimum local content while registering the item for display, and shall, wherever feasible, make provision for automated comparison with purchase preference and without purchase preference and for obtaining consent of the local supplier in those cases where purchase preference is to be exercised.
  - 8.9. **Verification of local content:**
    - a. The local supplier at the time of tender, bidding or solicitation shall be required to provide self-certification that the item offered meets the minimum local content and shall give details of the location(s) at which the local value addition is made.
    - b. **In cases of procurement for a value in excess of Rs. 10 crores, the local supplier shall be required to provide a certificate from the statutory auditor or cost auditor of the company (in the case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content.**
    - c. Decisions on complaints relating to implementation of this Order shall be taken by the competent authority which is empowered to look into procurement-related complaints relating to the procuring entity.
    - d. Nodal Ministries may constitute committees with internal and external experts for independent verification of self-declarations and auditor's/accountant's certificates on random basis and in the case of complaints.
    - e. Nodal Ministries and procuring entities may prescribe fees for such complaints.

f. False declarations will be in breach of the Code of Integrity under Rule 175(1)(i)(h) of this General Financial Rules for which a bidder or its successors can be debarred for up to two years as per Rule 151(iii) of the General Financial Rules along with such other actions as may be permissible under law.

g. A supplier who has been debarred by any procuring entity for violation of this Order shall not be eligible for preference under this Order for procurement by any other procuring entity for the duration of the debarment. The debarment for such other procuring entities shall take effect prospectively from the date on which it comes to the notice of other procurement entities, in the manner prescribed under paragraph 8.9h below.

h. The Department of Expenditure shall issue suitable instructions for the effective and smooth operation of this process, so that:

i. The fact and duration of debarment for violation of this Order by any procuring entity are promptly brought to the notice of the Member-Convenor of the Standing Committee and the Department of Expenditure through the concerned Ministry/Department or in some other manner.

ii. On a periodical basis such cases are consolidated and a centralized list or decentralized lists of such suppliers with the period of debarment is maintained and displayed on website(s);

iii. in respect of procuring entities other than the one which has carried out the debarment, the debarment takes effect prospectively from the date of uploading on the website(s) in the such a manner that ongoing procurements are not disrupted.

#### **8.10. Specifications in Tenders and other procurement solicitations:**

a. Every procuring entity shall ensure that the eligibility conditions in respect of previous experience fixed in any tender or solicitation do not require proof of supply in other countries or proof of exports.

b. Procuring entities shall endeavour to see that eligibility conditions, including on matters like turnover, production capability and financial strength do not result in unreasonable exclusion of local suppliers who would otherwise be eligible, beyond what is essential for ensuring quality of creditworthiness of the supplier.

c. Procuring entities shall, within 2 months of the issue of this Order review all existing eligibility norms and conditions with reference to sub-paragraphs 'a' and 'b' above.

d. If a Nodal Ministry is satisfied that Indian suppliers of an item are not allowed to participate and/ or compete in procurement by any foreign government, it may, if it deems appropriate, restrict or exclude bidders from that country from eligibility for procurement of that item and/or other items relating to that Nodal Ministry. A copy of every instruction or decision taken in this regard shall be sent to the Chairman of the Standing Committee.

e. For the purpose of sub-paragraph 8.10 d above, a supplier or bidder shall be considered to be from a country if (i) the entity is incorporated in that country, or (ii) a majority of its shareholding or effective control of the entity is exercised from that country; or (iii) more than 50% of the value of the item being supplied has been added in that country. Indian suppliers shall mean those entities which meet any of these tests with respect to India".

**9. Reverse Auction (Applicable for works tenders valued more than Rs. 50 Cr.)**

**9.1 Selection criteria for tender cases proposed through Reverse Auction (e-RA) route: -**

- (a) In the first phase, following method of purchase through Reverse Auction shall be the preferred method for tenders valued more than Rs. 50 Cr. in each case.
- (b) The process of procurement through Reverse Auction shall be followed only in case of tenders where there are at least three proven/likely competitive sources, prima facie competent for execution of work.
- (c) Financial Bids in single currency/parameter only shall be allowed.
- (d) For cases on Zonal Railways, personal approval of the PHOD/CHOD duly vetted by associate finance shall be required for any exception in tendering method for cases otherwise eligible to be processed through the method of procurement detailed herein.
- (e) Even for cases which do not satisfy the selection criteria as detailed above, Railways may follow the process of Reverse Auction, as detailed herein if they so desire, with vetting of associate finance and approval of competent authority.

**9.2 Procedure for award of contracts through Reverse Auction: -**

- (a) The procedure discussed herein shall be fully implemented through IREPS. Any reference to Reverse Auction in these instructions shall imply e-RA.
- (b) Conduct and reporting of Reverse Auction shall be as per **Annexure-2 of Chapter-4**.
- (c) Each tender should clearly specify essential technical and commercial parameters in a transparent manner. No deviation to such essential Technical & Commercial conditions shall be permitted to the vendors in the electronic bid form.

**9.2.1 Technical Bid and Initial Price Offer:**

- (a) e-RA shall be adopted only for those cases where evaluation is on the basis of single parameter/currency.
- (b) Bidder shall be simultaneously required to electronically submit a Technical & Commercial Bid and Initial Price Offer.  
Offer found eligible for award of contract/meeting eligibility criteria shall be categorised as Qualified for Award of Contract for the purpose of e-RA.
- (c) Offers not complying with essential technical & commercial requirements of the tender shall be declared as Ineligible for award of contract.
- (d) Technical & Commercial evaluation of bids shall be done by a Tender Committee, as per extant guidelines, delegation and the estimated value of tender. Recommendations of Tender Committee shall be considered by Tender Accepting Authority, as per existing guidelines.
- (e) Initial Price Offer of only those bidders categorised as Qualified for Award of contract shall be opened and tabulated by system separately. Extant instructions for electronic tabulation shall apply for tabulation of Initial Price Offer.

**9.2.2 Financial Bid:**

Financial Bid shall comprise of Final Price Offer obtained through Reverse Auction. Following conditions and procedure shall be followed in selection of bidders for conduct of Reverse Auction:



## (a) Selection of vendors for Reverse Auction for award of Contract:

Number of tenderers Qualified for Award of contract	Number of tenders to be selected for Reverse Auction	Remarks
< 3	NIL*	The bids disallowed from participating in the Reverse Auction shall be the highest bidder(s) in the tabulation of Initial Price Offer. In case the highest bidders quote the same rate, the Initial Price Offer received last, as per time log of IREPS, shall be removed first, on the principle of last in first out, by IREPS system itself.
3 to 6	3	
More than 6	50% of Vendors Qualified for award of contract (rounded off to next higher integer)	

**Note:-**

- (i) \* If the number of tenderers qualified for Award of Contract is less than 3, RA shall not be done and tender may be decided on the basis of Initial Price Offer(s).
- (ii) Make in India criteria: All bidders eligible for benefits under Public Procurement (Preference to Make in India) Order – 2017, found Qualified for Award of Contract and are within the specified range of price preference of lowest Initial Price Bid shall be permitted to participate in the Reverse Auction, irrespective of their interse ranking on the basis of Initial Price Bid. Such bidders shall be over and above the number of vendors selected for Reverse Auction, as per **Para 9.2.2 (a)**.
- (b) During Reverse Auction process, bidders shall not be allowed to bid a rate higher than the lowest Initial Price Offer.

9.2.3 Reverse Auction among bids categorised as Qualified for award of contract shall be conducted on IREPS/Suitable Platform. Bidders shall be able to see the auction screens.

9.2.4 After obtaining the final bids of Reverse Auction, tenders shall be finalised as per existing policy (including Make in India Order, 2017, vide **Para-8 of Chapter-4**, if applicable). All the relevant policies of Government of India at the relevant time shall be applicable.

9.2.5 The level of Tender Committee to consider the Final Price Offers shall be determined on the basis of lowest Initial Price Offer of bid Qualified for award of contract as opened prior to Reverse Auction. In case of level Tender Committee which evaluated technical & commercial bids as per **Para 9.2.1(d)** was higher than the level of TC competent to consider lowest Initial Price Offer of bid Qualified for award of contract, the higher level TC shall continue to finalise such tender cases.

9.3 Considering the fact that execution of works of paramount importance, Zonal Railways should resort to tendering through other appropriate methods to meet any exigency.

10. **Vitiation with respect to variation in quantities:** -

The aspect of vitiation of tender with respect to variation in quantities should be checked and avoided. As a result of variations, a contract value shall be considered “vitiating” only when, the following percentage variation in contract value between tenderers are noticed to have been exceeded.

SN	Value of contract	Percentage difference between present Contractor and new L-1 as a result of variation (percentage shall be calculated with base as the revised contract quantities multiplied by the rates of the present contractor)
1	Small value contracts (Tender Value less than Rs. 50 lakh)	10
2	Other than small value contracts (Tender Value equal to or more than Rs. 50 lakh)	5

- 10.1 When the percentage difference between present Contractor and new L-1 is noticed as becoming beyond the values specified above, the following action shall be taken.

The Railway administration should immediately examine whether it is practicable to bring in a new agency to carry out the extra quantity of work keeping in view the progress of the work in accordance with the original contract and the nature and the lay-out of the work. If it is found that there will be no serious practical difficulty in meeting the additional quantity of work done by another agency, then fresh tenders for the extra quantity may be invited otherwise negotiating the rate with the existing contractor for arriving at a reasonable rate for the additional quantities of work, may be adopted.

- 10.2 The above shall be regulated as under: -

- The case shall be decided by the tender accepting authority competent for the revised quantity) and shall not be treated as a case of single tender. The provisions of Railway Board Letter No. 2007/CE.I/CT/18/Pt.XII dated 31.12.2010 hereby gets suspended.
- These instructions will be similarly applicable to earning contracts with H-1, H-2 substituted for L-1, L-2 and so on.
- Executives while executing the work shall make all efforts to ensure that no vitiation takes place in normal circumstances. Vitiations should be an exception rather than a routine affair. Efforts should be made to invite bids on the basis of percentage above/below/at par.
- Vitiations should always be computed with respect to the items, rates, quantities and conditions as available at the time of Tender Opening and subsequent changes/additions by way of new items will not be counted for computing vitiation.

11. **Qualifying/Eligibility criteria of eligible tenderers has to be deliberated for comparison of the cost of work during variation for checking of vitiation.**

**12. Police Verification of staff/labour deployed by Contractors on Railway Premises.**

- No person shall be engaged by any contractor for executing any contract on railway premises without a police verification report and an identity card issued thereafter.
- The contractor shall submit name, address, contact number of each staff/labour proposed to be deployed by him to the Contract Manager in the form in **Annexure-3 of Chapter-4** for obtaining police verification.
- The Contract Manager shall promptly submit online/hard copy application for each prospective staff/labour intimated by the contractor after award of contract to the under-mentioned authorities as applicable. The contractor must necessarily submit these details within 15 days of award of contract.

- 12.3.1 Supdt. Of Police (SP)/Dy. Commissioner of Police (DCP) having jurisdiction over the permanent residence of concerned staff.
- 12.3.2 SP/DCP having jurisdiction over the place where the concerned staff has resided for more than 6 months in last 5 years.
- 12.3.3 Sr.DSCs/DSCs having jurisdiction over permanent residence and where the person has resided for more than 6 months in last 5 years.
- 12.3.4 Sr.DSCs/DSCs having jurisdiction over the place where the person is to be engaged. In case of on-board staff on trains, Sr.DSC/DSC having jurisdiction over the primary maintenance depot of the train.
- 12.4 Sr.DSC/DSCs concerned will coordinate with SPs/DCPs concerned and expedite the police verification. On receipt of the police verification report, the Contract Manager shall give a copy to the Sr. DSC/DSC.
- 12.5 On receipt of police verification report, Contract Manager will arrange to issue to each staff/labour of the contractor, an identity card in the format at **Annexure-4 of Chapter-4**. This identity card shall be necessarily displayed on the body of the person while being at the worksite.
- 12.6 No contract staff/labour be deployed at any railway premises without a police verification report on record. However, if the police verification report is delayed beyond 30 days of receipt by the police authority, the Contract Manager is authorized to permit deployment of the contract staff/labour provisionally for one month, in which time all efforts shall be made to get the police verification report issued.
- 12.7 These provisions shall not apply to emergency situations like accidents, natural calamities etc., where restoration work has to start immediately on receipt of information. However, if such restoration work has to continue beyond 10 days, deployment of staff/labour can be permitted against an undertaking from the contractor in the form at **Annexure-5 of Chapter-4** to be submitted to the Contract Manager.
- 12.8 These provisions shall not be applicable to daily-wage, contract staff/labour, who can be deployed on production of identify proof e.g. Aadhar Card, Voter ID Card, PAN Card, Ration Card, Driving License, Gas connection receipt, etc. whose copy shall be attested by his contractor.

**13. Measurement and Recording of “Executed Works” by the Contractor in Railway Construction works:**

**E.1316A (Applicable for contracts wherein the measurement of work by contractor is permitted):** Para 1316 of Engineering Code shall not be applicable for these contracts. For such contracts, contractor shall be responsible for carrying out measurements of work executed and recording of measurements for the release of on account/final payment. In such cases, the detailed procedure for recording of measurements, provisional payment, test check and final payment shall be as follows:

**Contractor's Measurement Book:**

- 13. 1. Railway shall arrange contractor's measurement book (CMB), each having sheet No, 1A to 4A (Form E 1313) (**Annexure-6 to 9 of Chapter-4**), followed by 100 machine number pages (Form E 1313, sheet No, 5A) (**Annexure-10 of Chapter-4**). On the top of each sheet of CMB, there shall be provision for recording the name of the work, agreement number, name of contractor and CMB number.

13. 2. CMBs shall be printed in such a way so as to keep a clear margin of 50 mm on the left side of page, Further, the left side shall have pinhole tear line at a distance of 15 mm from edge for ease of taking out sheets from these books. The binding shall be within 15mm of the margin available between edge and pinhole tear line. This shall ensure availability of minimum 35 mm clear margin to re-bind measurement books later on.

**Movement and upkeep of Contractor's Measurement Book:**

- 13.3. Dy Chief Engineer in charge of contract (Dy CE/C) shall hand over required No. of CMBs to Assistant/Executive Engineer in-charge of contract (AEN/XEN) after taking receipt of the same on sheet No. 2A (Form E.1313) (**Annexure-7 of Chapter-4**) for further issuance to contractor time to time as per progress of work.
- 13.4. CMB shall be registered with unique No. in the Register of Measurement Books (Form E.1314) maintained in the office of Dy CE/C. Separate accountal of CMBs for each agreement shall be maintained in the office of Dy CE/C and AEN/XEN.
- 13.5. In case of change of 'contractor's authorized engineer', fresh approval shall be taken from Dy. CE/C before recording of measurement.
- 13.6. While issuing the CMB to contractor, AEN/XEN shall take out sheet No. 2A to 4A (**Annexure-6 to 8 of Chapter-4**) from the CMB, take receipt of CMB from contractor on sheet No. 3A (Form E.1313) (**Annexure-7 of Chapter-4**), and keep the same in safe custody.
13. 7. Similar system as for CMB, shall be followed for issuing Field Book/Level Book (E.1317/A) to contractor for recording of levels in the field book/level book.

**Measurement**

- 13.8. The contractor's authorized engineer shall record the measurements in CMB neatly in his own handwriting, without any use of eraser/overwriting, without use of any typing fluid or any such thing. All cuttings shall be initialled. No page shall be damaged /destroyed. No page shall be kept blank in between the measurements.
- 13.9. The Contractor shall communicate the date of measurement to AEN/XEN in sufficient advance' to witness any measurement. Witnessing of measurement by railways is not compulsory except for initial levels in case of earthwork and hidden measurements. Initial levels of earthwork and hidden measurements are to be recorded in the presence of railway officials and test checked as prescribed.
- 13.10. In oil account contract certificate, measurement shall be recorded for the items and quantities to be paid in the concerned on account contract certificate.
- 13.11. However, in every 4th on account contract certificate and final contract certificate, the recording of measurement for works executed shall include all the items and their quantity included in previous on account contract certificates, irrespective of whether to be paid or not in the current On Account Contract Certificate/Final Contract Certificate.
- 13.12. No payment shall be processed on Lump sum measurement taken by contractor's authorized engineer except for earthwork. For earthwork, every 4th bill shall be based on actual levels taken and detailed calculations carried out for the work done.
- 13.13. The contractor shall take out carefully from CMB the used pages of CMB with one extra blank page for processing the bill; staple them for submission to AEN/XEN along with bill, duly signing the measurements. The contractor shall keep a photocopy of the measurements with him for future reference.



- 13.14. At the time of submission of final bill, the contractor shall submit all the remaining CMBs (unused as well as partially used) with him along with bill to AEN/XEN.
- 13.15. The contractor shall submit required copies of invoice and on account contract certificate/final contract certificate (similar to form E.1337 and E.1338) to the AEN/XEN duly marking them - original or copy. Original shall be used for release of payment whereas duplicate copies shall be used for record purpose in different offices.
- 13.16. In case contractor requires provisional payment of on-account bill; the contractor shall submit his invoice and provisional on account contract certificate for 75% of amount of work done (before deduction of taxes). The contractor shall write 'For Provisional payment' on top of such on-account contract certificate.
- 13.17. AEN/XEN while issuing receipt of stapled sheets of CMB to contractor shall clearly record the same in sheet 4 (E.1314) of concerned CMB, kept in the office of AEN/XEN.

#### **Release of Provisional Payment**

- 13.18. Senior Section Engineer / 'Junior Engineer with 5-year experience' (SSE/JE) and AEN/XEN shall sign & record a certificate on the original provisional 'on account contract certificate' as under:

*"Certified that the payment being made is less than the amount due for the quantities of works executed by the contractor".*

In case of payment of earthwork items in any contract, calculation of quantity of such items along with field book /level book must be enclosed. This shall be cross checked, as considered appropriate by SSE/JE & AEN/XEN, to ensure that no excess payment is being made. At this stage no test check of measurements by railway is required.

- 13.19. AEN/XEN shall keep a copy of contractor's invoice & provisional on account contract certificate in his office, and submit original invoice & original provisional on account contract certificate along with required number of duplicate copies, and used sheets of CMB to the Dy CE/C unit for passing the bill and release of payment.
- 13.20. The provisional on account contract certificate shall be passed by Dy CE/C and payment shall be released by associate based on above certification of SSE/JE and AEN/XEN. After release of payment, blank sheet of CMB (if any) shall be crossed by Dy CE/C before sending the measurement sheets back to AEN/XEN for carrying out required test checks. At this stage measurement shall not be crossed.
- 13.21. No provisional payment shall be allowed in final contract certificate, Further, once provisional payment has been released in any on-account contract certificate, the next on account contract certificate can be raised by contractor only when accounts of previous on account certificate (Provisional as well as remaining payment) has been finalized,

#### **Test Check**

- 13.22. Necessary test checks shall be carried out by the SSE/JE and AEN/XEN for the works done before full payment of on-account contract certificate/final contract certificate, SSE/JE and AEN/XEN shall communicate the date of test checks to contractor in advance. The contractor can accompany during test check. The contractor shall provide support staff and all required tools& plants to facilitate test check by railway officials.

13.23. The stipulated test checks for AEN/XEN and SSE/JE Level is tabulated as under:

S.No.	Description of works	Test Check in terms of % of value by	
		SSE/JE	AEN/XEN
(a)	Measurement of Ballast, pitching stone, Earth work and hidden items.	100%	100%
(b)	Measurement of all other items.	100%	20%
(c)	Initial and Final levels along centre line for earthwork in embankment and cutting.	100%	100%
(d)	Intermittent levels along centre line for earthwork in embankment and cutting.	100%	20%
(e)	Initial, intermittent and final levels except centre line for earth work in embankment and cutting.	100%	20%

**Note:** The check regarding levels of earthwork invariably shall be carried out in cross sections having heavy cross slopes.

13. 24. Contractor's recorded measurement sheets shall be checked for any corrections/over writing during test check. All the corrections/over writing shall be initialled by SSE/JE.

13. 25. The discrepancy noted (if any) during test check of recorded measurement shall be communicated by AEN/XEN to the contractor.

13. 26. In case of discrepancy noticed during test check, the contractor shall submit original and required copies of fresh invoice of amount corrected for discrepancy, and in case provisional payment has been released earlier, the required copies of fresh invoice of remaining amount corrected for discrepancy (if any), along with on account/final contract certificate to AEN/XEN.

**Full payment of On Account Contract Certificate/Final Contract Certificate**

13. 27. AEN/XEN shall submit original copy of invoice and on account contract certificate of remaining amount/ Final Contract along with required number of duplicate copies and used sheets of CMBs (all used/blank CMBs in case of final contract certificate), duly signed by SSE/JE and AEN/XEN to the Dy CE/C for passing the bill and release of payment.

13.28. Once the payment is released, Dy CE/C shall return back the used sheets of CMB to AEN/XEN for safe custody. duly crossing of measurements by finance officer.

13.29. Once all used of a particular CME is received back by AEN/XEN from Dy CE/C, the AEN/XEN shall re-bind all 100 pages of CMB along with sheet No. 1A to 4A (**Annexure-6 to 9 of Chapter-4**) for submission of CMB to Dy CE/C office. Dy CE/C office shall record the receipt of same in sheet No. 2A of CMB (**Annexure-7 of Chapter-4**) and Register of Measurement Books (Form E1314).

13.30. The final contract certificate shall be passed by Dy CE/C only receipt of all CMBs (used/blank) from AEN/XEN.

13.31. The provisions of this para 1316A shall be applicable to all the departments of Indian railways and to be executed through equivalent authorities of respective departments.

**Annexure-1 of Chapter-4****EAST COAST RAILWAY CONSTRUCTION ORGANISATION****Request Letter from Executive Branch to Accounts Office for opening of LC**

Office of  
East Coast Railway  
Dated \_\_\_\_\_

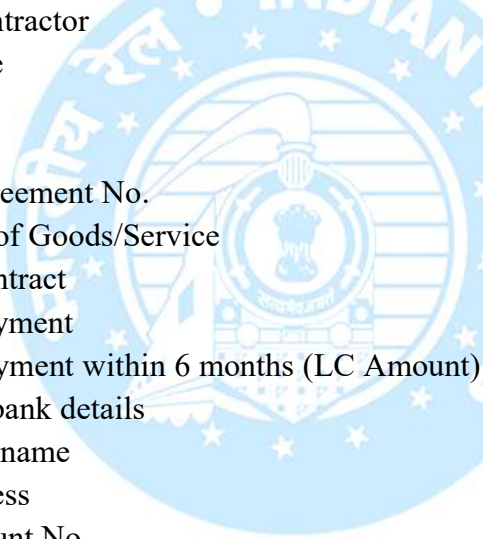
No. \_\_\_\_\_

The PFA/Sr. DFM/Dy. FA  
HQ/Division/Workshop/Cost

Sub: Opening of LC

Ref: Contract Agreement No.

It is requested to open a sight LC against the above referred Order/Agreement in favour of  
\_\_\_\_\_. The details of beneficiary are as under:

- 
- (i) Name of Contractor
  - (ii) Vendor Code
  - (iii) Address
  - (iv) Tender No.
  - (v) Contract Agreement No.
  - (vi) Description of Goods/Service
  - (vii) Value of Contract
  - (viii) Stages of payment
  - (ix) Expected payment within 6 months (LC Amount)
  - (x) Beneficiary bank details
    - (a) Bank name
    - (b) Address
    - (c) Account No.
    - (d) IFSC Code
  - (xi) Validity/Period for which LC is to be opened.

It is certified that the supplier/contractor has exercised the option of taking payment due against the tender through LC arrangement in IREPS portal at the time of bidding itself and the option has been flagged in the IREPS. This has the approval of  
\_\_\_\_\_.

(Signature)

Name: \_\_\_\_\_

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

(Official Seal)

**Annexure-2 of Chapter-4****EAST COAST RAILWAY CONSTRUCTION ORGANISATION****Procedure for Conduct and Reporting of Reverse Auction**

1. The tendering authority shall solicit bids through an invitation to the electronic Reverse Auction to be published or communicated in accordance with the provisions similar to e-procurement.
2. Convenor of the tender committee shall fix the following, on case to case basis, depending upon the nature of work and complexity of case on hand. These shall be indicated in the tender for e-RA itself.
  - a. **Initial e-RA period:** This shall be the initial time interval for e-RA. E-RA shall be open for this duration.
  - b. **Auto extension period:** In case any offer is received in the time period equal to auto extension period before close of initial e-RA period, the e-RA shall be extended for time equal to auto extension period from the time of last bid. There shall be no upper limit on number of auto extensions. When no offer is received in the last auto extension period, e-RA shall close.
  - c. Minimum decrement in percentage of value of the last successful bid.
3. Date and time for start of e-RA shall be communicated to qualified tenderers by the convener after evaluation of Technical Bids.
4. After submission of Initial Price Bid, tenderers will not be allowed to revise the taxes and other levies.
5. During auction period, identities of the participating tenderers will be kept hidden.
6. Minimum admissible bid value will be last bid value minus minimum decrement as specified by the tendering authority before starting of reverse auction. Starting point for reverse auction shall be lowest initial Price Bid of the tenderer eligible for award of contract.
7. After close of the RA, tabulation of last (minimum) bids received from all the tenderers will be generated and made visible to Railways and participating tenderers.
8. Railway users can also view the bidding history in chronological order.
9. Bidders not be allowed to withdraw their last offer.
10. L-1 will be defined as the lowest bid obtained after the closure of R.A. session.

\*\*\*\*\*



**Annexure-3 of Chapter-4**

## POLICE VERIFICATION

PHOTO

(Of applicant  
signed by  
contractor)

Sl.No	Particulars	
1	Full Name with Aliases	
2	Parent's Name	
3	Nationality	
4	Present Address in full with Police Station & District	
5	Period of Residence	
6	Home/Permanent Address in full with Police Station & District	
7	Addresses with police stations and districts where the applicant has resided continuously for more than 6 months in the past 5 years	
8	Aadhaar Number*	
9	The applicant has been involved in a criminal case as accused (Yes/No). If yes, then details	
10	The applicant has been arrested in connection with a criminal case (Yes/No). If Yes, then details	
11	The applicant has been convicted for a criminal offence (Yes/No). If yes, then details	

\*Optional

**Declaration** (By Applicant): I certify the above information is correct and complete to the best of my knowledge and belief.

<b>Countersigned by:</b>	<b>Signature of Applicant</b>
	Date: Place:
<b>Contracting Railway Supervisor</b>	
Date: Place:	

**Police Certificate:**

The details as stated above are correct & the above person does not have any criminal case registered or pending against him in any court of law as per official records available.

**Counter Signature of Authorized  
Signatory with Stamp**

**Annexure-4 of Chapter-4**

**Identity Card**

Valid up to (month & year)

Issued by (Name & address of the contracting department):

Identity card No.

Photo

Signature of the authorized railway supervisor across the photo

Police verification ref.

Name of the contractor:

Contract reference number:

Name of contractual staff/labour:

Date of birth:

Father's name:

Present Address:

Permanent Address:

Mobile No.:

Nature of work:

Address of the work site:

Name, address & mobile No. of the person to be contacted in emergency:



Signature of the authorized railway supervisor  
with official stamp

**Annexure-5 of Chapter-4**

**FORM OF UNDERTAKING**

To

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

Sub: Undertaking for non submission of PVR of -----  
 \*\*\*\*\*

Sir,

I, the undersigned-----, S/D of-----  
 -----, R/o-----  
 ----- is working as----- of -----

I am to state that -----, S/D of-----  
 -----, R/o-----  
 -----, is working as ----- under me and engaged in-----  
 ----- since -----.

Sir,

At present I am not in a position to obtain the Police verification of aforesaid -----  
 ----- and I assure that I will submit the same after obtaining necessary PVR by -----  
 ----- In this connection I also assure that the character and antecedent of above man  
 force is ----- and nothing adverse found against him. Till submitting such PVR, I  
 am submitting herewith AADHAR Card/Voter Id Card/PAN Card/DL/or other documents showing  
 address proof of ----- I undertake that in case of any adverse report or conduct  
 by my worker, I shall be held responsible for action as deemed fit in law/rules.

Photograph  
 Of concern staff

Specimen signature

Yours faithfully

.....

(Name and address of contractor)

**Annexure-6 of Chapter-4**

~COVER

E.1313

(Sheet 1A)

Railway.....
CMB No.....
<b>CONTRACTOR'S MEASUREMENT BOOK</b>
Department .....
Division/Construction Unit.....
Name of Work.....
Agreement No.....
Name of Agency.....
Name to whom Issued.....
Designation.....
Date of Issue.....
Date of return.....



**Annexure-7 of Chapter-4**

E.1313

(Sheet 2A)

(Title page)

Railway..... CMB No..... <b>CONTRACTOR'S MEASUREMENT BOOK</b>	
Department.....	
Division/Construction Unit.....	
Name of Work.....	
Agreement No.....	
Name of Agency.....	
Issued to.....	
(Name & designation)	
..... (Station)	on..... (date)
Received by.....	
(Signature)	
..... (Designation)	..... (Station)
	On..... (date)
Date of first entry.....	
Date of last entry.....	
Date received back in Division/Const.Unit}	
Office after completion of book }.....	
Certified that this Measurement Book contains 100 machine numbered pages from ..... To..... (both pages inclusive) which have been counted by me and are correct.	
Date.....	Signature.....
	Designation.....

**Annexure-8 of Chapter-4**

E.1313

(Sheet 3A)

Railway..... CMB No..... <b>CONTRACTOR'S MEASUREMENT BOOK</b>																																																
Name of work.....																																																
Agreement No .....																																																
Name of Agency.....																																																
Issued to ..... (Contractor's name)																																																
..... (Station) on..... (date)																																																
Certified that this Measurement Book contains 100 machine numbered pages from..... to..... (both pages inclusive) which have been counted by me and are correct. No sheet in torn.																																																
I understand that the measurement book is very important document and hence I shall ensure its proper upkeep and safe custody.																																																
Received by..... (Signature of contractor) ..... (Name) (Station) (date)																																																
Date of first entry..... Date of last entry.....																																																
Certified that this Contractor's Measurement Book pages returned by contractor have been counted by me and are correct. The details of pages received by me is as under:																																																
<table border="1" style="width: 100%; border-collapse: collapse; text-align: center;"> <thead> <tr> <th style="width: 10%;">S. No.</th> <th style="width: 20%;">On Account Bill No.</th> <th style="width: 20%;">Page No. From.....To</th> <th style="width: 15%;">No of Pages</th> <th style="width: 20%;">Date of receipt in AEN/XEN Office</th> <th style="width: 25%;">Sign &amp; Designation of Railway Official</th> </tr> </thead> <tbody> <tr><td>1</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>2</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>3</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>4</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>5</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>6</td><td></td><td></td><td></td><td></td><td></td></tr> <tr><td>7</td><td></td><td></td><td></td><td></td><td></td></tr> </tbody> </table>	S. No.	On Account Bill No.	Page No. From.....To	No of Pages	Date of receipt in AEN/XEN Office	Sign & Designation of Railway Official	1						2						3						4						5						6						7					
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**CHAPTER-5**

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION**  
**ADDITIONAL SPECIAL CONDITIONS OF CONTRACT**  
**(TECHNICAL CONDITIONS)**

Sl.No.	Description
1	Code of practice and Specifications ( <b>Section – A</b> ).
2	Rates quoted/Accepted ( <b>Section – B</b> ).
3	Taxes and duties, royalties etc. ( <b>Section – C</b> ).
4	Safety Rules ( <b>Section – D</b> ).
5	Felling of trees, safe working methods etc. ( <b>Section – E</b> ).
6	Drafting of vehicles & working hours ( <b>Section – F</b> ).
7	Timeline for passing of contractual bills ( <b>Section-G</b> ).
8	Special conditions for Concrete work ( <b>Section-H</b> ).
9	Special conditions for supply of Cement & Reinforcement Steel ( <b>Section-I</b> ).
10	Special conditions for Foundations ( <b>Section-J</b> ).
11	Special Conditions for Bridge work ( <b>Section-K</b> )
12	Special Conditions and Guidelines for fabrication and erection of steel girder bridges work ( <b>Section-L</b> )

# EAST COAST RAILWAY CONSTRUCTION ORGANISATION

## Section – A

### Code of Practice and Specifications

#### 1. **General:**

The specification shall apply to all such works as are required to be executed under the contract or otherwise, directed by the Engineer. In every case the work shall be carried out to the satisfaction of the Engineer and shall conform to grades and cross sections shown on the drawings or as indicated by the Engineer, the succeeding sections. Where the drawings and specifications describe of portion of the work in only general terms and not in complete details, it shall be understood that only the best general practice is to prevail. Materials and workmanship of the best quality are to be explored and that the instructions of the engineer are to be fully complied with and shall be binding on the Contractor. The contractor shall be fully responsible to ensure that the finished works are free from any defects, weakness, crack etc.

#### **Code of practice and Specifications:**

The abbreviations mentioned elsewhere for standard specifications and code of practice shall be considered to have the following meaning:

**IS:** Indian Standard Specifications of the Bureau Indian Standards.

**GCC (General Conditions of Contract):** Indian Railways Standard General Conditions of Contract-2022 (with up to date correction slips & addendums).

**IRC:** Indian Road Congress Standard Specifications.

**RDSO:** Research, Design and Standard Organization (Ministry of Railways), Lucknow.

**MORT& H:** Ministry of Road Transport & Highways.

**IRS:** Indian Railways Standard Specifications and code of practice, i.e. Concrete Bridge Code, Bridge Substructure & Foundation code, Bridge rules, Indian Railways Unified Standard Specifications (Formation work, Bridge work and P.Way work)-2021, etc.

Wherever the term an "Engineer" comes in above specifications, it shall be read as defined in Indian Railway Standard General Conditions of Contract-2022 in connection with Engineering works.

Wherever a reference is made to any of the standard specifications and code of practices, it shall be taken as a reference to the latest version/ revision of the same and shall include all the errata / corrections made in the same from time to time.

In case of any contradiction between provisions in the Special Specifications laid down hereunder and in the specifications and codes which have been referred to the former shall prevail and that in all cases, the decision of the engineer shall be final and binding on the contractor.

All measurements shall be made in the metric system. Different items of the works shall be measured in accordance with the procedures set forth in the relevant sections read with conjunction with SGCC and Special Conditions of Contract.

All measurements and computations, unless otherwise indicated shall be carried nearest the following limits:

1. Length and breadth: 5mm
2. Height and depth or thickness of earth work, CC work, Structural members etc: 5 mm
3. Area: 0.01 sqm
4. Cubic contents: 0.01 cum.

Site clearance wherever involved shall be undertaken and the same shall be considered incidental to the earth work items and the contract unit rates for the same shall be deemed to be inclusive of clearing and grubbing operations.

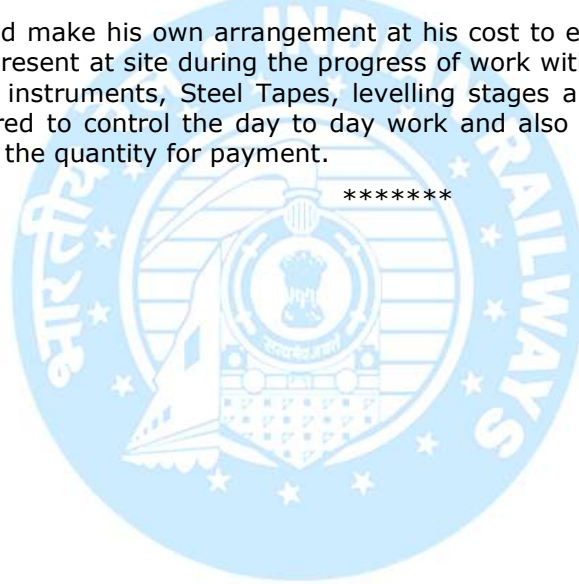
**All matters and specifications not provided for or specified in the tender documents for this work shall be in accordance with Indian Railway Unified Standard Specifications (Formation work, Bridge work and P.Way work)-2021 (with upto date correction slips & addendums), and the contractor shall be bound by them for the performance of the contract.**

**Specifications for items not provided or specified in the tender documents will be same as of similar/comparable items of ECoR USSOR-2021.**

**2.0 Miscellaneous:**

- 2.1 When the earth for making formation is borrowed from adjacent private land, contractor must ensure that minimum distance of borrow pit in private land from the toe of new bank is at least equal to the height of the bank plus 3.0 mtr.
- 2.2 Under no circumstances incomplete work will be taken over by the department. Contractor shall notify sufficiently in advance his intension of handing over a particular stretch of completed finished work so as to enable recording.
- 2.3 The contractor should make his own arrangement at his cost to employ qualified Engineers who will always be present at site during the progress of work with required instrument like Theodolite, levelling instruments, Steel Tapes, levelling stages and other equipments and labour etc. as required to control the day to day work and also to take measurements of work done to assess the quantity for payment.

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# EAST COAST RAILWAY CONSTRUCTION ORGANISATION

## Section-B

### RATES QUOTED/ACCEPTED

- A) The tenderer shall carefully study the Railways Schedule of Rates, Indian Railway Unified Standard Specifications (Formation work, Bridge work and P.Way work)-2021 and Indian Railways Standard General Conditions of Contract-2022 including correction slips issued up to the date of closing of tender along with various General, Special and Additional special conditions as incorporated in the tender document.

Descriptions of Schedule of Rate Items mentioned in tender schedules are for guidance only, in case of discrepancy, the description etc. as mentioned in Schedule of Rates will hold good. The basic rates for Schedule of Rate Items shall be as mentioned against the item in the Schedule of rate.

- B) Unless specifically provided for in the items, the rates quoted for all items of Schedule shall include the cost of:
1. All duties/GST/taxes/cess (royalty, EMF, DMF, additional charges on minerals) etc. including octroi levied by State, Central Govt. or Local authorities as applicable to the work up to the date of opening of tender.
  2. All labour skilled/unskilled, supervisory, specialized as required.
  3. All equipment, tools, jacks, cranes, drilling equipment, grouting equipments, plant and machinery etc as may be required for executing the work in a modern and workman like manner as per specifications, inclusive of cost of such equipment, bringing to site, labour and fuel for operation, maintenance etc complete.
  4. All temporary arrangements like shuttering, scaffolding, staging, supports, shoring, making templates etc. inclusive of all labour and materials required for providing, erection use, dismantling of such arrangement after completion of permanent work and removing from site including submission of detailed drawings/designs for such temporary arrangements and getting the same approved by Railway if and as required by the Engineer-in-charge at site.
  5. **Arrangement of Clean potable water with all lead, lift etc required for the work and Curing of all works involving use of cement.**
  6. Bailing/ pumping/ diverting of seepage water either manually or by mechanical means including bunding, channelling etc. required in the process of excavation for foundation trenches and laying concrete or any other purpose. Before diverting the flow of water, contractor shall obtain the permission of Engineer-in-charge. Contractor will be permitted to use excavator for earth work in excavation for completion the work early. No separate/additional payment for the excavation by excavator will be paid to the contractor.
  7. The charges for testing the cement/ reinforcement/aggregate/water, other materials etc, including cost of materials and transportation of materials to be tested from site of work to laboratories.
  8. Execution of all works as per specification of tender documents, G.C.C. relevant IS/IRS /IRC, MORT & H specifications etc. as applicable to best quality and finish.
  9. All other incidental charges other than those listed in these notes, as may be necessary for execution of the work as per items of schedule complete in all respect. All the works shall be carried out in accordance with the approved drawings.
  10. Carrying out the work at any height/depth, above/below the ground, at any location at the work site.
  11. Taking all safety precautions for keeping the working spaces free from obstructions without endangering the Railway property and personnel.
  12. All lead, lift, ascent, descent, jungle clearance, cutting and uprooting of small trees, crossing of railway tracks, safety precautions required due to proximity of existing railway line, and all handling, re-handling, loading, unloading, transportation of material.
- C) The 'sectional limits will be deemed to cover the entire contract section.



## EAST COAST RAILWAY CONSTRUCTION ORGANISATION

### Section-C

#### TAXES AND DUTIES, ROYALTIES ETC.

1. Subsequent to the enactment of GST Act, the following paras are applicable: -
  - (i) Tenderers will examine the various provisions of The Central Goods and Services Tax Act, 2017(CGST)/Integrated Goods and Services Tax Act, 2017(IGST)/Union Territory Goods and Services Tax Act, 2017(UTGST)/ respective state's State Goods and Services Tax Act(SGST) also, as notified by Central/State Govt & as amended from time to time and applicable taxes before bidding. Tenderers will ensure that full benefit of Input Tax Credit (ITC) likely to be availed by them is duly considered while quoting rates.
  - (ii) The successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST Act to railway immediately after the award of contract, without which no payment shall be released to the contractor. The contractor shall be responsible for deposition of applicable GST to the concerned authority.
  - (iii) In case the successful tenderer is not liable to be registered under CGST/IGST/UTGST/ SGST Act, the railway shall deduct the applicable GST from his/their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.
2. i) The tenderer shall quote the rate by taking into account all the statutory duties/GST/taxes/cess/(royalty,EMF,DMF, additional charges on minerals) etc. applicable to the work up to the date of opening of tender.
  - ii) Any new impost or revision in the duties/GST/taxes/cess/ (royalty, EMF, DMF, additional charges on minerals) etc. during the original currency of the contract will be to the Railway's account subject to production of Govt. Notification and documentary evidence. This will also be applicable for the work done during the extended period, if such extension is on Railway's account.
  - iii) However, if the extension of contract period is on account of failure of contractor, no compensation shall be made towards upward revision or imposition of any new taxes.
  - iv) Any benefit on account of downward revision of duty/GST/taxes/cess/ (royalty, EMF, DMF, additional charges on minerals) etc. either in original contract period or during the extended contract period shall be passed on by the contractor to the Railways.
  - v) The Contractor should get the measurement recorded in M.B within 7 days of effective date of new impost or revision in the duties/Taxes/cess to segregate the work done before change and after change. In the event of failure to do so, Railways decision shall be final and conclusive.
3. Income Tax @2.3% or at the rate as specified/proposed by the Income Tax Deptt, Govt. of India from time to time is deductible from all the bills of the contractor.
4. The present rates of royalty, EMF.DMF and additional charges for minerals etc. are to be collected from Mining Officer of that particular area or from concerned Govt. sources.
5. The tenderers for carrying out any construction work must get themselves registered from the Registering Officer under Section-7 of the Building and Other Construction Workers' Welfare Cess Act, 1996 and rules made thereto by the concerned State Govt. and submit certificate of Registration issued from the Registering Officer of the concerned State Govt. (Labour Dept.). Cess shall be deducted from the contractor's bills as per provisions of the Act.

6. In case the contractor fails to produce transit pass and money receipt in support of payment of Royalty, EMF, DMF, additional charges etc. then Railway shall deduct Royalty, EMF, DMF, additional charges from the contractor's bill as per prevailing rates at the time of opening of tender.

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## **EAST COAST RAILWAY CONSTRUCTION ORGANISATION**

### **Section-D**

#### **SAFETY RULES**

- 1.1 Suitable scaffolds should be provided for workmen for all works that cannot be safely done from the ground or from solid construction except for such short periods work as can be done safely from ladders. When a ladder is used an extra labour shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable foot holds and hand holds shall be given an inclination not steeper than 1 to 4 (1 Horizontal to 4 Vertical).
- 1.2 Scaffolding or staging more than 3.5 metres above the ground or floor, swung or suspended from an overhead support or erected with stationery support shall have a guard rail properly attached, bolted, bracketed and otherwise secured at least 1 metre high above the floor or platform of such scaffolding or staging and extending along the entire length thereof with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be fastened as to prevent it from swaying from the building or structure.
- 1.3 Working platform gangways and stairways should be so constructed that they should not sway unduly or unequally and where the height of the platform or the gangway or the stairway is more than 3.5 metres above ground level or floor level they should be closely boarded, should have adequate width and should be suitably fastened as described in the Para above.
- 1.4 Safe means of access shall be provided to all working platform and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 10 metres in length while the width between side rails in swung ladder shall in no case be less than 300 mm. for ladder upto and including 3.5 metres in length.
- 1.4.1 For longer ladders this width should be increased by at least 20 mm. each additional metre of length. Uniform steps spacing shall not exceed 300 mm. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites of work shall be so stacked or placed so as to cause danger or inconvenience to any persons or the public. The Contractor shall provide all necessary fencing and lights to protect the public from accident and shall be bound to bear the expenses of defences of every suit, action or other proceedings at law that may be brought by any persons for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit, action or proceedings to any such person shall be paid by the Contractor to compromise any claim by any such person. In case the Contractor fails to settle such problems, the Railway Administration will make payments arising on account of the conditions given above to the concerned parties and recover the same from Contractor's dues without any delay. Contractor will not have any claim on this account at any stage.
- 1.5 Demolition: Before any demolition work is commenced and also during the process of work.
  - a) All roads and open area adjacent to the work site shall either be closed or suitably protected.
  - b) No electric cable or apparatus which is liable to be a source of danger over a cable or apparatus used by the operator shall remain electrically charged.
  - c) All practical steps shall be taken to prevent danger to persons employed from risk of fire or explosives or flooding. No floor, roof or other part of the building shall be so over loaded with debris or materials as to render it unsafe.
- 1.6 All necessary personal safety equipment as considered adequate by the Engineer-in-charge should be kept available for the use of the persons employed in the site and maintained in a condition suitable for immediate use and the contractor should take adequate steps to ensure proper use of equipment by these concerned.

- a) Workers employed on mixing asphaltic materials cement and mortar shall be provided with protective goggles.
  - b) Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eye shall be provided with protective goggles.
  - c) Those engaged in welding works shall be provided with welder's protective eye sight lids.
  - d) Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
- 1.7 When the work is done near any place where there is risk of drowning, all necessary equipment should be provided and kept ready for use and all necessary steps taken for prompt rescue of any persons in danger and adequate provision should be made for prompt first aid treatment of all injuries like to be sustained during the course of the work.
- 1.8 Use of hoisting machines and tackles including their attachment anchorage and supports shall conform to the following standards of condition.
- a) (i) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defects and shall be kept in good repair and in good working order.
  - (ii) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength and free from patent defects.
  - b) Every crane driver or hoisting appliances operator shall be properly qualified and no person under the age of 21 years should be in-charge of any hoisting machine including any scaffolding.
  - c) In case of every hoisting machine and every cable ring, hook, shackle, swivel and pulley block used in hoisting or as means of suspension safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of hoisting machine having a variable safe working load of the conditions under which it is applicable shall be clearly indicated. No part of any machinery or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
  - d) In case of departmental machine, the safe working load shall be notified by the Technological Engineer-in-Charge. As regards Contractor's machines, the contractors shall notify the safe working load of machine to the Engineer-in-charge whenever he brings any machinery to site of work, get it verified by the Engineer concerned.
- 1.9 Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances should be provided with efficient safe guards. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental decent of the load; adequate precautions should be taken to reduce the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on Electrical installations which are already energized, insulating mats wearing apparel, such as gloves, sleeves and both as may be necessary should be provided. The workers should not wear any rings, watches and carry keys or other materials which are good conductors of electricity.
- 1.10 All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate warning facilities should be provided at or near places of work.
- 1.11 These safety provisions should be brought to the notice of all concerned by display on a notice board, at a prominent place at the work spot. The persons responsible for compliance of the safety code shall be named therein by the Contractor.



- 1.12 To ensure effective endorsement of the rules and regulations relating to safety precautions, the arrangements made by the contractor shall be open to inspection by the Labour Officer, Engineer-in-charge of the Department or their representative.
- 1.13 Notwithstanding the above clause from 1 to 12, there is nothing in these to exempt the contractor from the operations of any other act or rule in force in the Republic of India.

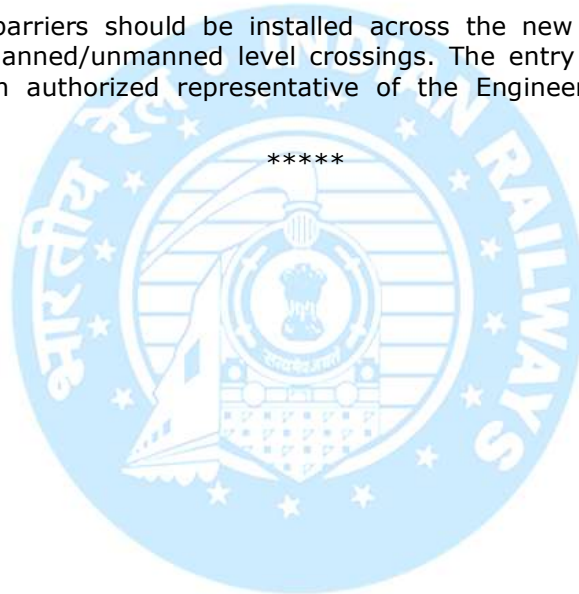
**1.14 PRECAUTION TO BE TAKEN WHILE PLYING OF VEHICLES ADJACENT TO RUNNING LINES/STRUCTURES.**

Whenever a Lorry or any other Form of Road transport is required to ply along or in the vicinity of a running line or any other Rly track where Rly Engines or Trains are liable to move, the Contractor shall inform the Engineer in writing, of such requirement specify in the locations and duration of time over which such specified Road Vehicles have to operate in the area (for loading, leading or unloading of earth, ballast or any other materials, or plants or equipments) without any obstruction or dislocation to the running Trains.

- 1.14.1 The Contractor shall also furnish the particulars of Vehicles and the names and Photographs of Driver and attendant retained for each Vehicle to enable the Engineer to issue necessary permits allowing the holder to operate the Vehicles, with such restrictions regarding duration and /or location as are considered necessary. Such permit shall be returned to the Engineer as soon as the work for which it is issued is over.
- 1.14.2 The Engineer-In-Charge or his Authorized Representative will personally counsel, examine and certify the road Vehicle Drivers, Contractor's Flag Man and Supervisor and will give written permission giving names of Road Vehicle Drivers, Contractor's Flag Man and Supervisor to be deployed on the work, location, period and timing of the work. This permission will be subject to the following obligatory conditions:
- (a) The Road Vehicles will ply only between sunrise and sunset.
  - (b) Nominated Vehicles and Drivers will be utilized for the work in presence of at least one Flag Man and on Supervisor certified for such work.
  - (c) The Vehicle shall ply 6 mtr Clear of track. Any movement / work at less than 6 mtr and up to minimum 3.5 mtrs clear of track centre shall be done only in presence of Rly. Employee authorized by the Engineer-In-Charge. No part of the Road Vehicle will be allowed at less than 3.5 mtrs from track centre. Cost of such Rly Employee shall be the Rly.
  - (d) The Contractor shall remain fully responsible for ensuring safety and in case of any accident shall bear the cost of all damages to this equipment and crew and also damages to Rly and its Passengers. Engineer-In-Charge may impose any other condition necessary for a particular work of site. Such permit shall be returned to the Engineer, as soon as the work for which it is issued is over.
- 1.14.3 The Contractor shall execute a Bond undertaking to ply the Road Vehicles in a safe and satisfactory manner and strictly in accordance with the stipulation and other conditions specified by the Engineer and to engage and retain only the permit Holder to be the Contractor's Agent In-Charge of the Vehicle and the attendance shall at all time, be vigilant and on the look-out for signals from the Look Out Man, Flag Man or other personnel available at Site with a view to stop or late the road movement so as to ensure adequate margin of safety for the timely passage of an approaching Train or a Rly Engine, without any delay or detention.
- 1.14.4 The Contractor shall also be bound by the provisions of this Agreement to ply the Road Vehicles only with adequate margin of safety, well clear of the fixed structure profile of infringement, as stipulated in the rules laid under the Indian Rly.'s Act and to seek and be guided by the signals and other directions of any Look Out Man or other personnel retained for the purpose of ensuring safety, and to ensure extra care and vigilance while turning, reversing or moving the Road Vehicles in any other manner at an inclination to the running Rly track or the siding as the case may be. The Contractor

shall employ necessary Look-out Man also at his own cost, irrespective of any other arrangements that Rly may make in this regard.

- 1.14.5 The Contractor also undertakes to make good at his cost, any inconvenience, loss, damage or other expenses, costs incurred by the Rly. Administration and to pay such amount as are determined by the Engineer to be recoverable from Contractor as penalty or damages from any omission, negligence, carelessness, over sight or accident on the part of any Contractor's Agent, Drivers or Attendant or any other person to whom the services of the Holder of the permit (issued by the Engineer) has been lent or otherwise made accessible available.
- 1.14.6 Any breach of these conditions by the Contractor and his Agents affecting the safety of movement of Trains, Engines, or other rolling stock of the Rly, shall constitute a breach of contract by the Contractor entitling liability termination of contract for the fault on the part of the contract.
- 1.14.7 In exceptionally vulnerable locations, physical barrier in the form of barricades a height of 1.5 mtr of trenches on ground shall be provided so as to indicate the limit up to which the Vehicle can be approached the running line. The locations or circumstances under which such barriers have to be put will be decided personally by the Engineer-In-Charge.
- 1.14.8 Suitable gates/barriers should be installed across the new embankment, preferably adjoining the manned/unmanned level crossings. The entry for the vehicles shall be regulated by an authorized representative of the Engineer- in -charge during the working hours.



# EAST COAST RAILWAY CONSTRUCTION ORGANISATION

## Section –E

### **Felling of Trees, Safe working Methods etc.**

#### **1.0 Felling of Forest Trees:**

- 1.1 The section generally passes through forest land. Trees coming on the proposed formation are only to be cut as directed by the Engineer-in-charge and under no circumstances trees falling outside the scope of proposed formation should be cut/up rooted. The Contractor or his labours are prohibited to cut the trees for the purpose of fire wood or for any other purpose. Cutting of trees as required under the items of works indicated in the tender schedules may be carried out strictly as directed by the Engineer-in-charge of the work. Unauthorized felling of trees will result in prosecution and imprisonment, so it is the contractor's responsibility to cause no damage to the forest growth and any fuel required by the contractor for own use or for the use by his labourers, should be arranged by the contractor at his own cost. The contractor should take this aspect into consideration while quoting the rates against the tender.

#### **2.0 Safe Working Methods:**

- 2.1 The Contractor shall, at all times, adopt such safe methods of work as well ensure safety of structure, equipment and labour. If at any time, the Railway finds the safety arrangements inadequate or unsafe, the contractor shall take immediate corrective action as directed by Railway's representative at site. Any direction in the matter shall in no way absolve the contractor of his sole responsibility to adopt safe working methods. It shall be noted by the contractor that the work involves working in close proximity to the existing track. The contractor shall ensure that no damage, injury or loss is caused or likely to be caused to any person or property the rates quoted shall be inclusive of all leads, lift, re-handling if any due to crossing of track and also shall cover risk to track, life and property during execution of work. The contractor shall adopt all precautionary measures to safeguard track, life, property, structure while execution of work and the rates shall include all measures.

#### **3.0 Procurement of Machinery by Contractor:**

- 3.1 In case arrangement by hire is proposed through collaboration proper legal documents to the effect should be furnished in sufficient detail. The Railway shall not be responsible/liable to pay any dues by the tenderer/contractor in case the plant & machinery is taken on hire from a third party by the tenderer/contractor. In other words, it shall mean that the contract is only between the tenderer/contractor and the President of India acting through Ministry of Railways.

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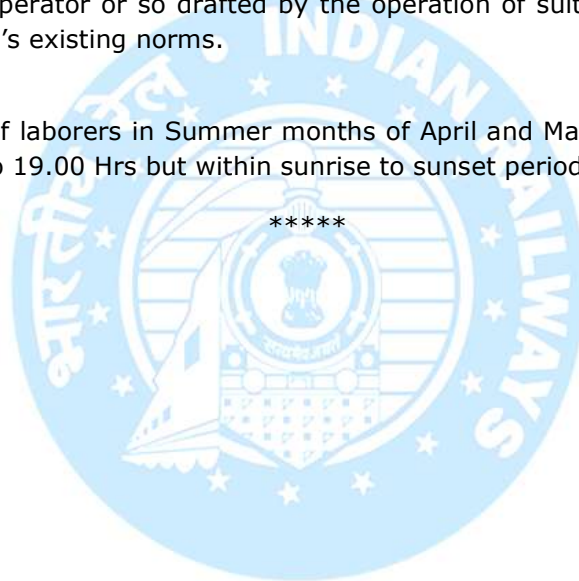
# EAST COAST RAILWAY CONSTRUCTION ORGANISATION

## Section -F

### Drafting of Vehicles & Working Hours

#### 1.0 Drafting of vehicles:

- 1.1 The Railway shall reserve the right to draft any of the vehicles and/or equipments mobilized by the contractor at the site of the work along with its operator employed by the contractor to assist in rescue and restoration operation in case of any accidents/natural calamities involving human lives. The contractor shall be responsible to arrange mobilization of his operator/equipment/vehicle so drafted with shortest possible delay.
- 1.2 The Railway shall arrange to duly compensate the contractor whose vehicle/equipment/operator or so drafted by the operation of suitable Non-scheduled (N.S) items as per Railway's existing norms.
- 1.3 The working hours of laborers in Summer months of April and May will be from 6 Hrs to 11 Hrs and 16.00 Hrs to 19.00 Hrs but within sunrise to sunset period.





# EAST COAST RAILWAY CONSTRUCTION ORGANISATION

## Section -G

### TIME LINE FOR PASSING OF CONTRACTUAL BILLS

Sl. No.	Item	On-Account Bill	Final Bill
1.	Maximum no. of days required for recording approximate measurement by Railway Engineer-in-charge or authorised representative for submitting to Higher authority with relevant Documents for Test-check.	<b>03 days</b> for lump sum measurement and <b>07 days</b> for Detailed measurement.	<b>45 days</b> for Detailed measurement.
2.	Maximum no. of days for Test-check by the higher authority before submitting for bill passing.	<b>One day</b> for lump sum measurement and <b>03 days</b> for Detailed measurement.	<b>10 days</b> for Detailed measurement.
3.	Preparation of Bill by bill section of Executive and checking of bills by Sr.DSO(A) and submission of bills to Accounts by bill passing officer i.e Dy.CEs.	<b>03 days</b>	<b>30 days.</b>
4.	Passing of Contractor bills in Account office.	<b>Within 03 working days</b> of receipt in Account office. (In case of any observations during internal check, the same is to be communicated <b>within 02 working days</b> of the receipt of bill).	<b>Within 07 working days</b> of receipt in Accounts Office. (In case of any observations during internal check, the same is to be communicated <b>within 03 working days</b> of the receipt of bill).
5.	On-line payment released to contractor.	<b>Within 01 day</b> from the date of generation of CO7 Report.	<b>Within 01 day</b> from the date of generation of CO7 Report.

# EAST COAST RAILWAY CONSTRUCTION ORGANISATION

## Section-H

### **SPECIAL CONDITIONS FOR CONCRETE WORKS**

**All Concrete work under the contract is to be executed as per relevant IS specifications, IRS standard specifications and as contained in Latest specifications of Indian Railways Unified Standard Specifications 2021.**

#### **1. Design Mix Concrete:**

Cement Concrete/Reinforced cement concrete for different elements of the proposed work shall be design mix concrete. Compressive strength of concrete indicated in different item of the concrete works is characteristic compressive strength of concrete at the end of 28 days.

The concrete mix design shall be done as per IS-456 and IS-10262-2009 (corrected up to date) code of practice for design mix.

The mix shall be designed to produce the grade of concrete having the required workability, durability and characteristic strength not less than stipulated values. Concrete mix will be designed for **Target mean compressive strength** =characteristic compressive strength at end of 28 days + (1.65 x standard deviation). Standard deviation depends upon grade of concrete. Refer Table-1 of 10262-2009 for suggested values of standard deviation depending on grade of concrete reproduced as under.

Sl.No	Grade of Concrete	Assumed Standard Deviation N/mm <sup>2</sup>
i	M-10	3.5
ii	M-15	
iii	M-20	4.0
iv	M-25	
v	M-30	5.0
vi	M-35	
vii	M-40	
viii	M-45	
ix	M-50	
x	M-55	

**NOTE: -The above values correspond to the site control having proper storage of cement, weigh batching of all materials, controlled addition of water, regular checking of all materials, aggregate grading and moisture content and periodical checking of workability and strength, where there is deviation from the above values given in the above table shall be increased by 1 N/mm<sup>2</sup>**

Concrete for all the works to be executed under this contract, **shall be machine mix only. Hand mixing shall not be permitted.**

All materials to be used in the work by the tenderer/contractor shall be subject to the prior approval of the Engineer-in-charge of the work. **Before using in the work, tenderer/contractor shall submit sample of materials and arrange for the supplies, only if the same are approved.**

Immediately after receiving formal acceptance letter, the tender/contractor should submit the materials such as aggregate, sand, cement, with details of name of the quarry for aggregate, cement brand, grade of cement etc to the approved laboratory to design the concrete mix for M-20 or richer mix. Tests such as specific gravity of cement, sand, metal and testing of cement for physical properties, sieve analysis for fine and coarse aggregate, abrasion, impact and crushing strength etc are to be done by the laboratory to design the concrete mix. Concrete mix design should be done as per IS-10262-2009 with further stipulations indicated in previous paras.

Laboratory should submit the result of all the above tests along with design mix calculation for further verification by Railway and to approve the design mix by the Engineer-in-charge.

**Design mix should be done in Railway Geo-tech lab or Government Engineering college/Polytechnics. In case of emergency, if Railway Geo-Tech Lab or government engineering colleges/ Polytechnics refuses to conduct the test for Design mix & testing of concrete cubes, then only tests can be conducted in government approved laboratory with the approval of Dy. CE/Con.**

Cost for carrying out design mix should be borne by the contractor. No extra payment shall be paid to the contractor for the above as the rate quoted are inclusive of carrying out the above design mix charges.

Tenderer/contractor shall to bear all the charges for testing the cement/reinforcement/aggregate/water etc., at his own cost including transportation of materials to be tested from site of work to laboratories.

Testing of materials is to be done as and when ordered by Engineer-in-charge in the laboratories as mentioned in foregoing para.

After mix design, three sets of cubes shall be cast under laboratory condition as per the finalized mix design to check the 7 days and 28 days strength. Average compressive strength of the cubes should satisfy the acceptance criteria as stipulated in IS: 456-2000.

Any time, if there is change in the aggregate, change in Grade of Cement, type of cement and also if the age of the cement increases considerably, the tests for the design mix concrete shall be repeated before the aggregates or cement are used in the work.

Ref: GM/Vig/BBS's Ir. No.GM/V/Engg/ System Improvement/2474, dt.02.04.2015.

## **2. Cement**

Only ordinary Portland cement 53 Grade and Portland Pozzolana cement shall be used for design mix concrete and shall be conforming to IS-12269-2013 & IS-1489-1991 respectively. Cement testing shall be done for physical properties as and when instructed by Engineer-in-charge or his representative.

The cement contents of various grades of concrete should generally be within the range given as under: -

Grade of concrete	Cement content in Kg. Per cum of concrete
M15	250 to 300
M20	280 to 330
M25	310 to 360
M30	340 to 390
M35	360 to 420
M40	380 to 450
M45 to M55	400 to 450

The cement contents of various grades of concrete beyond above mentioned range, if required due to considerations of durability or otherwise should be critically examined and re-checked by the Engineer-in-Charge before approving any concrete design mix report.

## **3. Aggregate:**

Coarse and fine aggregate to be used in the work shall confirm to IS-383-1970. Coarse aggregate shall invariably be machine crushed well graded of hard granite/black trap/basalt stone. Lime stone, quarry stone are not acceptable.

40mm stone aggregate shall be used in the Mass concrete works, for mud mat concrete and temporary staging foundation and shall be hard stone confirming to IS-383-1970.

## **4. Water:**

Only clean potable water free from impurities shall only be permitted for concreting, curing and grouting works.

**5. Reinforcement:**

Reinforcement steel to be used in the work shall be produced from recognised manufacturers i.e. **SAIL/TISCO/RINL/any other approved sources** only, Bars shall be high strength deformed bars of Fe 500 grade TMT/Rebars confirming to IS: 1786. Testing of reinforcement steel shall be done for physical properties as and when instructed by representative of Engineer-in-charge.

**6. Binding wire:**

Binding wire (Galvanised) to be used in the work should be of standard quality. The diameter shall be 16 SWG.

**7. Shuttering:**

Contractor should arrange good steel shuttering/ply good shuttering without containing any depressions. Shuttering plates should not contain depressions more than 5 mm. Sufficient number of stiffeners are to be provided to prevent bulging between end runners. The line, level and surface of the finished work should be absolutely neat and pleasing. No touching of concrete will be allowed after shuttering is struck.

Joints between the concrete lifts should be chipped off neatly and the joint should be rubbed with carbon drum stones (rough, medium and smooth) after applying cement mortar 1:3

The rods left in concrete for the purpose of shuttering should be cut 2.5 cm deep from the face of structure by gas cutting and the tie rod hole should have filled with epoxy at contractor's cost.

20 x 5 mm wide rubber flats should be placed between the shutters for proper joining to arrest leakage of cement water during concreting and compaction. Before laying the concrete, all the gaps of shutters are to be packed with jute/cotton waste and should be applied with grease and cement slurry to arrest leakage of cement water through joints and other holes.

**8. Cover Blocks:**

Cover blocks of specified thickness to match the required grade of concrete should be cast in advance for ensuring specified cover to all RCC works for which separate payment will not be made, as the rates of all RCC works are inclusive of this element.

**9. Admixture/Plasticizers:**

Admixtures/Plasticizers/ super plasticizers to be mixed with concrete for the purpose of workability, reduction in the cement content, acquiring early strength, etc shall be procured as per IS-9103 latest version and payment will be made as per the schedule item.

**9(a) WATER PROOFING:**

Integral crystalline admixture for water proofing treatment to RCC (@0.80% (minimum) to the weight of cement content per cubic meter of concrete) to be used in the work shall be produced from recognised manufacturers i.e. **PENETRON/TASMEK/VENDEX/any other approved sources** only, the work shall be carried out all complete as per specification and the direction of the Engineer-in-charge.

**10. Proportioning, Mixing, Transporting & placing of concrete**

**Batching and mixing of the concrete shall be done by weigh batching and mixing plant,** located at an approved distance duly considering the properties of the mixes and the transporting arrangements available with the Contractor. The Engineer shall approve the plant.

Proportioning of various materials shall be done on the batching plant by weight, each type of material being weighed separately. The cement from the bulk stock shall be weighed separately.



The capacity of batching and mixing plant shall be at least 25 percent higher than the capacity for transportation and laying of concrete.

**All drums that have been out of use for more than 30 minutes shall be thoroughly cleaned before any fresh concrete is mixed in them.**

For transportation of concrete Chutes, hoists and winches, transit mixer and agitators and concrete pumps shall be used as approved by Engineer-in-charge. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent materials takes place.

No concrete shall be placed in any part of the structure until the approval of the Engineer has been obtained.

## **11. COMPACTION AND CURING**

Concrete should mechanically have compacted by using different varieties of vibrators available to suit to situation of work. Adequate nos. of Shutter vibrators, needle vibrators, surface vibrators (plate vibrators) etc. shall be arranged by the contractor for vibrating the concrete mechanically.

All cement works shall be cured for 21 days by the contractor at his own cost.

If curing is not being done to satisfy the standard, the Engineer-in-charge may get it done at the contractors cost without any notice to him, as the curing cannot wait for such notice, time etc. The Engineers decision shall be final and binding, as to whether satisfactory curing is being done or not.

Contractor should arrange for painting of date of casting of different elements on the structure with paint for monitoring the curing. Cost of the above should be borne by the contractor at his own cost.

## **12. Frequency of Sampling of Concrete:**

Minimum frequency of sampling for testing of concrete work should be as per IS-456 Clause 15.2.2.

## **13. Testing of Concrete:**

The rates for concrete works shall be deemed to include all charges for testing of aggregates and the concrete as required to be done in accordance with specification, including the cost of labour, materials, equipment, moulds, transport, curing etc. For this purpose, the contractor shall set up a testing laboratory at his works at the location to be decided by the Engineer. He/They shall also make adequate arrangements for curing of test cubes, so prepared as per the direction of the Engineer. The contractor shall prepare the same at his own cost both for (1) preliminary test and (2) the works tests. All such tests shall be carried out by contractor and the record of same jointly signed by the contractor or his/their representative and Engineer or his representative shall be maintained by the contractor as per the direction of the Engineer.

The contractor shall provide without any extra charge all materials, tools, labour and assistance of every kind which Engineer may demand from his for any test and examination, other than special or independent test, which he shall require to make on the contractor's premises and the contractor shall bear and pay all costs attendants thereon. If the contractor fails to comply with the conditions as aforesaid, the Engineer shall his own judgment be entitled to remove for test and examination of any of the material to any premises other than contractor's and in all such cases, the contractor shall bear the cost of transportation and/or carrying out such tests elsewhere. A certificate in writing of the Engineer that the contractor has failed to provide facilities and the means for the test and the examination shall be final.

The contractor shall also provide and deliver for tests, free of charge at such places other than his premises as the Engineer may specify such materials or cubes as he may require.

The Engineer, at his discretion may decide to perform some of the tests on aggregate of concrete at his own laboratory or any other agency he may consider necessary. In all such cases, the contractor shall provide and deliver for tests for such materials or concrete cubes duly cured, free of charges at the premises as may be specified by the Engineer. Any further cost incurred for such tests, shall be recovered from the contractor's bills.

#### **14. ACCEPTANCE CRITERIA FOR CONCRETE.**

Concrete test results shall satisfy Acceptance criteria for various grade of concrete as per IS 456-2000, as also mentioned in CPWD latest specifications and Indian Railway Unified Standard Specifications-2019.

#### **15. FIELD LABORATORY:**

The contractor shall set up a small field laboratory to carry out tests on aggregate, design mix concrete and testing of cement concrete as and when ordered by the Engineer or his representative. The field laboratory should have the following equipment's to conduct the field tests: -

1. Set of IS sieve for coarse and fine aggregate.
2. Cube moulds (15 x 15 x 15 cms) Minimum 18 Nos.
3. Slump cone.
4. Measuring jars.
5. Rapid moisture machine with calcium carbide chemical.
6. Weighing equipment 10 Kg. Capacity up to 1 Gram accuracy for conducting sieve analysis.
7. Weighing equipment 100 Kg. Capacity to know unit weights of fine and coarse aggregate in connection with design mix (Mobile type).
8. Compression testing machine for cube testing 100/200 Tonne Capacity Unit.
9. Concrete permeability testing machine.

***Note: One combined Laboratory for carrying tests on Soil, Blanket & Concrete can be Established for undertaking field tests***

Calibration of compression testing machine should be done at specified intervals as instructed by the Engineer-in-charge in approved laboratory/IIT/any University.

Contractor should quote the rate considering the cost of the above equipment and cost of calibration charges. The rates for the above testing and equipment have already been included in the respective items of works for which separate payment will not be made.

**Contractor can choose testing the cubes at his own cost in labs as mentioned in Clause-1 instead of procuring the compression testing indicated under Item 8 of field laboratory.**

#### **16. RECORD**

After the work is completed in all respects the contractor shall make available for Railways for record, tracing drawings on transparent polythene film of all completed works with all details like general arrangements drawings, reinforcement details, structural details etc. are to be made and supplied along with six ammonia copies for record.

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## EAST COAST RAILWAY CONSTRUCTION ORGANISATION

### Section-I

#### **Special Conditions for Supply of Cement & Reinforcement Steel**

- 1.0 **Cement and Reinforcement steel for the entire work shall be supplied by the Contractor under relevant Schedule of this tender.** Conforming to IS specifications and Indian Railways Unified Standard Specifications - 2021.
- 1.1 Cement**
- 1.1.1 Cement to be used in this work shall be conforming to IS 12269 for 53 Grade Ordinary Portland Cement and IS:1489 for Portland Pozzolana cement.
- 1.1.2 Cement produced by reputed manufacturer such as Ultratech, Nagarjuna, Sagar, Ramco, or other reputed brands approved by the Engineer – In – Charge shall be supplied by the Contractor and used for construction.
- 1.1.3 Decision of Engineer regarding reputed firms shall be final and binding on the contractor.
- 1.1.4 Cement within 3 (Three) months from the date of manufacture shall only be used in **the work covered under various schedules of the agreement.**
- 1.1.5 Cost of the cement procured by the contractor should be paid only after consumption towards the different item of works of schedules.
- 1.2 Steel**
- 1.2.1 Steel produced by following manufacturers only shall be supplied by the Contractor and used for construction.
- a. **SAIL**
  - b. **TISCO**
  - c. **RINL**
  - d. Any other Primary Steel Producers having Integrated Steel Plant (ISP) and using iron ore as the basic raw material and having in-house iron rolling facilities, followed by production of steel through the process of **DRI-EAF, BF-BOF and Corex-BOF only.**
- 1.2.2 The Contractor shall produce the certificate issued by Plant manufacturer/Plant consultant (with documentary proof of process) establishing process being used at plant is either of **DRI-EAF, BF-BOF and Corex-BOF route only**, for manufacturing TMT reinforcement bar using iron ore as basic raw material.
- 1.2.3 Reinforcement steel bars used for work shall be High strength deformed bars of Grade Fe 500 D TMT conforming to specification IS: 1786 (up to date) as well as to Para 5.3 of IS: 13920 (latest) for all seismic Zones i.e. II, III, IV or V.
- 1.2.4 In addition to the above, as per Railway Board's Letter No. 2018/06/CE-III/BR/Stainless Steel dtd. 02.05.2018 Stainless Steel Reinforcement bars (Grade G(410L)- Ferritic conforming to IS 16651:2017) to be used for the following structures:
- (i) Bridges in coastal area (up to 30 kms from coast): Railway bridges, FOB, ROB/RUB, Rail Flyover/Metro, Mono Rail crossings.
  - (ii) Tunnels in coastal areas.
  - (iii) C & W and Loco inspection pits, catwalks, washing aprons & water tanks at all places.
  - (iii) Any other structure located in extremely adverse environmental conditions or where frequent inspection is not possible even if it is away from coastal area after due justification & with the personal approval of PCE/CAO(C).

**1.3 General Notes: -**

- 1.3.1 The contractor shall produce at the site, the manufactures test certificate for the steel and cement procured along with the other documents such as invoices etc.

The Contractor shall arrange to carry out testing of cement and steel as directed by Railway representative. All the charges for testing of all materials shall be borne by the contractor. Testing of these materials shall be done at approved laboratories/ recognized laboratories as is being done by other Government Organizations such as CPWD.

- 1.3.2 **Railway** will also take sample during the course of work at requisite / specified frequency and get the steel tested at contractor's cost to ascertain its conformity to the BIS Specification. Frequency of testing shall be as prescribed by the relevant BIS Code.
- 1.3.3 Railway reserves the right to obtain specimen of the material and get tested in recognised/approved laboratory before it is put to use and the cost of testing shall be borne by the contractor, wherever directed by the Engineer-in charge. The Engineer-in-charge reserves the right of selecting specimen at his own discretion.
- 1.3.4 **Steel and Cement used for work will be paid as per relevant items in Schedule of quantities and rates.** The rate for supply of steel also include costs of transporting, loading, unloading, handling, re-handling, cutting, bending with all lead, lift, and all taxes and incidental charges etc. The rate for supply of Cement is also inclusive of transportation, loading, unloading, re-handling, storing with all lead, lift, all taxes and incidental charges etc.
- 1.3.5 Railway reserves the right to inspect contractor's godowns and documents pertaining to this work.
- 1.3.6 The contractor shall use these materials in the work as per specifications contained in this document approved drawings and shall not use less quantities than what is stipulated in the relevant specifications/approved drawings.
- 1.3.7 No allowance wastage on any of the materials supplied by the contractor including Cement and Steel is payable by the Railway.
- 1.3.8 Contractor will make his own arrangements for storing cement, steel and other materials.
- 1.3.9 Reinforcement steel should be paid only after utilization in RCC work. Payment should not be made for bars projected beyond the casting level until the same is concreted in next stage.
- 1.3.10 **Standard weights as per relevant IS code will be followed for arranging payment for steel.**
- 1.3.11 The contractor should disclose the sources from where supply of steel & cement received by him and shall maintain detailed records of receipt of steel & cement from different locations and shall keep the challans, R.R. No, Lorry No etc and shall enter the receipts, issues and balance in the register and produce the same to the Engineer in charge or his representative as demanded.

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# EAST COAST RAILWAY CONSTRUCTION ORGANISATION

## Section-J

### **Special Conditions for Foundation**

#### **1 General**

**Types of substructure, foundation dimensions are tentative only & are likely to be changed after detail structural design.**

**The Pile work under the contract is to be executed as per relevant IS specifications, IRS specifications and as contained in Indian Railways Unified Standard Specifications (Vol-I & II) 2010.**

- 1.1 The Pile Foundations shall be constructed in accordance with the drawings approved by Railways. The depth of pile shown in the drawing is tentative and can vary as per the site conditions and as ordered by the Engineer-in-charge.
- 1.2 The scope of work included in schedules is for the provision and testing of bored cast in situ end bearing/skin friction RCC pile foundation (Direct mud circulation method with Bentonite solution) for the substructure together with the pile cap.
- 1.3 The schedule of quantities is based on cast-in-situ pile of required capacities.
- 1.4 The execution of pile foundation shall confirm to IS-2911 (Pt.I/Sec.II)-2010 with latest amendments and IRC Specification. All the piles shall be of the same type and shall be built to carry the heaviest load.
- 1.5 The specifications for safe allowable load, test load, total settlement, total deformations and net settlements would be as per IS-2911 (Pt.I/Sec.IV)-2010.
- 1.6 The piles will have to be founded on hard rock as per the directions of Engineer-in-charge. Minimum anchorage in hard rock should be 1.00 mtr. Where hard rock is not met with, the Engineer may at his sole discretion order that piles can be terminated, taken into coarse sand strata or any other strata as may be decided upon. No recovery will be made for not having provided 1.00 mtr minimum encourage into hard rock in such cases. The top level of the pile cap will be decided by the Engineer-in-charge. The spoils, arising out of boring shall be disposed off as directed by the Engineer-in-charge. The accepted rate is inclusive of all the above activities.
- 1.7 A minimum three-meter length temporary M.S. Liner (casing pipe) shall be inserted in each bored pile unless otherwise specially desired at contractor's cost.
- 1.8 When the bore has reached its final depth, it shall be cleaned from any foreign matter before placing of the reinforcement cage. The reinforcement for the pile shall be carefully placed in position and then only concreting shall have started after thoroughly flushing the file. The slump should be maintained between 150-180 mm for easy flow of concreting.
- 1.9 The consistency of Bentonite suspension shall be as per IS-2911 (Pt. I/Sec.II)-2010. The contractor cannot claim any extra cost on account of the use of Bentonite for piling.
- 1.10 Removal of obstruction if any met with during pile driving or boring shall also be done by the contractor. No extra payment will be made for this work.
- 1.11 The pile shall be bored, cast-in-situ RCC pile of mix M-35 Grade.

2.0 The quantity of concrete executed for the particular pile shall be calculated on the spot and checked with the actual quantity of concrete used. The quantity of concrete used in each

pile should also be recorded and signed by the contractor immediately after concreting. **This will form the basis for calculating the cement actually used.** The concrete will be machine mixed.

- 2.1 The minimum cement should be 400 kg/cum of concrete. Under water, concreting shall be done as per IS 456. Concrete is to be placed in the pile only by tremie method/Any other method approved by Engineer ensuring that tip of tremie is at least 500 mm below the top of concrete at any time. The top of concrete in a pile shall be brought above the cut-off level to permit removal of all laitance and weak concrete before capping and to ensure good concrete at the cut-off level for proper embedment into pile cap. **No payment will be made for providing overflow concrete or scum concrete, beyond cut-off level.** The length of over flow will be decided by the Engineer-in-charge.

When concrete is placed by Tremie method, concrete shall be cast to the piling platform level to permit over flow of concrete for visual inspection or to a minimum of one meter above cut off level. **No payment will be made for providing extra height of concrete above cut off level.**

**Cement consumption for the extra height of concrete laid or overflow concrete/scum concrete above cut off level for ensuring good concrete at the cut off level shall be paid.**

No extra payment will be made for peeling the top of concrete (i.e. extra height of concrete or overflow concrete/scum concrete above cut off level) of the piles and for interlacing the reinforcements of the piles into the pile cap. While inserting the reinforcement cage, care shall be taken to provide extra length so as to enable interlacing into the capping slabs.

- 2.2 The control of alignment of piles should be as per Para 7 of IS: 2911 (Pt.I/Sec.II)-2010 with the latest amendments.
- 3.0 In a group of two or more piles, piles of same diameter/size and same load carrying capacity shall be installed. The distance between centre to centre of such piles shall be governed by IS:2911(Pt.I/Sec.III)- 2010.
- 3.1 Level marks shall be put accurately on each pile immediately after it is installed. If any pile shows subsequently a tendency to heave up due to installation of other piles layer or due to any other reason, the same shall be reinstalled firmly without having heaving tendency in a suitable manner by the contractor as approved by the Engineer -in-charge without any extra cost.
- 3.2 If any pile during driving or boring has deviated from the designed position or from the verticality or if the same allowable load of the pile is not obtainable as per the design all these facts shall be reported promptly to the Engineer -in-charge during the execution of work with suggestion from the contractor regarding adequate corrective measures. Engineer-in-charge shall consider the suggestions of the contractor and shall give necessary directions that will be executed by the contractor at his/their own cost and risk. However, if certain piles are rejected by the Engineer-in-charge on account of their improper location, the contractor shall pull out the rejected piles and reinstall the pile with proper workmanship and materials to the satisfaction of the Engineer-in-charge without any extra cost. The Engineer-in-charge may allow the rejected piles to be left in their places and additional piles may be installed to take up the safe working load of the rejected piles, without any extra cost, if he considers it feasible and correct. If any such changes involve additional expenditure due to increased size of pile cap etc., the same will also be borne by the contractor including the recovery involved in the usage of the quantity of cement and steel used in such changes.
- 3.3 In the event of rejection of pile on contractor's account, recovery for cement and steel supplied by Railway shall be made and no payment for boring and casting of the pile, placing of MS Liners in the pile and cost of MS liners will be made.
- 3.4 In the finishing of pile needs, the clearance of the reinforcement in the pile cap and the keying of the pile head into the pile shall be as given in IS:2911 (Pt.I/Sec.II)-2010 with latest amendments

#### 4.0 Load testing

- 4.1 Vertical load testing of piles shall be carried out as per procedure laid down in IS Code of practice for Design and construction of pile foundation IS 2911 (Pt.IV). Only static test is envisaged.
- 4.2. Payment for the test of the pile or group of piles shall be made to the contractor only when the test is found to be satisfactory. For tests which are found unsatisfactory or which are not completed due to any reason whatsoever no payment shall be made to the contractor. Additional tests required by the department shall be carried out at the same quoted rates.
- 4.3 The test shall be considered satisfactory if the same has been carried out as per the laid down procedure in accordance to IS code and to the satisfaction of the Engineer-in-Charge. In this regard whether the testing has been carried out satisfactorily or not, the decision of Engineer-in-charge is final.
- 4.4 If the pile or the pile group does not satisfy the above conditions for accepting the same as satisfactory the corrective measures shall be carried out as directed by the Engineer-in-charge. These corrective measures may include provision of additional piles. If in the opinion of the Engineer-in-charge, it is necessary to reject the pile and provide entirely additional piles as corrective measures, the contractor shall do so. If the Engineer-in-charge considers it necessary to extract any rejected piles, the same shall be extracted and fresh pile reinstalled in the place.
- 4.5 The rates for tests include kentledge, RS joists, sand bags, etc., required for loading the platform for successful testing of the pile or group of piles. The rates for tests also include removing everything from the site of work after the test is completed and also for clearing the site to the satisfaction of the Engineer -in-charge. No additional payment shall be made on this account.
- 4.6 The contractor shall indemnify the Railway Administration against any claim or obligations arising out of any damage to structure or out of any injury to any person/persons due to piling work done by him.

#### **4.7 Mode of measurements for the piles**

- 4.7.1 The payable length of the piles shall be taken upto the clear distance from the cut off level (Bottom level of capping slab + 50mm) to the average bottom of the bore. The length so measured shall be rounded off to the nearest first decimal of a metre (0.05 metre or more to be reckoned as 0.10 m and below 0.05 metre to be reckoned as 0.00 m) for the purpose of making payment. **No payment will be made for blind bore.** Cost of the admixture if any used in design mix concrete as per the direction of Engineer-in-charge, the same will be paid extra. **Earth work in excavation for pile caps will be made separately as per relevant item of Schedule without any extra payment for shoring, shuttering etc.**
- 4.7.2 Cement used in pile will be paid separately as per concerned Schedule as per theoretical requirement. In case, cement consumption is less than theoretical requirement, actual cement consumption shall be considered and paid.

#### **5.0 MS Liners/ Casing Pipe**

If required, contractor will arrange Fabrication, supplying and fixing of permanent MS Liners for the pile from the top of working platform upto the depth as may be directed by the Engineer-in-charge.

- 5.1 The contractor shall fabricate the MS Liners from MS sheets to suit the diameter of the pile entirely on his/their own cost. The required length of the MS Liners will be made up by welding each unit at site by the contractor with his own equipment and plant.
- 5.2 The payable depth shall however be measured only from the cut-off level though the liner might have been provided right from the level of the working platform on practical considerations. Length above the cut-off level has to be necessarily removed by gas cutting for facilitating peeling off of the top portion of the pile and for interlacing its reinforcement bars into the cap. Therefore, the rate quoted shall cater for the element of cutting and

removing the surplus length of the MS Liners. There is however, no objection if the surplus pieces (if cut and removed carefully and then reusable) are rewelded (to required length) for reuse in the same contract on some of the other piles. No claim shall be entertained if the cut pieces cannot be reused by the contractor in the aforesaid manner.

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<b>EAST COAST RAILWAY CONSTRUCTION ORGANISATION</b>
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**SECTION-K****SPECIAL CONDITIONS FOR BRIDGE WORK****1.0 General:**

1.1 The Bridge work under the contract is to be executed as per relevant IS specifications, IRS specifications and as contained in Indian Railways Unified Standard Specifications-2021.

The exposure conditions for Bridges will be mentioned in the drawings. All Codal provisions/Specifications corresponding to stipulated exposure condition as per IRS Concrete Bridge Code would be applicable for the work.

**1.2 Cement**

1.2.1 Generally the cement used shall be as following. However, the prior approval of the Engineer shall be taken for use of any of the cement.

i) 53 Grade Ordinary Portland Cement conforming to IS: 12269.

ii) Portland Pozzolana cement conforming to IS:1489 (See note 1.2.3 & 1.2.5 below).

1.2.2 In aggressive environment, where SO<sub>3</sub> and Cl ion are present in abundance, preferably ordinary Portland Cement with moderate sulphate resisting properties conforming to specifications as given in Table 1 may be used.

1.2.3 Portland Pozzolana cement shall not be used for PSC works. Portland Pozzolana cement conforming to IS:1489 can be used for Plain concretes and RCC works. When Portland Pozzolana cement is used, it is to be ensured that proper damp curing of concrete is done at least for 14 days and supporting formwork is not removed till concrete has attained at least 75 % of the design strength.

1.2.4 The sulphate resisting cement conforming to IS: 12330 shall be used only in such conditions where the concrete is exposed to the risk of excessive sulphate attack e.g. concrete in contact with soil or ground water containing excessive amount of sulphate. It shall not be used under such conditions where concrete is exposed to risk of excessive chlorides and sulphate attack both.

1.2.5 The rate of development of strength is slow in case of blended cement i.e. Portland Pozzolana cement and Portland slag cement, as compared to ordinary Portland cement. This aspect should be taken care while planning to use blended cement. Accordingly stage of prestressing, period of removal of form work and period of curing etc. should be suitably increased.

**Table 1:**

Specification for Ordinary Portland Cement

(With Moderate Sulphate Resisting Properties)

Sl No	Characteristics	Limits	
		Not less than	Not more than
1	Ratio Of Percentage Of Lime To Percentage Of Silica, Alumina And Iron Oxide, When Calculated By The Formula Given In IS 269.	0.80	1.02
2	Ratio of percentage of Alumina to that of Iron Oxide.	0.86	--
3	Magnesia, (% by Wt.)	--	5.0
4	Loss on ignition (% by Wt.)	--	4.0
5	Tricalcium aluminate content (C3A) (%)	6.0	10.0
6	Tricalcium silicate contents (C3S) (%)	40.0	--
7	Physical properties fineness (cm <sup>2</sup> /g)	2800	3200
8	Soundness 'Le Chatalier' method (mm)	--	5
9	Setting Time		
a)	Initial (in minutes)	60	--
b)	Final (in minutes)	--	600
10	Compressive Strength		
a)	7 days (N/mm <sup>2</sup> )	29.5	--
b)	28 days (N/mm <sup>2</sup> )	41.7	--

1.2.6 The method of testing to determine the above characteristics and ascertaining the results, shall conform to the procedure prescribed in IS:269, 4031 & IS:4032.

### 1.3 Reinforcement

1.3.1 The reinforcement shall be as per the stipulations made in the Schedule of work attached.

1.3.2 All reinforcement shall be free from loose mill scales rust and coats of paints, oil, mud or other coatings that may destroy or reduce bond.

1.3.3 The modulus of elasticity of steel shall be taken as 200 KN/mm<sup>2</sup>.

### 1.4 Pre-Stressing Steel

1.4.1 The pre-stressing steel shall be as per the stipulations made in the Schedule of work attached.

1.4.2 All pre-stressing steel shall be free from splits, harmful scratches, surface flaws, rough, jagged and imperfect edges and other defects likely to impair its use in Pre-stressed concrete.

### 1.5 Coarse Aggregates

1.5.1 For plain and reinforced cement concrete or Pre-stressed concrete works, coarse aggregate shall consist of clean, hard, strong, dense, non-porous and durable pieces of crushed stone, crushed gravel, natural gravel or a suitable combination thereof or other approved inert material. They shall not contain pieces of disintegrated stones, soft, flaky elongated particles, salt, alkali, vegetable matter or other deleterious materials in such quantities as to reduce the strength of durability of the concrete, or to attack the steel reinforcement. All coarse aggregates shall be tested to conform to IS:383. Coarse aggregate having positive alkali – silica reaction shall not be used.

1.5.2 For reinforced cement concrete works, the maximum size of the coarse aggregate can be in the limits of 4.75 to 40 mm but in no case should be greater than one quarter of the minimum

thickness of the member, provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and to fill the corners of the form work.

1.5.3 The preferred nominal size of aggregate is 20 mm for reinforced cement concrete works. Larger sizes upto 31.5 mm may be permitted in special cases where there is no restriction to flow of concrete in a section. If smaller sizes are necessary for any element, 10 mm and 12.5 mm may be used.

1.5.4 For plain cement concrete works, preferred nominal sizes shall be 20 and 40 mm. Larger sizes may be permitted only in special cases, subject to supplemental specifications and precautions.

1.5.5 For pre-stressed concrete works, the nominal maximum size of aggregate shall usually be restricted to 10 mm less than the minimum clear distance between individual cables or individual un-tensioned steel reinforcement or 10 mm less than the minimum clear distance between individual cables or individual un-tensioned steel reinforcement or 10 mm less than the minimum cover to un-tensioned steel reinforcement whichever is smaller. A nominal size of 20 mm coarse aggregate shall generally be considered satisfactory for pre-stressed concrete works. Primary or Secondary stone crusher should be employed for getting proper size and grading of coarse aggregates.

## 1.6 Sand/Fine Aggregates

1.6.1 For plain and reinforced cement concrete or pre-stressed concrete works, fine aggregates shall consist of hard, strong, durable, clean particles of natural sand, crushed stone or crushed gravel or suitable combination of natural sand and crushed stone or gravel. They shall not contain dust, lumps, soft or flaky materials, mica and other deleterious materials in such quantities as would reduce the strength or durability of concrete or attack the embedded steel. Motorized sand washing machines should be used for removing impurities from sand. All fine aggregates shall be tested to conform to IS:383. For masonry work, sand shall conform to the requirement of IS:2116.

## 1.7 Water

1.7.1 Water used for mixing and curing shall be clean and free from injurious amounts of oils, acids, alkalis, salts, sugar, organic materials or other substances that may be deleterious to concrete or steel. Potable water is generally considered satisfactory for mixing concrete. As a guide, the following concentrations represent the maximum permissible values.

1.7.2 To neutralise 200 ml sample of water, using phenolphthalein as an indicator, it should not require more than 2 ml of 0.1 normal NaOH.

1.7.3 To neutralise 200 ml sample of water using methyl orange as an indicator, it should not require more than 10 ml of 0.1 normal HCL.

1.7.4 The permissible limits for solids shall be as follows:

Item	Permissible limits (Maximum)
Organic	200 mg/lit
Inorganic	3000 mg/lit
Sulphates (SO <sub>4</sub> )	500 mg/lit
Chlorides (Cl)	250 mg/lit*
Suspended matter	2000 mg/lit

1.7.5 In case of structures of length 30 m and below, the permissible limit of chlorides may be 1000 mg/lit.

1.7.6 All samples of water (including potable water) shall be tested and suitable measures taken where necessary.

1.7.7 The PH value shall generally be not less than 6. Whenever necessary tests should be done as per IS:3025. Mixing and curing with sea water shall not be permitted.

## 1.8 Workability of Concrete

1.8.1 The concrete mix proportions chosen should be such that the concrete is of adequate workability for the placing conditions of the concrete and can be properly compacted with the means available.

1.8.2 Suggested ranges of workability of concrete for some placing conditions are given in Rly Concrete Bridge Code vide clause 5.3.

## 1.9 Durability

1.9.1 The durability of concrete depends on its resistance to deterioration and the environment in which it is placed. The resistance of concrete to weathering, chemical attack, abrasion, frost and fire depends largely upon its quality and constituents materials. Susceptibility to corrosion of the steel is governed by the cover provided and the permeability of concrete. The cube crushing strength along is not a reliable guide to the quality and durability of concrete; it must also have adequate cement content and a low water-cement ratio. The general environment to which the concrete will be exposed during its working life is classified in three levels of exposure that is moderate, severe, and extreme, as described in Rly Concrete Bridge Code vide clause 5.4.1.

### 1.9.2 Permeability

One of the main characteristics influencing the durability of any concrete is its permeability. Therefore, tests for permeability shall be carried out for concrete bridges as directed by Engineer-In-Charge. with strong dense aggregates, a suitably low permeability is achieved by having a sufficiently low water cement ratio, by ensuring as through compaction of the concrete as possible and by ensuring sufficient hydration of cement through proper curing methods. Therefore, for given aggregates, the cement content should be sufficient to provide adequate workability with a low water-cement ratio so that concrete can be completely compacted by vibration. The depth of penetration of moisture shall not exceed 25 mm.

Permeability test: tests for permeability shall be carried out for concrete bridges as recommended in Rly Concrete Bridge Code vide clause 5.4.2.

1. Permeability test shall be mandatory for all RCC/PCC bridges under severe and extreme environment.
2. Under moderate environment, permeability test shall be mandatory for all major bridges and for other bridges permeability test is desirable to the extent possible.
3. Permeability test is required for RCC/PCC structural element only.



**Maximum Water-Cement Ratio:** The limits for maximum water cement ratio for design mix shall be based on environmental conditions as defined in Clause 1.10.1. The limits for maximum water-cement ratio for different environmental shall be as per Rly Concrete Bridge Code clause 5.4.3 as given in table below:

**Maximum Water Cement Ratio**

Exposure conditions	Maximum water – Cement Ratio		
	Plain concrete (PCC)	Reinforced concrete (RCC)	Prestressed concrete (PSC)
Moderate	0.50	0.45	0.40
Severe	0.45	0.40	0.40
Extreme	0.40	0.35	0.35

**Minimum Grade of concrete:** From durability consideration, depending upon the environment to which the structure is likely to be exposed during its service life, minimum grade of concrete shall be as stipulated in Rly Concrete Bridge Code clause 5.4.4, as given below:

**For Bridges in Pre-stressed concrete and Important Bridges**

Exposure conditions	Minimum Grade of concrete		
	Plain concrete (PCC)	Reinforced concrete (RCC)	Prestressed concrete (PSC)
Moderate	M-25	M-30	M-35
Severe	M-30	M-35	M-40
Extreme	M-35	M-40	M-45

**For Bridges other than mentioned above and sub-structure**

Exposure conditions	Minimum Grade of concrete	
	Plain concrete (PCC)	Reinforced concrete (RCC)
Moderate	M-15	M-20
Severe	M-20	M-25
Extreme	M-25	M-30

**Cementitious material content:** Depending upon the environment to which the structure is likely to be exposed during its service life, minimum cementitious material content in concrete shall be as per Rly Concrete Bridge Code clause 5.4.as given in table below. Maximum cementitious material content shall be limited to 500 kg/M3

Exposure conditions	Minimum Cementitious Material Content		
	Plain concrete (PCC)	Reinforced concrete (RCC)	Pre-stressed concrete (PSC)
Moderate	240	300	400
Severe	250	350	430
Extreme	300	400	440

**Total chloride contents:** The total chloride content by weight of cement shall not exceed the following values:

- a) For prestressed concrete works:
  - i) Under extreme environment 0.06%
  - ii) Under severe and moderate environment 0.10%
- b) For RCC works 0.15%

### 1.10 Concrete Mix Proportions.

1.10.1 Mix Proportion: The mix proportions shall be selected to ensure that the workability of the fresh concrete is suitable for the conditions of handling and placing, so that after compaction it surrounds all reinforcements and completely fills the formwork. When concrete gets hardened, it shall have the required strength, durability and surface finish.

1.10.2 The determination of the proportions of cement, aggregates and water to attain the required strengths shall be made as follows:

1.10.3 By designing the concrete mix; such concrete shall be called 'Design mix concrete'; or by adopting nominal concrete mix; such concrete shall be called 'Nominal mix concrete'.

1.10.4 Design mix concrete is preferred to nominal mix. Nominal mixes when used are likely to involve higher cement content. Concrete of grades richer than M 20 shall only be design mix concrete.

### 1.11 Design Mix Concrete

1.11.1 The mix shall be designed to produce the grade of concrete having the required workability, durability and characteristic strength not less than stipulated values. The procedure given in IS: 10262 may be followed for mix design. Value of Standard deviation as given in IR Concrete Bridge code for various grade of concrete shall be adopted.

1.11.2 Nominal Mix Concrete: Nominal Mix Concrete may be used for concrete of grade M 20 or lower. The proportions of materials for nominal mix concrete shall be in accordance with Concrete Bridge Code

### 1.12 Mix Design

1.12.1 Concrete mix shall be designed on the basis of preliminary tests. The proportions for ingredients chosen shall be such that concrete has adequate workability for conditions prevailing on the work in question and can be properly compacted with the means available.

1.12.2 The mixing plant and the methods of transporting and depositing the concrete to be employed in the work shall be used to simulate working conditions with the trial mixes.

1.12.3 All these preliminary tests, approval etc shall be got done in advance by the contractor before any concreting is contemplated. Failure on the part of the Contractor to do so and the consequent delay in the completion of the works will not entitle him for any compensation whatsoever, either financially, or by way of extension of time.

### 1.13 Mix proposals:

1.13.1 Based upon the successful preliminary crushing and workability tests, the Contractor shall submit mix proposals to the engineer, who will have the right to reject any trial mix not deemed satisfactory. Selection of the trial mix to the complete satisfaction of the Engineer shall be the ultimate responsibility of the contractor.

1.13.2 Except where it can be shown to the satisfaction of the Engineer that supply of properly graded aggregate of uniform quality can be maintained till the completion of work, grading of aggregate should be controlled by obtaining the coarse aggregate in different sizes and blending them in the right proportions as required. Different sizes, however, shall be stocked in separate stock Wells, required quantity of materials shall be Stock-Wells several hours, preferably a day, before use. Grading of coarse and fine aggregate shall be checked as frequently as possible, frequency for a given job being determined by the engineer to ensure that the suppliers are maintaining uniform grading as approved for samples used in the preliminary tests.

1.13.3 In proportioning concrete, the quantity of both cement and aggregate shall be determined by weight. Where the weight of cement is determined by accepting the maker's weight per bag, a reasonable number of bags shall be weighed separately to check the net weight. Where cement is

weighed from bulk stocks at site and not by bags, it shall be weighed separately from the aggregates. Water shall either be measured by volume in calibrated tanks or weighed. All measuring equipment shall be maintained in a clean and serviceable condition. Their accuracy shall be periodically checked.

1.13.4 It is most important to keep the specified water cement ratio constant and at its correct value. To this end, moisture content in both fine and coarse aggregates shall be determined as frequently as possible, frequency for a given job being determined by the Engineer according to the weather conditions. The amount of mixing water shall then be adjusted to compensate for variations in the moisture content. For the aggregates, IS: 2386 (Part III) shall be referred to. Suitable adjustments shall also be made in the weights of aggregates to allow for the variation in weight of aggregates due to variation in their moisture content.

#### 1.14 **Mixing concrete**

1.14.1 Batching and mixing of the concrete shall be done at a batching and mixing plant with automatic controls, located at an approved distance duly considering the properties of the mixes and the transporting arrangements available with the Contractor. The Engineer shall approve the plant.

#### 1.15 **Proportioning of materials**

1.15.1 Proportioning of various materials shall be done on the batching plant by weight, each type of material being weighed separately. The cement from the bulk stock shall be weighed separately.

1.15.2 All the materials and sources should be as per the design mix parameters and all the conditions as stipulated in IS: 4925 are to be followed.

1.15.3 Contractor has to make arrangements for frequent inspection of the plant by Engineer-In-Charge or his representative as and when required.

1.15.4 The capacity of batching and mixing plant shall be at least 25 percent higher than the capacity for transportation and laying of concrete.

1.15.5 All drums that have been out of use for more than 30 minutes shall be thoroughly cleaned before any fresh concrete is mixed in them.

#### 1.16 **Transporting, placing and compaction of concrete.**

1.16.1 For transportation of concrete Chutes, hoists and winches, transit mixer and agitators and concrete pumps shall be used.

1.16.2 The Engineer shall approve the method of transporting and placing concrete. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent materials takes place. All formwork cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete.

1.16.3 No concrete shall be placed in any part of the structure until the approval of the Engineer has been obtained.

1.16.4 If concreting is not started within 24 hours of the approval being given, it shall have to be obtained again from the Engineer. Concreting then shall proceed continuously over the area between construction joints. Fresh concrete shall not be placed against concrete that has been in position for more than 30 minutes unless a proper construction joints is formed.

#### 1.17 **Concreting under Water**

1.17.1 When it is necessary to deposit concrete under water, the methods, equipment, materials and proportions of the mix to be used shall be got approved from the Engineer before any work is started. Such concrete shall not be considered as "Controlled Concrete".

1.17.2 Concrete shall not be placed in water having a temperature below 5o C. The temperature of the concrete, when deposited, shall be not less than 16o C, not more than 40o C.

1.17.3 Concrete shall contain 10 per cent more cement than that required for the same mix placed in the dry. The material shall be so proportioned as to produce a concrete having a slump of not less than 150 mm, and not more than 200 mm. The slump shall be tested as per IS:516.

1.17.4 Cofferdams or forms shall be sufficiently tight to ensure still water conditions, if practicable, and in any case to reduce the flow of water to less than 3 meters per minute through the space into which concrete is to be deposited. Cofferdams or forms in still water shall be sufficiently tight to prevent loss of mortar through the joints in the walls. Pumping shall not be done while concrete is being placed, or until 24 hours thereafter.

1.17.5 All under water concreting should be carried out by tremie method only, with tremie of appropriate diameter. The number and spacing of the tremie should be worked out to ensure proper concreting. The tremie concreting when started should be continued without interruption for the full height of the member being concreted. The concrete production and placement equipment should be sufficient to enable the underwater concrete to be completed uninterrupted within the stipulated time. Necessary stand-by equipment should be available for emergency situation.

1.17.6 The top section of the tremie shall be a hopper large enough to hold one full batch of the mix or the entire contents of the transporting bucket if any. The tremie pipe shall not be less than 200 mm in diameter, and shall be large enough to allow a free flow of concrete and strong enough to withstand the external pressure of the water in which it is suspended, even if a partial vacuum develops inside the pipe. Preferably, flanged steel pipe of adequate strength for the job shall be used. A separate lifting device shall be provided for each tremie pipe with its hopper at the upper end. Unless the lower end of the pipe is equipped with an approved automatic check valve, the upper end of the pipe shall be plugged with a wadding of gunny sacking or other approved material before delivering the concrete to the tremie pipe through the hopper, so that when the concrete is forced down from the hopper to the pipe it will force the plug (and along with it any water in the pipe) down the pipe and out of the bottom end, thus establishing a continuous stream of concrete.

It will be necessary to raise slowly the tremie in order to allow in uniform flow of concrete, but it shall not be emptied so that water enters above the concrete in the pipe. At all times after the placing of concrete is started and until all the required quantity has been placed, the lower end of the tremie pipe shall be kept 600 mm below the surface of the plastic concrete. This will cause the concrete to build up from below instead of flowing out over the surface, and thus avoid formation of layers of laitance. If the charge in the tremie is lost while depositing, the tremie shall be raised above the concrete surface, and unless sealed by a check valve it shall be re-plugged at the top end, as at the beginning, before refilling for depositing further concrete.

1.17.7 To minimize the formation of laitance, great care shall be exercised not to disturb the concrete as far as possible while it is being deposited.

#### 1.18 Protection and Water curing

1.18.1 Curing is the process for preventing the loss of moisture from the concrete. The prevention of moisture loss from the concrete is particularly important if the water-cement ratio is low.

1.18.2 Curing and protection shall start immediately after the compaction of the concrete to protect it from

- i) Premature drying out, particularly by solar radiation and wind.
- ii) High internal thermal gradients.
- iii) Leaching out by rain and flowing water.
- iv) Rapid cooling during the first few days after placing.
- v) Low temperature or frost.



vi) Vibration and impact which may disrupt the concrete and interfere with its bond to the reinforcement.

1.18.3 Where members are of considerable size and length, with high cement content, accelerated curing methods are to be applied, as approved in detail by the Engineer.

1.18.4 Exposed surfaces of concrete shall be kept continuously in a damp or wet condition by ponding or by covering with a layer of sacks, canvas, hessian, or similar materials and shall be kept constantly wet for a period of not less than fourteen days from the date of placing of concrete.

1.18.5 Special attention should be paid to curing of concrete in order to ensure maximum durability and to minimize cracking.

1.18.6 Sea water shall not be used for curing. Sea water shall not come into contact with concrete members unless it has attained the desired strength.

1.18.7 Masonry work over the foundation concrete may be started after 48 hours of its laying but the curing of concrete shall be continued for a minimum period of 14 days.

1.18.8 Wherever possible, use of water sprinklers or perforated pipes should be encouraged for curing of concrete. Such arrangements must be maintained for a minimum period of 14 days after concreting.

1.18.9 Approved concrete curing compounds should be preferred where water curing cannot be done reliably.

#### 1.19 Working in Extreme Weather

1.19.1 Where concrete is to be deposited at or near freezing temperatures, precautions shall be taken to ensure that at the time of placing it has a temperature of not less than 5 °C and that the temperature of the concrete shall be maintained above 4 °C until it has thoroughly hardened. When necessary, concrete ingredients shall be heated before mixing. Cement shall however not be heated other than by the heat transmitted to it from other ingredients of the concrete. In general, heating the mixing water along to about 66 °C may suffice for this purpose. Dependence shall not be placed on salt or other chemicals for the prevention of freezing. Calcium chloride upto one and a half per cent by weight of the cement can be used to accelerate the rate of hardening provided it does not accelerate corrosion. Use of calcium chloride in excess of this percentage is considered harmful. No frozen material or materials containing ice shall be used. All concrete damaged by frost shall be removed. It is recommended that concrete exposed to freezing weather shall have entrained air and the water content of the mix shall not exceed 30 litres per 50 Kg of cement.

1.19.2 When depositing concrete in very hot weather, precautions shall be taken so that the temperature of wet concrete does not exceed 40 °C while placing. This shall be achieved by stacking aggregate under the shade and keeping them moist, using cold water, reducing the time between mixing and placing to the minimum, cooling formwork by sprinkling water, starting curing before concrete dries out and restricting concreting, as far as possible, to mornings and evenings.

#### 1.20 Finishing

1.20.1 Immediately after the removal of forms, all exposed bars or bolts passing through the reinforced cement concrete member and used for shuttering or any other purpose shall be cut inside the reinforced cement concrete member to a depth of at least 25 mm below the surface of the concrete and the resulting holes be closed by cement mortar. All fins caused by form joints, all cavities produced by the removal of form ties and all other holes and depressions, honeycomb spots, broken edges or corners, and other defects, shall be thoroughly cleaned, saturated with water, and carefully pointed and rendered true with mortar of cement and fine aggregate mixed in the proportions used in the grade of concrete that is being finished and of as dry a consistency as is possible to use. Considerable pressure shall be applied in filling and pointing to ensure thorough

filling in of all voids. Surfaces that have been pointed shall be kept moist for a period of twenty-four hours.

1.20.2 All construction and expansion joints in the completed work shall be left carefully tooled and free from any mortar and concrete. Expansion joint filler shall be left exposed for its full length with clean and true edges.

1.20.3 Formwork shall include all temporary or permanent forms required for forming the concrete, together with temporary construction required for their support.

## 1.21 Storage, testing and acceptance of Materials

### 1.21.1 General

All materials may be stored in proper places so as to prevent their deterioration or intrusion by foreign matter and to ensure their satisfactory quality and fitness for the work. The storage space must also permit easy inspection, removal and storage of the materials. All such materials even though stored in approved godowns/places, must be subjected to acceptance test prior to their immediate use.

### 1.21.2 Cement

Cement shall be transported, handled and stored on the site in such a manner as to avoid deterioration or contamination. Cement shall be stored above the ground level in perfectly dry and watertight sheds and shall be stacked not more than eight bags high. Wherever bulk storage containers are used their capacity should be sufficient to cater to the requirement at site and should be cleaned at least once every 3 to 4 months.

Each consignment shall be stored separately so that it may be readily identified and inspected and cement shall be used in the sequence in which it is delivered at site. Any consignment or part of a consignment of cement that has deteriorated in any way, during storage, shall not be used in the works and shall be removed from the site by the contractor without any extra cost to Railways.

## 1.22 Bending of Reinforcement

1.22.1 Reinforcing steel shall conform accurately to the dimensions given in the Bar Bending Schedules shown on relevant drawings.

1.22.2 Bars shall be bent cold to the specified shape and dimensions or as directed the Engineer using a proper bar bender, operated by hand or power to attain proper radii of bends.

1.22.3 Bars shall not be bent or strengthened in a manner that will injure the material.

1.22.4 Bars bent during transport or handling shall be straightened before being used on work, they shall not be heated to facilitate bending.

1.22.5 Unless otherwise specified the type of hook to be provided at the end of each bar shall be indicated in the bar bending schedule. The hook shall be suitably encased to prevent any splitting of concrete.

## 1.23 Placing of reinforcement

### 1.23.1 General

a) All reinforcement shall be free from rust, loose mill scale or coats of oil, paints etc. and chloride contamination which may destroy bond. This may be ensured either by using reinforcement fresh from the factories or thoroughly cleaning all reinforcement to remove all the rust using any effective method such as sand blasting.

b) The reinforcement cage should generally be fabricated in the yard at ground level and then shifted and placed in position. The reinforcement shall be provided strictly in accordance with the drawings and shall be assembled in position only when the structure is otherwise ready for placing

of concrete. Prolonged time gap between the assembling of reinforcements and placing of concrete that may result in rust formation of the surface shall not be permitted.

c) Reinforcement bars shall be placed accurately in position as shown in the drawings. The bars, crossing one another shall be tied together at every intersection with galvanized wire of not less than 1 mm in dia and conforming to IS: 280 to make the skeleton of the steel work rigid so that the reinforcement does not get displaced during the deposition of concrete, or any other operation of the work.

d) The bars shall be kept in position by the following paragraphs maintaining cover.

e) In case of beam and slab construction, industrially produced polymer cover blocks of thickness equal to the specified cover shall be placed between the bars and shuttering subject to satisfactory evidence that the polymer composition is not harmful to concrete and reinforcement so as to secure and maintain the requisite cover of concrete over reinforcement. If such cover blocks are not available concrete cover blocks made of concrete having same strength and specification as of the member may be provided.

f) In case of dowels for columns and walls, the vertical reinforcement shall be kept in position by means of timer templates with slots accurately cut in tem; or with industrially produced polymer cover blocks tied to the reinforcement. Timber templates shall be removed after the concrete has progressed up to a level just below them.

g) Spacer bars shall separate layers or reinforcements at approximately 1000 mm intervals. The minimum diameter of spacer bars shall be 12 mm or equal to maximum size of main reinforcement or maximum size of coarse aggregate whichever is greater.

h) Necessary stays, blocks, metal chairs spacers, metal hangers, supporting wires etc, or other subsidiary reinforcement shall be provided to fix the reinforcements firmly in its correct position. The cost of such subsidiary reinforcement will not be paid and shall be included in the steel price quoted.

#### 1.23.2 Precautions:

Main reinforcement shall not be allowed to sag between supports.

Reinforcements projecting from surface of newly placed concrete shall be supported in such a way that there is no sag or risk or damage the newly placed concrete. In severe environment, such projecting reinforcements that are likely to remain exposed for a long time shall be protected by cement grout/anti-corrosive treatment. In case of cement grout the same shall be thoroughly cleaned and wire brushed before depositing fresh concrete.

#### 1.24 Admixtures

1.24.1 Use of admixtures and super plasticizers for concrete shall be encouraged to improve workability, quality and reliability.

1.24.2 The plasticizer/retarder/admixture shall conform to IS:6925 & IS 9103. They should be chloride free and free and low in sulphate content. The contractor at his cost shall test each lot of admixture. The use of admixture shall be made as per the manufacturer's guidelines. Prior approval of engineer is necessary for its uses.

#### 1.25 Design of Formwork:

1.25.1 The contractor without any extra cost to the Railways shall design formwork including complete false work and shall be got approved by the Engineer. Only steel formwork shall be used.

1.25.2 The formwork should be robust and strong and the joints should be leak-proof. The staging, scaffolding and shuttering are required to be properly designed so that their erection as well as striking can be conveniently done. The design should also ensure that at the time of striking, the

concrete does not get disturbed and the forms are conveniently removed. For this, wooden or other type of packing should be designed and placed in position for easy removal of the form work.

1.25.3 The contractor shall be entirely responsible for the adequacy and safety for form work notwithstanding any approval or review by the Engineer of his drawing and design.

1.25.4 If proprietary system of formwork is used, a detailed information as per shall be furnished to the Engineer for approval.

1.25.5 Number of joints in the formwork should be kept minimum in both directions – horizontal and vertical – by using large size panels. The design should provide for proper “soldier” to facilitate alignment to the required degree. All joints must be properly sealed. Use of PVC joints sealing tapes, foam rubber or PVC T-Section is essential to prevent leakage of grout.

1.25.6 Bally should not be used as staging. Staging must have cross bracing and diagonal bracing in both directions.

1.25.7 Where centering or launching trusses are adopted for casting of superstructure, the joints of the centering trusses, whether welded, riveted or bolted should be thoroughly checked before proceeding with the concreting. Also, various members of the centering trusses should be examined for proper alignment and unintended deformation before proceeding with the concreting.

1.25.8 For distribution of load and load transfer to the ground through staging, an appropriately designed base plate must be provided which shall rest on firm sub-stratum. Water used for curing should not be allowed to stagnate near the base plates supporting the staging and should be properly drained.

1.25.9 The design of false work should be such as to facilitate proper and safe access to all parts for inspection.

1.25.10 Removal of the form should be planned as a part of the total formwork design. For piers taller than 30 meters, slip forming shall be preferred.

1.25.11 The chamfers, bevelled edges and mouldings shall be made in the formwork itself. Opening for fixtures and other fittings connected with service shall be provided in the shuttering as directed the Engineer.

1.25.12 As far as practicable, clamps shall be used to hold the forms together. Where use of nails is unavoidable minimum number of nails shall be used and these shall be left projecting so that they can be easily withdrawn. Use of double headed nails shall be preferred.

1.25.13 The formwork shall be made so as to produce a finished concrete true to shape, line levels, plumb and dimensions as shown on the drawing, subject to the tolerance mentioned in Rly Concrete Bridge Code clause 6.5.

1.25.14 Tolerance given above are specified for local aberration in the finished concrete surface and structure taken as a whole or for the setting and alignment of formwork, which should be as accurate as possible to the entire satisfaction of the Engineer.

## **1.26 Removal of Formwork**

1.26.1 The formwork shall be so removed as not to cause any damage to concrete. Centring shall be gradually and uniformly lowered in such a manner as to avoid any shock or vibration. Supports shall be removed in such a manner as to permit the concrete to take stresses due to its own weight uniformly and gradually.

1.26.2 The whole of the formwork removal should be planned and a definite scheme of operation worked out.



1.26.3 In no circumstances should forms be struck until the concrete reaches a strength of at least twice the stress to which the concrete may be subjected at the time of striking but not before the period as mentioned in IS: 456, where ordinary Portland cement is used.

1.26.4 Where possible the formwork should be left as long as it would assist curing. Form should be eased carefully in order to prevent the load being suddenly transferred in order to avoid shock or vibration. The Engineer shall be informed in advance by the Contractor of his intention of striking any formwork and the prior approval of Engineer shall be taken.

1.26.5 The guidelines as mentioned under in the IR Concrete Bridge Code vide clause 6.4 shall be followed to determine the time of removal of formwork:

a)	Walls, piers and abutment columns and vertical faces of structural members	48 hrs
b)	Soffits of slabs	14 days
c)	Soffits of beams	21 days

For other than OPC, the above time may be suitably modified. For Portland Pozzolana cement time will be 10/7 times the period stated above.

1.26.6 It shall be ensured that the marks of the joints between panels are not seen on the finished concrete surface. After manufacture and before fixing each formwork shall be got approved by the Engineer.

## 1.27 Discoloration

1.27.1 Formation of blotches and stains due to detachment of formwork panel from the concrete when adjacent portion in the same lift is still adhering shall not be allowed to occur, and for this purpose, all shutters shall be struck off at the same time.

## 1.28 Ties

1.28.1 Uses of ties shall be very much restricted, as far as practicable. Wherever ties are used they shall be used with HDPE sheathing so that the ties can be easily removed and no projecting parts prone to corrosion are left. The sheathing shall be grouted with cement mortar of the same strength as that of the structure. Formwork shall be supported without ties by propping against staging erected firmly for the purpose.

## 1.29 Clean up

1.29.1 After forms are stripped all materials to be reused shall be thoroughly cleaned. Holes bored by driving in common corks or formed plastics patching plaster may also be used to fill small holes. After cleaning and before re-fixing, formwork shall be got approved by the Engineer.

## 1.30 Number of uses of Formwork

1.30.1 Formwork and staging shall be so used so as to maintain quality of the exposed surface. However, if in the opinion of the Engineer, any particular panel/member has become unsatisfactory for use at any stage, the same will be rejected. However, the maximum number of uses for steel formwork shall be limited to 20 times.

## 1.31 Formwork for exposed concrete work

1.31.1 All exposed concrete surfaces are to have form finish and shall be cast in an approved formwork and shall be free of honeycombing, fins, projections and air holes.

1.31.2 The Contractor shall submit shuttering drawings and details of pattern and the method of forming joints in the exposed (form-finish) concrete to the Engineer for his approval and all changes and modification by the former and final approval thereof obtained, from the Engineer.

1.31.3 In all types of formwork to form finished exposed concrete, only non-staining mould oil supplied by an approved manufacturer shall be used.

1.31.4 The repetitive usage's of the same formwork to cast form finished exposed concrete shall be as decided by the Engineer and in no case the formwork not guaranteed to produce the required form finish to the satisfaction of the Engineer shall be used.

1.31.5 The exposed concrete shall have uniform finish. The finish of the concrete when shuttering and formwork are removed will generally be without any blemish and will not require touch up. Slight touch up for a small spot or two, if necessary, shall be carried out expertly so as to be harmonious with the entire surface.

### 1.32 Temporary Structures

1.32.1 Before start of work contractor should submit a detailed layout plan of Camp/Structure being created to facilitate completion of work to Engineer. The plan should be elaborate and along with design. This should include camp, casting yard, batching plant, temporary sheds and temporary bridges etc.

### 1.33 Setting out of Bridge

1.33.1 Set out for the bridge would be given by the contractor based upon reference points that would be established by them. Detailed Scheme of set out, establishment of reference points etc would however be submitted to Engineer for their approval.

1.33.2 Permanent pillars would be established which should facilitate easy checking of alignment/centre point/Level at each stage of work.

1.33.3 Maintaining correct line and level of all the Bridge would be responsibility of contractor not withstanding alignment/centerline/level are checked by Engineer at regular intervals.

1.33.4 Contractor should make available all necessary facilities namely instruments, labour etc. to Engineer/his representative to enable them check of alignment/center point/level at every stage.

# **EAST COAST RAILWAY CONSTRUCTION ORGANISATION**

## **Section – L**

### **SPECIAL CONDITIONS & GUIDE LINES FOR FABRICATION AND ERECTION OF STEEL GIRDER BRIDGES**

#### **1. Specification & Interpretation**

**1.1** This specification is intended mainly to cover technical provisions relating to fabrication and erection of steel girder bridges including supply of the materials through contract.

**1.2** This specification makes reference to the Indian Standard (IS), Indian Railway Standard (IRS), RDSO's Specifications (M&C) & RDSO Guidelines (BS).

**1.3** Wherever reference to the standards mentioned in clause i.e. IS, IRS & RDSO Specification, it shall be taken as a reference to the latest version of the standards.

**1.4** Any revision or addition or deletion of the provisions of this Specification shall be issued only through correction slip. No cognizance shall be given to any policy directives issued through other means.

#### **2. Responsibility for Completeness**

**2.1** The Contractor shall be entirely responsible for the execution of the contract in all respects in accordance with the terms of this Specification and the conditions of contract, notwithstanding any approval which the Engineer/Inspecting Officer may have given to the detailed drawings prepared by the Contractor or Sub-Contractor for materials or other parts of the work involved in the contract or for tests carried out, either by the Contractor or by the Engineer/Inspecting Officer.

**2.2** Any fitting, accessory or apparatus which may not have been mentioned in this Specification, but which are usual or necessary in the execution of such work, are to be provided by the Contractor without extra charge. The whole work must be completed in all details, whether mentioned in this Specification or not, with the exception of such work as has been specified in the Schedule of Requirements to be separately provided for by the Purchaser.

#### **3. Sub-letting of Work**

**3.1** Before ordering sub-letting of work, the Contractor shall submit the names of the Sub-Contractors proposed for the approval of the Engineer and shall afterwards send the Inspecting Officer a copy of the orders for the sub-letted work.

**3.1.1** The Contractor shall be responsible for all the sub-letted work. Such work shall be inspected and verified by the Inspecting Officer.

#### **4. Stacking Materials**

**4.1.1** On receipt of materials at the bridge yard they shall be carefully unloaded examined for defects, checked, sorted and stacked securely on a level bed out of danger from flood or tide and out of contact with water or ground moisture. All material shall be available for inspection by the Engineer or Inspecting Officer.

**4.1.2** Materials shall be verified with the markings shown on the marking plan of part list, which shall be supplied by the manufacturers or the Engineer.

**4.1.3** Any material found damaged during transit or while unloading should be stacked separately and damaged portions shall be indicated by paint with distinctive colour. All such materials shall be dealt with under the orders of the Engineer without delay. If any component after receipt at site, has in the opinion of the Engineer or Purchaser, been

damaged in transit, such component shall be replaced or repaired to the satisfaction of the Engineer or Purchaser free of cost.

**4.1.4** All such damaged material shall be dealt with as per the orders of the Engineer. Badly damaged portions may require replacement. Slightly distorted parts may be straightened by gradual pressure without heat or annealing. Badly distorted or broken parts must be dealt with as the case demands and as directed by the Engineer.

**4.1.5** Where the work has been passed in the manufacturer's works as strictly interchangeable, all members bearing the same marks can be stacked together without reference to any particular span.

**4.1.6** The Contractor shall unload the material promptly on delivery; otherwise he/she shall be responsible for demurrage charges.

**4.1.7** On receipt of rolled steel at workshop or fabrication yard they shall be carefully unloaded and stacked properly to avoid bending, twisting, corrosion etc.

## **5. Imported Material**

**5.1** In case of work fabricated in India, where any material or component is imported, such material or component will be inspected, if desired by the Contractor, Purchaser or Inspecting Officer, and passed in the country of origin before dispatch to India. In such cases the Contractor shall submit to the Inspecting Officer details on prescribed form in quadruplicate of the materials or components to be inspected together with the requisite number of copies of all necessary documents, to enable inspection to be carried out prior to dispatch. The cost of such inspection and supervision of tests in connection therewith will be borne by the Purchaser, the Sub-Contractor providing free of charge all material, labour and appliances for carrying out tests made in his/her works and any material which may be required for independent tests and analysis.

## **6. Leading to Site**

**6.1** Care must be taken by the Contractor to see that the parts at site are available in proper sequence.

## **7. Lines and Levels**

**7.1** All lines and levels should be given by the Engineer and all stakes and marks so given shall be carefully preserved by the Contractor who shall give all necessary assistance and facilities to establish or check the lines and levels and to measure the work.

## **8. Steel**

**8.1** IS:2062, Quality "A" Grade Designation E250 as rolled semi-killed or killed shall be used for foot-over bridges and other structures subjected to non-critical loading.

**8.2** IS:2062, Quality "B0" Grade Designation E250 fully killed and with normalizing/ normalizing rolling/ controlled rolling where service temperature does not fall below 0°C, shall be used for welded/riveted girders subjected to Railway loading. Plates less than 12mm thick need not be with normalizing/ normalizing rolling/ controlled rolling.

**8.3** IS:2062, Quality "C" Grade Designation E250 fully killed and with normalizing/ normalizing rolling/ controlled rolling ensuring impact properties at (-) 20° C shall be used for sub-zero temperature areas for welded/riveted girders subjected to Railway loading. Plates less than 12mm thick need not be with normalizing/ normalizing rolling/ controlled rolling.

NOTE: 1. In case Rolled Steel Section confirming to IS:2062 Quality "B0" or "C" are not available in market, CAO(C)/CBE may permit use of steel confirming to IS:2062 Quality



“BR” on case to case basis by satisfying himself about non availability of quality “B0” or “C”.

2. In case Rolled Steel Section confirming to IS:2062 Quality “BR” is also not available in market, CAO(C)/CBE may permit use of steel confirming to IS:2062 Quality “A” on case to case basis, by satisfying himself about non availability of quality “BR”.

**8.4** High tensile steel shall comply in all respects with the requirement of IS:2062 Grade Designation E 410 Quality B0 or C (copper bearing quality) for the welded work.

**8.5** For superior and enhanced corrosion resistance for sections, plates and bars for welded, rivetted or bolted construction, the material shall comply with the requirement of IRS:M-42, Gr I or Gr.II for rivetted/bolted or welded work respectively.

**8.6** Steel, which is to be cold pressed, shall comply with the requirements of IS:2002.

**8.7** Steel for bolts shall conform to property class 4.6 or 6.6 as specified in IS:1367 accordingly, as the structural steel specification is for mild steel or high tensile steel.

**8.8** Steel for drifts shall be in accordance with IS:1875 for forged quality steel or IS:7283 for hot rolled bars.

**8.9** Steel for rivets shall comply with the requirement of IS:1148 for hot rolled rivet bars for general structural purposes and IS:1149 for high tensile steel rivet bars for high strength structural purposes. For high strength low alloy structural steel rivet bars with enhanced corrosion resistance for use in bridges, steel shall comply with the requirement of IRS:M-43.

**8.10** The dimensions of all rolled sections must agree with the contract drawings or as agreed to between the Purchaser and the Contractor.

**8.11** The rolling and cutting tolerances shall be in accordance with IS:1852 or as agreed to between the Purchaser and the Contractor if closer tolerances are desired they shall be shown in the drawing.

**8.12** All the steel sections used in the fabrication must have mill test certificate clearly indicating the specification to which the steel conforms and whether steel is killed and normalized. All the cast mark numbers/ heat mark numbers, shall be recorded along-with the number of plates in a register as soon as the plates are received in the workshop. Whenever the steel is received without any test certificate, a sample test piece from plate of each cast mark number is to be cut and sent for testing. Only when it is established that the plates are of required specification, these shall be processed for cutting.

**8.13** Use of steel of any quality other than those mentioned above would require the prior approval of the Engineer.

## **9. Pins and Expansion Rollers**

**9.1** Pins and Expansion Rollers shall be made from steel conforming to IS:2004 (Class 3 steel).

**9.2** Expansion rollers may, alternatively be turned from approved carriage and wagon axles. Only axles manufactured after 1931 shall be used for the manufacture of rollers. USFD test shall be conducted to ensure freeness from internal flaw. Test pieces shall be left as an integral part of the roller with the stamp of the supplier on it so that the Accepting Authority can cut-off the test pieces and check if required.

## **10. Steel Castings**

**10.1** Steel casting shall comply with IS:1030 for normal temperature zone and to IS:4899 for use at low temperature zone.

## 11. Bronze Plates

**11.1** Bronze plates shall be of phosphor bronze complying with IS:1458 Class I.

## 12. Maintenance of Records by Fabricators

**12.1** The records of fabrication shall be maintained in the registers as per the formats given in the **Appendix I**.

## 13. Manufacture

**13.1** The whole work shall be representative of the highest class of workmanship. The greatest accuracy shall be observed in the design, manufacture and erection of every part of the work to ensure that all parts will fit accurately together on erection. For manufacture of the components of all spans to be made strictly interchangeable as specified in clause 33, approved set of same jigs and assembly fixtures shall be used. The tolerances in manufacture shall be in accordance with as shown in **Appendix II of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001**. The Contractor shall state which of the following alternative methods of manufacture he/she intends to adopt.

- i) The whole of work to be erected complete and pieces marked to place.
- ii) All spans to be made strictly interchangeable as specified in clause 33.

**13.2** The Contractor shall maintain a master steel tape of approved make for which he/she has obtained a certificate of accuracy from any National Test House or Government recognised institutions competent to do so.

## 14. Templates

**14.1** The templates throughout the work shall be of steel. The template shall be used for marking of cutting material and as well as profile machining for girders of railway loading. Templates shall be used for marking of drilling holes in steel structures other than girder of Railway loadings. In case where actual materials from a bridge have been used as templates for drilling similar pieces the Inspecting Officer will decide whether they are fit to be used as part of the finished structure.

## 15. Flattening and Straightening

**15.1** All steel materials, plates, bars and structural's shall have straight edges, flat surfaces and be free from twist. If necessary, they shall be cold straightened or flattened by pressure before being worked or assembled unless they are required to be of curvilinear form. Pressure applied for straightening or flattening shall be such as it would not injure the material and adjacent surfaces or edges shall be in close contact or at uniform distance throughout.

**15.2** Flattening and straightening under hot condition shall not be carried out unless authorized and approved by the Inspecting Officer.

## 16. Planning and Shearing

**16.1** Except where otherwise indicated, cutting of all plates and sections shall be affected by shearing or sawing. All edges shall be clean, reasonably square and true. Wherever possible the edges shall be cut in a shearing machine, which will take the whole length of the plate in one cut.

**16.2** Should the inspection find it necessary; the cut edges shall be ground afterwards.

**16.3** Planning or machining of the edges or surface shall be carried out when so specified in the contract drawings or where specifically ordered by the Engineer. Where machining is specified, the plates or all sections shall be cut in the first instance to such a size so as

to permit not less than 3mm of metal being removed from each sheared edge or end, in the case of plates or sections of 12mm or less in thickness and not less than 6mm of metal being removed in the case of plates and sections exceeding 12mm in thickness.

**16.4** The butting ends of all booms and struts where spliced shall be faced in an end milling machine after members have been completely fabricated. In the case of compression members, the face shall be machined so that the faces are at right angle to the axis of the members and the joint when made, will be in close contact throughout. At the discretion of the Inspecting Officer, a tolerance of 0.4mm may be permitted at isolated places on the butting line.

## **17. Flame Cutting**

**17.1** Flame cutting by mechanically controlled torch/torches shall be accepted both in the case of mild steel and high tensile steelwork. Provided the edge as given by the torch is reasonably clean and straight, plates may be cut to shape and beams and other sections cut to length with a gas cutting torch, preferably oxyacetylene gas should be used.

**17.2** All flame cut edges shall be ground to obtain reasonably clean square and true edges. Draglines produced by flame cut should be removed.

**17.3** Unless machining has been specifically provided for, special care is to be taken to ensure that ends of all plates and members are reasonably in close contact and the faces are at right angles to the axis of the members and joints, when made, are also reasonably in close contact.

**17.4** Use of multi-head flame cutting machine having multiple oxy acetylene torches is desirable for higher productivity and reducing the distortion due to cutting operation. Plasma-arc cutting method can also be employed. This process offers less heat input causing less distortion.

## **18. Drilling and Sub-punching**

**18.1** All holes shall be drilled but the Contractor may, if he/she so prefers sub-punch them to a diameter 6mm less than that of finished holes, e.g. a punched hole which is to be drilled out to 25mm in diameter shall not exceed 19mm in diameter at the die end. When the rivet holes are to be sub-punched, they shall be marked with a centre punch and made with a nipple punch or preferably, shall be punched in a machine in which the position of the hole is automatically regulated. The punching shall be so accurate that when the work has been put together before drilling, a gauge 1.5mm less in diameter than the size of the punched holes can be passed easily through all the holes. Holes for countersunk heads of rivets, bolts or screws shall be drilled to the correct profile so as to keep the heads flush with the surface. Holes for countersunk heads of rivets, bolts or screws shall be drilled to the correct profile so as to keep the heads flush with the surface.

**18.2** No sub-punching shall be allowed in the main truss members of open-web girders.

**18.3** Holes for turned bolts should be 1mm under drilled in shop and should be reamed at site to suit the diameter of turned bolt.

**18.4** Where the number of thicknesses to be riveted exceeds three or the total thickness is 90mm or more, the rivet holes, unless they have been drilled through steel-bushed jigs, shall be drilled out in place 3mm all round, after assembling. In such cases the work shall be thoroughly bolted together.

**18.5** The steel bushes shall be case hardened by an approved process and checked for diameter after the heat-treatment. The bores of bushes shall initially have a tolerance of -0mm, 0.1mm. The tolerance shall be checked from time to time and when the bores exceed a tolerance of, -0mm, +0.4mm, the bushes shall be rejected. For this purpose, go

and no-go gauges are to be used. Tolerances for checking jigs from master plates shall be +0mm-0.13mm.

**18.6** The work shall be taken apart after drilling and all burrs left by the drill and the sharp edges of all the rivet holes completely removed.

## **19. Parts in Contact**

**19.1** All steel work intended to be riveted or bolted together shall be in contact over the whole surface.

**19.2** Drifts as shown in **Fig. 2 of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001** may be used for drawing light members into position but their use on heavy members should be restricted to securing them in their correct positions. In no case, shall drifting be allowed to such an extent that holes are distorted.

**19.3** Drifting to enlarge un faired holes is prohibited. The holes that will have to be enlarged to admit rivets should be reamed provided the Engineer permits such reaming after satisfying himself about the extent of inaccuracy and the effect of reaming on the soundness of the structure. The Purchaser retains the right to reject all steel work if the holes are not properly matched.

## **20. Making of Joints**

**20.1** Cleaning of permanent contact surfaces: - Surfaces which will have permanent contact shall be removed of paints and mill scale down to bare metal, clean and dried and immediately a coating of zinc chrome red oxide priming to IS:2074 shall be applied. Care shall be taken to see that all burrs are removed and no surface defects exist before the parts are assembled.

**20.2** Bolting and Drifting: - Only barrel drifts as per **Fig. 2 of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001** shall be used in erection. They may be used for drawing light members into position; but their use on heavy members shall be restricted to securing them in their correct position. Any apparent error in shop work, which prevents the assembling and fitting up of the parts by the proper use of these drifts, shall be investigated immediately. As all work is rigidly inspected in the manufacturers work before dispatch, these difficulties should not arise and the cause should be first be sought in the use of incorrect components or the transposition of a correct part. It is usually important that parts should be correctly handled. Should error still persist, the matter shall be immediately reported to the Engineer who will decide what action is to be taken. No reaming shall be undertaken without the written authority of the Engineer, except for the under drilled holes meant for turned bolts. If approved, the Contractor shall supply, at his/her own expense, any special rivets that maybe required. Copies of all correspondence relative to the recourse to reaming and the use of over-size rivets shall invariably be sent by the Engineer for information to the inspectorate concerned.

**20.3** Joints shall normally be made by filling not less than 50% of the holes with service bolts and barrel drifts in the ratio of four to one. The service bolts are to be fully tightened up as soon as the joint is assembled.

**20.4** Special methods of erection other than described in **Appendix III of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001**. In cases where the joints have to withstand stresses arising from special method of erection, provision is to be made to take the whole stress that will or may occur. Cylindrical drifts and turned bolts shall be used to withstand such stresses and no reliance is to be placed on the service bolts for this purpose. Up to maximum of 40% of the holes of each member of the joint are to be filled with drifts and balance of strength required is to be



attained with turn bolts. The position and number of the drifts and bolts will be intimated by the Engineer. The condition of clause 20.1 must be observed and the bolt fully tightened up as soon as the joint is made.

**20.5** Where the manufacturing of girders has been done in accordance with clause 33 relating to steel girder bridges, the erection shall be done in accordance with **Appendix III of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001**. However, if the Contractor desires to adopt any other method of erection, he/she shall submit the scheme and obtain the approval of the Engineer. It shall be ensured that when in position, the girder has the camber as per drawing.

**20.6** Emergency Jointing: - In the event of an emergency arising such as the staging is in danger of being carried away by floods before the riveting can be completed, the joints shall be made secure by filling 40% of the holes with cylindrical drifts and equal number with service bolts fully tightened.

## **21. Erection and Equipment**

**21.1** The Contractor shall provide at his/her own cost all tools, machinery, equipment and erection material necessary for the expeditious execution of the work and shall erect the structural steel and iron work, in every respect as covered by the contract and in accordance with the drawings and specifications.

**21.2** If any labour, material, plant staging haulage and storage facilities are to be provided by the Purchaser, details of such items and the conditions under which these are to be supplied shall be clearly specified in the contract agreements. In the absence of any such provisions in the agreement, the Contractor shall make his/her own arrangement for such items.

**21.3** Before starting the work, the Contractor shall advise the Engineer fully as to the method he/she proposes to follow and the amount and character of equipment he/she proposes to use, which shall be subjected to the approval of the Engineer. The approval of the Engineer shall not be considered as relieving the Contractor of the responsibility for the safety of his/her method or equipment or from carrying the work in full accordance with the drawings and specifications.

**21.4** All temporary work shall be properly designed and substantially constructed for the loads, which it will be called upon to support. Adequate allowance and provision of a lateral forces and wind loads shall be made according to local conditions and ensure that support shall not settle during erection.

**21.5** Careful and periodical inspection of plants shall be made by the Contractor to ensure that all tackle, ropes, chains and other important lifting gear and machinery are in good order and fit for service and well up to the capacity for which they are required.

**21.6** When chains are used for lashing, care must be taken to protect the edges of members to avoid the marking and distortion otherwise caused.

**21.7** Span erected upon staging shall be supported upon suitable blocks, which shall ensure that the girders shall be at the correct elevation and alignment when completed. If other methods of erection be adopted where staging in situ is not employed, special means shall be used to ensure this.

**21.8** The method used for lifting and slinging flexible members shall be brought to the notice of the Engineer and shall be subject to his/her approval.

**21.9** Temporary bracing shall be provided to take care of stresses from erection equipment or other loads carried during erection.

## 22. Bearings and Anchorages

**22.1** Bed plates shall be set to required level and fixed accurately in position by giving full and even bearing by setting them on a layer of cement sand and cast iron chips as approved and directed by the Engineer.

**22.2** The Contractor shall drill the holes where necessary and set the anchor bolts. The bolts shall be set accurately and fixed with cement grout or any other grouting material as approved by the Engineer completely filling the holes.

## 23. Rivets and Riveting

**23.1** The dimensions on the drawings referred to the diameters of the rivet holes and their finished rivets. The rivet holes shall be 1.5 mm greater than the diameter of the rivet bars used. The rivets shall be made to IS:1929. The shanks of the undriven rivets shall be made of a length sufficient to fill the holes thoroughly and form the head. The clearance i.e. the difference in diameter between the rivets measured under head before being heated and the rivet hole shall not be less than 0.75mm. Before riveting is commenced, all works shall be properly bolted so that the sections rivetted are in close contact throughout. Rivets shall completely fill the holes and shall be machine driven by means of pressure or percussion riveters of approved design.

**23.2** All rivets shall be properly heated to straw heat for the full length of the shank, firmly backed and closed. The head of the rivet, particularly in long rivets, shall be heated more than the point and in no case shall the point be heated, more than the head. Sparking or burnt rivets shall not be used. Where it is impossible to back up by normal method of holding up, 'double gunning' may be resorted to. Alternatively, pneumatic holding device may be used.

**23.3** Gauges for rivet dimensions and contours shall be provided by the Contractor for the use of the Inspecting Officer.

**23.4** Rivets when driven shall completely fill the holes, have the heads concentric with the shanks and shall be in full contact with the surface. Driven rivets when struck sharply on the head with the 110-gm. rivet testing hammer, shall be free from movement or vibration.

**23.5** While riveting built-up member's great care should be exercised to ensure that the set of holes for field rivets in each flange of the built-up member, is aligned dead-square in relation to that in the other flange and not 'aborted'. Use of assembly fixtures shall be made to ensure this.

**23.6** All loose and burnt rivets and rivets with cracks badly formed, eccentric or deficient heads shall be cut out and replaced. Permissible deviation of driven rivets shall be as per **Appendix IV of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001**. Rivets shall also be cut out when required for the examination of the work. Actual method of cutting out shall be approved by the Engineer. Recouping and caulking shall in no circumstances be resorted to.

**23.7** Riveting shall not be started until such time as the Engineer has personally satisfied himself that the alignment of the girders is correct, the verticals plumb laterally, the camber according to that shown on the camber diagram with camber jacks screwed tight, all the joints and cover plates well up, service bolts tight and field rivet holes coinciding. Special care should be taken that service bolts are frequently re-tightened as the riveting proceeds.

**23.8** All field rivets shall be tested as directed by the Engineer.

**23.9** Where practicable all riveting shall be done by pneumatic or hydraulic riveting machine. The working pressure to be employed when using pneumatic or hydraulic tools shall be approved by the Engineer. Hand riveting shall only be done when sanctioned by the Engineer. In such cases, means shall be adopted to ensure the rivets being used in their entire length so as to fill the rivet holes completely, the snap being used only to give the correct form of head.

**23.10** When all the rivets of joints have been finally passed, they shall be painted as under.

a) one coat of ready mixed zinc chrome primer to IS:104 followed by one coat of ready mixed paint red oxide zinc chrome primer to IS:2074

b) Finishing coat as per clause 39

#### **24. Field Rivets, Bolts, HSFG Bolts, Nuts and Service Accessories**

**24.1** The work is to include supply of all units, bolts, HSFG Bolts, nuts, washers etc. required to complete erection at site with an allowance for wastage etc. of 12.5% of the net number of field rivets, bolts and washers required subject to a minimum number of five in each item.

**24.2** The Contractor shall be responsible for supplying site rivets/ HSFG Bolts of approved length. The length of such rivets/HSFG bolts shall be verified by snapping a few rivets/ HSFG bolts of each length in the presence of the Inspecting Officer. In the case of rivets with long grips (with grip exceeding 6 times the diameter) specimen rivets on the test piece shall be cut to see if the holes are totally filled even though the rivets are tight under the usual hammer tests.

**24.3** Black hexagonal bolts (Service bolts) with nuts and ordinary platter's washers and drifts for use in the erection of the work shall also be supplied at 60% (45% bolts and 15% drifts) of the number of field rivets per span in each size (this includes wastage). The Purchaser may however, specify a reduction in the quantities of service bolts etc. if more than one span of each type is ordered.

#### **25. Smithed Work**

**25.1** All joggles shall be performed by pressure. Craned sections or knees can be formed by forging or by gas cutting and welding by any approved electric arc process. Any bending, forging, cutting or welding shall be carried out in such a manner as not to impair the strength in the metal. Forging shall be annealed as indicated in the drawing.

**25.2** If drop forging through dies is resorted to, excessive forging in one operation shall be avoided. Where necessary, a series of intermediate stage dies shall be manufactured and used.

#### **26. Welding**

**26.1** Welded construction work shall be carried out generally in accordance with the provisions of Indian Railway Standard Welded Bridge Code and subject to further specifications given in the following paragraphs.

**26.2** All welds should be done by submerged-arc welding process either fully automatic or semi-automatic. Carbon di oxide welding or manual metal-arc welding may be done only for welds of very short runs or of minor importance or where access of the locations of weld do not permit automatic or semi-automatic welding.

**26.3** Except for special types of edge preparation, such as single and double 'U' single and double 'J' the fusion edges of all the plates which are to be joined by welding may be prepared by using mechanically controlled automatic flame cutting equipment and then

ground to a smooth finish. Special edge preparation should be made by machining or gouging.

**26.4** Welding procedures: - The welding procedure shall be such as to avoid distortion and minimise residual shrinkage stresses. Properly designed jigs should be used for assembly. The welding techniques and sequence, quality, size of electrodes, voltage and current required shall be as prescribed by manufacturers of the material and welding equipment. The Contractor should submit full details of welding procedure in proforma given at **Appendix V of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001.**

**26.5** Site welding should not be undertaken except in special circumstances with the approval of the Chief Bridge Engineer. Site welding should be confined to connections having low stresses, secondary members, bracings etc.

**26.6** Manual metal arc welding may be done taking adequate precautions as per IS:9595 and under strict supervision.

## **27. Sequence of Welding and Weld Pass**

**27.1** For fabrication of welded composite girders, channel shear connectors shall be welded on top flange plate prior to assembly of I-section. This facilitates correction of any distortion of flange plate developed during the welding of channel shear connectors.

**27.2** In making a typical I-section four fillet welds are to be made. The welding sequence to be followed is indicated by number 1 to 4 as shown in the **Fig. 3 of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001.**

**27.3** Whenever a square butt weld in a 10 or 12mm thick plate is required to be made, the sequence to be adopted is shown in **Fig. 3 of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001.**

## **28. Bolts, Nuts and Washers**

**28.1** Bolts, Nuts and Washers shall be in accordance with the following specifications: -

- (i) Black hexagonal bolts to IS:6639 and Nuts to IS:1363.
- (ii) Precision and turned bolts with nuts and hexagonal screws to IS:1364.
- (iii) Plain washers to IS:2016 and IS:5369.
- (iv) Spring washers - IS:3063.
- (v) Taper washers - IS:5372 and IS:5374.

**28.2** Manufacture, workmanship, Marking, packing etc. for Bolts and Nuts shall comply with the requirements of IS:1367.

**28.3** Where the head and nuts bear on timber, square washers having the length of each side not less than three diameters of the bolt and the thickness not less than one quarter of the diameter shall be provided. Steel, wrought iron or malleable cast iron taper washers shall also be provided for all heads and nuts bearing on beveled surfaces.

**28.4** For black bolts a clearance (difference in diameter) of 1.5mm for all sizes of bolts shall be allowed.

**28.5** Where turned bolts are required they shall be carefully turned and shall be parallel throughout the barrel. Holes for turned bolts should be 1mm under drilled in shop and should be reamed at site to suit the diameter of the turned bolts.

**28.6** The following limits of tolerances, shall be permitted upon the diameter of the shank of turned bolts and of the holes which they are to fit:



Limit of tolerance	Shank of bolt(mm)	Hole(mm)
High	0.000	+0.125
Low	- 0.125	0.000

**28.7** The shank of each turned bolt shall be of such a length that it is in full contact with the work, throughout, the screwed portion being made at least 1.5mm less in diameter than the shank or to suit the next smaller size of screw thread. The shank portion shall be joined to the threaded portion by a 45° chamfer within the thickness of the washer. Washers with perfectly flat faces should be provided with all turned bolts.

**28.8** The washers under the nut shall have a hole of 1.5mm larger in diameter than the shank of the bolt and shall have a thickness of not less than 6mm so that the nut, when screwed up, shall not bear on the shoulder of the bolt.

### **28.9 Supply of High Strength Friction Grip (HSFG) Bolts**

#### **28.9.1 Reference Codes:**

- (i) IS 1367 (Part 6) – 1994 (reaffirmed 2004) – Mechanical Properties and test methods for nuts with specified proof loads
- (ii) IS 1367 (Part 8): 2002 – Prevailing Torque Type Steel Hexagon Nuts – Mechanical and Performance Properties.
- (iii) IS 1367 (Part XII):1983(reaffirmed 2001) – Phosphate Coatings for Threaded Fasteners.
- (iv) IS 3757 – 1985 (reaffirmed 2003) – Specifications for High Strength Structural Bolts.
- (v) IS 4000: 1992 – High Strength Bolts in Steel Structures – Code of Practice.
- (vi) IS 6623:2004 - High Strength Structural Nuts - Specifications
- (vii) IS 6649:1985 - Specification for Hardened and Tempered Washers for High Strength Structural Bolts and Nuts.

**28.9.2 Hierarchy of Codes:** The hierarchy of codes shall be as follows:

- (i) Provisions of IRS codes.
- (ii) Where IRS codes are silent, relevant IS codes.
- (iii) Where both IRS and IS codes are silent, relevant EN codes.

**28.9.3 Definition:** HSFG bolts are high strength structural bolts which have been tightened such as to induce predefined tension in the bolt shank. Provisions in this code apply to non – galvanized Bolts of dia. M12 to M36 only.

**28.9.4 Types of Bolts:** For the purpose of HSFG connections, only high strength structural bolts of two property classes: 8.8 and 10.9 can be used. Bolts shall conform to IS 3757. The bolts shall have the following characteristics

- (i) **Identification:** The property class of bolts (8.8 or 10.9) shall be embossed or indented as 8S or 10S respectively on the top of head along with the manufacturer's identification symbol. Alternately, marking '8.8 S' or '10.9 S' are also acceptable. The suffix 'S' here denotes that the bolt is high strength structural bolt with a large series hexagon.
- (ii) **Length:** The length of bolt shall be chosen such as to hold the steel members in position, with provision for the nut, washer(s) and some projection beyond the bolt. Along with the overall length of the bolt, the thread length has to be specified. At least 4 full

threads shall remain clear between the bearing surface of the nut and unthreaded part of the shank. Further, minimum one full thread pitch must protrude from the nut after tightening.

(iii) The minimum length of bolt shall be worked out on the basis of maximum grip length (covering ply thicknesses and all washers) plus an additional allowance as per table 1 of IS:4000.

(iv) Maximum grip length of all plies, including packings and packing washers, shall not exceed 10 times the nominal diameter of the bolt.

(v) **Surface Finish:** All bolts shall be supplied with coating consisting of zinc phosphate that is used in conjunction with suitable oil of rust preventive type as per IS 1367 (Part XII).

**28.9.5 Nut:** Each bolt shall be tightened using a high strength nut, conforming to IS 6623. The nut has to be strong enough to be able to impart the necessary torque to the bolt and also withstand the force during the life of the structure. Further, the threads in nut shall be matching with the threads in the HSFG bolt and the nut shall be free running on the threads of the HSFG bolts. Nuts shall have following characteristics:

(i) **Property Class:** For HSFG bolts, the property classes to be used are 8 and 10 as specified in IS 1367 (Part 6), suitable for bolts of property class 8.8 and 10.9 respectively. Normal height of nut shall be more than 0.8 times the nominal bolt diameter.

(ii) **Identification of Nut:** The nuts have the following markings:

(a) Manufacturer's identification symbol.

(b) Property class, marked as '8S' or '10S'. (The suffix 'S' denotes a high strength structural nut with a large series hexagon.) Alternately, '8.8 S' or '10.9 S' are also acceptable. The marking shall be either on the top or the bottom face of double chamfered nuts and shall be either indented or embossed on non-bearing surface of washer faced nuts.

(iii) **Surface of Nut:** All nuts shall be supplied with coating consisting of zinc phosphate that is used in conjunction with suitable oil of rust preventive type as per IS:1367 (Part XII).

(iv) **Position of nut in bolt:** Nuts shall be provided in bolts preferably as follows:

(a) **In girder web:** Towards outside of the girder.

(b) **In flanges:** Towards bottom (Except when in composite construction).

(c) **In composite construction:** Towards inside of concrete.

(d) **In bracing:** Towards the rolled section side so that the space for rotation of the nut is not readily available.

(e) Where **Tapered washer** is used, the nut shall preferably be on the other side.

**28.9.6 Washer:** Annular rings which are provided between the bolt head/ nut and the members being joined are called washers. Washers for HSFG bolts shall conform to IS 6649. The washers have the following characteristics:

(i) **Types:** Three types of washers have been specified in IS 6649, clause 2:

a) Type A: Plain hole circular washers.

b) Type B: Square taper washers for use with channels (60 taper)

c) Type C: Square taper washers for use with I-beams (80 taper)

**Identification:** Type A washers shall be identified by provision of two nibs (small projections) and manufacturer's identification symbol in indented character. The type B

and C washers shall be identified by the type identification symbol, B or C and the manufacturer's identification symbol.

**(ii) Categories of washers:**

a) **Plain washer:** Plain washers are used as per provisions of clause 28.10.2 where other types of washers are not suitable. HSFG bolts shall be provided with minimum one washer.

b) **Packing washers:** If the bolt is longer than required, plain washers may be used as packing washers also. **However, the maximum number of packing washers shall be limited to 3, with maximum total combined thickness of 12 mm.**

c) **Tapered Washer:** Where the angle between the axis of bolt and the joint surface is more than 3 degree off normal, a tapered washer shall be used against the tapered surface. Non-rotating surface shall preferably be placed against tapered washer.

d) **Direct Tension Indicators (DTI):** The Direct Tension Indicators are special type of washers with projections which get pressed when tension is applied. The pressing of projections to required level indicates that the required tension has been applied in the bolts. DTIs have multiple projections, between which the feeler gauge is to be inserted to check if the bolt has been sufficiently tightened or not. The projections shall be kept in the direction of nut/head of bolt and not towards member.

(iii) **Calibration of Direct Tension Indicator:** Before the DTI are brought to site, the same shall be tested in the presence of engineer. Three nos. bolts of similar diameter and property class as to be used in the work shall be taken and installed with DTI. The installation procedure to be followed shall be similar to the one given for plain washers. On full tightening, the projections on DTI washers shall meet the requirements of checks specified after second stage tightening using DTIs. Alternately, calibrated load cells may be used to check the calibration of DTI washer. **Only the DTIs which satisfy the calibration shall be brought to site for work.**

(iv) **Surface Finish:** All washers (except Direct Tension Indicators i.e. DTIs which may have any surface finish, as specified by manufacturer, with condition that the surface finish shall be compatible with the metallurgy of the steel structure and the HSFG bolt/ nut) shall be supplied with coating consisting of zinc phosphate that is used in conjunction with suitable oil of rust preventive type as per IS 1367 (Part XII).

## **28.10 Fabrication and Assembly of High Strength Friction Grip (HSFG) Bolts**

28.10.1 **Holes for HSFG Bolts:** Normal holes in the steel members being connected by the rivets shall be used for HSFG bolts also, subject to the following:

(a) **Making of holes:** The holes shall be made by drilling only.

(b) **Nominal Diameter of Hole:** The nominal diameter of hole shall be 1.5 mm more than the bolt diameter for less than 25mm bolt and 2mm more than the nominal diameter of the HSFG bolt for larger diameters.

(c) **Oversize Holes:** In case the bolts are to be provided in existing structure, the maximum size of hole shall not exceed  $1.25 d$  or  $d + 4 \text{ mm}$  whichever is less.

### **28.10.2 Number of washers and their fixing:**

(i) DTIs are very good method of ensuring that the bolts are tightened properly, and this method of tightening shall be preferred over the method with plain washers. Hence DTI washers shall be preferably used. If there is some problem with availability of DTIs, plain washers may be used for installation of HSFG bolts after approval of SAG officer in-charge of the work.

(ii) The DTIs used shall be the ones which are compatible metallurgically and also suitable for the bolts of property class 8.8 and 10.9. Suitable markings identifying the bolt manufacturer, property class of DTI and its diameter shall be engraved suitably on the DTI.

**(iii) Number of washers to be provided:**

(a) Two washers shall be provided, one against head and one against the nut.

**(b) One DTI shall be used in one bolt.** In case DTI is being provided, the same will count as one washer i.e., one DTI and one plain washer shall be provided.

(c) DTIs shall normally be provided below the head of the bolt (with projections towards bolt head) in case nut is rotated. In case the bolt is to be rotated, DTI shall normally be provided under nut (with projections towards nut). In case other side is not accessible for measuring projection gap in DTI, the DTI may be provided under nut which is being rotated. In this case, an additional washer shall be provided on the DTI side to protect the projections from damage due to the abrasion during bolt tightening.

**28.10.3 Surface preparation for steel interface before providing HSFG bolts:**

The steel interface between the plies which form a joint having HSFG bolts shall have special surface preparation so that sufficient slip factor is available. The surface preparation shall be as assumed by designer in design, based on slip factor specified in Table XIII of Steel Bridge Code. The following surface preparation are recommended:

(i). **New construction:** The interface between the plies which are connected together by the HSFG bolts shall be "Aluminium metallised without any over coating". The aluminium metalizing shall be as per para 39.2.1

(ii). **Existing structures:** The interface of plies which are to be included in the HSFG bolts shall be cleaned by wire brushing/ flame cleaning equivalent to the surface specified in IRBM para 217, 1 (b), (i) to (iv). The surfaces shall be cleaned to remove all loose rust and paint layers (Only isolated patches of coatings/ rust can remain). If, however, in existing structures, rivets are to be replaced by bolts but no surface preparation is possible, the slip factor shall be suitably reduced as per Table XIII of Steel Bridge Code.

**28.10.4 Personnel for Tightening:** The tightening of HSFG bolts is a technical procedure. Only trained personnel who understand the procedure shall carry out the installation of HSFG bolts. Before any person is deployed for installation, his knowledge of the procedure for tightening shall be checked and if found satisfactory, a competency certificate shall be issued by an engineer not below the rank of ADEN or equivalent. The competency certificate once issued shall be valid for six months. Any person deployed for installation of HSFG bolts must possess a valid competency certificate.

**28.10.5 Procedure for tightening:** Bolts shall be tightened so as to impart bolt tension as specified in para 7.12.6 of IRS Code of Practice for The Design of Steel or Wrought Iron Bridges carrying Rail, Road or Pedestrian Traffic. The following steps shall be followed for tightening of bolts:

(i) The holes shall be brought in alignment by using drifts etc. such that the bolt threads are not damaged during insertion of bolts. Drifting shall not distort the metal or enlarge the holes.

(ii) The members being joined shall be held in position by insertion of few HSFG bolts (tightened to first stage (as defined in para 28.10.5) only). These bolts shall not be tightened to second stage as defined in para 28.10.5 till all the bolts in a joint are inserted and tightened to first stage.



(iii) After the alignment/ geometry of members is verified to be correct as per drawings, balance bolts shall be inserted and tightened up to first stage of tightening. The drifts inserted as above shall also be replaced by HSFG bolts one by one.

(iv) **Clearance between plies:** The final tightening shall not proceed until the gap between the plates has been closed. Residual gap, if any, shall be less than 2 mm at edges. There shall, however, be no gap in the central portion. In case the central portion is not in close contact or gap at edges is more than 2 mm, straightening of members may be done after opening out the bolts inserted and the entire procedure i) to iii) above shall be repeated.

(v) **Sequence of tightening:** During tightening of bolts also, the steel members can continue to deform and hence the tightening of subsequent bolts can lead to loosening of already tightened bolts. In order to minimize the loosening of already tight bolts, tightening in the two stages shall be done starting from the stiffest part to the free edges. Stiffest parts of joint are generally towards the centre of the joint.

#### 28.10.6 Procedure for Installation of HSFG Bolts Using Direct Tension Indicator:

The tightening is done in two stages so that the bolts already tightened do not get loose when the subsequent bolts are tightened. The procedure shall be as follows:

(a) **First Stage of Tightening:** As a first stage, all bolts in the joint shall be tightened to 'snug tight' condition in proper sequence for tightening. Snug tight condition means the nut is tightened using an ordinary wrench by an average worker, applying maximum force on the wrench. This stage is required to bring the plies in close contact.

(b) **Checks after First stage tightening:** After first stage of tightening, the joint shall be checked to see if the plies are in close contact and the clearances are not exceeded.

(c) **Second Stage of Tightening:** During the second stage of tightening, torque wrench is used to tighten the bolts until the indentations on the DTI indicate full tightening. The bolts shall be tightened in proper sequence of tightening.

(d) **Checks after Second stage tightening:** 0.40 mm thick feeler gauge shall be used to check 100% of the bolts for proper tightening. If 0.40 mm thick feeler gauge cannot be inserted in the space between indicator positions on a DTI, it is called a 'refusal'. If a 0.10 mm thick feeler gauge cannot be inserted in the space between indicator positions on a DTI, it is called 'full compression of the indicator'. The joint/bolts shall be said to be properly tightened if the following condition is met with:

Number of indicators positions in DTI washer	Minimum number of feeler gauge refusals*
4	3
5	3
6	4
7	4
8	5
9	5
*No more than 10% of the indicators in a connection bolt group shall exhibit full compression of the indicator.	

**28.10.7 Procedure for Installation of HSFG Bolts without DTI washers:** The tightening shall be done in two stages so that the bolts already tightened do not get loose when the subsequent bolts are tightened.

i. **First Stage Tightening:** In the first stage, a calibrated wrench with an accuracy of  $\pm 10\%$  shall be set to 75% of the torque computed for the complete tightening of the bolt. The torque computed shall be as per manufacturer recommendation, duly certified to impart

the bolt tension specified in para 7.12.6 of IRS Steel Bridge Code. All the bolts in the joint shall be tightened to this torque in proper sequence for tightening. After checking all bolts after the first stage, permanent marks shall be made with suitable marker on the bolt as well as nut steel member to indicate the relative position of the two. The mark shall be such that the same shall be visible for inspection up to 1 year after the date of installation.

ii. **Checks after first stage:** After the first stage of tightening, following shall be checked:

a) The steel members that make up the plies of the joint with HSFG bolts shall be checked for proper contact as specified in para 28.10.4 (iv).

b) 10% bolts, subject to minimum 2 per joint shall be tried to be rotated with a separate calibrated torque wrench set at 75% of the proof load for the bolt. Any bolt turning by more than 150 during the check shall be rejected. If the improperly tightened bolts thus found are more than 5 but less than 1% of the total, another 10% of the bolts shall be checked. If the total improperly tightened bolts thus found exceed 1% of the total, the tightening procedure and personnel involved shall be reviewed, the torque wrench used for tightening shall be calibrated afresh and the entire lot shall be checked for tightness.

iii. **Second Stage Tightening:** The bolts tightened to first stage shall be turned by a further amount in proper sequence of tightening as specified below:

Total nominal thickness “t” of parts to be connected (including all packing and washers), d = dia of bolt	Further rotation to be applied, during the second stage of tightening	
	Degrees	Part turns
$t < 2d$	60	1/6
$2d \leq t < 6d$	90	1/4
$6d \leq t \leq 10d$	120	1/3

iv. **Checks after second stage tightening:** After the second stage of tightening, following shall be checked:

a) 100% bolts shall be checked and certified to have been turned through the requisite amount by verifying the permanent marks on the bolt and the nut/steel member.

b) 1% of the bolts, subject to minimum of 10 per size of bolts shall be checked for gross under-tightening as per procedure given in Annexure D of IS 4000.

**28.10.8(i) Painting during initial installation:** In case of HSFG bolts with “Direct Tension Indicating” device, the final coat in field applied on complete structure may be applied on HSFG bolts also. In case part turn method of tensioning is used without “Direct Tension Indicating” device, the HSFG bolts shall not be painted and the permanent location marks made on the bolts shall be visible after 1 year of installation.

**28.10.8(ii) Painting in service:** HSFG bolts shall be painted as per normal painting schedules and painting methodologies as specified in the Indian Railways Bridge Manual for the girder as a whole.

#### 28.10.9 Retensioning of bolts:

i. The HSFG bolts are tightened beyond yield stress level and undergo plastic deformation once tightened fully. If the bolt is opened out after complete tightening, its length gets increased permanently as compared with the initial length. The initial few threads which transfer the load from the nut to the bolt suffer the maximum damage. **Therefore, a bolt completely tightened shall not be reused under any circumstances.**

ii. A bolt which has been snug tightened or partially tightened (tightened to first stage of tightening) and then opened out will not be considered to have been fully tensioned and reuse of such bolt will be permissible in the same or different hole, as required.

28.10.10 Specifications of torque wrench: Except for works of minor nature where number of HSFG bolts to be installed is very less, only mechanical torque wrenches (pneumatic, hydraulic, electronic etc.) shall be used for tightening of bolts. For small quantum of work, manual torque wrenches may be used with permission of site-in-charge.

28.10.11 Calibration of torque wrench: Calibrated torque wrenches, accompanied with a certificate to the effect, shall be brought to site. Torque wrenches shall be calibrated periodically at least once in a year to an accuracy of  $\pm 10\%$ . These shall be recalibrated in case of any incidence involving the wrench during use resulting in heavy impact (such as fall, mishandling etc.) or if the joint is found to have been improperly tightened using the same. The procedure for calibration of torque wrench shall be as specified by the manufacturer.

## **29. Connecting Pins**

**29.1** All connecting pins shall be finished accurately to gauge and parallel throughout, straight and with smooth surface entirely free from flaws and of sufficient length to ensure that all parts connected thereby shall have a full bearing on the pin. They shall be turned to a smaller diameter at the end for the thread and driven to place with a pilot nut, where necessary to preserve the thread.

## **30. Pin Holes**

**30.1** Pinholes shall be bored smooth straight and true to gauge and at right angles to the axis of the member. Boring shall only be done after the member has been rivetted up and the diameter of the pin shall not be less than that of the hole by more than 0.5mm.

## **31. Bearing and Expansion Gear**

**31.1** All steel bed and bearing plates or plates over saddle castings, shall be made perfectly level and all rivet heads on their bearing surfaces shall countersunk and dressed flush.

**31.2** The saddles, knuckle-bearers and roller bed-plates shall be planed on all bearing surfaces and elsewhere as indicated on the Contract Drawings and all bolt-holes shall be drilled. The bottom edge of ribs should be machined and welded to the bottom slabs after which the top edges of the ribs should be machined as a whole and the top plate welded. Subsequently the top and bottom surfaces should be machined to the specified tolerances as given in **Appendix VI of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001**. Generally, in connection with the bearing gear all meeting surfaces including the sides of the roller frames, shall be machined, all bolts except anchor bolts turned and fitted, all washers faced, the rollers knuckle and pins polished to smooth surface and the whole finished in the style of first class machined work.

**31.3** Tolerances shall be as specified in **Appendix VI of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001** and shall be shown on the drawings.

## **32. Erection in Contractor's Works**

**32.1** The work shall be temporarily erected complete at the Contractor's Works for inspection by the Inspecting Officer, with the exception of such riveting as has to be done at site, so that accuracy of fit and perfection of workmanship may be assured. The work shall be put together with sufficient numbers of parallel drifts or turned bolts or both to bring the pieces into place. When so erected all holes left to be filled at site shall be so fair

that a parallel gauge turned to a diameter 0.8mm less than that of the hole, of a length equal to the depth of the hole, can be passed through them without difficulty. No drift shall be used anywhere in the work larger in any part than the hole in which it is to be driven. Holes for turned bolts, which have been 1 mm under drilled in shop, should be reamed at site by the erecting agency.

### **33. Interchangeability**

**33.1** Every span is to be temporarily erected complete in Contractor's works adopting the method of giving camber as explained in clause 34 and all parts as marked to their place, unless the whole of the work is made completely interchangeable by the use of steel jigs and hard steel bushes controlled by master gauges, in which case the first span must be completely erected to test the accuracy of the templates. Further spans or part span assemblies built from parts selected at random by the Inspecting Officer shall be erected from time to time to check the accuracy of the work as the Inspecting Officer may require.

**33.2** If the work is considered interchangeable by the Inspecting Officer a simplified scheme of marking will be permitted, i.e. all pieces which are identical shall bear one distinguishing mark irrespective of the span to which they belong. Should the interchangeability not to the satisfaction of the Inspecting Officer, the whole of the spans must be erected complete and all parts marked to their place without additional charge. The tenderers must state in their tenders whether they intend to adopt complete interchangeability or not.

**33.3** Under special arrangement with the Purchaser, it shall be permissible for approved portions of the work to be dispatched before complete erection of the first span, provided the Contractor satisfies the Inspecting Officer that such portions of the work are strictly interchangeable and will assemble correctly and accurately in the complete structure.

### **34. Camber**

**34.1** In order to ensure that the fabrication and erection of main girders shall be such as to eliminate secondary stresses in the loaded span, the nominal length (i.e. the lengths which will give no camber) of member shall be increased or decreased by the amount shown on the camber diagram supplied by the Purchaser.

**34.2** For setting of the angles of intersection of the chords and web members and also for templating the gusset, full size of panels with nominal lengths of the members, shall be used. Similarly, the machining of all chord's butts shall be to suit the nominal outline as defined in clause No. 34.1.

**34.3** The procedure for erecting the span at Contractor's work shall be as specified. The site riveting holes shall be riveted or bolted and drifted as specified in **Appendix III of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001.**

**34.4** When supported on blocks or staging's, the girders shall be erected to the camber specified in the fabrication drawings according to which the girders have been manufactured. A camber diagram indicating the relevant height of each panel point when erected on blocks at the manufacturing works shall be supplied by the Engineer.

**34.5** The cambering of the main girders along with pre-stressing, when all panel points are supported on the blocks or staging's, shall be carried out in accordance with Appendix 'A' of Steel Bridge Code.

**34.6** Special methods of erection will require special erection drawings approved by the Engineer, which must not be deviated from.



**34.7** In the case where the girders are erected on yielding supports such as a service span, due allowance shall be made for the anticipated yield when the camber blocks are set out.

**34.8** Frequent checks shall be made of the camber of girders during erection and care taken to see that the camber as per drawing is obtained when the girder is completely assembled. When span is supported on ends and intermediate supports are removed the dead load camber shall be recorded and entered in bridge register. This will provide the reference to compare the camber checked during technical inspection to ascertain the loss of camber.

### **35. Testing**

**35.1** The Inspecting Officer shall be empowered, at his/her discretion to make or have made under the supervision, any of the tests specified in the specifications mentioned herein in addition to such other tests as he/she may consider necessary, at any time up to the completion of the contract and to such an extent as he/she may think necessary to determine the quality of all materials used therein. In doing so, he/she shall be at liberty under any reasonable procedure, he/she may think fit to select, identify, have cut-off and take possession of test pieces from the material either before, during or after its being worked up into the finished product.

**35.2** He shall also be empowered to call for a duly authenticated series of mechanical tests to be obtained from the maker for these materials used in the work and to accept the same in lieu of other tests to the extent he/she deems fit. The Contractor shall supply the material required for the test pieces and shall also prepare the test pieces necessary.

**35.3** The test shall be carried out by the Contractor, for which Contractor shall provide all facilities including supply of labour and plant. Inspecting officer may at his/her discretion direct the Contractor to dispatch such test pieces as he/she may require to the National Test House or elsewhere as he/she may think fit for such testing purposes.

### **36. Check on Tests Made at Contractor's Work**

**36.1** The Inspecting Officer may at his/her discretion, check test results obtained at Contractor's work by independent tests at National Test House.

**36.2** The Inspecting Officer shall at all times be empowered to examine and check the working of the Contractor's plant before and after using it. Should the Contractor's plant be found, in the Inspecting Officer's opinion, unreliable, he/she is empowered to cancel any tests already carried out in this contract and have these tests carried out at any National Test House or elsewhere, as he/she may think fit.

### **37. Analysis**

**37.1** The Contractor shall supply authenticated copies of analysis of any materials used in the contract when required to do so by the Inspecting Officer who shall be empowered to accept them to the extent he/she thinks fit. In addition to the above samples may, at the Inspecting Officer's discretion be subjected to complete analysis at the National Test House or elsewhere as the Inspecting Officer may determine, the cost of the same to be borne by the Purchaser.

### **38. Inspection - General**

**38.1** The Inspecting Officer shall have free access to the works of the Contractor at all reasonable times and shall be at liberty to inspect the process of manufacture at any such time and to reject in whole or part, any work or material that does not conform to the provisions of this Specification and may order the same to be removed, replaced or altered at the expense of the Contractor. All gauges and templates necessary to satisfy the

Inspecting Officer of the complete interchangeability of parts must be supplied by the Contractor free of cost.

### 39. Oiling, Painting and Metalizing

**39.1** No part of the work shall be painted or coated, packed or dispatched, until it has been finally inspected and approved by the Inspecting Officer. Dry Film Thickness shall be measured by elcometer or any other approved method.

**39.2** When so specified by the Purchaser, the whole of the work except machined surfaces shall be given protective coating using one of the systems of painting or metalizing given in clauses 39.2.1 to 39.2.4. Prior to the application of protective coating, the surface of work shall be carefully prepared removing mill-scale, rust, etc. using wire brushes, sand or grit blasting as stipulated and approved by the Purchaser.

**39.2.1** For locations where the girders are subjected to salt spray such as in close vicinity of the sea and/or over creeks etc. the protective coating by metalizing with sprayed aluminum as given in the **Appendix VII of IRS Specification for Bridge Fabrication and Erection of steel girders serial No. B1-2001** followed by painting as per painting schedule given below may be applied:

- (i) One coat of etch primer to IS:5666.
- (ii) One coat of zinc chrome primer to IS:104 with the additional proviso that zinc chrome to be used in the manufacture of primer shall conform to type 2 of IS:51.
- iii) Two coats of aluminum paint to IS:2339 brushing or spraying as required. One coat shall be applied before the fabricated steel work leaves the shop. After the steel work is erected at site, the second finishing coat shall be applied after touching up the primer and the finishing coat if damaged in transit.

**39.2.2** For locations where girders are exposed to corrosive environment i.e. flooring system of open web girders in all cases, girders in industrial, suburban or coastal areas etc., protective coating by metalizing followed by painting as mentioned in clause 39.2.1 or by painting using epoxy-based paints as per the following painting schedule may be applied:

#### i) Surface Preparation

- a) Remove oil/grease from the metal surface by using petroleum hydrocarbon solvent to IS:1745.
- b) Prepare the surface by sand or grit blasting to Sa 2-1/2 to IS:9954 i.e. near white metallic surface.

#### (ii) Painting

##### (a) Primer Coat

Apply by brush/airless spray two coats of Epoxy Zinc Phosphate primer to RDSO Specification No. M&C/PCN/102/86 to 60 microns min, dry film thickness (DFT) giving sufficient time gap between two coats to enable the first coat of primer to hard dry.

##### (b) Intermediate Coat

Apply by brush/ airless spray one coat of Epoxy Micaceous Iron Oxide paint to RDSO Specification No. M&C/PCN/ 103/86 to 100 microns minimum DFT of 100 and allow it to hard dry.

##### (c) Finishing Coat

Apply by brush/airless spray two coats of polyurethane aluminum finishing to RDSO Specification No. M&C/PCN-110/88 for coastal locations or polyurethane red oxide (red

oxide to ISO 446 as per IS:5) to RDSO Specification M&C/PCN-109/88 for other locations to 40 microns minimum DFT giving sufficient time gap between two coats to enable the first coat to hard dry. The finishing coats to be applied in shop and touched after erection if necessary.

**39.2.3** For other locations, protective coating by painting as per painting schedule given below may be applied:

a) Primer coat

One coat of ready mixed paint zinc chrome priming to IS:104 followed by one coat of ready mixed paint red oxide zinc chrome priming to IS:2074.

Or

Two coats of zinc chromate red oxide primer to IRS: P-31.

b) Finishing Coat

Two finishing coats of red oxide paint to IS:13607 with colour/shade to be specified by Zonal Railway or of any other approved paint shall be applied over the primer coats. One coat shall be applied before the fabricated steel work leaves the shop. After the steel work is erected at site the second finishing coat shall be applied after touching up the primer and the finishing coat if damaged in transit.

Note: (i) The colour/shade of finishing coat should be generally matching with the Smoke Grey colour/shade No. ISC 692 mentioned in IS:5- 2004.

(ii) The colour/shade can be changed by CBE as per the local requirements.

**39.2.4** Where the life of protective coating is required to be longer to avoid frequent paintings, the problem of accessibility of locations and for other locations where metalizing or epoxy-based painting is recommended vide Clause 39.2.2 but there are no facilities available for the same, protective coating by painting as per following painting schedule may be applied with the approval of the Purchaser:

a) Primer coat

One coat of ready mixed zinc chrome priming to IS:104 followed by one coat of zinc chrome red oxide priming to IS:2074.

b) Finishing Coat

Two coats of aluminum paint to IS:2339 shall be applied over the primer coats. One coat shall be applied before the fabricated steel work leaves the shop. After the steel work is erected at site, the second coat shall be applied after touching up the primer and the finishing coat if damaged in transit.

**39.3** Surfaces which are inaccessible for cleaning and painting after fabrication shall be applied one heavy coat of zinc chrome red oxide priming to IS:2074 before being assembled for riveting/welding.

**39.4** All rivets, bolts, nuts, washers etc. are to be thoroughly cleaned and dipped into boiled linseed oil to IS:77

**39.5** All machined surfaces are to be well coated with a mixture of white lead to IS:34 and Mutton tallow to IS:887.

**39.6** For site painting the whole of the steel work shall be given the second finishing coat after finally passing and after touching up the primer and finishing coats if damaged in transit.

#### **40. Name Plate**

**40.1** A neat casting bearing the name of the Contractor, the place and year of manufacture, drawing number, the contract number and the standard of loading to be specified by the Purchaser shall be bolted conspicuously on each span. The drawing of the name plate shall be approved by the Engineer.

#### **41. Erection Mark**

**41.1** Every portion of the work shall be distinctly stenciled with paint with letter size not less than 10 mm for guidance in the erection in the field, and stamped with the letters specified in the drawings. In the case of non-interchangeable work, the system of marking shall be in accordance with the drawings prepared by the tenderer and approved by the Purchaser.

#### **42. Packing**

**42.1** All projecting plates or bars shall be kept in shape by timber or angle bars spiked or bolted to them, and the ends of the chord lengths, end posts and plate girders at their shipping joints shall be protected and stiffened so as to prevent damage or distortion in transit as the Inspecting Officer may direct.

**42.2** All threaded ends and machined surfaces are to be efficiently protected against damage in transit. The parts shall be sent out in lengths convenient for transport.

**42.3** All straight bars and plates except small pieces are to be sent out in convenient bundles temporarily riveted or bolted together or bound with wrought iron or suitable wire as the Inspecting Officer may direct. All rivets, bolts, nuts, washers, plates under 300 mm square and small articles generally are to be packed separately for each span in cases each weighing, when full, not more than 350 kg, or in strong petroleum casks, or in barrels approved by the Inspecting Officer. If not entirely filled by the contents the space left shall be closely packed with wood shaving or other suitable material. Bolts and rivets of different sizes shall be separately packed in bags, each bag having a label indicating its contents. A list of the contents shall be placed in the top of each case or cask.

**42.4** In the case of imported material all cases shall be made of 32mm boards with ends nailed with 90mm wire nails strengthened by battens and 38mmx 1.6mm (No. 16 BG) hoop -iron and made thoroughly secure for transit to India. All casks shall be in sound condition, and if not entirely filled by the contents the space left shall be closely packed with wood-wool or other suitable material. The heads shall be firmly secured by means of hoops in the usual way, and in addition each head shall be further secured by a strong wooden batten and not less than two strips of 1.6mm (No.16 BG) hoop-iron passing over the head and nailed to the staves on both sides. The hop-iron shall be long enough to pass over two hoops on each side of the cask and be nailed in such a manner that the hoops cannot slack back. Bolts and rivets of different sizes shall be packed in a separate canvas bag, each bag having a label in dictating its contents. End field holes to be bolted in case of members having split in plate and channels.

#### **43. Dispatch or Shipping Marks**

**43.1** Each package, case or bundle is to have clearly stenciled on it in good oil paint the address as stated in the order of contract, gross and net weight description of contents and such marks as may be required by the Purchaser must be shown against each item in the invoice. The Contractor is to provide necessary stencil plates for marking. Every piece of bundle shall be marked and in the case of material (shipped to India) all cases or casks shall be clearly cut or branded, not merely painted, with their net and gross weights and with such shipping marks and other particulars as the Inspecting Officer may direct and each bundle shall also have a metal label securely attached with wire stamped with similar



marks. The marking shall be done with thick oil paint and in such a manner that it cannot be washed off or obliterated.

#### **44. Loading**

**44.1** All trucks or wagons are to be loaded to as near their full capacity as is consistent with safe transport. While loading the material in wagon, truck or trailer, care should be taken that heavier material is loaded first and lighter material is kept on top so that lighter material is not damaged due to heavy weight. While transporting the material by road, adequate safety precautions shall be taken as per extant instructions.

**44.2** The Contractor shall apply all dunnage and lashing required to hold the material securely in position free of charge.

**44.3** While handling any girder or girder component it shall be ensured no damage to material takes place in the form of dent/cut mark etc. Wooden blocks, rubber pads shall be used to avoid direct contact between materials to be handled and handling equipment.

#### **45. Weight of Steel Work for Payment**

**45.1** Any steel work the weight of which differs by more than 2.5% from the calculated weight determined from the nominal weight of the sections shall be liable to rejection.

**45.2** Payment shall be made on the tendered weight to be calculated in accordance with the nominal weight of the sections as specified on the contract drawings. An addition in weight for welds/HSFG Bolts and rivet heads should either be specified in the schedule or be made as follows:

- a) 3% in case of riveted or composite (riveted /bolted and welded) work; and
- b) 1 % in case of purely welded work.

**45.3** Should the actual weight fall short of the calculated weight by more than 2.5%, the material if accepted, will be paid for the actual weight only. Should the actual weight exceed the actual calculated weight, payment will be made for calculated weight only.

**45.4** No separate payment shall be made for the items mentioned in clause 24.

**45.5** In the event of a dispute arising as to the weight of a portion of steelwork, a weighment shall be made in the presence of the Inspecting Officer.

#### **46. Quantities**

**46.1** In case where the estimated quantities are given with the schedule, it must be understood that the Purchaser will not be responsible for their accuracy and if the Contractor makes use of them in preparing his/her tender, he/she does so at his/her own risk, as he/she will not be entitled to make any claim or demand nor to raise any question whatsoever, on account of any error or miscalculations in or misunderstanding of the said quantities, as these are given for the convenience of the Purchaser.

#### **47. Tracings and Printings**

**47.1** Excepting in the case of standard spans fabricated without any modifications to the standard drawings the Contractor shall supply free of charge, one set of neatly executed tracing on linen. They shall be fully dimensioned and contain all erection marks, notifications as to the colour the work has been printed, the name of the Contractor and any alterations from the contract drawings, which may have been made in executing the work. The drawings shall conform to standard sizes as given in IS:962 and shall not exceed AO size. The drawings shall not be folded but rolled outwards on a roller, in addition to three sets of full size copies on strong paper made by an approved process.

#### **48. Rivets and Bolts Lists**

**48.1** The Contractor shall also supply, without charge, three complete lists of the rivets, bolts, HSFG bolts, service bolts, washers and drifts required for erecting the work at site, showing the parts of the work to which the various rivets and bolts belong and having each item marked so as to indicate the particular case in which it will be found.

#### **49. Photographs**

**49.1** If required by the Purchaser the Contractor shall also supply without charge, two sets of large well-executed, unmounted photographs of the first span of each description of plate girder or truss bridge when erected, taken from two points of view and showing the erection marking as clearly as possible Photographs of rolled beam, trough girder or trough plate girder bridges will not be required.

#### **50. Attestation of Tracings etc.**

**50.1** The tracings, photographs and lists shall be examined and signed by the Inspecting Officer. They shall be supplied with the first instalment of the work delivered.

#### **51. Deviations from this Specification**

**51.1** Should a tenderer desire to depart in any respect from the provisions of this Specifications either on account of manufacturing practice or for any other reasons, he/she must do so in an alternative tender which may not be considered, with a covering letter explaining in detail each and every departure he/she proposes to make from the Specification.

**51.2** Manufacturer's standard specification may be submitted but all discrepancies must be carefully drawn attention to, both in covering letter and in appendices to be annexed to the specification.

**51.3** The intention is to adopt manufacturer's standard equipment as far as possible but these standards must in all respects comply with the conditions of this Specification regarding safety from break-down, output, capacity, performance etc.

#### **52. Alterations in Work**

**52.1** The Contractor shall not in any case or in any circumstances have authority to make any alterations in, modifications of, substitution for, addition to, or omission of work or any method or system of construction, unless an alteration order in writing directing such alteration, modification, substitution, addition, omission or change shall have been given by the Purchaser prior to the commencement of the work or part of work nor shall the Contractor be entitled to any payment for or in respect of any such alteration, modification, substitution, addition, omission or change may have been actually made and executed and no course of conduct shall be taken to be a waiver of the obligation and conditions hereby imposed.

**52.2** All altered, modified, substituted, additional and changed work, labour and materials and all omitted work shall be valued by the Purchaser on the basis of the rates specified in the schedule.

#### **53. Elastomeric Bearings:**

Elastomeric bearings are to be supplied as per the Design of UIC -772-2R and testing shall be done as per IRC-83-1987 part-II with latest correction slips. Materials used in manufacture of bearings shall be confirmed to the specification indicated in IRC Code. Contractor has to submit the manufactures test certificate bearing the information contained in appendix-3 of IRC. In addition to this, physical testing shall be done either in IIT, DGS&D or any other Govt. Institution as indicated by Engineer-in-charge. Fixing of the

bearings to precast concrete surface may be done by application of epoxy resin adhesive to interface, after specified surface preparation. The specification of adhesive material workmanship and contract shall be approved by the Engineer.

Supplying, Acceptance inspection & Testing, and Installation of Elastomeric Bearings will be also govern by para 22.3 of Indian Railways Unified Standard Specifications (Works and Materials) 2010.

### **GUIDELINES ON FABRICATION OF STEEL GIRDERS**

The fabrication of steel girder bridges is being done by various Railway through trade. The fabrication is governed by the provisions of;

- i) Indian Railway Standard specification for fabrication and erection of steel girder bridges and locomotive turn-tables. (B1-2001).
- ii) Indian Railway Standard Code of Practices for metal arc welding for structural steel bridges carrying rail cum road or pedestrian traffic (Adopted 1972 Revised 2001).

All Rly engineers associated with fabrication are advised to understand the provision of IRS B1-2001 and Welded Bridge Code and take help from these guidelines. Engineer of contractors should also have good understanding of various provisions of above Railway codes other related codes and Guide lines on Fabrication RDSO-BS-110.

### **ITEM REQUIRING ATTENTION BY RAILWAY FIELD ENGINEERS AND CONTRACTORS & ENGINEERS DURING FABRICATION OF STEEL GIRDERS**

#### **A. Approved Drawing to be used for fabrication:**

Field/Workshop Engineer associated with fabrication should have all the relevant drawings, Codes & Specifications with latest Correction Slips prior to the start of work. On the basis of structural drawings, fabrication drawings should be prepared by fabricator. Plate Girder Drawings to be checked for intermediate stiffeners whether riveted or welded.

#### **B. Quality Assurance Programme (QAP) of Steel Girder Fabrication:**

To ensure the proper quality of fabrication Quality Assurance Plan (QAP) is prepared. QAP must indicate stage wise manufacturing process covering various steps, tests, checks & their frequency, sampling plan, authority for grant of clearance etc. for all activities from inspection and testing of raw material to trial assembly and erection. The QAP must cover following aspects.

1. Brief Details of project
2. Contract Agreement No.
3. Loading Standard
4. Governing Specification
5. Drawing references
6. Roles and responsibilities of various agencies involved in fabrication erection & inspection.

A sample QAP for 30.5m welded open web girder is given at **Annexure-I of Guidelines on Fabrication of Steel Girder BS-110 issued by RDSO B&S Directorate.**

QAP is to be scrutinized and approved by the inspection agency. In case of welded girder, it is to be done by RDSO, as per prevailing orders.

Field Engineer should ensure that work is carried out strictly as per the approved QAP and no deviation takes place from QAP. All the stages should be studied in detail, prior to start of work.

**C. Scrutiny & Approval of Welding Procedure Spec. Sheet (WPSS) (final approval to be done by RDSO):**

WPSS is process sheet indicating plate/section used, welding process, type of joint, welding consumables quality, welding parameters, acceptance standard, tests applicable etc. Field Engineer should ensure that welding is carried out as per approved WPSS. It is to be ensured that welding consumables to be used are from approved source and a proper record of their consumption is maintained. A sample Performa for record keeping of consumables is enclosed as **Annexure –II of Guidelines on Fabrication of Steel Girder BS-110 issued by RDSO B&S Directorate.**

**D. Welding Procedure Qualification Records (WPQR) (final approval to be done by RDSO):**

WPQR is the document indicating approval of various welders who are to be deployed for carrying out welding work for fabrication. It contains Name of the welder with photograph, qualification, experience, qualification tests and records for each welding process and joint, welding parameter. Tests are conducted by RDSO Official from M&C Directorate before qualifying the welders and then approval is granted through WPQR. Field engineer should ensure that welding is done only by approved welders and no deviation takes place.

**E. Raw Material and Gauge Certification**

Inspection of Raw Materials: -Passing of raw material is done on the basis of visual inspection and lab test for mechanical properties, chemical composition, ultrasonic examination, Charpy Impact Test, lab test report etc. Rivets and other consumables like paint etc. should also be got tested from NABL Lab as per relevant codes/specification.

All the required test should be got done through independent NABL Labs and compared with the mill test results given by the supplier before passing the material for use.

Material test certificate register must be maintained by fabricator as per Annexure available in IRS: B1-2001(Appendix-I, Performa-7) and signed by railway representative as well as fabricator.

All angle/channel, rolled section to be used for open web girder fabrication shall be checked for rolling tolerance as stipulated in IS:1852.

In addition to above visual inspection shall be done to ensure that steel is free from surface defects like pitting, laminations, imperfect edges, twist, other harmful defects etc. and recorded in the register.

**F. Item requiring attention before Fabrication of Girder.**

**F1.** Inspection of Layout on template floor–Field engineer has to ensure that the Template floor is level. Nominal and camber layout are drawn with the calibrated steel tape. The certificate of calibration from an authorized agency should be kept in record. For squareness, diagonal measurement are also checked. It should be remembered that tape should not be changed during the various stages of measurement. Running measurement should be recorded with a long-tested tape having minimum length suitable for half span/full span measurement as per the case. 4 lbs. pull is to be applied for stretching the tape. Suitable device should be used for this purpose.

**F2.** Inspection of Jigs, Fixtures and Master Plates-Master Gussets should be checked on nominal layout and transfer of all inter section line/points to be done with great care and accuracy. If gussets are symmetrical then 1/4th or half hole marking is to be done and same will be transferred to complete the gusset marking. Dimensional Inspection of Jigs,



Fixtures, Master Plates used in manufacture of girder should be done very carefully to ensure accuracy.

It should be remembered that jigs of main members of the open web girders are fabricated on the camber length with the adoption of the field holes at nominal length layout through master gussets.

**F3.** Layout of joints is drawn as per drawing on 1:1 scale on a level ground to check for;

- i) Any infringement of rivets, adjoining edges etc.
- ii) Position of holes in master plates for jigs as per layout.
- iii) The bore of bushes shall initially have tolerances of - 0mm to + 1mm. Fairing of bushes with holes of master plate shall conform to tolerances of - 0.13mm using a 'GO' gauge of 0.13mm less than hole diameter. Bushes of jigs during service should be maintained within acceptable limit (D+0.4mm) which shall be checked at regular intervals.

**F4.** Certification of Jigs, Fixtures and Master Plates-Stamping of Master Plates by the inspection official should be ensured prior to their use. The jigs should be checked by fabricator and field engineer from time to time for their wear and tear for maintaining accuracy during work.

**G. Item requiring attention during fabrication of girder:**

**Field/Workshop engineer should keep a watch and maintain proper record for-**

- (i) Ensuring Use of Approved Raw Material-Only raw material cleared originally to be used during fabrication.
- (ii) Ensuring use of Approved Welding Consumables-Type of consumables, source, quality, approval status, grade, suitability for fabrication as per WPSS etc. to be frequently checked and recorded.
- (iii) Ensuring use of Approved Welders-Checking of welder's certificate, records, skill and procedure adopted for welding as per WPSS
- (iv) Ensuring use of Approved WPSS & Welding Parameters-Checking welding parameters and equipment used for correctness of joint preparation etc.

**Important Checks for Tack Welding:**

- i) Check that top & bottom flange plate are perfectly perpendicular with reference to web throughout the length of I Section.
- ii) Check the squareness i.e. 90° angle between flange & web of top and bottom flange plate to avoid out of squares flanges.
- iii) Check with filler gauge throughout the length of top & bottom flange connection for uniform contact throughout the web plate.

**Points requiring attention during full welding:**

- i) Thorough cleaning of tack welded member should be done with appropriate tool like wire brush, before shifting for full welding. Minimum width of 75mm throughout the length shall be cleaned to ensure that the surface is free from dust, mill scale, grease, oil and paint to ensure sound quality of weld.
- ii) Full welding shall be carried out in flat position with SAW process as per sequence mentioned in WPSS/WPQR using manipulator/special welding fixture.
- iii) The sequence of welding shall be shown in WPSS/WPQR marked as 1, 2, 3 & 4 in the order of welding.

iv) The welding should be done in proper sequence.

v) Minor welds/ Inaccessible location welds shall be made by CO<sub>2</sub> welding or other type of welding as per approved WPSS.

**Good Working practice for prevention of distortion in welded girders:**

i) By pre-bending of flange plate of welded girder using appropriate fixture.

ii) By clamping the flange plate to fixture.

(Fixture developed by MMR Workshop is given at **Annexure.III of Guidelines on Fabrication of Steel Girder BS-110 issued by RDSO B&S Directorate.**)

**Radiographic Exam. of Butt Weld Joints**-Any butt welding provided as per approved WPSS should be subjected to radiographic testing by authorized agency only. The film should be preserved for examination, sensitivity, defect interpretation and acceptance decision based on prescribed criteria.

**Ensuring use of Approved set of Jigs & Fixtures**-To permit the inter changeability of the components and ensure pre-stressing in open web girders and to avoid distortion, it should be ensured that only approved Jigs & fixture are used and proper clamping arrangement are provided in jigs/fixtures.

**H. Item requiring attention after fabrication of girder:** stacking of component should be proper and shipping mark is properly stenciled on component for identification.

**Field/Workshop engineer should ensure that: -**

While cutting the plates or other section the heat/cast mark should be transferred to all cut members while using these members for fabrication. Proper record of heat mark should be maintained/ correlating it with the components of girder.

**Visual Exam of Welds**-Quality of weld, uniformity of weld bead, size of the weld, weld defects e.g. under cut, blow hole, porosity, spatter, crack etc. should satisfy para 31 and Appendix C of welded bridge code.

**Metallographic and NDT Exam of Fillet Welds**-Macro etching on girder, run-on, run-off tabs for ensuring proper weld quality, Dye penetrant examination etc. should be arranged by fabricator, for independent inspection.

**Structural and dimensional Inspection**-Dimensional check should be carried out by field engineer to ensure conformance to drawing dimensions including diagonal checks for squareness etc. before offering girders for final inspection.

**I. Trial Assembly:** for open web girder.

First span is always trial assembled to check whether fabrication process is proper or require any correction in jigs, workmanship or procedures to ensure regular quality output. Following important parameters are checked during trial assembly: -

**(1) Camber:**

Camber shall be checked while the girder is supported on the nodal points on camber jacks and after releasing jacks i.e. for residual camber with girder resting on bearing ends. The camber measurements should be done with appropriate levelling instrument:

**(2) Dimensional check:**

- i) Overall length
- ii) Bearing centers
- iii) Height
- iv) Truss center
- v) Center to center distance of rail bearers
- vi) Center to center distance of panel points
- vii) Squareness
- viii) Alignment of the girder
- ix) Fairing of holes
- x) Verticality
- xi) Infringement, if any
- xii) Butting of compression flange.

**(3) Component Inspection of first span-** Detailed inspection of dismantled components of trial erected span is carried out to see the integrity of components. There should not be any elongation of holes, tearing of edges or other defects after dismantling of trial assembly.

**(4) Component inspection of 2nd span onwards:** - Once fabrication process is found satisfactory i.e. all steps from A to J are proved during trial assembly and its component inspection, then only components of 2nd span and onwards should be fabricated with the approved sets of jigs and fixture, the tested WPSS and WPQR as laid out in steps earlier. Field engineer should do the components inspection and ensure all record are available before giving final inspection call inspecting authority.

**Plate girder check.**

- i) Overall length
- ii) Bearing centers
- iii) Height
- iv) Girder center
- v) Squareness
- vi) Fairing of holes
- vii) Verticality
- viii) Infringement, if any
- ix) Butting of compression flange.

**L. Anti-Corrosive Treatment-** Surface preparation, metalizing and or painting as per applicable painting schedule. Should be done as per provision given in para 39 of IRS: B1-2001. It should be ensured that paint is procured only through RDSO approved sources. The list of approved vendors by M&C Directorate of RDSO is available on web site.

**M. Some important DOs & DON'TS are given here for guidance: -****DOs-**

- ☐ ☐ Use proper fixtures and clamps to hold the members firmly at desired location while welding. The clamps and fixtures must be strong enough to prevent any distortion of the member while cooling of the welding joint. The clamps and fixtures are only to be removed when the joint is cooled to ambient temperature.
- ☐ ☐ Do the welding work in a warm and dry place so that rain water or other atmospheric elements may not come in contact while welding is in progress.
- ☐ ☐ While welding in very cold weather pre-heat the material before welding and apply post heating to prevent the weld joint from rapid cooling and develop stress raiser due to sudden contraction.
- ☐ ☐ Cross level of bearing plates in the welded plate girders should be checked properly for proper sitting over bed plate.
- ☐ ☐ To co-relate use of steel and welders in different members proper records should be maintained.
- ☐ ☐ Drilling of holes through approved set of jig particularly long members should be ensured. No fabrication should be done with unapproved jig.
- ☐ ☐ Drain hole in the portal girders at proper locations should be ensured.
- ☐ ☐ Fairing of holes and removal of drill burrs through initial assembly should be ensured.
- ☐ ☐ Proper edge finishing with grinding/ special attention in top chord compression members butting by end milling should be carried out
- ☐ ☐ At site during the erection of girders particularly open web girders due and adequate care should be taken to achieve the required camber values.
- ☐ ☐ Camber Jacks should be provided at all the nodal points during trial assembly.
- ☐ ☐ Butting of compression members, X-levels of stringers and alignment of stringers to be checked properly in the trial erection.
- ☐ ☐ Application of paint on permanent contact surface should be ensured after proper surface preparation visual inspection is very important tool.
- ☐ ☐ The plates should be perfectly horizontal while drilling the holes to ensure horizontal verticality of holes.
- ☐ ☐ Steel with proper test certificate/ reports should be used. Commercially available steel in the market should not be used.
- ☐ ☐ Steel received from the rolling mills has generally punch heat mark numbers. These numbers should be legibly marked again with paint for easy identification. Heat mark numbers should be transferred to cut members with paints.
- ☐ ☐ Members of the open web girders should be fabricated on the camber length with the adoption of the field holes of nominal length.
- ☐ ☐ Consistency of weld quality is higher in Submerged Arc Welding Process and chances of human errors are also eliminated. Therefore, welding of the girders should be done by SAW process. Whenever not possible then only CO2 welding or MMAW may be adopted if provided in app. WPSS.
- ☐ ☐ Stage inspection during fabrication should be properly ensured to avoid rejection at later stage.



☐☐ Skilled and qualified welders, drillers, fitter should be deployed for welding drilling and marking works. The welder should be individually approved by authorized agency i.e. M&C Directorate of RDSO.

☐☐ Selection of Angles in fabrication of cross girders and stringers of open web girders requires special attention, drooping in angles either acute or obtuse should not be permitted. It will cause improper sitting of sleepers on the stringers.

#### **DON'T's-**

☐☐ Use of pitted/ corroded material should not be done because it gives rise to concentration of stresses and results in poor fatigue strength.

☐☐ Tack welds in fabrication of riveted open web girders should be avoided.

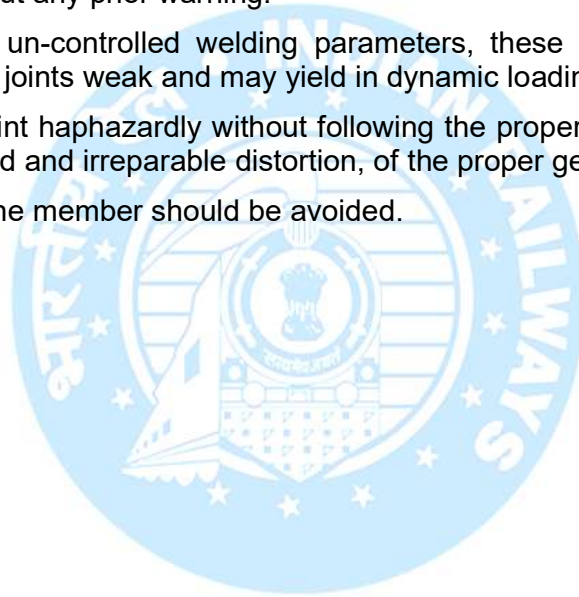
☐☐ Do not hammer the distorted joints for rectification. It may lead to the development of cracks and failure of the joints.

☐☐ Do not do the welding in chilled weather, as due to sudden cooling of welded joints they are liable to be brittle and develop cracks. The joints may also suddenly fail under dynamic loading without any prior warning.

☐☐ Do not weld with un-controlled welding parameters, these will affect the quality of welding and make the joints weak and may yield in dynamic loading on the structure.

☐☐ Do not weld the joint haphazardly without following the proper welding sequence. This will lead to uncontrolled and irreparable distortion, of the proper geometry of the joint.

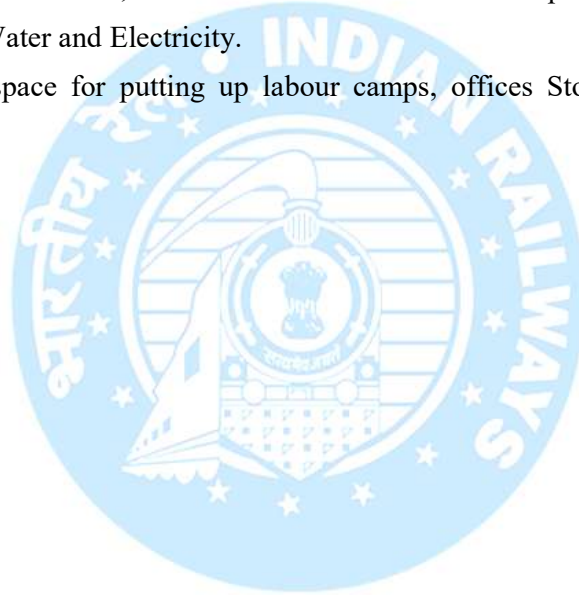
☐☐ Sharp notches in the member should be avoided.



**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****CONTRACTOR'S FAMILARIZATION**

I/We hereby solemnly declare that I/we have visited the site of above work and have familiarized myself/ourselves of the working conditions there in all respects and in particular the following:

1. Topography of the area and existing Road network (high ways & Village, Pucca & Kacha) and availability of Service Roads,
2. Soil Conditions at the site of the work.
3. Sources and availability of construction material.
4. Rates for Construction materials.
5. Availability of local labour, both skilled and unskilled and the prevailing labour rates.
6. Availability of Water and Electricity.
7. Availability of space for putting up labour camps, offices Store Godowns, Engineering yards etc.



**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURES –A to R**

1.	<b>ANNEXURE – A:</b>	<b>FORMAT FOR CERTIFICATE TO BE SUBMITTED / UPLOADED BY TENDERER ALONGWITH THE TENDER DOCUMENTS</b>
2.	<b>ANNEXURE – A1:</b>	<b>FORMAT FOR CERTIFICATE TO BE SUBMITTED / UPLOADED BY ATTORNEY/AUTHORISED SIGNATORY/EACH MEMBER OF PARTNERSHIP FIRM/JOINT VENTURE(JV)/HINDU UNDIVIDED FAMILY (HUF)/LIMITED LIABILITY PARTNERSHIP (LLP) ETC. ALONGWITH THE TENDER DOCUMENTS</b>
3.	<b>ANNEXURE – B:</b>	<b>COMPLIANCE OF FINANCIAL ELIGIBILITY CRITERIA BY THE TENDERER REGARDING CONTRACTUAL PAYMENT RECEIVED</b>
4.	<b>ANNEXURE – C:</b>	<b>HISTORY SHEET OF THE TENDERER</b>
5.	<b>ANNEXURE – D:</b>	<b>DETAILS OF CONSTRUCTION MACHINERIES, TOOLS &amp; PLANTS, VEHICLES ETC</b>
6.	<b>ANNEXURE – E:</b>	<b>DETAILS OF TECHNICAL AND OTHER PERSONNELS AVAILABLE ON HAND &amp; PROPOSED TO BE ENGAGED IN WORK</b>
7.	<b>ANNEXURE – F:</b>	<b>DETAILS OF WORKS COMPLETED/SUBSTANTIALLY COMPLETED DURING LAST SEVEN YEARS BY THE TENDERER(S)</b>
8.	<b>ANNEXURE – G &amp; G1 :</b>	<b>COMPLIANCE OF ELIGIBILITY CRITERIA BY THE TENDERER REGARDING BID CAPACITY</b>
9.	<b>ANNEXURE – H:</b>	<b>DECLARATION REGARDING ASSOCIATION OF RAILWAY OFFICER(S) WITH TENDERER(S)</b>
10.	<b>ANNEXURE – I:</b>	<b>LIST OF COURT CASES DURING LAST 3 YEARS</b>
11.	<b>ANNEXURE – J:</b>	<b>LIST OF ARBITRATION CASES DURING LAST 3 YEARS</b>
12.	<b>ANNEXURE – K:</b>	<b>BROAD PLAN OF EXECUTION OF THIS WORK WITHIN THE STIPULATED COMPLETION PERIOD</b>
13.	<b>ANNEXURE – L:</b>	<b>FORMAT OF MOU FOR JOINT VENTURE PARTICIPATION</b>
14.	<b>ANNEXURE – M:</b>	<b>FORMAT OF JOINT VENTURE AGREEMENT FOR JOINT VENTURE PARTICIPATION</b>
15.	<b>ANNEXURE – N:</b>	<b>DETAILS OF OTHER CREDENTIALS/ FACILITIES AVAILABLE WITH THE FIRM/CONTRACTOR</b>
16.	<b>ANNEXURE – O:</b>	<b>MANDATE FORM OF EFT</b>
17.	<b>ANNEXURE – P:</b>	<b>DOCUMENT OF AUTHORISATION</b>
18.	<b>ANNEXURE – Q:</b>	<b>SPECIMEN FORMAT FOR BANK GUARANTEE FOR BID SECURITY</b>
19.	<b>ANNEXURE – R:</b>	<b>SPECIMEN FORMAT FOR BANK GUARANTEE FOR PERFORMANCE GUARANTEE</b>
20.	<b>ANNEXURE – S:</b>	<b>SPECIMEN FORMAT FOR INSURANCE SURETY BOND FOR PERFORMANCE SECURITY</b>
21.	<b>APPENDIX – 1</b>	<b>SPECIMEN FORMAT FOR e-BANK GUARANTEE FOR BID SECURITY FOR NON-EPC</b>
22.	<b>APPENDIX – 2</b>	<b>SPECIMEN FORMAT FOR e-BANK GUARANTEE FOR PERFORMANCE GUARANTEE FOR NON-EPC</b>
23.	<b>APPENDIX – 3</b>	<b>WITHDRAWAL OF RETENTION MONEY FOR NON-EPC</b>

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE-A****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.**
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 upto 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 upto 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.



**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE-A1**

*(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.)*

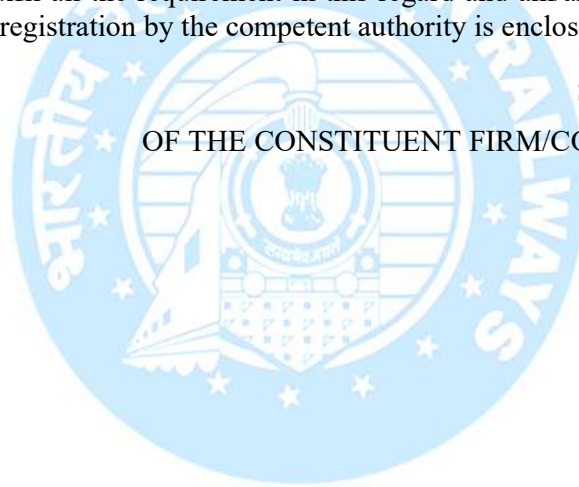
I/We ..... (Name), attorney/authorised signatory of the ..... (constituent firm/constituent partner) and member/partner of the ..... (tendering firm) hereby solemnly affirm and state as under:

1. I/we certify that ..... (constituent firm/constituent partner) is /are not blacklisted or debarred by Railways or any other Ministry/ Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
2. I/we have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am /We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirement in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed).

SEAL AND SIGNATURE  
OF THE CONSTITUENT FIRM/CONSTITUENT PARTNER

Place:

Dated:



**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE-B**

**Compliance of Financial Eligibility Criteria by the Tenderer regarding Contractual Payments received during the qualifying period (Reference-Para 10.2 & 17.15.2 of Tender Form (Second Sheet) of Annexure-I.**

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.

***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)

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE- C****HISTORY SHEET OF THE TENDERER**

i)	Name of the Company	:
ii)	Address of Registered Office	:
	<b>Phone:</b>  <b>Fax:</b>	
iii)	Constitution of the Company	:
a)	Ownership particulars whether Sole Proprietary Firm/ HUF/Partnership firm/Joint Venture (JV)/Company registered under Company Act-2013/ Limited Liability Partnership Firm registered under LLP Act-2008,/ Registered Society/ Registered Trust or any other type duly supported by the documents such as Partnership Deed, Power of Attorney, PAN Card, Memorandum of Articles/Articles of Association, Authorisation, Certificate of Incorporation, Certificate of Registration, Deem of Formation, JV related documents etc. as applicable as per tender condition.	:
b)	Name and address of collaborator(s)	:
c)	Nature of participation by collaborator(s) in share holding of the Company	:
d)	Extent and nature of proposed participation by	:



	collaborator(s) in execution of this work	
iv)	Number of years the firm has been in operation in India under its present	:
v)	Any Other information	

Signature of tenderer  
Along with Seal





**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE – E****DETAILS OF TECHNICAL AND OTHER PERSONNELS AVAILABLE ON HAND & PROPOSED TO BE ENGAGED IN WORK**

Sl	Name	Age	Technical qualification(s)	Position with the tenderer	Commencement of present employment	Total experience	Emoluments
1	2	3	4	5	6	7	8

Signature of tenderer

Along with Seal

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE – F****DETAILS OF WORKS COMPLETED/SUBSTANTIALLY COMPLETED DURING PREVIOUS SEVEN YEARS BY THE TENDERER(s).**

Sl.	Name of the work with value of contract	Full address of the authority under whom the work has been executed with Telephone No. & Fax No.	Date of Award & Original completion period	Actual Date commencement & Actual Date of completion	Final value of contract in Rs.	Documentary proof of completion of work (enclose copies separately for each work and indicate Annexure No. in this column)
1	2	3	4	5	6	7
<b>(A) Successfully Completed works: -</b>						
<b>(B) Substantially Completed works: -</b>						

Signature of Tenderer

Along with Seal

**Note: - The list of works as mentioned in the above table supported with documentary proof shall only be considered for evaluating the Technical Eligibility Criteria. Non-compliance with this condition is liable to result in the tender being rejected.**



**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE – G**

**Compliance of Eligibility criteria by the Tenderer regarding Bid Capacity for the tenders having advertised value more than Rs. 10 Crore.**

1. Name and style of the Tenderer with address (present tenderer)
2. The available bid capacity calculated is as under:

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

Where

**A** = Rs. \_\_\_\_\_ (i.e. Maximum value of construction works executed and payment received in any one financial year during the current and last three financial years immediately preceding the current financial year, upto date of opening of tender, taking into account the completed as well as works in progress.)

**N** = \_\_\_\_\_ Years (i.e. Number of years prescribed for completion of work for which bids has been invited.)

**B** = Rs. \_\_\_\_\_ (i.e. Value of 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 the tender)

**Bid Capacity** = Rs. \_\_\_\_\_

3. Details of the Chartered Accountant verifying the Bid Capacity.

- (i) Name :-
- (ii) Address:-
- (iii) Phone No:-
- (iv) Fax No:-
- (v) e-mail ID:-

4. Declaration by the tenderer: I hereby declare that the information given above are true. If any of the information given above is found to be wrong at any time, my tender will liable to be rejected.

Signature of the Tenderer

Verified and signed

Details of Tenderer along with seal

Details of Chartered Accountant along with seal

**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 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) The available bid capacity of tenderer shall be assessed based on the details submitted by the tenderer as per Annexure-B & Annexure-G1, Chapter-7 of Annexed Document which should be duly signed by tenderer(s) and verified by Chartered Accountant. 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.
- (f) In case, the tenderer/s failed to submit the above statements along with offer, their/his offer shall be considered as incomplete and will be **rejected summarily**.

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE-G1****(FOR EVALUATION OF BID CAPACITY FOR WORKS COSTING MORE THAN Rs. 10 CRORE)****LIST OF EXISTING COMMITMENTS AND BALANCE AMOUNT OF ONGOING WORKS  
WITH THE TENDERER**

Sl. No.	Name of work	Agreement No. & date	Designation & address of agreement signing authority	Contract Agreement value (Rs.)	Amount received so far (Rs.)	Balance amount (Rs.)	Due date of completion as per Agreement/ Supplementary Agreement	Value of existing commitments, balance amount of ongoing works and the works awarded but not yet started upto date of inviting of tender (B)(Rs.)
1	2	3	4	5	6	7	8	9
<b>Railway Works</b>								
1								
2								
..								
<b>Central/State Govt./PSU Works/Public Listed Company as specified in IRGCC</b>								
1								
2								
..								
<b>TOTAL OF (B) VALUE (in Rs.)=</b>								

Signature of the Tenderer

Verified and signed

Name of the Tenderer along with seal

Details of Chartered Accountant along with seal

**Note: -**

1. The above statement should be submitted by the tenderer(s) duly signed by him and verified by Chartered Accountant.
2. In case of JV, the tenderer(s) must furnish the details of each member of JV separately.
3. The tenderer(s) may submit any additional information in the above subject, if they desire so.

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE – H****DECLARATION REGARDING ASSOCIATION OF RAILWAY OFFICER(S) WITH TENDERER(S)**

Sl	Name	Status with the tenderer	If working in Rly on the date of tendering, designation & place of posting	If retired on the date of tendering		
				Date of retirement	Status at retirement	Particulars of permission taken for associating with the tenderer
1	2	3	4	5	6	7

Signature of Tenderer

Along with Seal.



**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE – I****LIST OF COURT CASES DURING PREVIOUS THREE FINANCIAL YEARS**

Sl	Name of work	Value of work	Name of Client Deptt.	Name of the Court	Date of institution of case	Relief sought from Court	Brief reason of dispute	Final/Present position of the case
1	2	3	4	5	6	7	8	9

Signature of tenderer

Along with Seal

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION****ANNEXURE – J****LIST OF ARBITRATION CASES DURING PREVIOUS THREE FINANCIAL YEARS.**

Sl	Name of work	Value of work	Name of Client Deptt.	Amount and date of claim preferred	Claim of Deptt. if any	Brief reasons of disputes	Final/Present position of the case
1	2	3	4	5	6	7	8

Signature of Tenderer

Alongwith Seal



## EAST COAST RAILWAY CONSTRUCTION ORGANISATION

Annexure-LMEMORANDUM OF UNDERSTANDING (MOU) FOR JOINT VENTURE  
PARTICIPATION

(To be executed on non-judicial stamp paper of appropriate value in accordance with relevant stamp Act. The stamp paper is to be issued in the name of the Joint Venture Firm).

## JOINT VENTURE PARTICIPATION

## BETWEEN

(indicate the name of member) having its registered office at (indicate the address of the member) represented by their (indicate designation/capacity e.g. Manager/General manager/Director/Managing Director/ Partner/Managing Partner/Proprietor etc.), Shri. (indicate the name) aged about .....years, S/o Shri (indicate the name of father) resident of (indicate Address) (hereinafter known as authorized signatory of the member) in the capacity of Lead Member of the first part.

AND

(indicate the name of member) having its registered office at (indicate the address of the member) represented by their (indicate designation/capacity e.g. manager/General manager/Director/Managing Director/ Partner/Managing Partner/Proprietor etc.), Shri. (indicate the name) aged about .....years, S/o Shri (indicate the name of father) resident of (indicate Address) (hereinafter known as authorized signatory of the member) in the capacity of the constituent member of the other part.

(In case of more than two members, include the details accordingly).

Now, the Joint Venture Firm (JV) formed by the members i.e. (indicate name of lead member) and (indicate name of constituent member) and (indicate name of other constituent member) will be known as (indicate JV firm name and address).

The expressions (indicate name of the lead member) and (indicate name of the constituent members), shall whatever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns, and shall collectively be referred to as “**Joint Venture Firm**” and individually as the “**Member**”

WHEREAS; President of India, acting through Ministry of Railways, **East Coast Railway Construction Organisation** (hereinafter referred to as “**Employer**”) has invited Tender for “(indicate name of work as mentioned in Notice inviting Tender)”.

NOW, THEREFORE, THE MEMBERS AGREE AS FOLLOWS:

1. The ‘**Members**’ have studied the documents and have agreed to submit their Tender as Joint Venture (JV) Firm.

The following documents shall be deemed to form and be read and construed as an integral part of this MOU.



- i) Notice inviting Tender,
  - ii) Tender document,
  - iii) Any Addendum/Corrigendum issued by (East Coast Railway Construction organization), and
  - iv) The Tender for work submitted by Joint Venture Firm through Authorized member.
2. (a) (indicate the name of the Lead Member) shall be the **“Lead member”** of the JV Firm, for all intents and purposes having majority share (at least 51%) in Joint Venture Firm having fulfilled desired Technical & Financial Eligibility Criteria for this work.
- (b) (indicate the name of the other Constituent Members as applicable for JV upto 03 members) shall be the **“member”** of the JV Firm, for all intents and purposes having majority share (at least 20%) in Joint Venture Firm having fulfilled desired Technical & Financial Eligibility Criteria for this work.
- (c) (indicate the name of the other Constituent Members as applicable for JV more than 03 members) shall be the **“member”** of the JV Firm, for all intents and purposes having majority share (at least 10%) in Joint Venture Firm having fulfilled desired Technical & Financial Eligibility Criteria for this work.
3. The ‘Members’ resolve that the distribution of share of Financial, Technical, and other responsibilities of the constituent members of JV Firm is as under:
- (a) (indicate name & Address of Lead Member) **Share ....%**  
Lead Member
  - (b) (indicate name & Address of Constituent Member) **Share ....%**  
Constituent Member
  - (c) (indicate name & Address of Other Constituent Member) **Share ....%**  
Other Constituent Member

#### 4. **JOINT AND SEVERAL RESPONSIBILITIES**

The Members undertake that they shall be jointly and severally liable to the Employer (Railways) for execution of the work in accordance with General and Special Conditions of Contract. The JV members shall also be liable jointly and severally for the loss, damages caused to the Employer (Railways) during the course of execution of the contract or due to non-execution of the contract or part thereof.

#### 5. **ASSIGNMENT AND THIRD PARTIES**

No member of the Joint Venture firm shall have the right to assign or transfer the interest, right or liability in the contract without the written consent of the other members and that of the Employer (Railways) in respect of the said tender/contract.

## 6. **AUTHORIZED MEMBER**

We, authorize (indicate lead member of JV firm nominated as authorized member), as **Authorized member** represented by their authorized signatory Shri. (indicate the name) to act on behalf of the Joint Venture Firm to deal with the tender, sign the agreement or enter into contract in respect of the said tender/contract, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/ contract. However, authorized member shall not submit any such proposals, clarifications or commitments without securing clearance of other JV constituents(s).

All notices/correspondences with respect to the tender/contract would be sent by Employer (Railways) **only to the authorized signatory of Authorized member at the address of JV firm**. All such notices/correspondences sent by Employer shall be legally binding on all the members of the J.V Firm.

## 7. **GUARANTEES AND BONDS**

Earnest Money Deposit and all bonds/guarantees to the Employer (Railways) shall be submitted in the name JV Firm, which shall be legally binding on all the members of the J.V Firm.

## 8. **INDEMNITY**

Each member hereto agrees to indemnify the other members against its respective parts in case of breach/default of the respective part of the contract/tender of any liabilities sustained by the Joint Venture Firm.

9. For the execution of the respective portions of works, the members shall make their own arrangements to bring the required finance, plants and equipment, materials, manpower and other resources.

## 10. **DOCUMENTS & CONFIDENTIALITY**

Each member shall maintain confidentiality regarding the information related to the tender/contract, commercial and technical information received or generated in the course of preparation and submission of the Tender.

## 11. **ARBITRATION**

Any dispute, controversy or claim arising out of or relating to this agreement shall be settled in the first instance amicably between the members. If an amicable settlement cannot be reached as above, it will be settled by arbitration in accordance with the Indian Arbitration and Conciliation Act 1996 or any amendments thereof. The Venue of the arbitration shall be (indicate the name of place). Notwithstanding settlement of any dispute among the members of the JV Firm, the JV members shall ensure satisfactory completion of awarded work as per the contract with the Employer (Railways).

## 12. **VALIDITY**

This MOU shall remain in force till the occurrence of the earliest of the following, unless by mutual consent, the members agree in writing to extend the validity for a further period

- a. Tender submitted by the joint venture Firm is declared unsuccessful, or
- b. Cancellation/shelving of the work by the Employer (Railways) for any reasons prior to award of work.

In case, the Tender submitted by the joint venture Firm is declared successful; the validity of this MOU shall be upto the entire period of completion (inclusive of period of extension, if any) including maintenance period.

13. This MOU is drawn in .....number of copies with equal legal strength and status. One copy is held by (indicate name of lead member) and the other by (indicate name of constituent member) & (indicate name of other constituent member) and one copy submitted with the tenderly to Employer (Railways).
14. This MOU shall in all respects be governed by and interpreted in accordance with Indian Laws.

**15. NOTICES/CORRESPONDANCE**

All Notices/Correspondence by Employer (Railways) in writing shall be sent by Fax confirmed, by registered post or commercial courier to the following Fax number and address. (Indicate name of authorized signatory of authorized member, name & address of JV Firm with Fax number)

**16. JV Agreement.**

We the constituent member of the JV Firm are aware that after issue of Letter of Acceptance by the Employer (Railways), an agreement among the members of the JV firm has to be executed and got registered before the Registrar of Companies under the Companies Act or with the Registrar/Sub-Registrar under the Registration Act. This agreement shall be submitted by the JV firm to the Employer (Railways) as per Standard J.V. Agreement format before signing the contract agreement for the work. In case the JV members fail to observe/comply with stipulations, the Earnest Money Deposit, deposited with the Employer (Railways) shall be forfeited and other penal actions due shall be taken against the members and the JV Firm by the Employer (Railways).

17. We, the members of JV Firm shall furnish along with the tender, requisite documents as mentioned under para 17.1, 17.2, 17.3 (as the case may be) of the Guidelines for Participation of J.V. firms in works tender.

**18. Declaration**

It is certified that we are not blacklisted or debarred by the Railways or any other Ministries/Departments/PSU (Public Sector Undertaking) of the Govt. of India/State Govt. from participation in tenders /contracts on the date of opening of Tender either in our individual capacity or as a member of the JV Firm in which we were/are members.

IN WITNESS WHEREOF THE MEMBERS, have executed this MOU on (indicate day, month and year).

<u>(indicate name of authorized signatory)</u>	<u>(indicate name of authorized signatory)</u>
<u>(indicate name &amp; address of lead member)</u>	<u>(indicate name &amp; address of constituent member)</u>
(Seal)	(Seal)

**Witness:**

- 1..... (Name & Address)
- 2..... (Name & Address)

\*\*\*\*\*

## EAST COAST RAILWAY CONSTRUCTION ORGANISATION

Annexure-M

## JOINT VENTURE AGREEMENT FOR JOINT VENTURE PARTICIPATION

(The J.V. Agreement to be executed on non-judicial stamp paper of appropriate value, in accordance with relevant stamp Act. The stamp paper is to be issued in the name of the Joint Venture Firm and should not be more than six months old from the date of execution of the J.V. Agreement, on it)

## JOINT VENTURE AGREEMENT

## BETWEEN

(indicate the name of member) having its registered office at (indicate the address of the member) represented by their (indicate designation/capacity e.g. Manager/General manager/Director/Managing Director/ Partner/Managing Partner/Proprietor etc.), Shri. (indicate the name) aged about .....years, S/o Shri (indicate the name of father) resident of (indicate Address) (hereinafter known as authorized signatory of the member) in the capacity of Lead Member of the first part.

## And

(indicate the name of member) having its registered office at (indicate the address of the member) represented by their (indicate designation/capacity e.g. manager/General manager/Director/Managing Director/ Partner/Managing Partner/Proprietor etc.), Shri. (indicate the name) aged about .....years, S/o Shri (indicate the name of father) resident of (indicate Address) (hereinafter known as authorized signatory of the member) in the capacity of the constituent member of the other part.

**(In case of more than two members, include the details accordingly).**

Now, the Joint Venture Firm (JV) formed by the members i.e. (indicate name of lead member) and (indicate name of constituent member) and (indicate name of other constituent member) will be known as (indicate JV firm name and address).

The expressions (indicate name of the lead member) and (indicate name of the constituent members), shall whatever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns, and shall collectively be referred to as “**Joint Venture Firm**” and individually as the “**Member**”

1. WHEREAS; President of India, acting through Ministry of Railways, **East Coast Railway Construction Organisation** (hereinafter referred to as “**Employer**”) has invited Tender for “(indicate name of work as mentioned in Notice inviting Tender)”.

And Whereas, the above members to the Joint Venture Firm have submitted the tender in the name of the said JV Firm formed as per the MOU signed on dated..... and whereas the said tender has finally been accepted by the Employer (Railways) vide Letter Of Acceptance No.....dated....., we (indicate name of the lead member) and (indicate name of the constituent members), herewith sign the above formal JV agreement for registration of the above joint venture Firm viz (indicate JV firm name and address) and for entering into contract Agreement with the “Employer” (Railway).

2. NOW, THEREFORE, THE PARTIES AGREE AS FOLLOWS:

The following documents shall be deemed to form and be read and construed as an integral part of this J.V. Agreement.

- i) Notice inviting Tender,
- ii) Tender document,



- iii) Any Addendum/Corrigendum issued by (East Coast Railway),
  - iv) MOU signed on.....by us.
  - iv) Tender submitted on our behalf by the Authorized Member.
  - vi) Letter of Acceptance issued by Employer (Railways).
3. The 'Members' have studied the documents, JV guidelines and have agreed to participate in submitting the 'Tender' jointly; signed the JV MOU and submitted the tender accordingly.
4. (a) (indicate the name of the Lead Member) shall be the "**Lead member**" of the JV Firm, for all intents and purposes having majority share (at least 51%) in Joint Venture Firm having fulfilled desired Technical & Financial Eligibility Criteria for this work.
- (b) (indicate the name of the other Constituent Members as applicable for JV upto 03 members) shall be the "**member**" of the JV Firm, for all intents and purposes having majority share (at least 20%) in Joint Venture Firm having fulfilled desired Technical & Financial Eligibility Criteria for this work.
- (c) (indicate the name of the other Constituent Members as applicable for JV more than 03 members) shall be the "**member**" of the JV Firm, for all intents and purposes having majority share (at least 10%) in Joint Venture Firm having fulfilled desired Technical & Financial Eligibility Criteria for this work.
5. We, authorize (indicate lead member of JV firm nominated as authorized member), as **Authorized member** represented by their authorized signatory Shri. (indicate the name) to act on behalf of the Joint Venture Firm to deal with the tender, sign the agreement or enter into contract in respect of the said tender/contract, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/ contract. However, authorized member shall not submit any such proposals, clarifications or commitments without securing clearance of other JV constituents(s).
- All notices/correspondences with respect to the tender/contract would be sent by Employer (Railways) **only to the authorized signatory of Authorized member at the address of JV firm**. All such notices/correspondences sent by Employer shall be legally binding on all the members of the J.V Firm.
6. The 'Members' resolve that the distribution of share of Financial, Technical, and other responsibilities of the constituent members of JV Firm is as under:
- (a) (indicate name & Address of Lead Member) **Share ....%**  
Lead Member
  - (b) (indicate name & Address of Constituent Member) **Share ....%**  
Constituent Member
  - (c) (indicate name & Address of Other Constituent Member) **Share ....%**  
Other Constituent Member
7. The constitution of JV firm shall not be altered during the currency of the contract except when modification become inevitable due to succession laws etc. provided that the minimum eligibility criteria are not got vitiated. Failure to observe this stipulation shall be deemed to be breach of contract, which will entitle the Employer (Railway) to take all consequential action as per contract conditions.

**8. JOINT AND SEVERAL RESPONSIBILITIES**

The Members undertake that they shall be jointly and severally liable to the Employer (Railways) for execution of the work in accordance with General and Special Conditions of Contract. The JV members shall also be liable jointly and severally for the loss, damages caused to the Employer (Railways) during the course of execution of the contract or due to non-execution of the contract or part thereof. The members solemnly affirm and declare that every possible care will be taken by them for ensuring satisfactory execution and completion of the work awarded under the contract.

**9. ASSIGNMENT AND THIRD PARTIES**

No member of the Joint Venture firm shall have the right to assign or transfer the interest, right or liability in the contract without the written consent of the other members and that of the Employer (Railways) in respect of the said tender/contract.

**10. GUARANTEES AND BONDS**

All bonds/guarantees e.g Performance Guarantee, Bank Guarantee etc. to the Employer (Railways) shall be submitted by the JV Firm as per tender conditions, only in the name of J.V Firm.

**11. INDEMNITY**

Each member hereto agrees to indemnify the other members against its respective parts in case of breach/default of the respective part of the contract/tender of any liabilities sustained by the Joint Venture Firm.

**12. USE OF MACHINERY, INSTRUMENT, LABOUR FORCE etc.**

For the execution of the respective portions of works, the members shall make full arrangements to bring the required finance, plants and equipment, materials, manpower and other resources. However, the members here to undertake that whatever the machinery, instruments, labour force, (including unskilled, skilled, inspectors, Engineer etc.) they possess at the time of entering into Joint Venture Agreement or which subsequently shall come in their possession and if such machinery, instruments, labour force is required for the speedy and efficient execution of any portion of the work, the member/members having the control over the said machinery, instruments, labour force etc. without having any regard to their share of profit and loss agreed to between the members in Joint Venture Agreement shall hand over the same which shall be placed at the disposal of the other member actually executing that portion of the work at mutually agreed terms for the purpose of execution of the contract without any hindrance and obstacle

**13. DOCUMENTS & CONFIDENTIALITY.**

Each member shall maintain confidentiality regarding the information related to the tender/contract, commercial and technical information received or generated in the course of preparation and submission of the Tender and execution of contract.

**14. ARBITRATION**

Any dispute, controversy or claim arising out of or relating to this agreement shall be settled in the first instance amicably between the members. If an amicable settlement cannot be reached as above, it will be settled by arbitration in accordance with the Indian Arbitration and Conciliation Act 1996 or any amendments thereof. The Venue of the arbitration shall be (indicate the name of place). Notwithstanding settlement of any dispute among the members of the JV Firm, the JV members shall ensure satisfactory completion of awarded work as per the contract with the Employer (Railways).

**15. DURATION OF JOINT VENTURE AGREEMENT**

It shall be valid during the entire currency of the contract including the period of extension if any and the maintenance period after the work is completed and till Security Deposit is released.

**16. NOTICES/CORRESPONDANCE**

All Notices/Correspondence by Employer (Railways) in writing shall be sent by Fax confirmed, by registered post or commercial courier to the following Fax number and address.

(Indicate name of authorized signatory of authorized member, name & address of JV Firm with Fax number)

- 17. Governing Laws:** The J.V. Agreement shall in all respect be governed by and interpreted in accordance with Indian Laws.

**Declaration: -**

It is certified that we are not blacklisted or debarred by the Railways or any other Ministries/Departments/PSU (Public Sector Undertaking) of the Govt. of India/State Govt. from participation in tenders /contracts on the date of opening of Tender either in our individual capacity or as a member of the JV Firm in which we were/are members.

IN WITNESS WHEREOF THE MEMBERS, have executed this JV Agreement on **(indicate day, month and year)**

**(indicate name of authorized signatory)**

**(indicate name of authorized signatory)**

**(indicate name & address of constituent member) (indicate name & address of lead member)**

**(Seal)**

**(Seal)**

**Witness:**

1..... (Name & Address)

2..... (Name & Address)

Place:

Date:

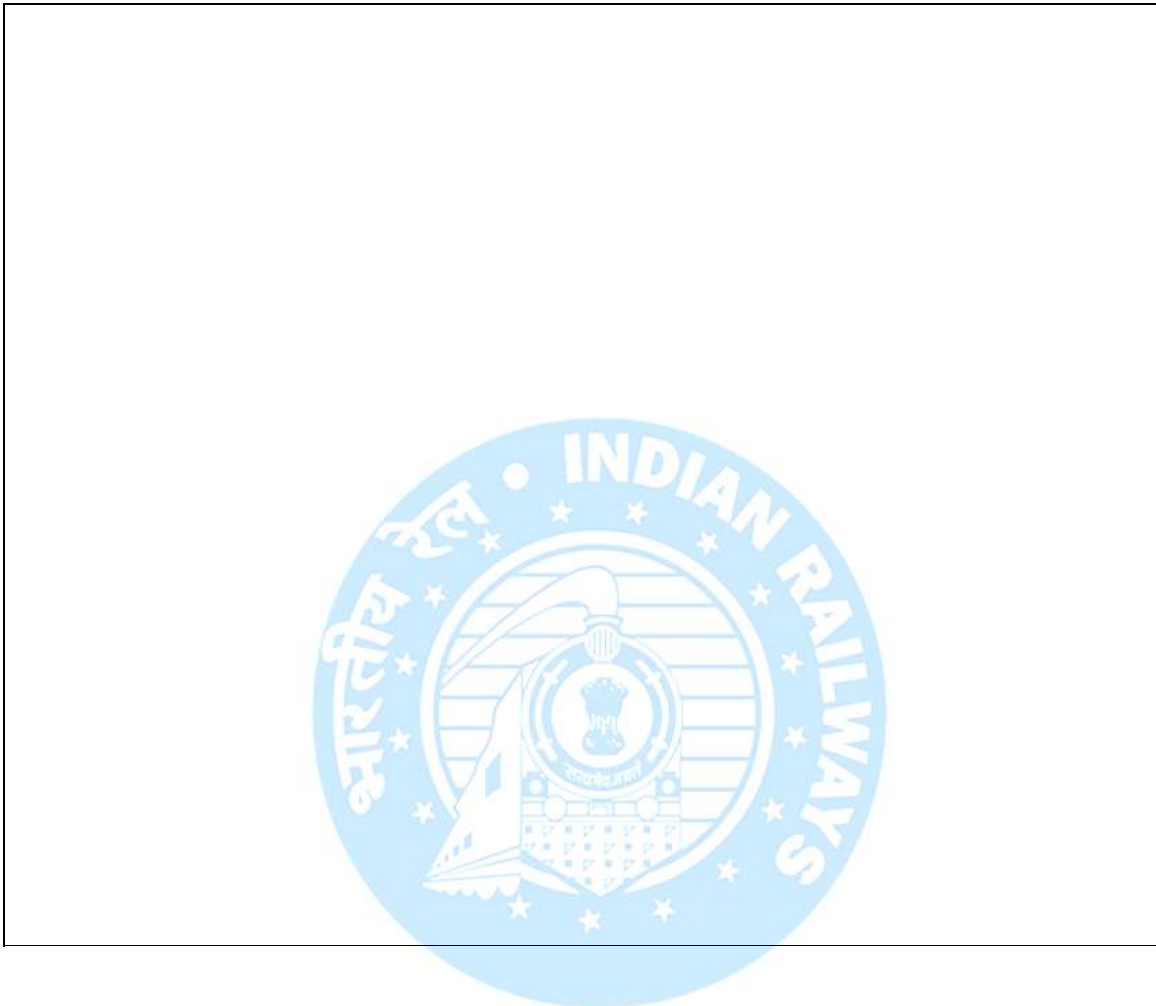
(The J.V. Agreement should be got registered with Registrar of Company Act or with the Registrar/Sub-registrar under the registration act.)

\*\*\*\*\*

## **EAST COAST RAILWAY CONSTRUCTION ORGANISATION**

### **ANNEXURE – N**

OTHER CREDENTIALS/FACILITIES OF THE FIRM/CONTRACTOR (WHICH ARE NOT COVERED IN ANNEXURE-A  
TO ANNEXURE –M)



Signature of Tenderer  
Along with Seal.



## EAST COAST RAILWAY CONSTRUCTION ORGANISATION

### ANNEXURE – O

The Contractor/supplier having their bank accounts on any of the city centres where reserve bank of India's EFT (Electronic Fund Transfer) facility exists will receive their payments through EFT scheme in case of being awarded with the work/supply order. For that they (the agency) will have to furnish the **mandate form of EFT** (As per proforma given below) along with the tender document.

Electronic clearing service (Credit clearing) Model Mandate form

(Investor/Customer's Option to receive payments through Credit Clearing Mechanism).

#### **Name of the scheme and the periodicity of payment**

No.

- 1) Contractor/supplier's Name
- 2) Particulars of their Bank Account
  - a) Name of Bank:
  - b) Name of the Branch
  - Address
  - Telephone No.
  - c) 9 Digit Code Number of the bank and branch  
Appearing on the MICR cheque issued by the bank.
  - d) Type of the Account (S.B. Current or cash Credit)  
**With IFS Code**
  - e) Ledger and ledger folio Number.
  - f) Account number (as appearing on the cheque book)

(In lieu of the bank certificate to be obtained as under, please attach a bank cancelled cheque or photocopy of a cheque issued by your bank for verification of the above particulars)

3) Date of effect

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, I would not hold the user institution responsible. I have read the option invitation letter and agree to discharge the responsibility expected of me as a participant under the scheme.

Signature of the Contractor/Supplier.

Date: \_\_\_\_\_

-----  
Certified that the particulars furnished above are correct as per our records.

Bank's stamp.

Date: \_\_\_\_\_

Signature of The Authorised Official of the Bank.

## EAST COAST RAILWAY CONSTRUCTION ORGANISATION

**Annexure-P**

LC/DA No (18 DIGIT IPAS GENERATED NO.)

Dated \_\_\_\_\_

**DOCUMENT OF AUTHORISATION**

**Reference:** (i) Works Contract No. \_\_\_\_\_ Dated \_\_\_\_\_  
(ii) Inland Letter of Credit No. \_\_\_\_\_ Dated \_\_\_\_\_

This document is issued against Contract No. -----(FROM IREPS) ----- dated----- for work of -----  
(DESCRIPTION OF WORK FROM IREPS) -----

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

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

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

THIS PAYMENT: \_\_\_\_\_ SSS \_\_\_\_\_

LC BALANCE AFTER THIS PAYMENT: \_\_\_\_\_

(Signature of authorised Railway authority)

Name  
Designation  
Official Seal

ANNEXURE-QSPECIMEN FORMAT OF BANK GUARANTEE BOND FOR SUBMISSION OF BID SECURITY

Bank Guarantee Bond from any scheduled commercial bank of India

(On non-judicial stamp paper, which should be in the name of the Executing Bank).

Name of the Bank: -----

President of India,

Acting through .....,

East Coast Railway,

Beneficiary: FA & CAO (Con), East Coast 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.
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
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	BG ENABLED

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-R****SPECIMEN FORMAT OF BANK GUARANTEE BOND FOR PERFORMANCE GUARANTEE**

In consideration of the President of India (herein after called the Government ) having agreed to exempt (indicate name and address of tenderer) (hereinafter called the said Contractor(s)) from the demand, under the terms and conditions of an Agreement (indicate acceptance letter no. and date) made between (indicate Dy.CE/Con or CE/Con. ,East coast Railway as applicable) and (indicate name and address of tenderer) for (indicate the name of work as mentioned in tender) (hereinafter called "the said Agreement"), of security deposit for the due fulfilment by the said Contractor(s) of the terms and conditions contained in the said Agreement, on production of a bank Guarantee for Rs. \_\_\_\_\_ (Rupees \_\_\_\_\_ only).

1. We, (indicate the name and address of the bank) (hereinafter referred to as "the Bank") at the request of (indicate name and address of tenderer) (contractor's) do hereby undertake to pay to the Government an amount not exceeding Rs. \_\_\_\_\_ against any loss or damage caused to or suffered or would be caused to or suffered by the Government by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement.
2. We (indicate the name and address of the bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount/claimed is due by way of loss or damage caused to or would be caused to or suffered by the Government by reason of breach by the said contractor(s) of any of the terms or conditions contained in the said Agreement or by reason of the Contractor(s) failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs. \_\_\_\_\_.
3. We undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the Contractor(s)/supplier(s) in any suite or proceeding pending before any court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the contractor(s) /supplier(s) shall have no claim against us for making such payment.

4. We, (indicate the name and address of the bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance/of the said Agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till (indicate Dy.CE/Con or CE/Con. ,East coast Railway as applicable) Office/ Department) Ministry of Railway certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the \_\_\_\_\_ we shall be discharged from all liability under this guarantee thereafter.
5. We (indicate the name and address of the bank) further agree with the government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said Contractor(s) and forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of the Government or any indulgence by the

Government to the said Contractor(s) or any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

6. This guarantee will not be discharged due to the change in the constitution of the Bank or the Contractor(s)/Supplier(s).
7. We, (indicate the name and address of the bank) lastly undertake not to revoke this guarantee during its currency except with the previous consent of the Government in writing.

Dated the \_\_\_\_ day of \_\_\_\_ 2023

For (indicate the name and address of the bank)



**ANNEXURE-S**

**SPECIMEN FORMAT OF INSURANCE SURETY BOND FOR PERFORMANCE SECURITY**  
**(New Annexure- XVII, Part-II of GCC-2022)**

**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: .....  
Amount of Bond: .....

Issue Date: .....  
Expiry Date: .....

WHEREAS, In consideration of the President of India acting through ..... (*Designation & address of contract signing authority*) ..... Railway....., (hereinafter called “the Railway”) having accepted the bid of M/S XXXXX hereinafter called the contractor, for the work of XXX’ under invitation for bids No XXXX Dated XXXXX, Vide Letter of acceptance no.....

AND

WHEREAS the contractor is required to furnish Performance security for the sum of ₹. XXXX (Rupees XXXX Only), in the form of Surety Bond, being a condition precedent to the signing of the contract agreement

SB No:

Date:

WHEREAS we, , (*Name of insurance company*) hereinafter called the Surety, acting through [*Designation(s) of the authorised person of the Surety*], have, at the request of the M/s. XXXX contractor, agreed to give Bond for performance security/ additional performance security as hereinafter contained:

1. KNOW ALL MEN by these present that I/We, the undersigned [Insert name(s) of authorized representatives of the Surety], being fully authorized to sign and incur obligations for and on behalf of the Surety, 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 Contactor.
7. The Surety agrees that no change, addition, modifications to the terms of the Contract Agreement or to any documents, which have been or may be made between the Railway and the Contractor, will in any way release us from the liability under this Bond; and the Surety, hereby, waives any requirement for notice of any such change, addition or modification to the Surety.
8. This Bond is valid and effective from the date of its issue, which is *[insert date of issue]*. The Bond and our obligations under it will expire on **XXXX** (*Expiry Date*). All demands for payment under the Bond must be received by us on or before that date.
9. The Surety agrees that the Railways right to demand payment of aforementioned full amount in one instance or demand payments in parts totalling up to the aforementioned full amount in several instances will be valid until either the aforementioned full amount is paid to the Railway, or the Bond is released by Railway before the Expiry date.
10. The Surety agrees that its obligation to pay any amount demanded by the Railway before the expiry of this Bond will continue until the amount demanded has been paid in full.
11. The expressions Surety and Railway hereinbefore used shall include their respective successors, administrators and assigns.
12. The Surety hereby undertakes not to revoke the Bond during its currency, except with the previous consent in writing of the Railway. This Bond is subject to the Uniform Rules for Demand Bonds, ICC Publication No. 758.
13. We, the Surety Insurer, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its Bid open during the Bid validity period set forth in the said Documents, and the decision of the Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, tribunal, arbitrator or any other authority.
14. The Bond shall be in addition to and without prejudice to any other security Bond (s) of the contractor in favour of the Railway available with the Railway. The Surety, under this Bond, shall be deemed as Principal Debtor of the Railway.



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

- a. Our liability under this Surety Bond shall not exceed **XXXX** (Rupees **XXXXXX** 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

1. The Insurance Surety Bond shall be verified by sending mail to [customer.care@sbigenera1.in].

Place.....

Bank's seal and authorized signature(s)  
[Name in Block letters] .....

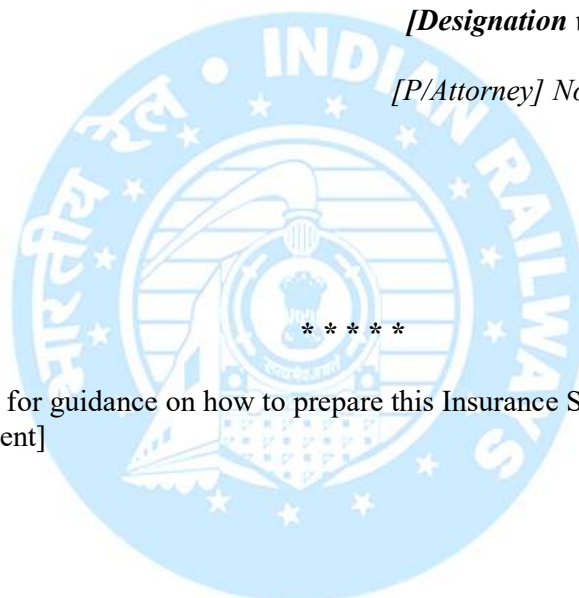
[Designation with Code No.] .....

[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]

Appendix-1

Para 5 of the Instructions to Tenderers of GCC

**(Bid Security)**

E- Bank Guarantee Bond from any scheduled commercial bank of India.

**Name of the Bank: -----**

President of India,

Acting through .....,

.....Railway,

Beneficiary: PFA / FA &amp; CAO / Sr. DFM..... Railway

Date: .....

**E-Bank Guarantee Bond No.:****Date: -----**

In consideration of the President of India acting through ----(***Designation & address of Contract Signing Railway***),-----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]*** (herein after 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 Railway or any threatened litigation by the Bidder or Bank.

3. The Bank shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the Bidder and without the Railway being required to show grounds or give reasons for its demand of the amount so demanded.

4. The guarantee herein before 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. The Bank further agrees that the Railway shall be the sole judge as to whether the Bidder has committed default in complying with the conditions listed above and its decision that the Bidder is in default shall be final and binding on the Bank, notwithstanding any differences between the Railway and the Bidder, or any dispute between them pending before any court, tribunal, arbitrators, or any other Railway or body, or by the discharge of the Bidder for any reason whatsoever.

7. The Railway is free to change tender terms, extend bid submission or tender finalisation timelines, and choose to enforce or not enforce any tender conditions, and the Bank will still remain fully liable under this e-BG and cannot claim to be released because of such changes or indulgence.

8. This e-BG is an additional security; it does not replace any other guarantees or securities that the Railway already holds or may later hold in connection with the tender or the bidder's obligations.

9. The Beneficiary' can validly invoke this e-BG simply by sending a demand that mentions the e-BG number, and such a demand will be treated as a valid and sufficient invocation.

10. 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.

11. The E-Bank Guarantee is unconditional and irrevocable.

12. The expressions Bank and Railway herein before used shall include their respective successors and assigns.

13. 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.

14. 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.*

Bank's Seal  
*[P/Attorney] No.*

**Note:** All italicized text is for guidance on how to prepare this e-BG and shall be deleted from the final document.

## e-BG towards Bid Security

## Challan for the e-BG

## 1. Challan reference:

IREPS Reference ID (Unique Reference Number)	<Some number to be automatically generated by IREPS>
Challan Date	DD.MM.YYYY <To be automatically fetched by IREPS>

## 2. Beneficiary Details:

Beneficiary Details	<The associate paying Railway for the tender issuing Railway. To be automatically fetched by IREPS>
Bank Details of the Beneficiary	i. Account Number ii. Bank Name iii. IFSC <To be automatically fetched by IREPS>

## 3. Tender Details:

Tender No.	<To be automatically fetched by IREPS> <Should not be edited by the Bank>
Tender closing date	<To be automatically fetched by IREPS>
Railway Zone	<To be automatically fetched by IREPS>
Railway Unit	<To be automatically fetched by IREPS>
Railway Department	<To be automatically fetched by IREPS>

## 4. Bidder Details:

Bidder Name	<To be automatically fetched by IREPS>
Bidder ID	<To be automatically fetched by IREPS>
Country of Registration of the Bidder	<To be automatically fetched by IREPS from the vendor master>
Nature of Constitution of the Bidder	<i.e. proprietor or company etc. To be automatically fetched by IREPS from the vendor master>
Contact person	<To be entered by the bidder>
Contact number and email	<To be entered by the bidder>

## 5. Bank Details of the Bidder:

Details of the Bank in India through which the bidder wishes to apply for e- BG	i. Bank Name: ii. IFSC: <To be entered by the bidder>
---	---

## 6. e-BG Amount and Validity Details:

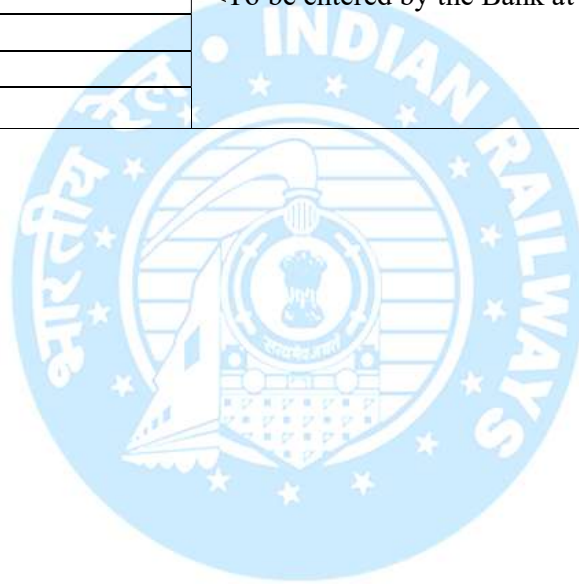
Currency in which e-BG is required	<To be selected from dropdown by bidder >
e-BG Amount	<To be automatically fetched by IREPS>
Validity period required for e-BG	DD.MM.YYYY <To be automatically calculated by IREPS>
Claim Lodging Period required for e-BG	DD.MM.YYYY <To be automatically calculated by IREPS>

**7. Details of Railways for entering into SFMS (Structured Financial Messaging System):**

IFSC	SBIN000RAIL
IFSC Type	BRANCH
Bank Name	STATE BANK OF INDIA
Branch Name	RAIL
City Name	NAVI MUMBAI
Address	SECTOR-11, CBD BELAPUR, NAVI MUMBAI
District	NAVI MUMBAI
State	MAHARASHTRA
BG Enabled	YES

**8. Details of the Bank Officer issuing e-BG:**

Name of the Officer	<To be entered by the Bank at the time of issuing e-BG>
Designation	
Employee Code	
Email Id	
Contact Number	





**(Performance Security)**

E- Bank Guarantee Bond from any scheduled commercial bank of India.

[The General Manager],

....., [Railway],

Beneficiary: PFA / FA & CAO / Sr. DFM..... Railway

Date: .....

**E-Bank Guarantee Bond No.:**

**Date: -----**

**Reference: - Contract No, awarded on.**

WHEREAS:

(A)..... (insert name and address of the contractor) (hereinafter called the **‘Contractor’**) and (insert name and address of the project Railway), (hereinafter called **the ‘Railway’**) have entered into an agreement (herein after called the **“Agreement”**) for in the ..... Railway zone, subject to and in accordance with the provisions of the Agreement.

(B) The Agreement requires the Contractor to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Construction Period/ Defects Liability Period] (as defined in the Agreement) in a sum of Rs ..... cr. (Rupees..... crore) (the **“Guarantee Amount”**).

(C) We,.....through our branch at ..... (the **“Bank”**) have agreed to furnish this e-bank guarantee (here in after called the **“Guarantee”**) by way of Performance Security.

NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Contractor’s obligations during the [Construction Period/ Defects Liability Period] under and in accordance with the Agreement, and agrees and undertakes to pay to the [mention Finance Officer of the Railway], upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Railway shall claim, without the Railway being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Railway, under the hand of an officer not below the rank of [\*\*\*in the \*\*\*] Railway, that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank.

The Bank further agrees that the Railway shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Railway and the Contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other Authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Railway shall be entitled to act as if the Bank

were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Railway to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Railway shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and / or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Railway against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Railway, and the Bank shall not be released from its liability' and obligation under these presents by any exercise by the Railway of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Railway or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Railway in respect of or relating to the Agreement or for the fulfilment, compliance and/or performance of all or any of the obligations of the Contractor under the Agreement.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Railway on the Bank under this Guarantee all rights of the Railway under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on \*\*\*\*\$. Unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Railway in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Railway that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Railway pursuant to the provisions of the Agreement.

Signed and sealed this .....day of .....20 at.....

SIGNED, SEALED AND DELIVERED

For and on behalf of the Bank by:

(Signature)

(Name)

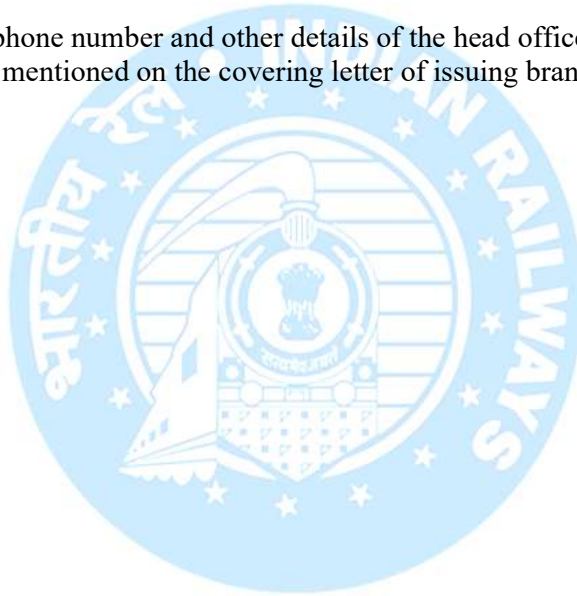
(Designation)

(Code Number)

(Address)

NOTES:

- (i) The e-BG should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.



## e-BG towards Performance Security

## Challan for the e-BG

**1. Challan reference:**

IREPS Reference ID (Unique Reference Number)	<Some number to be automatically generated by IREPS>
Challan Date	DD.MM.YYYY <To be automatically fetched by IREPS>

**2. Beneficiary Details:**

Beneficiary Details	<The associate paying Railway for the tender issuing Railway. To be automatically fetched by IREPS>
Bank Details of the Beneficiary	Account Number Bank Name IFSC < To be automatically fetched by IREPS>

**3. Tender Details:**

Tender No.	<To be automatically fetched by IREPS> <Should not be edited by the Bank>
Tender closing date	<To be automatically fetched by IREPS>
Railway Zone	<To be automatically fetched by IREPS>
Railway Unit	<To be automatically fetched by IREPS>
Railway Department	<To be automatically fetched by IREPS>

**4. Bidder Details:**

Bidder Name	<To be automatically fetched by IREPS>
Bidder ID	<To be automatically fetched by IREPS>
Country of Registration of the Bidder	<To be automatically fetched by IREPS from the vendor master>
Nature of Constitution of the Bidder	<i.e. proprietor or company, etc. To be automatically fetched by IREPS from the vendor master>
Contact person	<To be entered by the bidder>
Contact number and email	<To be entered by the bidder>

**5. Bank Details of the Bidder:**

Details of the Bank in India through which the bidder wishes to apply for e-BG	iii. Bank Name: iv. IFSC: <To be entered by the bidder>
--	---

**6. e-BG Amount and Validity Details:**

Currency in which e-BG is required	<To be selected from dropdown by bidder>
e-BG Amount	<To be automatically fetched by IREPS>
Validity period required for e-BG	DD.MM.YYYY <To be automatically calculated by IREPS>
Claim Lodging Period required for e-BG	DD.MM.YYYY <To be automatically calculated by IREPS>

**7. Details of Railways for entering into SFMS (Structured Financial Messaging System):**

IFSC	SBIN000RAIL
IFSC Type	BRANCH
Bank Name	STATE BANK OF INDIA
Branch Name	RAIL
City Name	NAVI MUMBAI
Address	SECTOR-11, CBD BELAPUR, NAVI MUMBAI
District	NAVI MUMBAI
State	MAHARASHTRA
BG Enabled	YES

**8. Details of the Bank Officer issuing e-BG:**

Name of the Officer	<To be entered by the Bank at the time of issuing e-BG>
Designation	
Employee Code	
Email Id	
Contact Number	





Appendix-3

**Form of Guarantee for Withdrawal of Retention Money**  
E- Bank Guarantee Bond from any scheduled commercial bank of India.

[The General Manager],

....., [Railway],

Beneficiary: PFA / FA & CAO / Sr. DFM..... Railway

Date: .....

**E-Bank Guarantee Bond No.:**

**Date: -----**

**Reference: - Contract No, awarded on.**

WHEREAS:

(A) [insert name and address of the contractor] (hereinafter called the **“Contractor”**) has executed an agreement (hereinafter called the **“Agreement”**) with the [name and address of the project Railway], (hereinafter called the **“Railway”**) for ..... in the ..... Railway zone, subject to and in accordance with the provisions of the Agreement.

(B) In accordance with the Agreement, the Contractor may withdraw<sup>7</sup> the retention money (hereinafter called the **“Retention Money”**) after furnishing to the Railway a bank guarantee for an amount equal to the proposed withdrawal.

(C) We,..... through our branch at ..... (the **“Bank”**) have agreed to furnish this E-bank guarantee (hereinafter called the **“Guarantee”**) for the amount of Rs ..... cr. (Rupees crore) (the **“Guarantee Amount”**).

NOW, THEREFORE, the Bank hereby unconditionally and irrevocably guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably undertakes to pay to the Railway, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Contractor, such sum or sums up to an aggregate sum of the Guarantee Amount as the Railway shall claim, without the Railway being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Railway, under the hand of an officer not below the rank of [\*\*\*in the\*\*\*] Railway, that the Contractor has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Railway shall be the sole judge as to whether the Contractor is in default in due and faithful performance of its obligations during and under the agreement and its decision that the contractor is in default shall be final and binding on the Bank, notwithstanding any differences between the Railway and the contractor, or any dispute between them pending before any court, tribunal, arbitrators or any other Authority or body, or by the discharge of the Contractor for any reason whatsoever.

3. In order to give effect to this Guarantee, the Railway shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Contractor and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.

4. It shall not be necessary, and the Bank hereby waives any necessity, for the Railway to proceed against the Contractor before presenting to the Bank its demand under this Guarantee.

5. The Railway shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and / or performance of all or any of the obligations of the Contractor contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Railway against the Contractor, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Railway, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Railway of the liberty with reference to the matters aforesaid or by reason of time being given to the Contractor or any other forbearance, indulgence, act or omission on the part of the Railway or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.

6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Railway in respect of or relating to the Retention Money.

7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the Guarantee Amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Railway on the Bank under this Guarantee all rights of the Railway under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect 15 (fifteen) days after the date of the Completion Certificate specified in Clause 12.4 of the Agreement.

9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Railway in writing, and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.

10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorised to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Railway that the envelope was so posted shall be conclusive.

11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Railway pursuant to the provisions of the Agreement.

Signed and sealed this ..... day of ..... , 20 ..... at .....

SIGNED, SEALED AND DELIVERED  
For and on behalf of the Bank by:  
(Signature) (Name) (Designation) (Code  
Number) (Address)

**NOTES:**

- (i) The e-bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- (ii) The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch.

**e-BG towards Withdrawal of Retention Money  
Challan for the e-BG**

**1. Challan reference:**

IREPS Reference ID (Unique Reference Number)	<Some number to be automatically generated by IREPS>
Challan Date	DD.MM.YYYY <To be automatically fetched by IREPS>

**2. Beneficiary Details:**

Beneficiary Details	<The associate paying Railway for the tender issuing Railway. To be automatically fetched by IREPS>
Bank Details of the Beneficiary	vii. Account Number viii. Bank Name ix. IFSC <To be automatically fetched by IREPS>

**3. Tender Details:**

Tender No.	<To be automatically fetched by IREPS> <Should not be edited by the Bank>
Tender closing date	<To be automatically fetched by IREPS>
Railway Zone	<To be automatically fetched by IREPS>
Railway Unit	<To be automatically fetched by IREPS>
Railway Department	<To be automatically fetched by IREPS>

**4. Bidder Details:**

Bidder Name	< To be automatically fetched by IREPS>
Bidder ID	< To be automatically fetched by IREPS>
Country' of Registration of the Bidder	<To be automatically fetched by IREPS from the vendor master>

Nature of Constitution of the Bidder	<i.e. proprietor or company, etc. To be automatically fetched by IREPS from the vendor master>
Contact person	<To be entered by the bidder>
Contact number and email	<To be entered by the bidder>

**5. Bank Details of the Bidder:**

Details of the Bank in India through which the bidder wishes to apply for e-BG	v. Bank Name: vi. IFSC: <To be entered by the bidder>
--	---

**6. e-BG Amount and Validity Details:**

Currency in which e-BG is required	<To be selected from dropdown by bidder>
e-BG Amount	<To be automatically fetched by IREPS>
Validity period required for e-BG	DD.MM.YYYY <To be automatically calculated by IREPS>
Claim Lodging Period required for e-BG	DD.MM.YYYY <To be automatically calculated by IREPS>

**7. Details of Railways for entering into SFMS (Structured Financial Messaging System):**

IFSC	SBIN000RAIL
IFSC Type	BRANCH
Bank Name	STATE BANK OF INDIA
Branch Name	RAIL
City Name	NAVI MUMBAI
Address	SECTOR-IL CBD BELAPUR, NAVI MUMBAI
District	NAVI MUMBAI
State	MAHARASHTRA
BG Enabled	YES

**8. Details of the Bank Officer issuing e-BG:**

Name of the Officer	<To be entered by the Bank at the time of issuing e-BG>
Designation	
Employee Code	
Email Id	
Contact Number	

**CHAPTER-8**  
**ANNEXURE-1**

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION**  
**SPECIMEN FORMAT FOR LETTER OF ACCEPTANCE**  
**(IN CASE OF MANNUAL MODE LOAs)**

Without Prejudice

**By Regd. Post with A.D****By Special Man****EAST COAST RAILWAY**

Office of the  
Chief Administrative Officer(Con)  
Bhubaneswar-23

No: CE/CON/I/BBS/T/

Dtd:

To

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Dear Sir(s),

**Sub: - (Name of work).****Ref: - E-Tender Notice No.-----**

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01. With references to above, your offer has been accepted by the Railway Administration at a total value of Rs. --  
---/- (Rupees ----- only) with Contract Period of -- months from the date of issue of this Acceptance  
Letter at the following rates shown against each item under Schedules-A, B, C--- as enclosed to this letter.

**Schedule- 'A': ----- % accepted rate in Above/below/at par****Schedule- 'B': ----- % accepted rate in Above/below/at par****Schedule- 'C': ----- % accepted rate in Above/below/at par**

----- : -----

Other terms and conditions as incorporated in the tender documents issued for the work will be included in a  
formal agreement to be executed by you for carrying out the work.

02. An amount of Rs ----/- (Rupees ---- only) is to be deposited towards Security Deposit.

The EMD submitted on line vide IREPS Ref Id/Bank Trans Id No: ----- dtd. ----- for Rs. ----/- (Rupees ----  
--- only) is adjusted towards Security Deposit. Balance amount of Security Deposit i.e., Rs. ----/- (Rupees --  
----- only) is to be deposited in cash with FA & CAO (Con) E. Co. Railway/Bhubaneswar or  
otherwise if you so desire amount of balance Security Deposit will be recovered at the rate of 6% from your  
running bills of the contract.

03. You are requested to give a performance guarantee in any acceptable form as mentioned in the tender  
document, for an amount of **Rs -----** (-----) before signing of the agreement and it should be  
valid upto the stipulated date of completion plus 60 days. If the performance guarantee is in the form of B.G,  
then it should be as per standard B.G format (enclosed).” **Bank Guarantees (BGs) to be submitted by  
suppliers/contractors should be sent directly to the concerned authorities by the issuing bank under  
Registered post.A.D.**
04. Until a formal Agreement is prepared and executed, acceptance of this Tender shall constitute a binding  
contract. As such you are requested 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 upto 60 days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 12% per annum shall be charged for the delay beyond 21 (twenty-one) days, i.e. from 22nd day after the date of issue of LOA. Further, if the 60th 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 is terminated railway shall be entitled to forfeit Earnest Money Deposit and other dues payable against that contract. In case a tenderer has not submitted Earnest Money Deposit on the strength of their registration as a Start-up 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.

05. Please contact Dy. Chief Engineer (Con)E. Co. Rly. /----- immediately with your execution programme for further instructions to start the work on the authority of this Acceptance Letter.
06. Please acknowledge receipt of this letter of Acceptance and confirm that you are taking action as stated above.

Encl: E-Tender Document & Chapter-9 of Annexed Document.

Yours faithfully,  
Chief Engineer (Con)/--,  
E. Co. Railway/ Bhubaneswar  
For & on behalf of President of India.

No: CE/CON/I/BBS/T/

Dtd. .

**Copy with copy of enclosures forwarded for information to: -**

01. Sr.AFA/C/----- (Expenditure Section). The EMD submitted on line vide IREPS Ref Id/Bank Trans Id No: ----- dtd. ----  
--- for Rs. -----/- (Rupees ----- only) may be adjusted towards Security Deposit.
02. Sr.AFA/C/----- (Finance Section).
03. Principal Director of Audit (Con)/E.Co.Rly./Bhubaneswar.
04. Dy.Chief Engineer (Con)/E.Co.Rly/------. No work order should be issued to the contractor. The contractor should start the work straightway on the basis of this Acceptance Letter for the items and specifications covered therein. Before starting the work, the execution programme should be signed by AXEN/XEN/Dy.CE and Contractor.
05. Regional employment Exchange/BBS/Orissa.
06. Central Industrial Machinery, C/o. Ministry of Labour, 686, Swastik Bhawan, Saheed Nagar, Bhubaneswar.
- 07.Dy. Chief Vigilance Officer/E.Co.Rly/BBS.
08. Regional Labour Commissioner (Central), -----.
09. Labour Enforcement Officer (Central), -----.
10. CE-Con/I/II/III/HQ/BBS.
11. AXEN/Con/Tender/BBS

Encl: E-Tender Document & Chapter-9 of Annexed Document.

Chief Engineer (Con)/--,  
E. Co. Railway/ Bhubaneswar

ANNEXURE - 2

**EAST COAST RAILWAY (CONSTRUCTION ORGANISATION)  
CONTRACT AGREEMENT OF WORKS**

1.	Contract Agreement No.	
2.	Approximate value of contract (in figures & words)	
3.	Total Security Deposit (in figures & words)	
4.	Initial SD deposited by the Contractor (details of the deposit with amount in figures and words)	
5.	Balance SD to be recovered from the contractor (in figures and words)	
6.	Performance guarantee & Penalty amount, if any deposited.	
7.	Date of completion of work	
8.	Name of work	
9.	Estimate No, Allocation with Plan Head of expenditure.	

ARTICLES OF AGREEMENT made this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ between President of India acting through the \_\_\_\_\_ of East Coast 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 above works set forth in the Bills of Quantities hereto annexed upon the Standard General Conditions of Contract, updated with correction slips issued up to date of inviting tender or otherwise specified in the tender documents and the Specifications of Indian Railways Unified Standard Specifications (Works & Materials)/Specifications of CPWD DSR-2019 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 East Coast Railway 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 Bills 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 as mentioned in the tender document from the certified date of their completion and will observe, fulfil 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 Bills of Quantities hereto annexed.

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

Address \_\_\_\_\_

Date \_\_\_\_\_

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

(For President of India)

Date \_\_\_\_\_

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

**Witnesses:** \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_



**CHAPTER-9**

**EAST COAST RAILWAY CONSTRUCTION ORGANISATION**  
**SCHEDULE WISE/ITEM WISE INSTRUCTIONS/NOTES**

A. The Royalty charges as mentioned in Chapter-5/Section-C is indicative only. In addition to Royalty, additional charges, rent, DMF, EMF, CAF etc. are being levied by State Govt. authorities, which may vary from District to District. The rate is inclusive of all these charges and will be on Contractor's account.

**NOTE:** - Execution of this portion of the project is to be completed on top priority basis. Contractors, who have adequate experience and resources to adhere to the specifications and completion schedule, should only participate in this tender.

**Deployment of Personnel.**

In reference to GCC-2022, the Contractor shall deploy the following number of Engineers/Personnel for the key position with requisite qualification and experience as mentioned below. In case of failure to deploy the man-power by the contractor, as stipulated in the contract document, the contractor shall be liable to pay liquidated damage at the rates, as prescribed here under.

SI No	Position	Minimum No. of Personnel	Qualification & Experience in similar works	Liquidated damage to be paid by the contractor.
1	<b>Site Engineer</b>	01 No	Qualified degree Engineer (Civil) with minimum 5 (Five) years' experience as Site Engineer	Rs. 40,000/- Per month or part thereof.
2	<b>Supervisor</b>	01 No	Minimum Diploma in Civil Engineering with 03(three) years' experience.	Rs. 25,000/- Per month or part thereof.

**NOTE:**

1. The details of nos. & position of Engineers/Personnel's required for Various works to be deployed, shall be approved by CE/Con, considering all factors.
2. The personnel to be engaged as above is to be got approved by Dy. CE/Con.
3. The survey team to be deployed by the contractor which should consist of one well experienced survey engineer. The survey team should have survey instruments like DGPS, Advance Total Station, Digital level and other accessories.
4. The contractor shall be liable to pay liquidated damage at the rates, as prescribed above, if man powers are not engaged within 15days from issue of Acceptance Letter.

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**-----END OF THE DOCUMENT-----**