



CENTRAL RAILWAY

CONSTRUCTION ORGANISATION

Engineering Department

**START OF TENDER DOCUMENT****TENDER DOCUMENT / TECHNICAL BID**

<b>e-Tender Notice No. &amp; Date</b>	<b>:</b>	<b>DyCECDR-01-2026R dated. 09.06.2026</b>
<b>Name of work</b>	<b>:</b>	Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.
<b>Tender Value</b>	<b>:</b>	<b>Rs.27,43,93,793.24</b>
<b>Tender Document Cost</b>	<b>:</b>	<b>Not Applicable (As per Clause No.3 at Page 4 of GCC APRIL 2022)</b>
<b>Bid Security</b>	<b>:</b>	<b>Rs.54,87,900 (As per Clause No.5 at Page 4 – 6 of GCC APRIL 2022)</b>
<b>Completion period</b>	<b>:</b>	<b>24 (twenty four) months including monsoon</b>
<b>Sale of Tender forms</b>	<b>:</b>	Tender documents will be available on IREPS website <a href="http://www.ireps.gov.in">www.ireps.gov.in</a> up to 11.00 hours of 00.00.2026.
<b>Date &amp; Time of submission</b>	<b>:</b>	<b>01.07.2026 up to 11.00 hours (online)</b>
<b>Date &amp; Time of opening</b>	<b>:</b>	<b>01.07.2026 after 11.15 hours (online, Technical Bid only)</b>
<b>Office Address</b>	<b>:</b>	Chief Engineer(C)/MTP, Office of the CAO(C), Central Railway, 6th Floor, New Administrative Building, D. N. Road, Mumbai CST – 400 001 (HQ Office) & Dy. Chief Engineer (C), Central Railway, Dada Saheb Phalke Road, Dadar (East), Mumbai-400014 (Field Unit)
<b>Note: Details of Tender Notice, Tender document and corrigendum issued from time to time along with eligibility criteria are available on the website <a href="http://www.ireps.gov.in">www.ireps.gov.in</a>. Necessary changes if required, would be posted on this website at least 15 days prior to opening of tender.</b>		
<b>This Tender document / Technical Bid contains 327 pages serially numbered from 1 to 327 ..</b> <b>The end of document is indicated by “END OF TENDER DOCUMENT (TECHNICAL BID)” marker</b>		

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

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## **SPECIAL INSTRUCTIONS & GUIDELINES FOR SUBMITTING e-TENDERS**

### **e-Tender Notice No. DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

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**Tenderer/s are advised to read the instructions given below & strictly ensure that all the compulsory & important documents as mentioned herein, are uploaded before submitting their tender.**

1. Submission of tenders shall be **ONLY** through e-tendering on the website **www.ireps.gov.in**.
2. **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.

**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.**

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

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

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

**(Ref: Clause 14(i), 14(iii) & 15 of TENDER FORM (Second Sheet) at Page 17 & 19 and Correction Slip No.3 of GCC APRIL 2022).**

3. The tender must be accompanied by a Bid Security as mentioned in Para 5 of Part-1, Instruction to Tenderers (ITT) at Page 4-6 of GCC APRIL 2022, Para 6 (a), 17.5 & 18.6 of TENDER FORM (Second Sheet) along with Annexure-VIA at Page 11, 21, 26 & 37-39 of GCC APRIL 2022, failing which the tender shall be summarily rejected.
4. Following documents mentioned at (a) to (h) below, should be furnished along with tender and should be submitted online at the time of tender bidding. **Tenders not accompanied by these documents will be summarily rejected.** No post tender communication, in any form will be made or entertained, after opening of tenders, in this regard. Railways may however call for the originals of the credentials for verification or any clarifications/confirmations on the contents of the documents submitted:
- (a) TENDER FORM (First Sheet) (Ref: Page 9 & 10 of GCC APRIL 2022).
- (b) Work(s) completion certificate(s) as per the requirement of Technical eligibility criteria (Ref: Clause 10.1 & and for tenderer participating as JV firm Clause 17.15.1 of TENDER FORM (Second Sheet) at Page 12-14 & 24 of GCC APRIL 2022 & Clause 1(3) of SPECIAL CONDITIONS OF CONTRACT (PART-I) (SCC) at Page 138-139 of this document).
- (c) Documents as per the requirement of financial eligibility criteria (Ref: Clause 10.2 and for tenderer participating as JV firm Clause 17.15.2 of TENDER FORM (Second Sheet) along with Annexure-VIB at Page 14, 24-25 & 40 of GCC APRIL 2022).
- (d) Documents for evaluating the Bid Capacity, *for tenders having advertised value more than Rs.20.00 crore* (Ref: Clause 10.3 and for tenderer participating as JV firm Clause 17.15.3 of TENDER FORM (Second Sheet) along with Annexure-VI at Page 14, 25 & 35-36 of GCC APRIL 2022).
- (e) **Certificate**, stating that the tenderer/s are not liable to be disqualified and all their statements / documents submitted along with bid are true and factual, as per Annexure-V and Annexure-V (A) of this document (Ref: Para 6.1 of Part-1, Instruction to Tenderers (ITT) at Page 7 & 33-34 of GCC APRIL 2022 and Correction Slip No.2 of GCC APRIL 2022).
- (f) In case the tenderer is **other than Joint Venture (JV) firm**, tenderer has to submit all the documents as mentioned below (Ref: Clause 14 (ii) (a) to (c), (e) to (g), (iv) and 18.10 of TENDER FORM (Second Sheet) at Page 17-18 & 26-27 of GCC APRIL 2022):

Type of Firm	Documents to be submitted
(a) Sole Proprietorship Firm:	All documents in terms of <b>Para 10 of the Tender Form (Second Sheet) at Page 12-16 of GCC APRIL 2022.</b>
(b) HUF:	<p>(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.</p> <p>(ii) All other documents in terms of <b>Para 10 of the Tender Form (Second Sheet) at Page 12-16 of GCC APRIL 2022.</b></p>

Type of Firm	Documents to be submitted
(c) <b>Partnership Firm:</b>	<p>(i) A notarized copy of the Partnership Deed <b>or a copy of the Partnership deed registered with the Registrar.</b></p> <p>(ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement etc. and create liability against the firm.</p> <p>(iii) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of <b>submission</b> of bids, either in their individual capacity or in any firm / <b>LLP</b> in which they were / are partners /<b>members</b>. Any Concealment / wrong information in regard to above shall make <b>the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.</b></p> <p><b>NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.</b></p> <p>(iv) All other documents in terms of <b>Para 10 of the Tender Form (Second Sheet) at Page 12-16 of GCC APRIL 2022.</b></p>
(e) <b>Company registered under Companies Act-2013:</b>	<p>(i) The copies of <b>MOA (Memorandum of Association) / AOA (Articles of Association)</b> of the company</p> <p>(ii) A copy of Certificate of Incorporation.</p> <p>(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.</p> <p>(iv) All other documents in terms of <b>Para 10 of the Tender Form (Second Sheet) at Page 12-16 of GCC APRIL 2022.</b></p>
<b>LLP (Limited Liability Partnership) registered under LLP Act-2008:</b>	<p>(i) A copy of LLP Agreement</p> <p>(ii) A copy of Certificate of Incorporation</p> <p>(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.</p> <p>(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</p>

Type of Firm	Documents to be submitted
	<p>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.</p> <p><b>NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.</b></p> <p>(v) All other documents in terms of <b>Para 10 of the Tender Form (Second Sheet) at Page 12-16 of GCC APRIL 2022.</b></p>
<b>Registered Society &amp; Registered Trust:</b>	<p>(i) A copy of Certificate of Registration.</p> <p>(ii) A copy of Memorandum of Association of Society / Trust Deed.</p> <p>(iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust.</p> <p>(iv) A copy of Rules &amp; Regulations of the Society.</p> <p>(v) All other documents in terms of <b>Para 10 of the Tender Form (Second Sheet) at Page 12-16 of GCC APRIL 2022.</b></p>

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

- (g) In case the tenderer is a **Joint Venture (JV) firm**, tenderer has to submit all the documents as mentioned below:

- (i) 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. (**Ref: Clause 17.6 of TENDER FORM (Second Sheet) at Page 21 of GCC APRIL 2022 & Appendix-VIII of the Tender Document**).

- (ii) **Documents of JV Members:**

(**Ref: Clause 17.14 of TENDER FORM (Second Sheet) at Page 22-24 of GCC APRIL 2022**).

In case one or more of the members of the JV is / are:

Type of Firm	Documents to be submitted
<b>Partnership Firm:</b>	<p>(i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.</p>

Type of Firm	Documents to be submitted
	<p>(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,</p> <p>(iii) A notarized or registered copy of Power of Attorney in favour of the individual to sign the MOU/JV Agreement on behalf of the partnership firm and create liability against the firm.</p> <p>(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.</p> <p><b>NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.</b></p>
<b>Proprietary Firm or HUF:</b>	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.
<b>Companies</b>	<p>(i) A copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement;</p> <p>(ii) The copies of MOA (Memorandum of Association) / AOA (Articles of Association) of the company;</p> <p>(iii) A copy of Certificate of Incorporation; and</p> <p>(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.</p>
<b>LLP firm/s</b>	<p>(i) A copy of LLP Agreement</p> <p>(ii) A copy of Certificate of Incorporation of LLP</p> <p>(iii) A copy of resolution passed by partners of LLP firm, permitting the Firm to enter into a JV agreement</p>

Type of Firm	Documents to be submitted
	<p>(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.</p> <p>(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.</p> <p><b>NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.</b></p>
<b>Society/s or Trust/s</b>	<p>(i) A copy of Certificate of Registration</p> <p>(ii) A copy of Memorandum of Association of Society/Trust Deed</p> <p>(iii) A copy of Rules &amp; Regulations of the Society</p> <p>(iv) A copy of Power of Attorney, in favour of the individual to sign the tender documents and create liability against the Society/Trust.</p>

(iii) All other documents in terms of **Para 10 of the Tender Form (Second Sheet) at Page 12-16 of GCC APRIL 2022.**

(h) Copy of **Ballast Test Report**, if applicable to the tender.

5. Compliance of **Employment / Partnership etc. of Retired Railway Employees** as per **Clause 16 of TENDER FORM (Second Sheet) at Page 19-20 of GCC APRIL 2022**, failing which contract is liable to be dealt in accordance with provision of **Clause 62 of Standard General Condition of Contract at Page 92-95 of GCC APRIL 2022 (Note: Information / Certification should be given as per 'Appendix-IV' of the Tender / Technical Bid Document).**
6. Tenderers shall note that the submission of other following supporting documents, **is important and they shall ensure the same at the time of online bidding of tender.** However, Railways may seek clarifications / details / documents in this regard:
  - (a) Copy of **Vendor Mandate Form** as per **Appendix-VII** of the Tender Document. All Payments to the agency [Including the refund of the Earnest Money (EMD) of the unsuccessful bidder] will be remitted through NEFT. The Tenderer is required to declare Bank details and A/C No. etc. in Vendor Mandate Form.

- (b) Copy of the **complete details of the firm** as per **Appendix-I** of the Tender / Technical Bid Document, to which all correspondences shall be made by the Railway.
  - (c) Copy of **Goods and Services Tax (GST) Registration Certificate** containing **GST Registration Number**.
  - (d) Copy of certificate by tenderer for **site visit & familiarization** as per **Appendix-VI** of the Tender / Technical Bid Document.
  - (e) Copy of the **list of the Personnel / Organisation of the tenderer on hand and proposed to be engaged for this tender** as per **Appendix-IV** of the Tender / Technical Bid Document.
  - (f) Copy of **list of the plants & machinery of tenderer available on hand and proposed to be inducted & hired for this tender** as per **Appendix-V** of the Tender / Technical Bid Document.
7. **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 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.**

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**INTRODUCTION OF ELECTRONIC REVERSE AUCTION (e-RA) FOR WORKS CONTRACTS (Rs.50.00 crores & above)**

*(Authority Railway Board's letter No.2017/Trans/01/Policy/Pt-S dated 28.03.2018)*

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The following procedure shall be followed for tenders invited through '**ELECTRONIC REVERSE AUCTION (e-RA) FOR WORKS CONTRACTS**' System.

1. Tenders invited shall be by selecting the '**ELECTRONIC REVERSE AUCTION (e-RA)**' option on the IREPS website.
2. (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 shall be extended for time equal to auto extension period from time to 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 after evaluation of the 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, before starting of reverse auction. Starting point for reverse auction shall be the lowest Price Bid of the tenderer eligible for award of contract. During Reverse Auction process, bidders shall not be allowed to bid a rate higher than the lowest Initial Price Offer.
7. After close of the e-RA, tabulation of last (minimum) bids received from all the tenderers will be generated and made visible to the participating tenderers.
8. Railway users can also view the bidding history in chronological order.
9. Bidders will not be allowed to withdraw their last offer.
10. L-1 will be defined as the lowest bid obtained after the closure of e-RA session.

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**Note: e-RA not applicable in this tender**

SECTION  
“A”  
TENDER INFORMATION;  
  
Indian Railways  
Standard  
General Conditions of  
Contract  
GCC April 2022  
&  
SPECIAL CONDITIONS  
OF CONTRACT (PART-I)  
(SCC)

**CENTRAL RAILWAY****TENDER DETAILS**

**e-Tender Notice No.** : **DyCECDR-01-2026R**

**Name of Work** : Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

**Tender Value** : **Rs.27,43,93,793.24**

**Tender Document Cost** : **Not Applicable**

**Bid Security** : **Rs.54,87,900.**  
{(As per Clause No.5 at Page 4 – 6 of GCC APRIL 2022)}.

**Completion period** : **24 (Twenty four)Months including monsoon.**

**Due on** : **01.07.2026 up to 11.00 hours (Online)**

**Date of opening** : **01.07.2026 after 11.15 hours (Online / Technical Bid only)**

**Issued to** : **M/s\_\_\_\_\_**  
  
**\_\_\_\_\_**

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## CENTRAL RAILWAY

CONTRACT DETAILS

**e-Tender Notice No.** : **DyCECDR-01-2026R**

**Contract Agreement No.** :

**Name of work** : Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

**Value of work** :

**Date of Acceptance** :

**Completion period** : **24 (Twenty four) Months including monsoon.**

**Date of Completion** :

**Name of Contractor** : **M/s .....**

.....

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**ACCEPTANCE OF TENDER****e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project. \*\*\*\*\*

CAO(C), Central Railway, CSMT, Mumbai for and on behalf of the PRESIDENT OF INDIA has accepted the instant Tender and agrees to pay the rates as entered in the schedule of quantities and rates & 'Offer Sheet' at Page Nos. \_\_\_\_\_ of Price Bid document.

**Chief Engineer (Const.)/MTP**  
CENTRAL RAILWAY  
For and on behalf of the  
PRESIDENT OF INDIA

**Date** .....

**Witnesses:**

(1) .....

(2) .....

# Indian Railways Standard General Conditions of Contract

GCC April 2022

Engineering Department

**This document has been  
corrected up to Correction Slip 10  
of GCC 2022 issued by Railway  
Board.**

GCC April 2022

## Indian Railways

## STANDARD GENERAL CONDITIONS OF CONTRACT

## I N D E X

## PART - I

## REGULATIONS FOR TENDERS AND CONTRACTS

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## PART I

### Instructions to Tenderers (ITT)

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

**1.01 Order of Precedence of Documents:** In a tender/contract, in case of any difference, contradiction, discrepancy, with regard to conditions of tender/contract, specifications, drawings, bill of quantities etc., forming part of the tender/contract, the following shall be the order of precedence:

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

**1.1 Interpretation:** These Regulations for Tenders and Contracts shall be read in conjunction with the Standard General Conditions of Contract which are referred to herein and shall be subject to modifications additions or suppression by Special Conditions of Contract and/or Special Specifications, if any, annexed to the Tender Forms.

**1.2 Definition:** In these Regulations for Tenders and Contracts the following terms shall have the meanings assigned hereunder except where the context otherwise requires:

- (a) "Railway" shall mean the President of the Republic of India or the administrative officers of the Railway or Successor Railway authorized to deal with any matter, which these presents are concerned on his behalf.
- (b) "General Manager" shall mean the Officer-in-Charge of the general superintendence and control of the Zonal Railway/Production Unit and shall also include Addl. General Manager, General Manager (Construction) and shall mean and include their successors of the Successor Railway.
- (c) "Chief Engineer" shall mean the Officer-in-Charge of the Engineering Department of Railway and shall also include Chief Engineer (Construction), Chief Electrical Engineer, Chief Electrical Engineer (Construction), Chief Signal & Telecom Engineer, Chief Signal

- & Telecom Engineer (Construction), Chief Mechanical Engineer and shall mean and include their successors of the Successor Railway.
- (d) "Divisional Railway Manager" shall mean the Officer-in-Charge of a Division of Zonal Railway and shall mean and include Divisional Railway Manager of the Successor Railway.
  - (e) "Engineer" shall mean the Divisional Engineer or Executive Engineer, Divisional Signal & Telecom Engineer, Divisional Electrical Engineer, Divisional Mechanical Engineer in executive charge of the works and shall include the superior officers, both Open Line and Construction Organisations, of Engineering, Signal & Telecom, Mechanical and Electrical Departments, i.e. the Senior Divisional Engineer/Deputy Chief Engineer, Senior Divisional Signal & Telecom Engineer / Dy. Chief Signal & Telecom Engineer, Senior Divisional Electrical Engineer / Deputy Chief Electrical Engineer, Senior Divisional Mechanical Engineer and shall mean & include the Engineers of the Successor Railway.
  - (f) "Tenderer" shall mean the person / firm / co-operative or company whether incorporated or not who tenders for the works with a view to execute the works on contract with the Railway and shall include their representatives, successors and permitted assigns.
  - (g) "Limited Tenders" shall mean tenders invited from all or some contractors on the approved or select list of contractors with the Railway.
  - (h) "Open Tenders" shall mean the tenders invited in open and public manner and with adequate notice.
  - (i) "Works" shall mean the works contemplated in the drawings and schedules set forth in the tender forms and required to be executed according to the specifications.
  - (j) "Specifications" shall mean the Specifications for Materials and Works of the Railway as specified under the authority of the Ministry of Railways or Chief Engineer or as amplified, added to or superseded by special specifications if any, appended to the Tender Forms.
  - (k) Standard Schedule of Rates (SSOR) shall mean the schedule of Rates adopted by the Railway, which includes-
    - 1. "Unified Standard Schedule of Rates of the Railway (USSOR)" i.e. the Standard Schedule of Rates of the Railway issued under the authority of the Chief Engineer from time to time, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents;
    - 2. "Delhi Schedule Of Rates (DSR)" i.e. the Standard Schedule of Rates published by Director General/ Central Public Works Department, Government of India, New Delhi, as adopted and modified by the Railway under the authority of the Chief Engineer from time to time, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
  - (l) "Drawings" shall mean the maps, drawings, plans and tracings, or prints thereof annexed to the Tender Forms.
  - (m) "Contractor's authorized Engineer" shall mean a graduate engineer or equivalent, having more than 3 years' experience in the relevant field of construction work involved in the contract, duly approved by the Engineer.
  - (n) Date of inviting tender shall be the date of publishing tender notice on IREPS website if tender is published on website or the date of publication in newspaper in case tender is not published on website.
  - (o) "Bill of Quantities" shall mean Schedule of Item(s) included in the tender document along with respective quantities.

**1.3** Words importing the singular number shall also include the plural and vice versa where the context requires.

## **CREDENTIALS OF CONTRACTORS**

### **2. Application for Registration:**

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

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

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

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

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

## **TENDERS FOR WORKS**

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

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

**5. Bid Security:**

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

( as per Advance Correction Slip No.II to Indian Railways Standard General Conditions of Contract. April-2022)

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

Note:

- (i) The Bid Security shall be rounded off to the nearest ₹100. This Bid Security shall be applicable for all modes of tendering.
  - (ii) Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as 'Startups' shall be exempted from payment of Bid Security detailed above.
  - (iii) Labour Cooperative Societies shall submit only 50% of above Bid Security detailed above.
- (b) It shall be understood that the tender documents have been issued to the tenderer and the tenderer is permitted to tender in consideration of stipulation on his part, that after submitting his tender he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to the Engineer. Should the tenderer fail to observe or comply with the said stipulation, the aforesaid amount shall be liable to be forfeited to the Railway.
- (c) If his tender is accepted, this Bid Security mentioned in sub Para (a) above will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract. The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation that may happen thereto while in their possession, nor be liable to pay interest thereon.
- (2) The Bid Security shall be deposited either in cash through e-payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents. The Bank Guarantee bond shall be as per **Annexure-VIA** and shall be valid for a period of 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)**. as per

Advance Correction Slip No.05 to Indian Railways Standard General Conditions of Contract. April-2022)

- 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 Authority assumes no responsibility for the misplacement or premature opening of the contents of the Bid submitted and consequent losses, if any, suffered by the Bidder.

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

- (a) (i) Before submitting a tender, the tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the works, that all conditions liable to be encountered during the execution of the works are taken into account and that the rates he enters in the tender forms are adequate and all inclusive to accord with the provisions in Clause-37 of the Standard General Conditions of Contract for the completion of works to the entire satisfaction of the Engineer.
- (a) (ii) Tenderers will examine the various provisions of The Central Goods and Services Tax Act, 2017(CGST)/ Integrated Goods and Services Tax Act, 2017(IGST)/ Union Territory Goods and Services Tax Act, 2017(UTGST)/ respective state's State Goods and Services Tax Act (SGST) also, as notified by Central/State Govt. & as amended from time to time and applicable taxes before bidding. Tenderers will ensure that full benefit of Input Tax Credit (ITC) likely to be availed by them is duly considered while quoting rates.
- (a) (iii) The successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST Act to railway immediately after the award of contract, without which no payment shall be released to the Contractor. The Contractor shall be responsible for deposition of applicable GST to the concerned authority.
- (a) (iv) In case the successful tenderer is not liable to be registered under CGST/IGST/UTGST/ SGST Act, the railway shall deduct the applicable GST from his/their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.
- (a)(v) Contractor shall be liable to pay/refund the amount 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 invoice s 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.

- 6.1** The tenderers shall submit a copy of certificate stating that all their statements/documents submitted along with bid are true and factual. Standard format of certificate to be submitted by the bidder is enclosed as **Annexure-V. In addition to Annexure-V, in case of other than Company/Proprietary firm Annexure-V(A) shall also be submitted by the each member of a Partnership Firm / Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc., as the case may be.** Non submission of above certificate(s) by the bidder shall result in **summarily** rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify state and submit the supporting documents duly self-attested/digitally signed by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document. (**Authority:** Advance correction slip No.2 published vide Railway Board letter No.2022/CE-I/CT/GCC-2022/Policy, New Delhi, dt.13.12.2022).

## CONSIDERATION OF TENDERS

**7. Right of Railway to Deal with Tenders:** The Railway reserves the right of not to invite tenders for any of Railway work or works or to invite open or limited tenders and when tenders are called to accept a tender in whole or in part or reject any tender or all tenders without assigning reasons for any such action. In case if tender is accepted in part by Railway administration, Letter of Acceptance shall be issued as counter offer to the Tenderer, which shall be subject to acceptance by the Tenderer.

**7A. Two Packets System of Tendering:** With a view to assess the tenders technically without being influenced by the financial bids, 'Two Packets System of tendering' shall be adopted wherein tender documents provide for the same.

**7B. Pre Bid Conference:** Intenders having advertised value more than Rs 50 Crore or as mentioned in the tender document, Railway shall conduct Pre Bid Conference(s) with the prospective bidders.

**7C. Make in India Policy:** Provisions of Make in India Policy 2017 issued by Govt. of India, as amended from time to time, shall be followed for consideration of tenders.

**7D. Permission to Bid for a bidder from a country which shares Land boundary with India:** Any bidder from the countries sharing a land border with India will be eligible to bid in any procurement of works (including turnkey projects) only if the bidder is registered with the Competent Authority. The Competent Authority for registration will be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT), Government of India. For interpretation of this Para, Department of Expenditure, Ministry of Finance, Government of India letter F.No.6/18/2019-PPD dated 23/07/2020 shall be referred.

**7E. Clarification of Bids:** To assist in the examination, evaluation & comparison and pre-qualification of the Tender, the Railway may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Railway shall not be entertained or considered. The Railway request for clarification and the response of the bidder in this regard shall be in writing.

However, if a Bidder does not provide clarification of its bid by the date and time communicated in the Railway request for clarification, the bid shall be evaluated as per the documents submitted along with the bid.

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

**9. Form of Contract Document:** Every contract shall be complete in respect of the document it shall so constitute. Not less than 2 copies of the contract document shall be signed by the competent authority and the Contractor and one copy given to the Contractor (there would be no need of signing two copies if agreement is signed digitally).

a) For Zone Contracts, awarded on the basis of the percentage above or below the applicable chapter(s) of Standard Schedule of Rates (SSOR) for the whole or part of financial year, the contract agreement required to be executed by the tenderer whose tender is accepted shall be as per specimen form, Annexure-II. During the currency of the Zone Contract, work orders as per specimen form Annexures-III, for works not exceeding ₹ 5,00,000 each, shall be issued by the Divisional Railway Manager / Executive Engineer under the agreement for Zone Contract.

(b) For contracts for specific works, the contract document required to be executed by the tenderer whose tender is accepted shall be an agreement as per specimen form Annexure- IV.

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

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

\*\*\*\*\*

To

The President of India

Acting through the Chief Engineer(C)/MTP, Central Railway

1. I/We \_\_\_\_\_ have read the various conditions to tender attached hereto and agree to abide by the said conditions. I/We also agree to keep this offer open for acceptance for a period of ..... days from the date fixed for closing of the tender and in default thereof, I/We will be liable for forfeiture of my/our "Bid Security". I/We offer to do the work for Central Railway, at the rates quoted in the attached bill(s) of quantities and hereby bind myself/ourselves to complete the work in all respects within 24 (**twenty four**) 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. 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.

**Tenderers**

**DyCECDR**

Signature of Tenderer(s)

Date \_\_\_\_\_

Address of the Tenderer(s)

\_\_\_\_\_

**Note: This form (Annexure-I) should be uploaded duly filled with the Name & seal of the participating firm/s viz. Proprietary firm / Company / Partnership Firm / Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc., as the case may be, and signature of Authorised signatory.**

**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 (uploaded separately)
- (d) Standard General Conditions of Contract and Standard Specifications (Works and Materials) of Indian Railways as amended/corrected upto latest correction slips, copies of which can be seen in the office of the Chief Engineer(C), Central Railway or obtained from the office on payment of prescribed charges.
- (e) Standard Schedule of Rates (SSOR) as amended / corrected upto latest correction slips, copies of which can be seen in the office of the Chief Engineer(C), Central Railway or obtained from the office 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.CE(C)/Dadar and / or Chief Engineer(C) /MTP, Central Railway at any time during the office hours. The drawings are only for the guidance of Tenderer(s). Detailed working drawings (if required) based generally on the drawing mentioned above, will be given by the Engineer or his representative from time to time.

**3.** The Tenderer(s) shall quote his / their rates as a percentage above or below the Standard Schedule of Rates (SSOR) of Indian Railway as applicable to Central Railway Division except where he/they are required to quote item rates and must tender for all the items shown in the Bill(s) of Quantities attached. The quantities shown in the attached Bill(s) of Quantities are given as a guide and are approximate only and are subject to variation according to the needs of the Railway. The Railway does not guarantee work under each item of the Bill(s) of Quantities. The tenderer(s) shall quote rates / rebates only at specified place in Tender Form supplied by Railway. Any revision of rates / rebates submitted (quoted) through a separate letter whether enclosed with the bid (Tender Form) or submitted separately or mentioned elsewhere in the document other than specified place shall be summarily ignored and will not be considered.

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

**5.** The works are required to be completed within a period of **24(Twenty four)** months including monsoon 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 **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 Central Railway. Should the tenderer fail to observe or comply with the foregoing stipulation, the amount deposited or Bank guarantee bond submitted as Bid Security for the due performance of the above stipulation, shall be forfeited to the Railway.

(c) If his tender is accepted,

- (i) the Bid Security mentioned in sub Para(a) above deposited in cash through e-payment gateway will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract;
- (ii) the Bid Security mentioned in sub Para(a) above submitted as Bank guarantee bond, will be encashed as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract.

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

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

**7. Rights of the Railway to deal with Tender:** The authority for the acceptance of the tender will rest with the Railway. It shall not be obligatory on the said authority to accept the lowest tender or any other tender, and tenderer(s) shall neither demand any explanation for the cause of rejection of his/ their tender nor the Railway to assign reasons for declining to consider or reject any particular tender or tenders.

**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 one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

- (i) Three similar works each costing not less than the amount equal to 30% of advertised value of the tender, or
- (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or
- (iii) One similar work costing not less than the amount equal to 60% of advertised value of the tender.

(b) (1) In case of tenders for composite works (e.g. works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges – substructure, superstructure etc.), tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

- (i) Three similar works each costing not less than the amount equal to 30% of advertised value of each component of tender, or
- (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of each component of tender, or
- (iii) One similar work each costing not less than the amount equal to 60% of advertised value of each component of tender.

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

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

(b) (3) To evaluate the technical eligibility of tenderer, only components of work as stipulated in tender documents for evaluation of technical eligibility, shall be considered. The scope of work covered in other remaining components shall be either executed by tenderer himself if he has work experience as mentioned in clause 7 of the Standard General Conditions of Contractor through subcontractor fulfilling the requirements as per clause 7 of the Standard General Conditions of Contract or jointly i.e., partly himself and remaining through subcontractor, with prior approval of Chief Engineer in writing.

However, if required in tender documents by way of Special Conditions, a formal agreement duly notarized, legally enforceable in the court of law, shall be executed by the main contractor with the subcontractor for the component(s) of work proposed to be executed by the subcontractor(s), and shall be submitted along with the offer for considering subletting of that scope of work towards fulfillment of technical eligibility. Such subcontractor must fulfill technical eligibility criteria as follows:

The subcontractor shall have successfully completed at least one work similar to work proposed for subcontract, costing not less than 35% value of work to be subletted, in last 5 years, ending last day of month previous to the one in which tender is invited through a works contract.

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

In case after award of contract or during execution of work it becomes necessary for contractor to change subcontractor, the same shall be done with subcontractor(s) fulfilling the requirements as per clause 7 of the Standard General Conditions of Contract, with prior approval of Chief Engineer in writing.

Note for Item 10.1:

Work experience certificate from private individual shall not be considered. However, in addition to work experience certificates issued by any Govt. Organization, work experience

certificate issued by Public listed company having average annual turnover of Rs.500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, incorporated/registered at least 5 years prior to the date of closing of tender, shall also be considered provided the work experience certificate has been issued by a person authorized by the Public listed company to issue such certificates.

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

**10.2. Financial Eligibility Criteria:** The tenderer must have minimum average annual contractual turnover of 'V/N' or 'V' whichever is less; where,

V = Advertised value of the tender in crores of Rupees

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

The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years, as per the audited balance sheet. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover.

The tenderers shall submit requisite information as per Annexure-VIB, along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet.

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

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

**10.5** Credentials if submitted in foreign currency shall be converted into Indian currency i.e., Indian Rupee as under:

The conversion rate of US Dollars into Rupees shall be the daily representative exchange rates published by the Reserve Bank of India or entity authorized by RBI to do so for the relevant date or immediately previous date for which rates have been published. Where, relevant date shall be as on the last day of month previous to the one in which tender is invited. In case of any other currency, the same shall first be converted to US Dollars as on the last day of month previous to the one in which tender is invited, and the amount so derived in US Dollars shall be converted into Rupees at the aforesaid rate. The conversion rate of such currencies shall be the daily representative exchange rates published by the International Monetary Fund for the relevant date or immediately previous date for which rates have been published.

*[Explanation for Para 10 of the Tender Form (Second Sheet) including Para 10.1 to 10.5 - Eligibility Criteria:*

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

2. *In case a work is started prior to 07 (seven) years, ending last day of month previous to the one in which tender is invited, but completed in last 07 (seven) years, ending last day of month previous to the one in which tender is invited, the completed work shall be considered for fulfillment of credentials.*
3. *If a work is physically completed and completion certificate to this extent is issued by the concerned organization but final bill is pending, such work shall be considered for fulfillment of credentials*
4. *In case of completed work, the value of final bill (gross amount) including the PVC amount (if paid) shall be considered as the completion cost of work. In case final bill is pending, only the total gross amount already paid including the PVC amount (if paid) shall be considered as the completion cost of work.*

*In case of substantially completed work, the total gross amount already paid including the PVC amount (if paid), as mentioned in the certificate, shall be considered as the cost of substantially completed work.*

5. *If a bidder has successfully completed a work as subcontractor and the work experience certificate has been issued for such work to the subcontractor by a Govt. Organization or public listed company as defined in Note for Item 10.1 Para 10 of the Tender Form (Second Sheet), the same shall be considered for the purpose of fulfillment of credentials.*
6. *In case a work is considered similar in nature for fulfillment of technical credentials, the overall cost including the PVC amount (if paid) of that completed work or substantially completed work, shall be considered and no separate evaluation for each component of that work shall be made to decide eligibility.*
7. *In case of newly formed partnership firm, the credentials of individual partners from previous propriety firm(s) or dissolved previous partnership firm(s) or split previous partnership firm(s), shall be considered only to the extent of their share in previous entity on the date of dissolution / split and their share in newly formed partnership firm. For example, a partner A had 30% share in previous entity and his share in present partnership firm is 20%. In the present tender under consideration, the credentials of partner A will be considered to the extent of  $0.3 \times 0.2$  \* 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 new partner(s) joins the firm without any modification in the name and PAN/TAN no. of the firm, the credentials of partnership firm shall get enhanced to the extent of credentials of newly added partner(s) on the same principles as mentioned in item 6 above. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deeds, dissolution/splitting deeds and proof of surrender of PAN No.(s) in case of dissolution of partnership firm etc.*
10. *Any partner in a partnership firm cannot use or claim his credentials in any other firm without leaving the partnership firm i.e., In a partnership firm of A&B partners, A or B*

*partner cannot use credentials of partnership firm of A&B partners in any other partnership firm or propriety firm without leaving partnership firm of A&B partners.*

11. *In case a partner in a partnership firm is replaced due to succession as per succession law, the proportion of credentials of the previous partner will be passed on to the successor.*
12. *If the percentage share among partners of a partnership firm is changed, but the partners remain the same, the credentials of the firm before such modification in the share will continue to be considered for the firm as it is without any change in their value. Further, in case a partner of partnership firm retires without taking away any credentials from the firm, the credentials of partnership firm shall remain the same as it is without any change in their value.*
13. *In a partnership firm "AB" of A&B partners, in case A also works as propriety firm "P" or partner in some other partnership firm "AX", credentials of A in propriety firm "P" or in other partnership firm "AX" earned after the date of becoming a partner of the firm AB shall not be added in partnership firm AB.*
14. *In case a tenderer is LLP, the credentials of tenderer shall be worked out on above lines similar to a partnership firm.*
15. *In case company A is merged with company B, then company B would get the credentials of company A also.]*

#### **11. Tenderer Credentials:**

Documents testifying tenderer previous experience and financial status should be produced along with the tender.

Tenderer(s) who is / are not borne on the approved list of the Contractors of Central 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-V. **In addition to Annexure-V, in case of other than Company/Proprietary firm Annexure-V(A) shall also be submitted by the each member of a Partnership Firm / Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc., as the case may be.** Non submission of a copy of certificate by the bidder shall result in summarily rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested / digitally signed by which they/he are/is qualifying the Qualifying Criteria mentioned in the Tender Document. (**Authority: Advance correction slip No.2 published vide Railway Board letter No.2022/CE-I/CT/GCC-2022/Policy, New Delhi, dt. 13.12.2022).**)
- (v) The Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be

necessary for such verification. Any such verification or lack of such verification, by the Railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the Railway thereunder.

- (vi) (a) In case of any information submitted by tenderer is found to be false forged or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender Bid Security besides banning of business for a period of upto **two** years. as per Advance Correction Slip No.3 to Indian Railways Standard General Conditions of Contract. April-2022)

(b) In case of any information submitted by tenderer is found to be false forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security Deposit available with the railway shall be forfeited. In addition, other dues of the contractor, if any, under this contract shall be forfeited and agency shall be banned for doing business for a period of upto **two** years. as per Advance Correction Slip No.3 to Indian Railways Standard General Conditions of Contract. April-2022)

- 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 (C)/MTP, Central 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 upto 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 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 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).
- (g) **Registered Society & Registered Trust:**
- (i) A copy of Certificate of Registration
  - (ii) A copy of Memorandum of Association of Society/Trust Deed
  - (iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create 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.** as per Advance Correction Slip No.II to Indian Railways Standard General Conditions of Contract. April-2022)

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

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

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

**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 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 normally allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc. and minimum eligibility criteria should not get vitiated. Failure to observe this stipulation shall be deemed to be breach of contract with all consequential penal action as per contract conditions.

**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. as per Advance Correction Slip No.3 to Indian Railways Standard General Conditions of Contract. April-2022)

**17.13** No member of the Joint Venture shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the Railway in respect of the said tender/contract.

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

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

- (i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.
- (ii) A copy of consent of all the partners or individual authorized by partnership firm, to enter into the Joint Venture Agreement on a stamp paper,
- (iii) A notarized or registered copy of Power of Attorney in favour of the individual to sign the MOU/JV Agreement on behalf of the partnership firm and create liability against the firm.
- (iv) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.

**NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.**

**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. as per Advance Correction Slip No.3 to Indian Railways Standard General Conditions of Contract. April-2022)*

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

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

(a) For Works without composite components

The technical eligibility for the work as per Para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV'.

Each other (non-lead) member(s) of JV, who is/ are not satisfying the technical eligibility for the work as per Para 10.1 above, shall have technical capacity of minimum 10% of the cost of work i.e., each non-lead member of JV member must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 10% of advertised value of the tender.

(b) For works with composite components

The technical eligibility for major component of work as per Para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV' and technical eligibility for other component(s) of work as per Para 10.1 above, shall be satisfied by either the 'JV in its own name & style' or 'any member of the JV'.

Each other (non-lead) member(s) of JV, who is/ are not satisfying the technical eligibility for any component of the work as per Para 10.1 above, shall have technical capacity of minimum 10% of the cost of any component of work mentioned in technical eligibility criteria. i.e., each other (non-lead) member of must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 10% of cost of any component of work mentioned in technical eligibility criteria.

*Note for Para 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 member 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 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 normally be allowed to be modified / altered / terminated during the validity of the tender as well as the

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

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

18.5 A partner of the firm shall not be permitted to participate either in his individual capacity or as a partner of any other firm in the same tender.

18.6 The tender form shall be submitted only in the name of partnership firm. The Bid Security shall be submitted by partnership firm. The Bid Security submitted in the name of any individual partner or in the name of authorized partner (s) shall not be considered.

18.7 On issue of Letter of Acceptance (LOA) to the partnership firm, all the guarantees like Performance Guarantee, Guarantee for various Advances to the Contractor shall be submitted only in the name of the partnership firm and no splitting of guarantees among the partners shall be acceptable.

18.8 On issue of Letter of Acceptance (LOA), contract agreement with partnership firm shall be executed in the name of the firm only and not in the name of any individual partner.

18.9 In case the Letter of Acceptance (LOA) is issued to a partnership firm, the following undertakings shall be furnished by all the partners through a notarized affidavit, before signing of contract agreement.

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

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

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

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

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

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

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

- (i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.
- (ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement etc. and create liability against the firm.
- (iii) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.

**NOTE: THIS DOCUMENT SHOULD BE SIGNED BY ALL THE PARTNERS OF THE FIRM.**

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

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

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

#### 19.0 Advances to Contractor:

If specifically provided in Tender Documents of tender having advertised value more than Rs.50.00 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% (five percent).** The payment and recovery of such advances shall be made as per manners prescribed in Clause 46.4 of the Standard General Conditions of Contract.

(Signature)

(Designation)  
Central Railway  
Date

Signature of Tenderer(s)  
Date:

#### ANNEXURE - I (Contd. ...)

#### TENDER FORM (Third Sheet)

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

#### BILL OF QUANTITIES

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

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

Tenderers

DyCECDR

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

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

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

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

Dated \_\_\_\_\_

Signature of the Tenderer(s)

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

**ANNEXURE – II****AGREEMENT FOR ZONE CONTRACT**

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

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

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

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

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

Contractor \_\_\_\_\_

Designation \_\_\_\_\_

Address \_\_\_\_\_

Railway \_\_\_\_\_

(For President of India)

Witnesses (to signature of Contractor):

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

Date \_\_\_\_\_

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

Date \_\_\_\_\_

## ANNEXURE - III

**WORK ORDER UNDER ZONE CONTRACT**

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

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

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

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

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

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

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

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

Date \_\_\_\_\_

for President of India

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

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

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

**Tenderers**

**DyCECDR**

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

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

Address \_\_\_\_\_

For President of India)

Date \_\_\_\_\_

Date \_\_\_\_\_

Signature of Witnesses (to Signature of Contractor) with address

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

**CENTRAL RAILWAY**  
**CONTRACT AGREEMENT OF WORKS**

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

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

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

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

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

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

Date \_\_\_\_\_

Date \_\_\_\_\_

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

**Witnesses:**

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

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

**ANNEXURE-V**

Reference -Para 6.1 of ITT

**FORMAT FOR CERTIFICATE TO BE SUBMITTED / UPLOADED BY TENDERER ALONGWITH THE TENDER DOCUMENTS**

I..... (Name and designation)\*\*appointed as the attorney/authorized signatory of the tenderer,  
 M/s..... (hereinafter called the tenderer) for the purpose of  
 the Tender documents for the work of  
 \_\_\_\_\_ as per the tender No. \_\_\_\_\_  
 of \_\_\_\_\_ (Railway)\*\*, do hereby solemnly affirm and state on the behalf of the tenderer including its constituents as under:

1. I/we the tenderer (s) am/are signing this document after carefully reading the contents.
2. I/We the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the tender documents from Indian Railway website [www.ireps.gov.in](http://www.ireps.gov.in) . I/we have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy available with the railway Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
5. **I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.**
6. **I/We declare that the information and documents submitted along with the tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents, submitted by us.**
7. I/we certify that I/we the tenderer(s) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
8. I/we understand that if the contents of the certificate submitted by us are found to be forged/false or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security 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. as per Advance Correction Slip No.04 to Indian Railways Standard General Conditions of Contract. April-2022)
9. I/we also understand that if the contents of the certificate submitted by us are found to be false/forged or incorrect at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Bid Security/Security Deposit and Performance guarantee and may also lead to any other action provided in the contract

including banning of business for a period of upto **two** year. as per Advance Correction Slip No.04 to Indian Railways Standard General Conditions of Contract. April-2022)

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 fulfill all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

SEAL AND SIGNATURE  
OF THE TENDERER

Place:

Dated:

**\*\*The contents in Italics are only for guidance purpose. Details as appropriate are to be filled in suitably by tenderer.**

**Note:-This form (Annexure-V) should be uploaded duly filled with the Name & seal of the participating firm/s viz. Proprietary firm / Company / Partnership Firm / Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc., as the case may be, and signature of Authorised signatory.**

**ANNEXURE-VA**

Reference -Para 6.1 of ITT

***(This certificate is to be given by attorney/authorized signatory / each member of Partnership firm / Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc.)***

I/We ..... (Name), attorney/authorized signatory of the ..... (constituent firm/constituent partner) and member/partner of the ..... (tendering firm) hereby solemnly affirm and state as under:

1. I/We certify that ..... (constituent firm/constituent partner) is/are not blacklisted or debarred by 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 fulfill all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed).

SEAL AND SIGNATURE  
OF THE CONSTITUENT FIRM/CONSTITUENT PARTNER

Place:

Dated:

**Note: In addition to Annexure-V, in case of other than Company/Proprietary firm Annexure-V(A) shall also be submitted by the each member of a Partnership Firm / Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc., as the case may be.** Non submission of above certificate(s) by the bidder shall result in **summarily** rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested/digitally signed by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document. **(Authority: Advance correction slip No.2 published vide Railway Board letter No.2022/CE-I/CT/GCC-2022/Policy, New Delhi, dt.13.12.2022).**

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

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

#### **CENTRAL RAILWAY**

as per Advance Correction Slip No.II to Indian Railways Standard General Conditions of Contract. April-2022)

For tenders having advertised value more than Rs.10.00 crore wherein eligibility criteria includes bid capacity also, the tenderer will be qualified only if its available bid capacity is equal to or more than the total bid value of the present tender. The available bid capacity shall be calculated as under:

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

Where,

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

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

B = Existing commitments and balance amount of ongoing works with 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 tender.

Note:

- (a) The Tenderer(s) shall furnish the details of -
  - (i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) for calculating A, and
  - (ii) Existing commitments and balance amount of ongoing works with tenderer as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started upto the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished.

The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.
- (b) In case if a bidder is JV, the tenderer(s) must furnish the details of
  - (i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) by each member of JV for calculating A, and
  - (ii) Existing commitments and balance amount of ongoing works with each member of JV either in individual capacity or as a member of other JV as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to each member of JV either in individual capacity or as a member of other JV but yet not started upto the date of inviting of tender for calculating B. In case of no works in hand, a 'NIL' statement should be furnished.

The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.
- (c) Value of a completed work/work in progress/work awarded but yet not started for a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above mentioned bid capacity in the tender under consideration.
- (d) The arithmetic sum of individual "bid capacity" of all the members shall be taken as JV's

“bid capacity”.

- (e) In case, the tenderer/s failed to submit the above statement along with offer, their/his offer shall be considered as incomplete and will be rejected **summarily**.
- (f) The available bid capacity of tenderer shall be assessed based on the details submitted by the tenderer. In case, the available bid capacity is lesser than estimated cost of work put to tender, his offer shall not be considered even if he has been found eligible in other eligibility criteria/tender requirement.

\*\*\*

**Annexure –VIA**

Para 5 of the Instructions to Tenderers

**(Bid Security)****Bank Guarantee Bond from any scheduled commercial bank of India***(On non-judicial stamp paper, which should be in the name of the Executing Bank).***Name of the Bank: -----**

President of India,

Acting through .....,

..... Railway,

Beneficiary: ..... Railway

Date:.....

**Bank Guarantee Bond No.:****Date:-----**

In consideration of the President of India acting through----- (***Designation & address of Contract Signing Authority***), ..... Railway, ....., .... (hereinafter called "The Railway") having invited the bid for \_\_\_\_\_ through Notice inviting tender (NIT) No..\_\_\_\_\_, We have been informed that . . . . ***[Insert name of the Bidder]***..... (***hereinafter called "the Bidder"***) intends to submit its bid (hereinafter called "the Bid") .

WHEREAS, the Bidder is required to furnish Bid Security for the sum of ***[Insert required Value of Bid Security]***, in the form of Bank Guarantee, according 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.

**Tenderers****DyCECDR**

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	YES

11. The Guarantee shall be valid in addition to and without prejudice to any other security Guarantee(s) of Bidder in favour of the Railway. The Bank, under this Guarantee, shall be deemed as Principal Debtor of the Railway.

Date ..... ..

Place.....

Bank's Seal and authorized signature(s)

***[Name in Block letters]*** .....

***[Designation with Code No.]***.....

***[P/Attorney]*** No.

Witness:

- 1 Signature, Name & Address & Seal

**Tenderers**

**DyCECDR**

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 –VIB**

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

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

**NAME OF BIDDER/JV PARTNER:**

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

1. The average annual contractual turnover shall be calculated as an average of “total contractual payments” in the previous three financial years. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover.
2. The information supplied shall be substantiated by data in the audited balance sheets and profit and loss accounts for the relevant years in respect of the bidder or all members constituting the bidder.
3. Contents of this form should be certified by a Chartered Accountant duly supported by Audited Balance Sheet duly certified by the Chartered Accountant.

**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)**

## Part II

### STANDARD GENERAL CONDITIONS OF CONTRACT

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

(a) "Railway" shall mean the President of the Republic of India or the Administrative Officers of the Railway or of the Successor Railway authorized to deal with any matters which these presents are concerned on his behalf.

(b) "General Manager" shall mean the Officer in-charge of the General Superintendence and Control of the Railway and shall also include Addl. General Manager, the General Manager (Construction) and shall mean and include their successors, of the successor Railway.

(c) "Chief Engineer" shall mean the Officer in-charge of the Engineering Department of Railway and shall also include Chief Engineer (Construction), Chief Signal & Telecommunication Engineer, Chief Signal & Telecommunication Engineer (Construction), Chief Electrical Engineer, Chief Electrical Engineer (Construction), Chief Mechanical Engineer and shall mean & include their successors, of the Successor Railway.

(d) "Divisional Railway Manager" shall mean the Officer in-charge of a Division of the Railway and shall mean and include the Divisional Railway Manager of the Successor Railway.

(e) "Engineer" shall mean the Divisional Engineer or the Executive Engineer, Divisional Signal & Telecom Engineer, Divisional Electrical Engineer, Divisional Mechanical Engineer in executive charge of the works and shall include the superior officers of Open Line and Construction organizations on the Railway of the Engineering, Signal & Telecom, Electrical and Mechanical Departments, i.e. the Senior Divisional Engineer/Deputy Chief Engineer, Senior Divisional Signal & Telecom Engineer / Dy.Chief Signal & Telecom Engineer, Senior Divisional Electrical Engineer / Deputy Chief Electrical Engineer, Senior Divisional Mechanical Engineer and shall mean & include the Engineers of the Successors Railway.

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

(g) "Contractor" shall mean the Person/Firm/LLP/Trust/Co-operative Society or Company whether incorporated or not who enters into the contract with the Railway and shall include their executors, administrators, successors and permitted assigns.

(h) "Contract" shall mean and include the Agreement, the Work Order, the accepted Bill(s) of Quantities or Chapter(s) of Standard Schedule of Rates (SSOR) of the Railway modified by the tender percentage for items of works quantified, or not quantified, the Standard General Conditions of Contract, the Special Conditions of Contracts, if any; the Drawing, the Specifications, the Special Specifications, if any and Tender Forms, if any.

(i) "Works" shall mean the works to be executed in accordance with the contract.

(j) "Specifications" shall mean the Standard Specifications for Materials & Works of Railway as specified by Railway under the authority of the Chief Engineer or as amplified, added to or superseded by Special Specifications, if any.

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

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

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

(l) "Drawing" shall mean the maps, drawings, plans and tracings or prints there of annexed to the contract and shall include any modifications of such drawings and further drawings as may be issued by the Engineer from time to time.

(m) "Constructional Plant" shall mean all appliances or things of whatsoever nature required for the execution, completion or maintenance of the works or temporary works (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.

(n) "Temporary Works" shall mean all temporary works of every kind required for the execution completion and/or maintenance of the works.

(o) "Site" shall mean the lands and other places on, under, in or through which the works are to be carried out and any other lands or places provided by the Railway for the purpose of the contract.

(p) "Period of Maintenance" shall mean the specified period of maintenance from the date of completion of the works, as certified by the Engineer.

(q) 'Contractor's authorized Engineer' shall mean a graduate Engineer or equivalent, having more than 3 years' experience in the relevant field of construction work involved in the contract, duly approved by Engineer.

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

(s) "Bill of Quantities" shall mean Schedule of Item(s) included in the tender document along with respective quantities and rates, accepted by the Railway.

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

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

## GENERAL OBLIGATIONS

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

**2.(2)** If a work is transferred from the jurisdiction of one Railway to another Railway or to a Project authority or vice versa while contract is in subsistence, the contract shall be binding on the Contractor and the Successor Railway/Project in the same manner & take effect in all respects as if the Contractor and the Successor Railway/Project were parties thereto from the inception and the corresponding officer or the Competent Authority in the Successor Railway/Project will exercise the same powers and enjoy the same authority as conferred to the Predecessor Railway/Project under the original contract/agreement entered into.

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

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

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

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

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

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

**5. Service of Notices on Contractors:** The Contractor shall furnish to the Engineer the name, designation and address of his authorized agent and all complaints, notices, communications and references shall be deemed to have been duly given to the Contractor, if delivered to the Contractor or his authorized agent or left at or posted to the address so given

and shall be deemed to have been so given in the case of posting on day on which they would have reached such address in the ordinary course of post/ e-mail or on the day on which they were so delivered or left. In the case of contract by partners, any change in the constitution of the firm shall be forthwith notified by the Contractor to the Engineer.

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

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

In case Contractor intends to subcontract part of work, he shall submit a proposal in writing seeking permission of Chief Engineer for the same. While submitting the proposal to railway, Contractor shall ensure the following: (as per Advance Correction Slip No.II to Indian Railways Standard General Conditions of Contract. April-2022)

- (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 Price shall exclude any sub-contract for the procurement of goods and equipment like (rails , sleeper and track fittings, signaling and telecommunication and 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 }S.

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

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

*Note: for subletting of work costing up to Rs.50.00 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.

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

- (b) The Contractor shall provide to the Engineer a copy of the agreement to be entered into by Contractor with subcontractor. No subcontractor shall be permitted without a formal agreement between Contractor and subcontractor. This agreement shall clearly define the scope of work to be carried out by subcontractor and the terms of payment in clear & unambiguous manner.
- (c) On receipt of approval from Chief Engineer, Contractor shall enter into a formal agreement legally enforceable in Court of Law with subcontractor and submit a copy of the same to the Engineer.
- (d) The Contractor shall intimate to the Engineer not less than 7 days in advance, the intended date of commencement of subcontractor's work.
- (e) Once having entered into above arrangement, Contractor shall discontinue such arrangement, if he intends to do so at his own or on the instructions of Railway, with prior intimation to Chief Engineer.
- (f) The Contractor shall indemnify railway against any claim of subcontractor.
- (g) The Contractor shall release payment to the Sub-contractor(s) promptly and shall 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.

**8. Assistance by Railway for the Stores to be obtained by the Contractor:** Owing to difficulty in obtaining certain materials (including Tools & Plant) in the market, the Railway may have agreed without any liability therefore to endeavour to obtain or assist the Contractor in obtaining the required quantities of such materials as may be specified in the Tender. In the event of delay or failure in obtaining the required quantities of the aforesaid material, the Contractor shall not be deemed absolved of his own responsibility and shall keep in touch with the day to day position regarding their availability and accordingly adjust progress of works including employment of labour and the Railway shall not in any way be liable for the supply of materials or for the non-supply thereof for any reasons whatsoever nor for any loss or damage arising in consequence of such delay or non-supply.

**9. Railway Passes:** No free railway passes shall be issued by the Railway to the Contractor or any of his employee/worker.

**10. Carriage of Materials:** No forwarding orders shall be issued by the Railway for the conveyance of Contractor's materials, tools and plant by train which may be required for use in the works and the Contractor shall pay full freight charges at public tariff rates therefor.

**11. Use of Ballast Trains:** The Railway may agree to allow the Contractor use of the ballast or material trains under such conditions as shall be specially prescribed, provided that the Contractor shall pay for the use thereof charges calculated at public tariff rates on the marked carrying capacity of each vehicle subject to specified minimum charge per day or part of day and provided further that the Contractor shall indemnify the Railway against any claims or damages arising out of the use or misuse thereof and against any liabilities under the Workmen's Compensation Act, 1923 or any statutory amendments thereto.

**12. Representation on Works:** The Contractor shall, when he is not personally present on the site of the works place, keep a responsible agent at the works during working hours who shall on receiving reasonable notice, present himself to the Engineer and orders given by the Engineer or the Engineer's representative to the agent shall be deemed to have the same force as if they had been given to the Contractor. Before absenting himself, the Contractor shall furnish the name and address of his agent for the purpose of this clause and failure on the part of the Contractor to comply with this provision at any time will entitle the Railway to rescind the contract under Clause 62 of these Conditions.

**13. Relics and Treasures:** All gold, silver, oil, other minerals of any description, all precious stones, coins, treasures relics antiquities and other similar things which shall be found in or upon the site shall be the property of the Railway and the Contractor shall duly G16

preserve the same to the satisfaction of the Railway and shall from time to time deliver the same to such person or persons as the Railway may appoint to receive the same.

**14. Excavated Material:** The Contractor shall not sell or otherwise dispose of or remove except for the purpose of this contract, the sand, stone, clay ballast, earth, trees, rock or other substances or materials which may be obtained from any excavation made for the purpose of the works or any building or produced upon the site at the time of delivery of the possession thereof but all the substances, materials, buildings and produce shall be the property of the Railway provided that the Contractor may, with the permission of the Engineer, use the same for the purpose of the works either free of cost or pay the cost of the same at such rates as may be determined by the Engineer.

**15. Indemnity by Contractors:** The Contractor shall indemnify and save harmless the Railway from and against all actions, suit, proceedings, losses, costs, damages, charges, claims and demands of every nature and description brought or recovered against the

Railways by reason of any act or omission of the Contractor, his agents or employees, in the execution of the works or in his guarding of the same. All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the actual loss or damage sustained, and whether or not any damage shall have been sustained.

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

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

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

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

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

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

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

**16.(3)** No interest shall be payable upon the Bid Security and Security Deposit or amounts payable to the Contractor under the Contract, but Government Securities deposited in terms of Sub-Clause 16.(4)(b) of this clause will be payable with interest accrued thereon.

#### 16.(4) Performance Guarantee

The procedure for obtaining Performance Guarantee is 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 to the contractor against that particular contract, subject to maximum of PG amount. In case a tenderer has not submitted Bid Security on the strength of their registration as a Startup recognized by Department of Industrial Policy and Promotion (DIPP) under Ministry of Commerce and Industry, DIPP shall be informed to this effect.

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

As per Indian Railways Standard for GCC April 2022 (Advance correction slip No 11

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

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

Note:

In case of Extension of Date of Completion, 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 Certificate
- 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 favor of FA & CAO (free from any encumbrance) may be accepted.

(c) The Performance Guarantee shall be submitted by the successful bidder after the Letter of Acceptance (LOA) has been issued, but before signing of the contract agreement. This P.G. shall be initially valid upto the stipulated date of completion plus 60 days beyond that. In case,

the time for completion of work gets extended, the Contractor shall get the validity of P.G. extended to cover such extended time for completion of work plus 60 days.

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

(e) The Performance Guarantee (PG) shall be released after physical completion of the work based on 'Completion Certificate' issued by the competent authority stating that the Contractor has completed the work in all respects satisfactorily.

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

(g) The Engineer shall not make a claim under the Performance Guarantee except for amounts to which the President of India is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:

(i) Failure by the Contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer may claim the full amount of the Performance Guarantee.

(ii) Failure by the Contractor to pay President of India any amount due, either as agreed by the Contractor or determined under any of the Clauses/Conditions of the Agreement, within 30 days of the service of notice to this effect by Engineer.

(iii) The Contract being determined or rescinded under clause 62 of these conditions.

(h) New Para: As per Indian Railways Standard for GCC April 2022 (Advance correction slip No 11

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%

**17. Force Majeure Clause:** If at any time, during the continuance of this contract, the performance in whole or in part by either party of any obligation under this contract shall be prevented or delayed by reason of any war, hostility, acts of public enemy, civil commotion, sabotage, serious loss or damage by fire, explosions, epidemics/pandemics, strikes, lockouts or acts of God (hereinafter, referred to events) provided, notice of the happening of any such event is given by either party to the other within 30 days from the date of occurrence thereof, neither party shall by reason of such event, be entitled to terminate this contract nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance, and works under the contract shall be resumed as soon as practicable after such event has come to an end or ceased to exist, and the decision of the Engineer as to whether the works have been so resumed or not shall be final and conclusive, PROVIDED FURTHER that if the performance in whole or in part of any obligation under this contract is prevented or delayed by reason of any such event for a period exceeding 120 days, either party may at its option terminate the contract by giving notice to the other party.

**17A Extension of Time in Contracts:** Subject to any requirement in the contract as to completion of any portion or portions of the works before completion of the whole, the Contractor shall fully and finally complete the whole of the works comprised in the contract (with such modifications as may be directed under conditions of this contract) by the date entered in the contract or extended date in terms of the following clauses:

- (i) **Extension due to Modification:** If any modifications have been ordered which in the opinion of the Engineer have materially increased the magnitude of the work, then such extension of the contracted date of completion may be granted as shall appear to the Engineer to be reasonable in the circumstances, provided moreover that the Contractor shall be responsible for requesting such extension of the date as may be considered necessary as soon as the cause thereof shall arise.
- (ii) **Extension for Delay not due to Railway or Contractor:** If in the opinion of the Engineer, the progress of work has any time been delayed by any act or neglect of Railway's employees or by other Contractor employed by the Railway under Sub-Clause (4) of Clause 20 of these Conditions or in executing the work not forming part of the contract but on which Contractor's performance necessarily depends or by reason of proceeding taken or threatened by or dispute with adjoining or to neighboring owners or public authority arising otherwise through the Contractor's own default etc. or by the delay authorized by the Engineer pending arbitration or in consequences of the Contractor not having received in due time necessary instructions from the Railway for which he shall have specially applied in writing to the Engineer or his authorized representative then upon happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer within 15 days of such happening, but shall nevertheless make constantly his best endeavours to bring down or make good the delay and shall do all that may be reasonably required of him to the satisfaction of the Engineer to proceed with the works. The Contractor may also indicate the period for which the work is likely to be delayed and shall be bound to ask for necessary extension of time.
- (iii) **Extension for Delay due to Railways:** In the event of any failure or delay by the Railway to hand over the Contractor possession of the lands necessary for the execution of the works or to give the necessary notice to commence the works or to provide the necessary drawings or instructions or any other delay caused by the Railway due to any other cause whatsoever, then such failure or delay shall in no way affect or vitiate the contract or alter the character thereof or entitle the Contractor to damages or compensation therefor, but in any such case, the Railway may grant such extension or extensions of the completion date as may be considered reasonable.

The Contractor shall indicate the period for which the work is likely to be delayed and shall seek extension of time as may be considered necessary under clause 17A(i) or/and 17A(ii) or/ and 17A(iii) above, as soon as the cause thereof shall arise and, in any case, not less than **15 days** before the expiry of the date fixed for completion of the works. The Engineer shall consider the same and shall grant and communicate such extension of time as in his opinion is reasonable having regard to the nature and period of delay and the type and quantum of work affected thereby. No other compensation shall be payable for works so carried forward to the extended period of time; the same rates, terms and conditions of contract being applicable, as if such extended period of time was originally provided in the original contract itself.

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

**17B Extension of Time with Liquidated Damages (LD) for delay due to Contractor:** The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract and the works must be completed not later than the date(s) as specified in the contract. If the Contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in Clause 17 and 17A, the Railway may, if satisfied that the works can be completed by the Contractor within reasonable short time thereafter, allow the Contractor for further extension of time (Proforma at Annexure-VII) as the Engineer may decide. On such extension the Railway will be entitled without prejudice to any other right and remedy available on that behalf, to recover

from the Contractor as agreed damages and not by way of penalty for each week or part of the week, a sum calculated at the rate of Liquidated Damages as decided by the Engineer, between 0.05% to 0.30% of contract value of the works for each week or part of the week.

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

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

**NOTE:**

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

**17C Bonus for Early Completion of Work:** In open tenders having advertised value more than Rs.50 crore and original period of completion 12 months or more, when there is no reduction in original scope of work by more than 10%, and no extension granted on either railway or Contractor's account, Contractor shall be entitled for a bonus of 1% for each 30 days early completion of work. The period of less than 30 days shall be ignored while working out bonus. The maximum bonus shall be limited to 5% of original contract value. The completion date shall be reckoned as the date of issuance of completion certificate by Engineer.

as per Advance Correction Slip No.II to Indian Railways Standard General Conditions of Contract. April-2022)

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

(i) "Corrupt practice" : making offers, solicitation or acceptance of bribe, rewards or gifts or any material benefit, in exchange for an unfair advantage in the procurement process or to other wise influence the procurement process or contract execution:

(ii) "Fraudulent practice", any omission or misrepresentation that may mislead or attempt to mislead so that financial or other benefits any be obtained or an obligation avoided. This includes making false declaration or providing false information for participation in a tender process or to secure a contract or in execution of the contract;

iii) "Anti-competitive practice": any collusion, bid rigging or anti-competitive arrangement, or any other practice coming under the purview of The Competition Act, 2002, between two or more bidders with or without the knowledge of the procuring entity, that may impair the transparency, fairness and the progress of the procurement process or to establish bid prices at artificial, non-competitive levels;

iv) "Coercive practice": any coercion or any threat to impair or harm, directly or indirectly,

any party or its property to influence the procurement process or affect the execution of a contract;

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

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

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

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

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

- i) If his bids are under consideration in any procurement
  - a) Forfeiture or encashment of bid security;
  - b) calling off of any pre-contract negotiations; and
  - c) rejection and exclusion of the bidder from the procurement process
- ii) If a contract has already been awarded
  - a) Cancellation of the relevant contract and recovery of compensation for loss incurred by the procuring entity;
  - b) Forfeiture or encashment of any other security or bond relating to the procurement;
  - c) Recovery of payments including advance payments, if any, made by the procuring entity along with interest thereon at the prevailing rate;
- iii) Provisions in addition to above
  - a) Removal from the list of enlisted contractors and banning/ debarment of the bidder from participation in future procurements of the procuring entity for a period not less than one year;
  - b) In case of anti-competitive practices information for further processing may be filed under a signature of the Joint Secretary level officer, with the Competition Commission of India;
  - c) Initiation of suitable disciplinary or criminal proceedings against any individual or staff found responsible.

Any question or dispute as to the commission of any such offence or

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

### EXECUTION OF WORKS

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

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

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

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

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

a general description of the methods which the Contractor intends to adopt, and of the major stages, in the execution of the Works, and details showing the Contractor's reasonable estimate for the number of each class of Contractor's Personnel & Equipment, required on the Site for each major stage.

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the

Contract. The Engineer shall be entitled to rely upon the programme when planning their activities.

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

**19.(4) Setting out of Works:** The Contractor shall be responsible for the correct setting out of all works in relation to original points, lines and levels of reference at his cost. The Contractor shall execute the work true to alignment, grade, levels and dimensions as shown in the drawing and as directed by the Engineer's representative and check these at frequent intervals. The Contractor shall provide all facilities like labour and instruments and shall co-operate with the Engineer's representative for checking of all alignment, grades, levels and dimensions. If, at any time, during the progress of the works any error appear or arise in any part of the work, the Contractor, on being required so to do by the Engineer's representative shall, at his own cost rectify such errors, to the satisfaction of the Engineer's representative.

Such checking shall not absolve the Contractor of his own responsibility of maintaining accuracy in the work. The Contractor shall carefully protect and preserve all bench marks, sight rails, pegs and other things used in setting out the work.

**20.(1) Compliance to Engineer's Instructions:** The Engineer shall direct the sequence in which the several parts of the works shall be executed and the Contractor shall execute without delay all orders given by the Engineer from time to time; but the Contractor shall not be relieved thereby from responsibility for the due performance of the works in all respects.

**20.(2) Alterations to be Authorized:** No alterations in or additions to or omissions or abandonment of any part of the works shall be deemed authorised, except under written instructions from the Engineer.

**20.(3) Extra Works:** Should works over and above those included in the contract require to be executed at the site, the Contractor shall have no right to be entrusted with the execution of such works which may be carried out by another Contractor or Contractors or by other means at the option of the Railway.

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

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

- (a) Failure of the Engineer's representative to disapprove any work or materials shall not prejudice the power of the Engineer thereafter to disapprove such work or material and to order the removal or breaking up thereof.

- (b) If the Contractor shall be dissatisfied by reason of any decision of the Engineer's representative, he shall be entitled to refer the matter to the Engineer who shall there upon confirm or vary such decision.

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

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

**22.(3) Ownership of Drawings and Specifications:** All Drawings and Specifications and copies thereof furnished by the Railway to the Contractor are deemed to be the property of the Railway. They shall not be used on other works and with the exception of the signed contract set, shall be returned by the Contractor to the Railway on completion of the work or termination of the Contract.

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

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

**23. Working during Night:** The Contractor shall not carry out any work between 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.

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

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

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

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

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

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

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

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

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

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

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

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

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

(a) The removal from the site, within the time specified in the order, of any materials which in his opinion are not in accordance with the specifications or drawings.

(b) The substitution of proper and suitable materials, and

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

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

**28. Facilities for Inspection:** The Contractor shall afford the Engineer and the Engineer's Representative every facility for entering in and upon every portion of the work at all hours for the purpose of inspection or otherwise and shall provide all labour, materials, planks, ladders, pumps, appliances and things of every kind required for the purpose and the Engineer and the Engineer's Representative shall at all times have free access to every part of the works and to all places at which materials for the works are stored or being prepared.

**29. Examination of Work before Covering Up:** The Contractor shall give 7 days' notice to the Engineer or the Engineer's Representative whenever any work or materials are intended to be covered up in the earth, in bodies or walls or otherwise to be placed beyond the reach of measurements in order that the work may be inspected or that correct dimensions may be taken before being so covered, placed beyond the reach of measurement in default whereof, the same shall at the option of the Engineer or the Engineer's Representative be uncovered and measured at the Contractor's expense or no allowance shall be made for such work or materials.

**30. Temporary Works:** All temporary works necessary for the proper execution of the works shall be provided and maintained by the Contractor and subject to the consent of the Engineer shall be removed by him at his expenses when they are no longer required and in such manner as the Engineer shall direct. In the event of failure on the part of the Contractor to remove the temporary works, the Engineer will cause them to be removed and cost as increased by supervision and other incidental charges shall be recovered from the Contractor. If temporary huts are provided by the Contractor on the Railway land for labour engaged by him for the execution of works, the Contractor shall arrange for handing over vacant possession of the said land after the work is completed; if the Contractor's labour refuse to vacate, and have to be evicted by the Railway, necessary expenses incurred by the Railway in connection therewith shall be borne by the Contractor.

**31.(1) Contractor to Supply Water for Works:** Unless otherwise provided in the Contract, the Contractor shall be responsible for the arrangements to obtain supply of water necessary for the works.

**31.(2) Water Supply from Railway System:** The Railway may supply to the Contractor part or whole of the quantity of the water required for the execution of works from the Railway's existing water supply system at or near the site of works on specified terms and conditions and at such charges as shall be determined by the Railway and payable by the Contractor, provided that the Contractor shall arrange, at his own expense, to effect the connections and lay additional pipelines and accessories on the site and that the Contractor shall not be entitled to any compensation for interruption or failure of the water supply.

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

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

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

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

**33.(1) Tools, Plant and Materials Supplied by Railway:** The Contractor shall take all reasonable care of all tools, plant and materials or other property whether of a like description or not belonging to the Railway and committed to his charge for the purpose of the works and shall be responsible for all damage or loss caused by him, his agents, permitted sub-contractor, or his workmen or others while they are in his charge. The Contractors shall sign accountable receipts for tools, plants and materials made over to him by the Engineer and on completion of the works shall hand over the unused balance of the same to the Engineer in good order and repair, fair wear and tear excepted, and shall be responsible for any failure to account for the same or any damage done thereto.

**33.(2) Hire of Railway's Plant:** The Railway may hire to the Contractor such plant as concrete mixers, compressors and portable engines for use during execution of the works on

such terms as may be specified in the special conditions or in a separate agreement for Hire of Plant.

**34.(1) Precaution During Progress of Works:** During the execution of works, unless otherwise specified, the Contractor shall at his own cost provide the materials for and execute all shoring, timbering and strutting works as is necessary for the stability and safety of all structures, excavations and works and shall ensure that no damage, injury or loss is caused or likely to be caused to any person or property.

**34.(2) Roads and Water Courses:** Existing roads or water courses shall not be blocked cut through, altered, diverted or obstructed in any way by the Contractor, except with the permission of the Engineer. All compensations claimed for any unauthorized closure, cutting through, alteration, diversion or obstruction to such roads or water courses by the Contractor or his agent or his staff shall be recoverable from the Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India.

**34.(3) Provision of Access to Premises:** During progress of work in any street or thoroughfare, the Contractor shall make adequate provision for the passage of traffic, for securing safe access to all premises approached from such street or thoroughfare and for any drainage, water supply or means of lighting which may be interrupted by reasons of the execution of the works and shall erect 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.

**34.(4) Safety of Public:** The Contractor shall be responsible to take all precautions to ensure the safety of the public whether on public or railway property and shall post such look out men as may, in the opinion of the Engineer, be required to comply with regulations appertaining to the work. Contractor shall ensure placement of barricading / partitions at the place of work to ensure safety of habitants of adjacent area, failing which Engineer may advise stoppage of work as per his discretion.

**34.(5) Display Board:** The Contractor shall be responsible for displaying the details of works i.e. name of work, approximate cost, expected date of completion, name and address of the Contractor and address of Engineer on a proper steel Board of size not less than 1m x 1m.

**35. Use of Explosives:** Explosives shall not be used on the works or on the site by the Contractor without the permission of the Engineer and then also only in the manner and to the extent to which such permission is given. Where explosives are required for the works, they shall be stored in a special magazine to be provided by and at the cost of the Contractor in accordance with the Explosive Rules. The Contractor shall obtain the necessary license for the storage and the use of explosives. All operations in which or for which explosives are employed shall be at the sole risk and responsibility of the Contractor and the Contractor shall indemnify the Railway in respect thereof.

**36.(1) Suspension of Works:** The Contractor shall on the order of the Engineer, suspend the progress of the works or any part thereof for such time or times and in such manner as the Engineer may consider necessary and shall during such suspension properly protect and secure the work so far as is necessary in the opinion of the Engineer. If such suspension is:

- (a) Provided for in the contract, or
- (b) Necessary for the proper execution of the works or by the reason of weather conditions or by some default on the part of the Contractor, and or
- (c) Necessary for the safety of the works or any part thereof, or
- (d) Necessary for the safety of adjoining public or other property or safety of the public or workmen or those who have to be at the site, or

- (e) Necessary to avoid disruption of traffic and utilities, as also to permit fast repair and restoration of any damaged utilities, or
- (f) Due to instruction of The National Green Tribunal or any other statutory authority due to high level of pollution in the city of worksite.

**36.(2)** The Contractor shall not be entitled to the extra costs, if any, incurred by him during the period of suspension of the works, but in the event of any suspension ordered by the Engineer for reasons other than aforementioned and when each such period of suspension exceeds 14 days, the Contractor shall be entitled to such extension of time for completion of the works as the Engineer may consider proper having regard to the period or periods of such suspensions and to such compensations as the Engineer may consider reasonable in respect of salaries or wages paid by the Contractor to his employees during the periods of such suspension.

**36.(3) Suspension Lasting More than 3 Months:** If the progress of the works or any part thereof is suspended on the order of the Engineer for more than three months at a time, the Contractor may serve a written notice on the Engineer requiring permission within 15 days from the receipt thereof to proceed with the works or that part thereof in regard to which progress is suspended and if such permission is not granted within that time the Contractor by further written notice so served may, but is not bound to, elect to treat the suspension where it affects part only of the works as an omission of such part or where it affects the whole of the works, as an abandonment of the contract by the Railway.

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

(i) The rates, entered in the accepted Bill(s) of Quantities of the Contract are intended to provide for works duly and properly completed in accordance with the General and Special (if any) Conditions of the Contract and the Specifications and drawings together with such enlargements, extensions, diminutions, reductions, alterations or additions as may be ordered in terms of Clause 42 of these conditions and without prejudice to the generality thereof and shall be deemed to include and cover superintendence and labour, supply, including full freight of materials, stores, patterns, profiles, moulds, fittings, 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 center 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 and the Contractor thereupon properly pays such taxes/cess, the Contractor shall be reimbursed the amount so paid.

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

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

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

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

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

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

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

- (i) Analysis of Rates for "Unified Standard Schedule of Rates of Indian Railways (USSOR)"
- (ii) Analysis of Rates for "Delhi Schedule of Rates issued by CPWD (DSR)"
- (iii) Market Analysis

**39.(2)** Provided that if the Contractor commences work or incurs any expenditure in regard thereto before the rates as determined and agreed upon as lastly hereuntofore-mentioned, then and in such a case the Contractor shall only be entitled to be paid in respect of the work carried out or expenditure incurred by him prior to the date of determination of the rates as aforesaid according to the rates as shall be fixed by the Engineer. However, if the Contractor is not satisfied with the decision of the Engineer in this respect, he may appeal to the Chief Engineer within 30 days of getting the decision of the Engineer, supported by analysis of the rates claimed. The Chief Engineer's decision after hearing both the parties in the matter would be final and binding on the Contractor and the Railway.

**40.(1) Handing over of Works:** The Contractor shall be bound to hand over the works executed under the contract to the Railway complete in all respects to the satisfaction of the Engineer. The Engineer shall determine the date on which the work is considered to have

been completed, in support of which his certificate shall be regarded as sufficient evidence for all purposes. The Engineer shall determine from time to time, the date on which any particular section of the work shall have been completed, and the Contractor shall be bound to observe any such determination of the Engineer.

**40.(2) Clearance of Site on Completion:** On completion of the works, the Contractor shall clear away and remove from the site all constructional plant, surplus materials, rubbish and temporary works of every kind and leave the whole of the site and works clean and in a workman like condition to the satisfaction of the Engineer. No final payment in settlement of the accounts for the works shall be paid, held to be due or shall be made to the, Contractor till, in addition to any other condition necessary for final payment, site clearance shall have been affected by him, and such clearance may be made by the Engineer at the expense of the Contractor in the event of his failure to comply with this provision within 7 days after receiving notice to that effect. Should it become necessary for the Engineer to have the site cleared at the expenses of the Contractor, the Railway shall not be held liable for any loss or damage to such of the Contractor's property as may be on the site and due to such removal there from which removal may be affected by means of public sales of such materials and property or in such a way as deemed fit and convenient to the Engineer.

**40A Offloading of Part(s) of Work:** At the final stage of completion/ commissioning of work, in case the contractor fails to complete the final part(s) of the work and the value of such part(s) of the work is limited to 5% of the original contract value, the Engineer may allow/decide for offloading of such part(s) of works, either after the Contractor's request in writing to do so or after serving a 14 (Fourteen) days suo-moto notice (as per annexure- VIIA), if the Engineer is of the opinion that :-

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

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

## VARIATIONS IN EXTENT OF CONTRACT

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

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

**42.(2) (i)** Unless otherwise specified in the special conditions of the contract, the accepted variation in quantity of each individual item of the contract would be 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 contract value.

d.(i) Quantities operated upto 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 items, the variation limit of 25% shall apply to the gross quantity of earthwork items and variation in the quantities of individual classifications of soil shall not be subject to this limit.

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

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

### **CLAIMS**

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

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

### MEASUREMENTS, CERTIFICATES AND PAYMENTS

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

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

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

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

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

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

The date and time of test checks shall be communicated to the Contractor who shall be present at the site and shall witness the test checks, failing the Contractor's attendance the test checks may be conducted in his absence and such test checks shall not 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 45(i) above.

**46.(1) "On-Account " Payments:** The Contractor shall be entitled to be paid from time to time by way of "On-Account" payment only for such works as in the opinion of the Engineer he has executed in terms of the contract. All payments due on the Engineer's/Engineer's

Representative's certificates of measurements or Engineer's certified "Contractor's authorized Engineer's measurements" shall be subject to any deductions which may be made under these presents and shall further be subject to, unless otherwise required by Clause 16 of these Conditions, a retention of six percent by way of Security Deposits, until the amount of Security Deposit by way of such retentions shall amount to 5% of the total value of the contract provided always that the Engineer may by any certificate make any correction or modification in any previous certificate which shall have been issued by him and that the Engineer may withhold any certificate, if the works or any part thereof are not being carried out to his satisfaction.

**46.(2) Rounding off Amounts:** The total amount due on each certificate shall be rounded off to the nearest rupee, i.e. sum less than 50 paise shall be omitted and sums of 50 paise and more upto ₹1 will be reckoned as ₹ 1.

**46.(3) On Account Payments not Prejudicial to Final Settlement:** "On-Account" payments made to the Contractor shall be without prejudice to the final making up of the accounts (except where measurements are specifically noted in the Measurement Book as "Final Measurements" and as such have been signed by the Contractor and Engineer/Engineer's Representative) and shall in no respect be considered or used as evidence of any facts stated in or to be inferred from such accounts nor of any particular quantity of work having been executed nor of the manner of its execution being satisfactory.

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

**(a): Mobilisation Advance –**

This shall be limited to 10% of the Contract value and shall be paid in 2 stages :

Stage 1 – 5% of Contract Value on signing of the contract agreement.

Stage 2 – 5% on mobilization of site-establishment, setting up offices, bringing in equipment and actual commencement of work.

The stage 1 of advance shall be payable immediately after signing of contract agreement.

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

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

**(b): Advance Against Machinery and Equipment –**

This advance shall be limited to a maximum of 10% of the contract value against new Machinery & Equipment, involving substantial outlay, brought to site and essentially required for the work. This advance shall not exceed 75% of the purchase price of such Equipment and shall be payable when Equipment is hypothecated to the President of India by a suitable bond or alternatively covered by an irrevocable Bank Guarantee from a scheduled commercial bank of India for full cost of the Plant & Equipment in a form acceptable to Railways. The Plant & Equipment shall be insured for the full value and for the entire period, they are required for the work. This Plant & Equipment shall not be removed from the site of work without prior written permission of the Engineer. No advance should be given against old Plant & Machinery.

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

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

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

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

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

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

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

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

**46A.1 Applicability:** Price Variation Clause (PVC) shall be applicable only in tender having advertised value **above Rs.2 Crores**. Provided further that, in a contract where PVC is applicable, following shall be outside the purview of price adjustments (i.e. shall be excluded from the gross value of the work for the purpose of price variation) :

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

**46A.2 Base Month:** The Base Month for 'Price Variation Clause' shall be taken as the one month prior to closing of tender, unless otherwise stated elsewhere. The quarter for applicability of PVC shall commence from the month following the Base month. The Price Variation shall be based on the average Price Index of the quarter under consideration.

#### **46A.3 Validity:**

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

- (a) Payment/recovery for increase/decrease in GST on works contract or imposition/removal of any tax/cess on Works Contract as per Clause 37,
- (b) Payment/recovery for overall market situation as per Price Variation Clause given hereunder.

**46A.4** Components of various items in a contract on which variation in prices be admissible, shall be steel, cement, ferrous material, non-ferrous material, insulators, zinc and other materials, labour, plant & machinery, fuel, explosives, detonators etc. Adjustment for variation in prices of these items shall be determined in the manner prescribed.

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

**46A.6** The percentages of various components in various type of works shall be as specified for all item (s)/ Bill(s) of Quantities in tender document and the same shall be fixed as per table & classifications given below:

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

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

<b>1</b>	<b>Earthwork in Formation</b>	
	1A	All Item(s) excluding 1B or/and 1C
	1B	Item(s) for supply of Steel
	1C	Item(s) for supply of Cement
<b>2</b>	<b>Ballast Supply Works</b>	
<b>3</b>	<b>Tunnelling Works (Without Explosives)</b>	
	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.
<b>4</b>	<b>Tunnelling Works (With explosives)</b>	
	4A	All Item(s) excluding 4B or/and 4C or/and 4D or/and 4E
	4B	Item(s) for supply of Steel
	4C	Item(s) for supply of Cement or/and Grout
	4D	Item(s) for Fabrication & Erection of Structures including supply of Steel
	4E	Item(s) for Fabrication & Erection of Structures excluding supply of Steel.
<b>5</b>	<b>Building Works</b>	
	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.
<b>6</b>	<b>Bridges &amp; Protection work</b>	
	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
<b>7</b>	<b>Permanent Way linking</b>	
<b>8</b>	<b>Platform, Passenger Amenities</b>	
	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
<b>9</b>	<b>Any Other Works not covered in Classification 1 to 8</b>	
	9A	All Item(s) excluding 9B or/and 9C or/and 9D or/and 9E
	9B	Item(s) for supply of Steel
	9C	Item(s) for supply of Cement or/and Grout
	9D	Item(s) for Fabrication & Erection of Structures including supply of Steel
	9E	Item(s) for Fabrication & Erection of Structures excluding supply of Steel

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Where,

L Amount of price variation in Labour

M Amount of price variation in Materials

F Amount of price variation in Fuel

E Amount of price variation in Explosives

PM Amount of price variation in Plant, Machinery and Spares

S Amount of price variation in Steel Supply Item

C Amount of price variation in Cement Supply Item

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

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

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

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

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

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

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

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

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

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

- PM<sub>C</sub> % of Plant, Machinery and Spares Component in the item(s)
- S<sub>C</sub> % of Steel Supply item Component in the item(s)
- C<sub>C</sub> % of Cement Supply item Component in the item(s)
- W Gross value of work done by Contractor as per on-account bill(s) excluding the Gross value of work under W<sub>S</sub> or/and W<sub>C</sub> or/and W<sub>SF</sub> or/and W<sub>F</sub> or/and W<sub>SFL</sub> or/and W<sub>FL</sub> and cost of materials supplied by Railway either free or at fixed rate,
- W<sub>S</sub> Gross value of work done by Contractor for item(s) of supply of steel.
- W<sub>C</sub> Gross value of work done by Contractor for item(s) of supply of cement and /or supply of grout material.
- W<sub>SF</sub> Gross value of work done by Contractor for item(s) of Fabrication & Erection of Structures including supply of Steel.
- W<sub>F</sub> Gross value of work done by Contractor for Fabrication & Erection of Structures excluding supply of Steel.
- W<sub>SFL</sub> Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders including supply of Steel.
- W<sub>FL</sub> Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders excluding supply of Steel.
- L<sub>B</sub> Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for the base period
- L<sub>Q</sub> Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration
- M<sub>B</sub> Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the base period
- M<sub>Q</sub> Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration
- F<sub>B</sub> The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai & Chennai, for the base period
- F<sub>Q</sub> The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai & Chennai, for the 3 months of the quarter under consideration
- E<sub>B</sub> Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of Economic Adviser, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the base period.
- E<sub>Q</sub> Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of Economic Adviser, Govt. of India, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the average price index of 3 months of the quarter under consideration.
- PM<sub>B</sub> Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for 'Manufacture of machinery for mining, quarrying and

construction’– published in RBI (Reserve Bank of India) Bulletin, for the base period.

PM<sub>Q</sub> Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for ‘Manufacture of machinery for mining, quarrying and construction’– published in RBI (Reserve Bank of India) Bulletin, for the average price index of 3 months of the quarter under consideration.

S<sub>B</sub> The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the base period.

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

C<sub>B</sub> Index No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the base period

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

R<sub>T</sub> IEEMA price index for Steel Blooms (size 150mmx150mm) for the month which is two months prior to date of inspection of material.

R<sub>O</sub> IEEMA price index for Steel Blooms (size 150mmx150mm)for the month which is one month prior to date of opening of tender.

P<sub>T</sub> IEEMA price index for Copper wire rods for the month which is two months prior to date of inspection of material.

P<sub>O</sub> IEEMA price index for Copper wire rods for the month which is one month prior to date of opening of tender.

Z<sub>T</sub> IEEMA price index for Zinc for the month which is two months prior to date of inspection of material

Z<sub>O</sub> IEEMA price index for Zinc for the month which is one month prior to date of opening of tender

I<sub>T</sub> RBI wholesale price index for the sub-group “Insulators” for the month which is two months prior to date of inspection of material

I<sub>O</sub> RBI wholesale price index for the sub-group “Insulators” for the month which is one month prior to date of opening of tender

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

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

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

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

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

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

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

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

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

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

Where,

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

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

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

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

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

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

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

CEQPo = The wholesale price index as published by the Ministry of Commerce and Industry, Government of India (hereinafter called "**WPI**") for communication equipment for the month of the Base Month;

CEQPi = The WPI for communication equipment for the average price index of the 3 months of the quarter under consideration;

ELEXo = The WPI for electronics for the month of the Base Month;

ELEXi = The WPI for electronics for the average price index of the 3 months of the quarter under consideration;

P30Ci = Price payable per Km as adjusted in accordance with price variation Clause for size 30C x 1.5 sq mm signalling cable

P30Co = Price per Km of cable as per purchase order/ Contract agreement.

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

P24Ci = Price payable per Km as adjusted in accordance with price variation Clause for size 24C x 1.5 sq mm signalling cable

P24Co = Price per Km of cable as per purchase order/ Contract agreement.

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

P19Ci = Price payable per Km as adjusted in accordance with price variation Clause for size 19C x 1.5 sq mm signalling cable

P19Co = Price per Km of cable as per purchase order/ Contract agreement.

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

P12Ci = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 1.5 sq mm signalling cable

P12Co = Price per Km of cable as per purchase order/ Contract agreement.

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

P9Ci = Price payable per Km as adjusted in accordance with price variation Clause for size 9C x 1.5 sq mm signalling cable

P9Co = Price per Km of cable as per purchase order/ Contract agreement.

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

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

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

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

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

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

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

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

P2C<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

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

P12C2.5<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 12C x 2.5 sq mm signalling cable

P12C2.5<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

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

P2C2.5<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 2.5 sq mm signalling cable

P2C2.5<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

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

P2C25<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 2C x 25 sq mm signalling cable

P2C25<sub>o</sub> = Price per Km of cable as per purchase order/ Contract agreement.

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

PQC<sub>i</sub> = Price payable per Km as adjusted in accordance with price variation Clause for size 0.9mm dia, 6 Quad cable.

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

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

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

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

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

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

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

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

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

Works / Component	Signalling			Telecommunication		
	Signalling Works	Signalling inventory	Integrated testing and Commissioning	Telecommunication Works	Telecomm inventory	Integrated testing and Commissioning
Electronics (PELEX)	***%	***%	—	***%	***%	—
Communication Equipment (PCEQP)	—	—	—	***%	***%	—
Optical Fibre Cable (POFC)	***%	—	—	***%	—	—
30C x 1.5 sq mm signalling cable(S30C)	***%	—	—	***%	—	—
24C x 1.5 sq mm signalling cable (S24C)	***%	—	—	***%	—	—
19Cx 1.5 sq mm signalling cable (S19C)	***%	—	—	***%	—	—
12C x 1.5 sq mm signalling cable (S12C)	***%	—	—	***%	—	—
9C x 1.5 sq mm signalling cable (S9C)	***%	—	—	***%	—	—
6C x 1.5 sq mm signalling cable (S6C)	***%	—	—	***%	—	—
4C x 1.5 sq mm signalling cable (S4C)	***%	—	—	***%	—	—
2C x 1.5 sq mm signalling cable (S2C)	***%	—	—	***%	—	—

Works / Component	Signalling			Telecommunication		
	Signalling Works	Signalling inventory	Integrated testing and Commissioning	Telecommunication Works	Telecomm inventory	Integrated testing and Commissioning
12C x 2.5 sq mm signalling cable (S12C2.5)	***%	—	—	***%	—	—
2C x 2.5 sq mm signalling cable (S2C2.5)	***%	—	—	***%	—	—
2C x 25 sq mm signalling cable (S2C25)	***%	—	—	***%	—	—
0.9 mm dia, 6Quad cable (QC)	***%	—	—	***%	—	—
Labour (PLB)	***%	—	***%	***%	***%	***%
Other materials	***%	***%	***%	***%	***%	***%
Total	100 %	100 %	100 %	100 %	100 %	100 %

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

#### **FORMULAE FOR SIGNALING & TELECOM CABLE**

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

**For Signalling Copper Cables:**

$$P_i = P_o + CuF (Cu - C_{uo}) + CCF_{cu}(CC - CCo) + FeF (Fe - Fe_o)$$

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

$$P_i = P_o + CuF (Cu - C_{uo}) + AIF_{cu}(Al - ALo) + CCF_{cu} (CC - Cco) + FeF (Fe - Fe_o)$$

**For Aluminium Power Cables:**

$$P_i = P_o + AIF (Al - ALo) + CCFAI(CC - CCo) + FeF (Fe - Fe_o)$$

Where,

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

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

$CuF$  = Variation factor for Copper

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

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

$CCo$  = Price of PVC Compound in Rs. Per MT

$AIF$  = Variation factor for Aluminium

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

CCFAI = Variation factor for PVC Compound for Aluminium power cable

FeF= Variation factor for Steel

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

**(Prices per MT for Cuo, CCo, Feo, Alo as applicable on the 1<sup>st</sup> working day of the month, one month prior to the deadline for submission of bids. The above prices and indices are as published by IEEMA vide circular reference no. IEEMA (PVC) /CABLE --/-- one month prior to the deadline for submission of bids.)**

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

C<sub>C</sub>= Price of PVC Compound in Rs. Per MT.

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

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

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

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

Underground Railway Signalling Cable unscreened and armoured copper conductor

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

$$P30C_i = P30C_o + 0.391(Cu - C_{uo}) + 0.557(CC - C_{Co}) + 0.425(Fe - Fe_o)$$

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

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

$$P24C_i = P24C_o + 0.313(Cu - C_{uo}) + 0.481(CC - C_{Co}) + 0.398(Fe - Fe_o)$$

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

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

$$P19C_i = P19C_o + 0.248(Cu - C_{uo}) + 0.395(CC - C_{Co}) + 0.343(Fe - Fe_o)$$

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

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

$$P12C_i = P12C_o + 0.157(Cu - C_{uo}) + 0.277(CC - C_{Cu}) + 0.289(Fe - Fe_o)$$

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

- (v) Size 9C x 1.5 sq.mm

$$P9C_i = P9Co + 0.117(Cu-Cuo) + 0.241(CC-CCu) + 0.383(Fe-Feo)$$

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

- (vi) Size 6Cx 1.5 sq.mm

$$P6C_i = P6Co + 0.078(Cu-Cuo) + 0.199(CC-CCu) + 0.329(Fe-Feo)$$

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

- (vii) Size 4Cx1.5 sq.mm

$$P4C_i = P4Co + 0.052(Cu-Cuo) + 0.152(CC-CCo) + 0.277(Fe-Feo)$$

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

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

$$P2C_i = P2Co + 0.073(Cu-Cuo) + 0.156(CC-CCo) + 0.3(Fe-Feo)$$

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

- (ix) Size 12C x 2.5 sq.mm

$$P12C2.5_i = P12C2.5o + 0.282(Cu-Cuo) + 0.371(CC-CCo) + 0.342(Fe-Feo)$$

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

- (x) Size 2C x 2.5 sq.mm

$$P2C2.5_i = P2C2.5o + 0.047(Cu-Cuo) + 0.139(CC-CCo) + 0.277(Fe-Feo)$$

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

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

$$P2C25_i = P2C25o + 0.146(Al-Alo) + 0.303(CC-CCo) + 0.306(Fe-Feo)$$

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

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

$$PQC_i = PQC_o + 0.135(Al-Alo) + 0.139(Cu-Cuo) + 0.515(CC-Cco) + 0.693(Fe-Feo).$$

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

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

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

SL	Classification	Rates to be used for calculating $S_a$ or $S_b$
1.	Reinforcement bars and other rounds	Average of per tonne rates of 10mm dia TMT & 25mm dia TMT; confirming IS1786; Fe 500
2.	All types and sizes of angles, channels and joists	Average of per tonne rates of 'Angle 75x75x6mm, Mild Steel Plate 10mm thickness and Channel 150x75mm; confirming IS2062, E250 Gr "A"

SL	Classification	Rates to be used for calculating $S_Q$ or $S_B$
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 ( $S_Q$  / $S_B$ ) in different Zonal Railways shall be as under :

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

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

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

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

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

**48.(1) Certificate of Completion of Works:** As soon as in the opinion of the Engineer, the work has been completed and has satisfactorily passed any final test or tests that may be prescribed, the Engineer shall issue a certificate of completion duly indicating the date of completion in respect of the work and the period of maintenance of the work shall commence from the date of completion mentioned in such certificate. The certificate, inter alia, should

mention that the work has been completed in all respects and that all the contractual obligations have been fulfilled by the Contractor and that there is no due from the Contractor to Railways against the contract concerned.

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

**48.(2) Contractor not Absolved by Completion Certificate:** The Certificate of Completion in respect of the works referred to in Sub-Clause (1) of this Clause shall not absolve the Contractor from his liability to make good any defects imperfections, shrinkages or faults which may appear during the period of maintenance specified in the tender arising in the opinion of the Engineer from materials or workmanship not in accordance with the drawings or specifications or instruction of the Engineer, which defects, imperfections, shrinkages or faults shall upon the direction in writing of the Engineer be amended and made good by the Contractor at his own cost; and in case of default on the part of Contractor, the Engineer may employ labour and materials or appoint another Contractor to amend and make good such defects, imperfections, shrinkages and faults and all expenses consequent thereon and incidental thereto shall be borne by the Contractor and shall be recoverable from any moneys due to him under the contract.

**48(3) Final Supplementary Agreement:** After the work is completed or otherwise concluded by the parties with mutual consent, and taken over by the Railway as per terms and conditions of the contract agreement, and there is unequivocal no claim on either side under the Contract other than as mentioned in item 4 of Annexure XIV, the parties shall execute the Final Supplementary Agreement as per Annexure XIV.

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

**50.(1) Maintenance Certificate:** The Contract shall not be considered as completed until a Maintenance Certificate, if applicable, shall have been signed by the Engineer stating that the works have been completed and maintained to his satisfaction. The Maintenance Certificate shall be given by the Engineer upon the expiration of the period of maintenance or as soon thereafter as any works ordered during such period pursuant to Sub Clause (2) to Clause 48 of these Conditions shall have been completed to the satisfaction of the Engineer, and full effect shall be given to this Clause notwithstanding the taking possession of or using the works or any part thereof by the Railway.

The Competent Authority to issue above Maintenance Certificate shall normally be the authority who is competent to sign the contract. If this Competent Authority is of the rank lower than JA Grade, then a JA Grade Officer (concerned with the work) should issue the Certificate. The Certificate, inter alia, should mention that the work has been completed in all respects and that all the contractual obligations have been fulfilled by the Contractor and that there is no due from the Contractor to Railways against the contract concerned

**50.(2) Cessation of Railway's Liability:** The Railway shall not be liable to the Contractor for any matter arising out of or in connection with the contract for execution of the works unless the Contractor has made a claim in writing in respect thereof before the issue of the Maintenance Certificate under this clause.

**50.(3) Unfulfilled Obligations:** Notwithstanding the issue of the Maintenance Certificate the Contractor and (subject to Sub-Clause (2) of this Clause) the Railway shall remain liable for the fulfillment of any obligation incurred under the provision of the contract prior to the issue

of the Maintenance Certificate which remains unperformed at the time such Certificate is issued and for the purposes of determining the nature and extent of any such obligations, the contract shall be deemed to remain in force between the parties thereto.

**51.(1) Final Payment:** On the Engineer's certificate of completion in respect of the works, adjustment shall be made and the balance of account based on the Engineer or the Engineer's representative's certified measurements or Engineer's certified "contractor's authorized engineer's measurements" of the total quantity of work executed by the Contractor 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 these Conditions shall be paid to the Contractor subject always to any deduction which may be made under these presents and further subject to the Contractor having signed delivered to the Engineer enclosing either a full account in detail of all claims he may have on the Railway in respect of the works or having delivered No Claim Certificate and the Engineer having after the receipt of such account given a certificate in writing that such claims are not covered under excepted matter i.e. Clauses 7(j), 8, 18, 22(5), 39.1, 39.2, 40A, 43(2), 45(i)(a), 55, 55-A(5), 57, 57A, 61(1), 61(2) and 62(1), 63(iv) and 63.2.11 of the Standard General Conditions of Contract or in any Clause (stated as excepted matter) of the Special Conditions of the Contract, that the whole of the works to be done under the provisions of the Contracts have been completed, that they have been inspected by him since their completion and found to be in good and substantial order, that all properties, works and things, removed, disturbed or injured in consequence of the works have been properly replaced and made good and all expenses and demands incurred by or made upon the Railway for or in the respect of damage or loss by from or in consequence of the works, have been satisfied agreeably and in conformity with the contract.

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

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

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

**52. Withholding and Lien in Respect of Sums Claimed:** Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the Contractor, the Railway shall be entitled to withhold and also have a lien to retain such sum

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

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

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

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

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

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

### **LABOUR**

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

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

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

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

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

**55. Provisions of Payments of Wages Act:** The Contractor shall comply with the provisions of the Payment of Wages Act, 1936 and the rules made thereunder in respect of all employees employed by him either directly or through petty Contractors or sub-contractors in the works. If in compliance with the terms of the contract, the Contractor directly or through petty Contractors or sub-contractors shall supply any labour to be used wholly or partly under the direct orders and control of the Engineer whether in connection with the works to be executed hereunder or otherwise for the purpose of the Engineer, such labour shall nevertheless be deemed to comprise persons employed by the Contractor and any moneys which may be ordered to be paid by the Engineer shall be deemed to be moneys payable by the Engineer on behalf of the Contractor and the Engineer may on failure of the Contractor to repay such money to the Railways deduct the same from any moneys due to the Contractor in terms of the contract. The Railway shall be entitled to recover the same from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India all moneys paid or payable by the Railway by way of compensation of aforesaid or for costs of expenses in connection with any claim thereto and the decision of the Engineer upon any question arising out of the effect or force of this Clause shall be final and binding upon the Contractor.

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

**55-A.(1)** The Contractor shall comply with the provision of the contract labour (Regulation and Abolition) Act, 1970 and the Contract labour (Regulation and Abolition) Central Rules 1971 as modified from time to time, wherever applicable and shall also indemnify the Railway from and against any claims under the aforesaid Act and the Rules.

**55-A.(2)** The Contractor shall obtain a valid license under the aforesaid Act as modified from time to time before the commencement of the work and continue to have a valid license until

the completion of the work. Any failure to fulfill the requirement shall attract the penal provision of the Act.

**55-A.(3)** The Contractor shall pay to the labour employed by him directly or through sub-contractors the wages as per provision of the aforesaid Act and the Rules wherever applicable. The Contractor shall notwithstanding the provisions of the contract to the contrary, cause to be paid the wages to labour, indirectly engaged on the works including any engaged by sub-contractors in connection with the said work, as if the labour had been immediately employed by him.

**55-A.(4)** In respect of all labour directly or indirectly employed in the work for performance of the Contractor's part of the contract, the Contractor shall comply with or cause to be complied with the provisions of the aforesaid Act and Rules wherever applicable.

**55-A.(5)** In every case in which, by virtue of the provisions of the aforesaid Act or the rules, the Railway is obliged to pay any amount of wages to a workman employed by the Contractor or his sub-contractor in execution of the work or to incur any expenditure on account of the contingent, liability of the Railway due to the Contractor's failure to fulfill his statutory obligations under the aforesaid Act or the rules, the Railway will recover from the Contractor, the amount of wages so paid or the amount of expenditure so incurred and without prejudice to the rights of the Railway under the Section 20, Sub-Section (2) and Section 2, Sub-Section (4) of the aforesaid Act, the Railway shall be at liberty to recover such amount or part thereof from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India. The Railway shall not be bound to contest any claim made against it under Sub-Section (1) of Section 20 and Sub-Section (4) of Section 21 of the aforesaid Act except on the written request of the Contractor and upon his giving to the Railway full security for all costs for which the Railway might become liable in contesting such claim. The decision of the Chief Engineer regarding the amount actually recoverable from the Contractor as stated above shall be final and binding on the Contractor.

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

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

- (a) Contractor shall apply for onetime registration of his company/firm etc. in the Shramik kalyan portal with requisite details subsequent to issue of Letter of Acceptance. Engineer shall approve the contractor's registration in the portal within 7 days of receipt of such request.
- (b) Contractor once approved by any Engineer, can create password with login ID (PAN No.) for subsequent use of portal for all Letter of Acceptances (LoAs) issued in his favour.
- (c) The contractor once registered on the portal, shall provide details of his Letter of Acceptances (LoAs) / Contract Agreements on shramikkalyan portal within 15 days of issue of any LoA for approval of concerned Engineer. Engineer shall update (if required) and approve the details of LoA filled by contractor within 7 days of receipt of such request.

- (d) After approval of LoA by Engineer, contractor shall fill the salient details of contract labours engaged in the contract and ensure updating of each wage payment to them on shramikkalyan portal on monthly basis.
- (e) It shall be mandatory upon the contractor to ensure correct and prompt uploading of all salient details of engaged contractual labour & payments made thereof after each wage period.
- (ii) While processing payment of any 'On Account Bill' or 'Final Bill' or release of 'Advances' or 'Performance Guarantee / Security Deposit', contractor shall submit a certificate to the Engineer or Engineer's representatives that "I have uploaded the correct details of contract labours engaged in connection with this contract and payments made to them during the wage period in Railway's Shramikkalyan portal at 'www.shramikkalyan.indianrailways.gov.in' till \_\_\_\_Month, \_\_\_\_Year."

**55-D. Provisions of "The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996" and "The Building and Other Construction Workers' Welfare Cess Act, 1996":**

The tenderers, for carrying out any construction work, shall get themselves registered with the Registering Officer under Section-7 of the Building and Other Construction Workers Act, 1996 and Rules made thereto by the concerned State Govt., and submit Certificate of Registration issued by Registering Officer of the concerned State Govt. (Labour Dept.). The Cess shall be deducted from contractor's bills as per provisions of the Act.

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

**57. Provision of Workmen's Compensation Act:** In every case in which by virtue of the provisions of Section 12 Sub-Section (1) of the Workmen's Compensation Act 1923, Railway is obliged to pay compensation to a workman directly or through petty Contractor or sub-contractor employed by the Contractor in executing the work, Railway will recover from the Contractor the amount of the compensation so paid, and, without prejudice to the rights of Railway under Section 12 Sub-section (2) of the said Act, Railway shall be at liberty to recover such amount or any part thereof from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India. Railway shall not be bound to contest any claim made against it under Section 12 Sub-Section (1) of the said Act except on the written request of the Contractor and upon his giving to Railway full security for all costs for which Railway might become liable in consequence of contesting such claim.

**57-A. Provision of Mines Act:** The Contractor shall observe and perform all the provisions of the Mines Act, 1952 or any statutory modifications or re-enactment thereof for the time being in force and any rules and regulations made thereunder in respect of all the persons directly or through the petty Contractors or sub-contractors employed by him under this contract and shall indemnify the Railway from and against any claims under the Mines Act, or the rules and regulations framed thereunder, by or on behalf of any persons employed by him or otherwise.

**58. Railway not to Provide Quarters for Contractors:** No quarters shall normally be provided by the Railway for the accommodation of the Contractor or any of his staff employed on the work. In exceptional cases where accommodation is provided to the Contractor at the Railway's discretion, recoveries shall be made at such rates as may be fixed by the Railway for the full rent of the buildings and equipments therein as well as charges for electric current, water supply and conservancy.

**59.(1) Labour Camps:** The Contractor shall at his own expense make adequate arrangements for the housing, supply of drinking water and provision of latrines and urinals

for his staff and workmen, directly or through the petty Contractors or sub-contractors and for temporary creche (Bal-Mandir) where 50 or more women are employed at a time. Suitable sites on Railway land, if available, may be allotted to the Contractor for the erection of labour camps, either free of charge or on such terms and conditions that may be prescribed by the Railway. All camp sites shall be maintained in clean and sanitary conditions by the Contractor at his own cost.

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

**59.(3) Preservation of Peace:** The Contractor shall take requisite precautions and use his best endeavours to

(i) Prevent any riotous or unlawful behaviour by or amongst his workmen and other employed directly or through the petty Contractors or sub-contractors on the works and for the preservation of peace and protection of the inhabitants and

(ii) Security of property in the neighbourhood of the works. In the event of the Railway requiring the maintenance of a Special Police Force at or in the vicinity of the site during the tenure of works, the expenses thereof shall be borne by the Contractor and if paid by the Railway shall be recoverable from the Contractor.

**59.(4) Sanitary Arrangements:** The Contractor shall obey all sanitary rules and carry out all sanitary measures that may from time to time be prescribed by the Railway Medical Authority and permit inspection of all sanitary arrangements at all times by the Engineer, the Engineer's Representative or the Medical Staff of the Railway. Should the Contractor fail to make the adequate sanitary arrangements, these will be provided by the Railway and the cost thereof recovered from the Contractor.

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

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

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

**59. (8) Use of Intoxicants:** The sale of ardent spirits or other intoxicating beverages upon the work or in any of the buildings, encampments or tenements owned, occupied by or within the control of the Contractor or any of his employees shall be forbidden and the Contractor shall exercise his influence and authority to the utmost extent to secure strict compliance with this condition.

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

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

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

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

**60.(4) Medical Re-Examination of Labourer:** Where any official appointed in this behalf by the Ministry of Labour is of the opinion that any person employed in connection with the execution of any work under this contract in the age group 15 to 19 years is without a certificate of fitness or is having a certificate of fitness but no longer fit to work in the capacity stated in the certificate, he may serve on the Contractor, or on the person nominated by him in this regard, a notice requiring that such persons shall be examined by a certifying surgeon and such person shall not if the concerned official so directs, be employed or permitted to do any work under this contract unless he has been medically examined and certified that he is fit to work in the capacity stated in the certificate.

#### **EXPLANATIONS:**

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

## DETERMINATION OF CONTRACT

**61.(1) Right of Railway to Determine the Contract:** The Railway shall be entitled to determine and terminate the contract at any time should, in the Railway's opinion, the cessation of work becomes necessary owing to paucity of funds or from any other cause whatever, in which case the value of approved materials at site and of work done to date by the Contractor will be paid for in full at the rate specified in the contract. Notice in writing from the Railway of such determination and the reasons therefor shall be conclusive evidence thereof.

**61.(2) Payment on Determination of Contract:** Should the contract be determined under sub clause (1) of this clause and the Contractor claims payment for expenditure incurred by him in the expectation of completing the whole of the work, the Railways shall admit and consider such claims as are deemed reasonable and are supported by vouchers to the satisfaction of the Engineer. The Railway's decision on the necessity and propriety of such expenditure shall be final and conclusive.

**61.(3)** The Contractor shall have no claim to any payment of compensation or otherwise, howsoever on account of any profit or advantage which he might have derived from the execution of the work in full but which he did not derive in consequence of determination of contract.

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

If the Contractor should:

- (i) Becomes bankrupt or insolvent, or
- (ii) Make an arrangement for assignment in favour of his creditors, or agree to carry out the contract under a Committee of Inspection of his creditors, or
- (iii) Being a Company or Corporation, go into liquidation (other than a voluntary liquidation for the purposes of amalgamation or reconstruction), or
- (iv) Have an execution levied on his goods or property on the works, or
- (v) Assign the contract or any part thereof otherwise than as provided in Clause 7 of these Conditions, or
- (vi) Abandon the contract, or
- (vii) Persistently disregard the instructions of the Engineer, or contravene any provision of the contract, or
- (viii) Fail to adhere to the agreed programme of work by a margin of 10% of the stipulated period, or
- (ix) Fail to Execute the contract documents in terms of Para 8 of the Instructions to Tenderers.
- (x) Fail to submit the documents pertaining to identity of JV and PAN in terms of Para 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 these Conditions, or
- (xii) Fail to take steps to employ competent or additional staff and labour as required under Clause 26 of these Conditions, or
- (xiii) Fail to afford the Engineer or Engineer's representative proper facilities for inspecting the works or any part thereof as required under Clause 28 of these Conditions, or
- (xiv) Promise, offer or give any bribe, commission, gift or advantage either himself or through his partner, agent or servant to any officer or employee of the Railway or to 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 Para 16 of Tender Form (Second Sheet) of Annexure I of the Instructions to Tenderers, or provision Clause 59(9) of these Conditions.
- (xvi) Submits copy of fake documents / certificates in support of credentials, submitted by the tenderer

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

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

**62.(2) Right of Railway after Rescission of Contract owing to Default of Contractor:** In the event of any or several of the courses, referred to in Sub-Clause (1) of this Clause, being adopted:

(a) The Contractor shall have no claim to compensation for any loss sustained by him by reason of his having purchased or procured any materials or entered into any commitments or made any advances on account of or with a view to the execution of the works or the performance of the contract and Contractor shall not be entitled to recover or be paid any sum for any work thereto for actually performed under the contract unless and until the Engineer shall have certified the performance of such work and the value payable in respect thereof and the Contractor shall only be entitled to be paid the value so certified.

(b) In the contract which has been rescinded as a whole, the Security Deposit already with railways under the contract shall be encashed/ forfeited and the Performance Guarantee already submitted for the contract shall be encashed. The balance work shall be got done independently without risk & cost of the failed Contractor. The failed Contractor shall be debarred from participating in the tender for executing the balance work. If the failed Contractor is a JV or a Partnership firm, then every 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 available 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 these Conditions.

(iii) The defaulting Contractor shall not be issued any completion certificate for the contract.

(iv) The balance work shall be got done independently without risk & cost of the failed Contractor. The failed Contractor shall be debarred from participating in the tender for executing the balance work. If the failed Contractor is a JV or a Partnership firm, then every member/partner of such a firm shall be debarred from participating in the tender for the balance work in his/her individual capacity or as a partner of any other JV /partnership firm.

(v) Further the authorized representative of failed Contractor will not be accepted as authorized representative in new contract.

(d) The Engineer or the Engineer's Representative shall be entitled to take possession of any materials, tools, implements, machinery and buildings on the works or on the property on which these are being or ought to have been executed, and to retain and employ the same in the further execution of the works or any part thereof until the completion of the works without the Contractor being entitled to any compensation for the use and employment thereof or for wear and tear or destruction thereof.

(e) The Engineer shall as soon as may be practicable after removal of the Contractor fix and determine ex-parte or by or after reference to the parties or after such investigation or enquiries as he may consider fit to make or institute and shall certify what amount (if any) had at the time of rescission of the contract been reasonably earned by or would reasonably accrue to the Contractor in respect of the work then actually done by him under the contract and what was the value of any unused, or partially used materials, any constructional plant and any temporary works upon the site. The legitimate amount due to the Contractor after making necessary deductions and certified by the Engineer should be released expeditiously.

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

#### **63. Conciliation of Disputes:**

- (i) This clause is applicable in the tender having advertised value less than or equal to Rs.50 Crore.
- (ii) All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract, shall be referred by the Contractor to the "Chief Engineer" or "Divisional Railway Manager" through "Notice of Dispute" provided that no such notice shall be served later than 30 days after the date of issue of Completion Certificate by the Engineer. Chief Engineer or Divisional Railway Manager shall, within 30 days after receipt of the Contractor's "Notice of Dispute", notify the name of conciliator(s) to the Contractor.
- (iii) The Conciliator(s) shall assist the parties to reach an amicable settlement in an independent and impartial manner within the terms of contract.
- (iv) If the parties reach agreement on a settlement of the dispute, they shall draw up and sign a written settlement agreement duly signed by Engineer In-charge, Contractor and conciliator(s). When the parties sign the settlement agreement, it shall be final and binding on the parties.
- (v) The parties shall not initiate, during the conciliation proceedings, any arbitral or judicial proceedings in respect of a dispute that is the subject matter of the conciliation proceedings.
- (vi) The conciliation proceedings shall be terminated as per Section 76 of 'The Arbitration and Conciliation Act, 1996.

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

matter) of the Special Conditions of the Contract, shall be deemed as 'excepted matters' (matters not arbitrable) and decisions of the Railway authority, thereon shall be final and binding on the Contractor; provided further that 'excepted matters' shall stand specifically excluded from the purview of the Dispute Adjudication Board (DAB) and Arbitration.

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

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

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

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

**63.2.3** If one or more of the members appointed refuses to act as DAB member, or is unable or unwilling to perform his functions as DAB member for any reason whatsoever or dies or in the opinion of the Chief Engineer fails to act without undue delay, the parties shall terminate the mandate of such DAB member and thereupon new DAB member shall be appointed in the same manner, as the outgoing DAB member had been appointed.

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

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

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

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

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

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

**63.2.9** In the specific cases of any misconduct by any of the members of the DAB, the parties shall have the right to specifically bring it to the notice of the DAB such conduct, through a

statement filed with necessary documents in proof of such misconduct and the DAB, after taking NOTICE of such conduct initiate the replacement of the member concerned, in the same manner the member to be replaced was appointed.

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

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

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

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

**63.2.14** It is a term of this contract that the Parties shall not approach any Court of Law for settlement of such disputes or differences unless an attempt has first been made by the parties to settle such disputes or differences through DAB and Arbitral Tribunal.

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

as per Advance Correction Slip No.10 to Indian Railways Standard General Conditions of Contract. April-2022)

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

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

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

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

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

**64.(1)(ii)(b):** The parties may waive off the applicability of Sub-Section 12(5) of Arbitration and Conciliation (Amendment) Act 2015, if they agree for such waiver in writing, after dispute having arisen between them, in the format given under Annexure XV of these conditions.

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

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

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

**64.(1)(iii)(d):** Place of Arbitration: The place of arbitration would be within the geographical limits of the Division of the Railway where the cause of action arose or the Headquarters of the concerned Railway or any other place with the written consent of both the parties

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

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

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

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

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

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

**64.(3)(a)(ii):** If contractor wants to choose his nominee from Indian Council of Arbitration panel, Contractor will send at least 2 names of Arbitrators from the ICA panel for appointment as Contractor's nominee within 30 days from the date of dispatch of the request by Railway. The General Manager/Additional General Manager shall appoint at least one out of them as the Contractor's nominee within 30 days from the receipt of the names of Contractor's nominees. Nomination and appointment of arbitrators from ICA panel shall be as per the ICA Rules for Domestic Commercial Arbitration and amended from time to time.

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

- i. Contractor may access the ICA's panel of arbitration through ICA's official webpage: [https://icaindia.co. in/pdf/Engineers.pdf](https://icaindia.co.in/pdf/Engineers.pdf).
- ii. A formal request for nomination shall be submitted to ICA, accompanied by:-
  - a. A brief Statement of Claim outlining the nature and quantum of the disputes.
  - b. A copy of the relevant contract and any supporting documents.

- c. A copy of the notice intimating the other party of the initiation of arbitration proceedings, with proof of delivery (if any).
- iii. Ad-hoc appointment fees for the nomination and appointment of arbitrators shall be as per the ICA Rules for Domestic Commercial Arbitration and revised from time to time and shall be submitted along with the request.

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

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

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

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

(b) Before proceeding into the merits of any dispute, the Arbitral Tribunal shall first decide and pass its orders over any plea submitted/objections raised by any party, if any, regarding appointment of Arbitral Tribunal, validity of arbitration agreement, jurisdiction and scope of the Tribunal to deal with the dispute (s) submitted to arbitration, applicability of time 'limitation' to any dispute, any violation of agreed procedure regarding conduct of the arbitral proceedings or plea for interim measures of protection and record its orders in day to day proceedings. A copy of the proceedings duly signed by all the members of tribunal should be provided to both the parties

**64.(3)(c)(iii):** (i) Qualification of Railway Empanelled Arbitrator(s):

- (a) Retired Railway Officers not below SA Grade level, one year after his date of retirement.
- (b) Age of arbitrator at the time of appointment shall be below 70 years.
- (c) Persons not involved in any current vigilance/CBI cases or against whom disciplinary or prosecution proceedings are not in process.
- (d) Persons who had not been imposed a major penalty or two or more minor penalties or against whom administrative action has not been taken three times or more or
- (e) Persons who have not been imposed one minor Penalty and against whom two administrative actions have not been taken as a result of vigilance/CBI action while in service on Railways.
- (ii) An arbitrator may be appointed notwithstanding the total number of arbitration cases in which he has been appointed in the past.

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

**64.(3)(d)(i):** The arbitral award shall state item wise, the sum and reasons upon which it is based. The analysis and reasons shall be detailed enough so that the award could be inferred therefrom

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

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

**64.(4):** Any ruling on award shall be made by a majority of members of Tribunal. In the absence of such a majority, the views of the Presiding Arbitrator shall prevail.

**64.(5):** Where the arbitral award is for the payment of money, no interest shall be payable on whole or any part of the money for any period till the date on which the award is made.

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

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

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

## PART-II ANNEXURES

## ANNEXURE – VII

Reference Para 17B

Registered Acknowledgement Due

## PROFORMA FOR TIME EXTENSION

No. \_\_\_\_\_ Dated: \_\_\_\_\_

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

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

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

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

Dear Sir,

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

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

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

4. The above extension of the completion date will also be subject to the further condition that no increase in rates on any account will be payable to you.

5. Please intimate within a week of the receipt of this letter your acceptance of the extension of the conditions stated above.

6. Please note that in the event of your declining to accept the extension on the above said conditions or in the event of your failure after accepting or acting upto this extension to complete the work by \_\_\_\_\_ (here mention the extended date), further action will be taken in terms of Clause 62 of the Standard General Conditions of Contract.

Yours faithfully

For and on behalf of the President of India

**ANNEXURE – VIIA**

(Reference Clause 40(A)

Registered Acknowledgement Due

**PROFORMA OF 14 DAYS NOTICE FOR OFFLOADING OF PART OF CONTRACT WORK****\_\_\_\_\_ RAILWAY**

(Without Prejudice)

To

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

Dear Sir,

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

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

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

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

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

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

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

**ANNEXURE – VIIB**

(Reference Clause 40(A)

Registered Acknowledgement Due

**NOTICE FOR PART OF CONTRACT WORK OFFLOADED****\_\_\_\_\_ RAILWAY**

(Without Prejudice)

To

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

Dear Sir,

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

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

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

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

Or,

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

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

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

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

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

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

**Tenderers****DyCECDR**

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

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

**ANNEXURE – VIII**  
Reference Para 60.(2)

**CERTIFICATE OF FITNESS**

1. (a) Serial Number \_\_\_\_\_  
(b) Date \_\_\_\_\_
2. Name of person examined \_\_\_\_\_
3. Father's Name: son/daughter of \_\_\_\_\_  
Residing at \_\_\_\_\_
4. Sex \_\_\_\_\_
5. Residence: \_\_\_\_\_
6. Physical fitness \_\_\_\_\_
7. Identification marks \_\_\_\_\_
8. Date of birth, if available, and/or certified age \_\_\_\_\_  
I certify that I have personally examined (name) \_\_\_\_\_ who is desirous of being employed in a factory or on a work requiring manual labour and that his/her age as nearly as can be ascertained from my examination, is \_\_\_\_\_ years.  
  
I certify that he/she is fit for employment in a factory or on a work requiring manual labour as an adult/child.
9. Reasons for :  
(a) Refusal to grant certificate, or \_\_\_\_\_  
(b) Revoking the certificate \_\_\_\_\_

Signature or left hand

Thumb impression of the person examined.

Signature of Certifying Surgeon

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

**ANNEXURE – IX**

(Reference Clause 62. (1)

Registered Acknowledgement Due

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

(Without Prejudice)

To

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

Dear Sir,

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

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

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

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

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

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

**ANNEXURE – X**

Reference Para 62(1)

Registered Acknowledgement Due

**PROFORMA OF 48 HRS. NOTICE FOR WHOLE WORK****\_\_\_\_\_ RAILWAY**

(Without Prejudice)

To

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

Dear Sir,

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

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

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

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

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

as per Advance Correction Slip No.08 to Indian Railways Standard General Conditions of Contract. April-2022)

### ANNEXURE – XI

Reference Para 62.(1)

Registered Acknowledgement Due/standard correspondence through IR WCMs/ /email on registered IREPS Email

### PROFORMA OF TERMINATION NOTICE

\_\_\_\_\_  
RAILWAY

(Without Prejudice)

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

Dated \_\_\_\_\_

To

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

Dear Sir,

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

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

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

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

The Final measurements of work executed by you against the said contract will be taken/started on \_\_\_\_\_ at \_\_\_\_\_ hrs. at site. The measurement will be continued till all the measurement are taken. You are advised to be present at site on the above mentioned date and time to witness the measurements, otherwise measurements will be taken ex-parte and thereafter, variation (addendum & corrigendum) & final bill of work executed till date of termination based on ex-parte final measurements shall also be processed ex-parte.

Yours faithfully

For and on behalf of the President of India

**Tenderers**

**DyCECDR**

**ANNEXURE – XII**

Reference Para 62.(1)

Registered Acknowledgement Due

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

(Without Prejudice)

To

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

Dear Sir,

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

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

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

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

**ANNEXURE – XIII**

Reference Para 62.(1)

Registered Acknowledgement Due

**PROFORMA OF TERMINATION NOTICE FOR PART OF THE WORK.....  
(DETAILS OF PART OF WORK TO BE MENTIONED)****RAILWAY**

(Without Prejudice)

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

Dated \_\_\_\_\_

To

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

Dear Sir,

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

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

1. Forty eight hours (48 hrs.) notice was given to you under this office letter of even no., dated \_\_\_\_\_; but you have taken no action to commence the work/show adequate progress of the part of work.....(details of part to be mentioned).
2. Your above part of work in contract .....(details of part to be mentioned) stands rescinded in terms of Clause 62 of the Standard General Conditions of Contract and the same will be carried out independently without your participation. Your participation as well as participation of every member/partner in any manner as an individual or a partnership firm/JV is hereby debarred from participation in the tender for executing the balance work
3. Your full Performance Guarantee for the contract shall be forfeited and you shall not be issued any completion certificate for the contract. However, no additional Performance Guarantee shall be required for balance of work being executed through the part terminated contract.
4. The contract value of part terminated contract stands reduced to .....

Kindly acknowledge receipt.

Yours faithfully

For and on behalf of the President of India

**Tenderers****DyCECDR**

**ANNEXURE – XIV**

Reference Para 48.(3)

**FINAL SUPPLEMENTARY AGREEMENT**

1. Articles of agreement made this day \_\_\_\_\_ in the year \_\_\_\_\_ between the President of India, acting through the \_\_\_\_\_ Railway Administration having his office at \_\_\_\_\_ herein after called the Railway of the one part and \_\_\_\_\_ of the second part.
2. Whereas the party hereto of the second part executed an agreement with the party hereto of the first part being agreement Number \_\_\_\_\_ dated \_\_\_\_\_ for the performance \_\_\_\_\_ herein after called the 'Principal Agreement'.
3. And whereas it was agreed by and between the parties hereto that the works would be completed by the party hereto of the second part on \_\_\_\_\_ date last extended and whereas the party hereto of the second part has executed the work to the entire satisfaction of the party hereto of the first part.
4. And whereas the party hereto of the first part already made payment to the party hereto of the second part diverse sums from time to time aggregating to ₹ \_\_\_\_\_ including the Final Bill bearing voucher No. \_\_\_\_\_ dated \_\_\_\_\_ of value \_\_\_\_\_ duly adjusted as per price variation clause, if applicable (the receipt of which is hereby acknowledged by the party hereto of the second part in full and final settlement of all his /its claims under the principal agreement.

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

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

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

**Or**

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

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

*Now, it is hereby agreed by and between the parties in the consideration of sums already paid through various On Account Bills and sums to be paid through Final Bill duly adjusted*

*as per price variation clause (PVC), if applicable, based on accepted final measurements including the Security Deposit by the party hereto of the first part to the party hereto of the second part against all outstanding dues and claims for all works done under the aforesaid principal agreement, the party hereto of the second part have no further dues of claims against the party hereto of the first part under the said Principal Agreement.*

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

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

Signature of the Contractor/s

for and on behalf of the President of India

Witnesses

\_\_\_\_\_

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

**ANNEXURE-XV**

Reference Para 64.3 &amp; 64.6

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

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

Brief of claim:

- (i) Claim 1- Detailed at Annexure-
- (ii) Claim 2 –
- (iii) Claim 3 –

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

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

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

**Agreement under Section 31(5)**

I/we..... (Name of claimant) with reference to agreement no..... hereby waive off the applicability of sub section 31-A (2) to 31-A (4) of the Arbitration and Conciliation (Amendment) Act. We further agree that the cost of arbitration will be shared by the parties as per Clause 64(6) of the Standard General Conditions of Contract.

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

\*Strike out whichever not applicable.

**ANNEXURE-XVI**

Reference Para 64.(3)

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

1. Name:
2. Contact Details:
3. Prior experience (Including Experience with Arbitrations):
4. **I do not have more than ten on-going Arbitration cases with me.**
5. I hereby certify that I have retired from Railways w.e.f. \_\_\_\_\_ and empanelled as Railway Arbitrator as per 'The Arbitration and Conciliation Act- 1996'.
6. I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind.  
Or  
I have past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. The list of such interests is as under:
7. I have no any past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality in terms of The Arbitration and Conciliation Act-1996.  
Or  
I have past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality in terms of The Arbitration and Conciliation Act-1996. The details of such relationship or interests are as under:
8. There are no concurrent Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months.  
Or  
There are Circumstances which are likely to affect my ability to devote sufficient time to the arbitration and in particular to finish the entire arbitration within twelve months. The list of such circumstances is as under:

as per Advance Correction Slip No.09 to Indian Railways Standard General Conditions of Contract. April-2022) new annexure XVII

# **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

**Tenderers**

**DyCECDR**

WHEREAS, we, \_\_\_\_\_, (Name of insurance company) hereinafter called the Surety, acting through [Designation(s) of the authorised person of the Surety], have, at the request of the **M/s. XXXX** contractor, agreed to give Bond for performance security/ additional performance security as hereinafter contained:

1. KNOW ALL MEN by these present that I/We, the undersigned [Insert name(s) of authorized representatives of the Surety], being fully authorized to sign and incur obligations for and on behalf of the Surety, confirm that the Surety, hereby, unconditionally and irrevocably Bond to pay the Railway the full amount in the sum of **XXXX** (Rupees **XXXX** Only) as above stated.
2. The Surety undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Surety shall be final, conclusive and binding, absolute and unequivocal notwithstanding any disputes raised/pending before any Court, tribunal, arbitration or any authority or any threatened litigation by the Bidder or Bank.
3. On payment of any amount less than aforementioned full amount, as per demand of the Railway, the Bond shall remain valid for the balance amount i.e. the aforementioned full amount less the payment made to the Railway.
4. The Surety shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the contractor and without the Railway being required to show grounds or give reasons for its demand or the amount demanded.
5. The Surety Bond shall be unconditional and irrevocable.
6. The Bond hereinbefore shall not be affected by any change in the constitution of the Surety or in the constitution of the Contractor.
7. The Surety agrees that no change, addition, modifications to the terms of the Contract Agreement or to any documents, which have been or may be made between the Railway and the Contractor, will in any way release us from the liability under this Bond; and the Surety, hereby, waives any requirement for notice of any such change, addition or modification to the Surety.
8. This Bond is valid and effective from the date of its issue, which is [insert date of issue]. The Bond and our obligations under it will expire on **XXXX** (Expiry Date). All demands for payment under the Bond must be received by us on or before that date.
9. The Surety agrees that the Railways right to demand payment of aforementioned full amount in one instance or demand payments in parts totaling up to the aforementioned full amount in several instances will be valid until either the aforementioned full amount is paid to the Railway or the Bond is released by Railway before the Expiry date.
10. The Surety agrees that its obligation to pay any amount demanded by the Railway before the expiry of this Bond will continue until the amount demanded has been paid in full.
11. The expressions Surety and Railway 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 **XXXX** Only).
- b. This Surety Bond shall be valid up to **XXXX** (being the date of expiry);
- c. Unless the bank is served a written claim or demand on or before **XXXX** [date of expiry] all rights under this Bond shall be forfeited and the Surety shall be relieved and discharged from all liabilities under this Bond irrespective of whether or not the original Surety bond is returned to the Surety.

Dated \_\_\_\_\_ the day of 2024

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

Place.....

Bank's Seal and authorized signature(s)  
[Name in Block letters].....

[Designation with Code No.].....

[P/Attorney] No.

**Witness**

1.

2.

\* \* \* \* \*

[Note: All italicized texts are for guidance on how to prepare this Insurance Surety Bond and shall be deleted from the final document.]

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

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**SPECIAL CONDITIONS OF CONTRACT (PART-I) (SCC) INDEX**

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### SPECIAL CONDITIONS OF CONTRACT (PART-I) (SCC)

These Special Conditions of Contract will supersede the corresponding provision of the **Indian Railways Standard General Conditions of Contract (G.C.C.)** wherever there is any contradiction between the two. **GCC** clause shall remain in force unless the same is modified, altered, substituted partially or fully by the provisions / clauses / explanations furnished in the **SCC**.

#### **1. Additions / Modifications / Substitutions to G.C.C.:**

The Additions / Modifications / Substitutions to G.C.C. are as under:

S. No.	GCC Clause	Additions / Modifications / Substitutions				
1.	Sub-Clause 1.01: (Page No.1 of GCC, April 2022)	<p><b><u>Order of Precedence of Documents:</u></b></p> <p><b><u>Add the following as Item No.(iii)</u></b></p> <p><i>(iii) Additional Special Conditions of Contract</i></p> <p><b><u>Item Nos.(iii) to (xi) should be renumbered as:</u></b></p> <p><i>Item Nos.(iv) to (xii)</i></p> <p><b><u>Add the following below Item No.(xii):</u></b></p> <p><i>(xiii) Any Other Specifications</i></p> <p><i>The Railway's decision in this regard will be final and binding on the contractor.</i></p>				
2.	Sub-Clause 7. (Annexure-I, Tender Form (Second Sheet): (Page No.11 of GCC, April 2022)	<p><b><u>Right of the Railway to deal with Tenders:</u></b></p> <p><b>Add the following at the end of Sub-Clause 7:</b></p> <p>Should the Railway decide to negotiate with a view to bring down the rates, the original offer will still be binding in case nothing materialises out of the negotiations.</p>				
3.	Sub-Clause 10.1. (Annexure-I, Tender Form (Second Sheet): (Page Nos.12 & 13 of GCC, April 2022)	<p><b><u>Technical Eligibility Criteria: Add the following below sub- Para (a) of Sub-Clause 10.1:</u></b></p> <p><b><u>Definition of “Similar Work” is as under:</u></b></p> <table><tr><td>Value (Rs. in Crore)</td><td>Definition of similar work</td></tr><tr><td>27.44 Crs</td><td>Any Permanent Way work.</td></tr></table>	Value (Rs. in Crore)	Definition of similar work	27.44 Crs	Any Permanent Way work.
Value (Rs. in Crore)	Definition of similar work					
27.44 Crs	Any Permanent Way work.					

#### **2. A) Completion Period:**

The works are required to be completed within a period of 24 **(Twenty Four) months including monsoon** from the date of issue of acceptance letter.

The sequence in which work is programmed to be carried out shall be represented by a network chart to be prepared by the Contractor and approved by the Engineer before commencement of the work.

#### **B) Extension of completion Period:**

The contractor shall apply for extension to completion period well in advance before expiry of completion period as per **Clause No.17 of Part-II: Standard General Condition of Contract**. In case the contractor has failed to complete the work by

the agreed date of completion and neither seeks nor willing to seek extension even after expiry of the agreed date of completion, **the Railway reserves right to terminate the contract with effect from date of completion, original or extended by giving a notice to this effect.**

During the extended period of completion also, time shall be deemed to be essence of the contract.

- C) **Maintenance Period**: The work shall be maintained after completion by the contractor i.e 12 months and he shall make good any defects, imperfection, shrinkage or faults which may appear, at his own cost.

\*\*\*\*\*

**AGREEMENT FOR WORKS****CONTRACT AGREEMENT No.** \_\_\_\_\_ **; Dated:** \_\_\_\_\_

Articles of Agreement made this \_\_\_\_ day of \_\_\_\_\_, between the President of India acting through the Railway Administration hereinafter called the "Railway", of the one part and \_\_\_\_\_, hereinafter called the "Contractor" on the other part.

Whereas in response to the Tender Notice No. **DyCECDR-01-2026R**, Corrigendum No. \_\_\_\_\_ dt. \_\_\_\_\_, hereto annexed as '**Annexure-I**', for the work of "Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project", the Contractor has submitted their **Offer dt.** \_\_\_\_\_ (Price Bid opened on \_\_\_\_\_), hereto annexed as '**Annexure-II**', which has been accepted by Railways vide Letter of Acceptance (LOA) No. \_\_\_\_\_; dt. \_\_\_\_\_, hereto annexed as '**Annexure-III**'.

Whereas the Contractor has agreed with the Railway for the performance of the work "A) Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project" **on or before \_\_\_\_\_. (i.e. 24 months from the date of issue of LOA)**, strictly according to the various provisions in Annexure-I, II & III, hereto attached & as per scope of work, set forth in the schedule hereto annexed upon the Standard General Conditions of Contract, corrected up to latest correction slips and the Specifications of Central Railway, corrected up to latest correction slips and the Schedule of Rates of Central Railway, corrected up to latest correction slips and the Special Conditions and Special Specifications, if any and in conformity with the drawings hereinto annexed AND WHEREAS the performance of the said work is an act in which the public are interested.

NOW THIS INDENTURE WITNESSETH that in consideration of the payments to be made by the Railway, the Contractors will duly perform the said works in the said schedule 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 \_\_\_\_\_ (i.e. 24 months from the date of issue of LOA), and will maintain the said works for a period of 12 Calendar months 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 had been fully set forth herein) AND the Railway do 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 schedule hereto annexed.

In witnesseth whereof the parties have hereunto set and prescribed their respective hands and / or seal, the day, month and year respectively mentioned against their respective signature.

**Signature of Contractor**  
**Address:**

**Chief Engineer(C)/MTP**  
Central Railway, Mumbai CST  
For and on behalf of  
The President of India.

**Date:**

**Signature of Witnesses:**

(1).....

(2).....

**Tenderers**

**DyCECDR**

**APPENDICES*****Appendix-I*****e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

\*\*\*\*\*

**PARTICULARS OF TENDER(S)**

1. Full name of Contractor/ Construction firm	
2. Year of establishment of Firm	
3. Registered Head Office Address, telephone no, Fax no, E-mail address.	
4. Branch office Address, Telephone no, Fax no, E-mail address	
5. Details of Constitution of firm, names of Partners/ Executives/Power of Attorney holders, etc.	
6. Particulars of Registration with Government/ Semi-Govt. Organisation, Public Sector Undertaking & Local Bodies etc.	

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:**A) Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

\*\*\*\*\*

**LIST OF WORKS COMPLETED in last 07 (seven) years, ending last day of month previous to the one in which tender is invited**

Sr No	Name of Work	Name of Organization for whom executed and Contract awarding authority	Contract agreement No and date of Award	Approx. Value of contract		Date of Commencement	
				Agreement value	Final Value	Scheduled	Actual
1	2	3	4	5	6	7	8

Date of Finish		Period of completion		Main features of the work	Remarks
Scheduled	Actual	Scheduled	Actual		
9	10	11	12	13	14

Note:

- (i) Supporting documents/certificates (duly attested) from the organisations with whom worked/are working should be enclosed.
- (ii) Certificate from private individuals for whom such works are executed/ being executed shall not be accepted.

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

\*\*\*\*\*

**LIST OF WORKS ON HAND: DETAILS OF EXISTING COMMITMENTS, BALANCE AMOUNT OF ONGOING WORKS AND WORKS AWARDED NOT YET STARTED**

All works in progress and also the works which are awarded to tenderer but yet not started up to the date of opening of tender. In case of no works in hand, a 'NIL' statement should be furnished. This statement should be submitted duly verified by Chartered Accountant.

Sr N o	Nam e of Work	Name of Organizatio n for whom executed and Contract awarding authority	Contract agreeme nt No and date of Award	Approx. Value of contract			Date of Commencement	
				Agreeme nt Value	Payme nt receiv ed	Approx. balance to be receiv ed	Schedule d	Actu al
1	2	3	4	5	6	7	8	9

Date of Finish		Period of completion		% age Progress		Reasons for Delay, if any	Main features of the work	Remarks
Schedul ed	Expect ed	Schedul ed	Expect ed	Physic al	Financi al			
10	11	12	13	14	15	16	17	18

**Note:**

(i) Supporting documents/certificates (duly attested) from the organisations with whom worked/are working should be enclosed.

(ii) Certificate from private individuals for whom such works are executed/ being executed shall not be accepted.

**Appendix-IV****e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work :** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

\*\*\*\*\*

**LIST OF PERSONNEL / ORGANISATION AVAILABLE ON HAND AND PROPOSED TO  
BE ENGAGED FOR THE SUBJECT WORK**

Sr. No.	Name & Designation	Qualification	Professional Experience	Remarks

*Note- Supporting documents should be attached*

I hereby certify that no retired Engineer/Gazetted Officer of the Railways who has retired within 1 year of date of submission of tender and has not obtained permission of competent authority has been engaged by me/our firm. I also certify that none of my relative is engaged in Engineering Department in Central Railway.

**Signature of Tenderer(s)**

**Tenderers**

**DyCECDR**

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

\*\*\*\*\*

**A. LIST OF PLANT & MACHINERY (OWNED) AVAILABLE ON HAND AND PROPOSED TO BE INDUCTED ON THE SUBJECT WORK**

Sr. No.	Particulars of equipment's	No. of units	Kind/Make	Capacity	Age and condition	Remarks

**B. LIST OF PLANT & MACHINERY PROPOSED TO BE HIRED FOR THE WORK**

Sr. No.	Particulars of equipment's	No. of units	Capacity	Remarks

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

\*\*\*\*\*

**DECLARATION FOR SITE VISIT**

I/We hereby solemnly declare that I/We visited the sites of work personally and have made myself/ourselves fully conversant of the conditions therein and in particular the following:

- (i) Topography of the area
- (ii) Soil strata at site of work
- (iii) Sources and availability of construction materials
- (iv) Rates for construction materials, water, electricity including all local taxes, royalties, octroi, etc.
- (v) Availability of local labour (both skilled and unskilled) and relevant labour rates and labour laws
- (vi) Existing roads, approaches, pathways to site of work
- (vii) Space for stacking of materials, stores, office etc.
- (viii) Availability and rates of private land, etc. required for various purposes
- (ix) Trees, shrubs, bushes, debris etc. required to be removed for site clearance
- (x) Need of dewatering/pumping etc.
- (xi) Climatic conditions and availability of working days and working hours
- (xii) Frequency/pattern of rail traffic, electrified tracks, road traffic etc.
- (xiii) Availability of rail/road traffic block
- (xiv) Law and order situation.
- (xv) Any other conditions, which may affect rates.

I/We have quoted my/our rates for various items in the tender schedule taking into account all the above factors likely to be encountered during execution of work. I/We shall not be entitled for any claim against Railway on account of the above factors.

Signature of Tenderer(s)

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

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**MANDATE FORM FOR PAYMENT THROUGH ECS/NEFT**

Firm's name		
Firm's address / Tel. No. /FAX No./Email.ID		
Name of the bank		
Bank Branch Name Address / Tel. No./ Fax No. / Email ID		
Account No. (as per Core Banking)		
Type of Account	Saving / Current / Others (please specify)	
MICR Code & IFSC Code		

**IMPORTANT NOTE :**

Tenderer/s should ensure that they attach a copy of this '**Mandate Form**', **duly verified & signed by the Bank Officials** along with the EMD instruments, in order to enable Railway to release the EMD amount quickly to the unsuccessful tenderers through ECS/NEFT.

Signature of the Tenderer/s

**MEMORANDUM OF UNDERSTANDING  
FOR JOINT VENTURE AGREEMENT**

1. This Memorandum of understanding executed this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ between \_\_\_\_\_ (Name of Co.) \_\_\_\_\_ a company registered under the Companies Act 1956 having its registered office at \_\_\_\_\_ represented through its Director / Authorized Representative \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall unless repugnant to the context thereof includes its successors) of the **FIRST PART**

OR

M/s. \_\_\_\_\_ a partnership firm registered under the Indian Partnership Act 1932, having its registered office at \_\_\_\_\_ represented through its Partner Shri \_\_\_\_\_ / Authorized Representative \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall unless repugnant to the context thereof includes its successors) of the **FIRST PART**

AND

2. M/s. \_\_\_\_\_ (Name of Co.) \_\_\_\_\_ a company registered under the Companies Act 1956 having its registered office at \_\_\_\_\_ represented through its Director or Authorized Representative \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall unless repugnant to the context thereof includes its successors) of the **SECOND PART**.

OR

M/s. \_\_\_\_\_ a partnership firm registered under the Indian Partnership Act 1932, having its registered office at \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall unless repugnant to the context thereof includes its successors) of the **SECOND PART**

AND

3. This Memorandum of understanding executed this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_ between \_\_\_\_\_ (Name of Co.) \_\_\_\_\_ a company registered under the Companies Act 1956 having its registered office \_\_\_\_\_ through its Director or Authorized Representative \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall unless repugnant to the context thereof includes its successors) of the **THIRD PART**

OR

M/s. \_\_\_\_\_ a partnership firm registered under the Indian Partnership Act 1932, having its registered office at \_\_\_\_\_ through its Partner or Authorized Representative \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall unless repugnant to the context thereof includes its successors) of the **THIRD PART**.

4. This Memorandum of Understanding executed this \_\_\_\_\_ day of \_\_\_\_\_ 200\_\_ between \_\_\_\_\_ (Name of Co.) \_\_\_\_\_ a company registered under the Companies Act 1956 having its registered office \_\_\_\_\_ through its Director or Authorized Representative \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall unless repugnant to the context thereof includes its successors) of the **FOURTH PART**

OR

M/s. \_\_\_\_\_ a partnership firm registered under the Indian Partnership Act 1932, having its registered office \_\_\_\_\_ through its Partner or Authorized Representative \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall unless repugnant to the context thereof includes its successors) of the **FOURTH PART**

5. This Memorandum of Understanding executed this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_ between \_\_\_\_\_ (Name of Co.) \_\_\_\_\_ a company registered under the Companies Act 1956 having its registered office \_\_\_\_\_ through its Director or Authorized Representative \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall unless repugnant to the context thereof includes its successors) of the **FIFTH PART**.

OR

M/s. \_\_\_\_\_ a partnership firm registered under the Indian Partnership Act 1932, having its registered office at \_\_\_\_\_ through its Partner or Authorized Representative \_\_\_\_\_ (hereinafter referred to as \_\_\_\_\_ which expression shall repugnant to the context thereof includes its successors) of the **FIFTH PART**.

Whereas, Central Railway, Mumbai CSMT hereinafter referred to as Owner/Customer has invited Tender No/s. \_\_\_\_\_ hereinafter referred to as the CR Tender for the work of \_\_\_\_\_ hereinafter referred to as the said work.

Whereas, the party of the first part i.e. M/s. \_\_\_\_\_ (details to be supplied of the expertise in their field).

Whereas, the party of the second part, M/s. \_\_\_\_\_ (details to be supplied of the expertise in their field).

Whereas, the party of the third part, M/s. \_\_\_\_\_ (details to be supplied of the expertise in their field).

Whereas, the party of the fourth part, M/s. \_\_\_\_\_ (details to be supplied of the expertise in their field).

Whereas, the party of the fifth part, M/s. \_\_\_\_\_ (details to be supplied of the expertise in their field).

AND whereas parties to this MOU, have agreed to co-operate with each other to associate jointly and to form a Joint Venture Firm to participate in the CR Tender of Indian Railways.

Now, therefore, in consideration of the premises and mutual promises and of the undertaking contained herein, it is hereby agreed as follows:-

1. **The purpose of MOU -**

**Tenderers**

**DyCECDR**

M/s. \_\_\_\_\_ and \_\_\_\_\_ agree to co-operate with each other for the purpose of joint participation in the CR Tender and in the event, the contract is awarded, to jointly execute the contract. The board interfaces and scope of work of each party is set forth below:-

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2. The name of the Jt. Venture firm shall be \_\_\_\_\_ (as per Sub-Clause 17.1. of Annexure-I, Tender Form (Second Sheet))

3. The parties, hereto, represent that:

- a) They are in possession of all approvals and valid authorization for the purpose of execution of this MOU.
- b) They have not entered into any agreement/MOU of equal or similar nature with any third party for the CR Tender.

That each of the parties of the JV, agrees and undertake to place at the disposal of the JV, benefits of its individual experience, technical knowledge and skill and shall in all respects bear its share of the responsibility, including the provision of information advice and other assistance required in connection with the works. The share and the participation of the partners in the JV shall broadly be follows:

M/s. \_\_\_\_\_ %

M/s. \_\_\_\_\_ %

M/s. \_\_\_\_\_ %

M/s. \_\_\_\_\_ %

M/s. \_\_\_\_\_ %

**Lead Member :**

That one of the member 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%.

And all rights, interest, liabilities, obligations, work experience and risks (net profits or net losses) arising out of the contract shall be shared or borne by the Parties in proportionate to these shares. Each of the parties shall bound by guarantees, sureties required for the work as well as its proportionate share in working capital and other financial requirements.

4. The parties to this MOU undertake:

- a) That after submission of the tender, the MOU shall not be modified / altered / terminated during the validity of the tender 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. The parties to this MOU further agree that, the Lead Member shall continue to be the Lead Member of the JV.

- b) That after the contract is awarded the constitution of the J.V. firm shall not be altered during the currency of contract except when modification becomes inevitable due to Succession Law etc. but in no case the minimum eligibility criteria should get vitiated.

**5. JOINT & SEVERAL LIABILITY:**

In respect of the CR Tender, all terms shall be complied by each party on back-to-back basis as per specifications of the CR Tender or any other mutually agreed terms with the Owner/Customer. The Parties hereto shall, if awarded the contract for the project for which the Joint Venture is formed, be jointly and severally liable to the Indian Railways for execution of the project in accordance with the contract. The Parties hereto also undertake to be liable jointly and severally for the loss, damages caused to the Indian Railways in course of execution or due to non-execution of the contract or part thereof or arising out of the contract.

6. Shri \_\_\_\_\_ shall be authorized partner/person on behalf of the Joint Venture to deal with tender, to 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 CR tender/Contract. All notices/correspondence with respect to the contracts would be sent only to this authorized member of the JV Firm.
7. Notwithstanding anything contained herein, in respect of the CR Tender with regard to the internal relationship, the inter se liabilities between the parties shall be in proportion to their respective scope of work and shall be subject to the provisions of this MOU.
8. The Parties agree that with respect of the CR Tender neither Party, nor any subsidiary company of either Party, nor any joint venture company or any other entity, in which the Party/ies, is or are in any way interested, shall compete together with or through any third party, nor shall the Parties advise, consult for, engage in or otherwise assist in any way any person or entity or any affiliate thereof in respect of any orders or contracts related to the CR Tender.
9. **Responsibility**  
Each party shall assume and accept full responsibility for its Scope of Work and the obligations imposed in the Contract and in this MOU as if it was, with regard to its Scope of Work, an independent partner contracting individually with the Customer. In the event of any defect and damage or any claim arising from the Customer under the Contract or any third party in relation to or as a consequence of any failure to meet the performance specification the Party, within whose Scope of Work the claim arises, shall be entirely responsible for the claim and shall indemnify and hold harmless the other Party from any liability, demand, claim burden cost, expense attorney's fees and costs arising from thereof.
10. **Assignability**  
No party to the Joint Venture has right to assign or transfer the interest, right or liability in the contract without the written consent of the other party and that of the Railway.
11. **Use of Machinery, Instruments, Labour Force etc.**  
The Parties hereto undertake that whatever the machinery, instruments, Labour force (including unskilled, skilled, inspectors, Engineers 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 the work, the Party/Parties having the control over the said machinery, instrument, labour force etc. without having any regard to their share of profit and loss

agreed to between the Parties in Joint Venture Agreement shall hand over the same at the disposal of the other party who is actually executing the work for purpose of execution of the contract without any hindrances and obstacle.

**12. Duration of MOU**

It shall be valid during entire currency of contract including the period of extension, if any and also till the maintenance period is over or till all the contractual liabilities including warranty/guarantee obligations are discharged completely.

**13. Applicable Law**

This MOU and any arrangement/agreements regarding the performance shall be construed and interpreted in accordance with and governed by the Laws of India and shall be subject to the exclusive jurisdiction of the courts at MUMBAI.

**14. Settlement of Disputes**

In the event of disputes arising from this MOU, the Parties to the MOU undertakes to endeavour to settle the said disputes amongst them amicably. However, if the parties fail to resolve the disputes amongst them amicably, the said disputes arising out of or in connection with the present MOU shall be resolved through Arbitration as per the provisions enshrined under the Arbitration and Conciliation Act, 1996 or/and amendments thereof.

15. All communications or notices provided for herein shall be in English language and be delivered, mailed, or tele-faxed to the Parties addresses as indicated below :-

M/s.-----  
-----

M/s.-----  
-----

All correspondence and notices to the Joint Venture shall be addressed to the Lead Member, i.e. M/s. \_\_\_\_\_/Shri \_\_\_\_\_ at the address stated herein below:-

M/s. -----  
-----

Such communication or notices shall be deemed to have been duly given when so delivered or, if mailed, when received at destination.

16. Each part shall have full and sole responsibility to bear the expense of and effect the payment of any taxes, duties, special insurance, fees or assessments of any nature whatsoever (including personal income taxes level or imposed on any of its employees or personnel or any of its sub-contractor's employees or personnel) including penalties and interest, if any, levied in connection with the execution of this MOU.
17. The parties to this MOU declare and certify that they have not been black listed or debarred by Railways or any other Ministry/Department of the Govt. of India/State Govt. from participation in tenders/contract on or before the date of opening of bids either in their individual capacity or the JV firm or partnership firm in which they were member/partners.

In witness whereof, the Parties have caused this MOU to be executed by their respective authorized representatives on the date and year mentioned herein above.

Signature:-

Signature:-

Signature:-

Shri \_\_\_\_\_ of    Shri \_\_\_\_\_ of    Shri \_\_\_\_\_ of

**Tenderers**

**DyCECDR**

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

Signature:-

Signature:-

Shri \_\_\_\_\_ of Shri \_\_\_\_\_ of  
M/s. \_\_\_\_\_ M/s. \_\_\_\_\_

Witnesses:-

1) Name :

Address:-

2) Name:

Address:-

SECTION

*“B”*

SPECIAL CONDITIONS

OF CONTRACT (Part-II)

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

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### **SPECIAL CONDITIONS OF CONTRACT (PART-II)**

1. These special conditions supplement the Regulations and Conditions of Tenders and Contracts (Section A), the **Indian Railways Standard General Conditions of Contract (G.C.C.)** and the notes appearing under the relevant chapters and sub-chapters of the Central Railway's Unified Standard Schedule of Rates, 2021 & CPWD DSR 2021 and should be considered a part of the contract document. Where the provisions of these conditions are at variance with the Standard General Conditions of Contract, these special conditions shall prevail.

The **Indian Railways Standard General Conditions of Contract (G.C.C.)** will mean the Standard General Conditions of Contract as amended and/or corrected from time to time and up to the date of opening of the tender. It should be the responsibility of the Contractor before submitting his tender and again before entering into said agreement to ascertain all amendments and or corrections made to the said Standard General Conditions of Contract.

2. The code Nos., Description and Rates given in the schedule are based on the Central Railway's Unified Standard Schedule of Rates, 2021 (USSOR, 2021) & CPWD DSR 2021. Any discrepancy noticed during the execution of the work, in the working rates, quantity of cement etc., will be rectified by reference to the printed schedule which shall be treated as authoritative and binding on the contractor. The relevant notes applicable to the respective Sub-chapters will apply to the items of the tender schedule and should be considered as having been incorporated in the Contract agreement and binding on the contractor.
3. For any other items not specially shown in the Schedule of Rates appended to the tender document, Executive Engineer will offer rates as shown in the Central Railway's USSOR, 2021 & CPWD DSR 2021, subject to the same percentage adjustment accepted in the contract being applicable to the additional items.
4. Any foot note/s appearing below the item/s of the contract schedule will take precedence over these Special Conditions. For detailed order of preference refer clause No.8 of Section A.
5. Any Specifications/conditions stated by the tenderer in the covering letter submitted along with his tender shall be deemed to be a part of the contract only to such extent as have been explicitly accepted by the Railway.

#### **6. HIRE OF PLANT & MACHINERY AND OTHER FACILITIES:**

- 6.1. The contractor shall make his own arrangements for all plant and machinery other facilities equipment, tools, including spare parts, fuel and consumable stores, and all labour and other facilities required to ensure efficient methodical execution of the work. The rates quoted and accepted shall be deemed to be inclusive of all charges of such items.
- 6.2. On the contractor's request, the Railway may, however, give on hire plant and machinery/other facilities, equipment and tools, if available spare with the Railway, without any commitment on the part of the Railway to do so, in which case, the hire charges for plant and machinery will be calculated to cover interest, ordinary repairs and maintenance charges at 5%, special repairs and maintenance charges at 10%, depreciation charges as per extant rules of the Railway, and an additional 10% on the total of these four above, on the cost of the Plant and Machinery, which will be present day market value plus freight and other incidental charges increased by 12 ½% supervision charges.

- 6.3. Hire charges for items other than plant and machinery, which do not require any form of repair and maintenance shall only take into account interest on capital, depreciation and an additional 10% on these two.
- 6.4. The hire charges per day shall be arrived at by dividing the annual hire charges by 250, which shall be assumed to be the number of working days in a year for this purpose only. These hire charges will be payable from the day the plant is handed over to the day it is returned to the Railway administration. If, however, during this period the plant remains out of order for reasons beyond the control of the contractor, or is withdrawn for periodic overhaul or any repairs, such periods shall not be counted for levy of hire charges. The contractor shall enter into a separate agreement in this respect and the terms and conditions as per the agreement will be final and binding on the contractor.
- 6.5. In the event of a plant or equipment or facility given on hire to the contractor not being returned to the railway administration in a reasonably good working order considering depreciation that it would have suffered for the period of hire, the Railway shall treat the plant/facility as on sale, as per extant orders of the Railway, from the date it was initially given on hire, withdrawing the hire terms and charges.
- 6.6. If, however, the plant and machinery/other facilities, equipment and tools requisitioned by the contractor are not available in Railway's stock or the Railway decides not to supply the same for reasons whatsoever, neither the Railway shall be bound to arrange for the supply thereof nor will the Railway's inability to supply them be accepted as an excuse for delay in the completion of the works/or for any claims thereof.

## **7. SUPPLY OF MATERIALS BY RAILWAYS:**

- 7.1. Railway's materials issued to the contractor if any, will be used by the Contractor for the work in such quantities as are indicated in the schedule or in relevant specifications or drawings or as approved by the Engineers whose, decision thereon shall be final. Wastage of or damage to such materials in any manner shall be totally avoided. If surplus material issued, if any, is not returned in good condition immediately after completion of the work or if any quantity of material supplied by the Railway is consumed in excess or wasted or damaged or lost or not satisfactorily accounted for in that case recovery will be made from the Contractor at twice the market rate or twice book rate at the time of last issue whichever is higher plus 5% freight and 2% incidental charges plus 12 ½% supervision charges on the above cost arrived at for the quantity of material consumed in excess or wasted or damaged, lost or not satisfactorily accounted for.
- 7.2. In case it is discovered that the quantity of steel or any other items issued by the Railway as actually used in the work is less than the quantity/quantities specified to be used, the cost of steel and for other such items not so used shall also be recovered from the Contractors on the basis stipulated in sub-Para above.
- 7.3. Action under this Clause will be without prejudice to the right of the Railway to take action against the Contractor/s under the conditions of the Contract for not doing/completing the work according to the prescribed specifications and
- 7.4. Railway's materials will be issued on specific requisitions by the Contractor and as per requirement consistent with the progress of works and/or progress of supply of fabricated materials to the Railway, if the Railway materials required to be issued to the Contractor for the works, are to be taken to the Contractors workshop outside Railway premises, a guarantee bond for the amount to cover cost of Railway material should be furnished by the Contractor before such materials are issued to him.

- 7.5. All material left over as 'Surplus' or as 'scraps' out of materials supplied by the Railway, should be returned to the Railway's Stores at failing which the cost will be recovered, as per the provision of clause 10.1 of the special conditions of Contract.

#### **8.0 USE OF RAILWAY MATERIALS SECURED WITH GOVERNMENT ASSISTANCE:**

- 8.1 The Railway shall not supply from its own quota to the contractors controlled or imported commodities. Assistance will, however be given by recommending to appropriate authorities on contractor's application for issue of import licenses and release of controlled commodities if the Engineer is satisfied that this materials is actually required by the contractors for carrying out the work and is not available in the country.
- 8.2. Where any raw materials for the execution of the contract are procured with the assistance of Government either by issue from Government, stocks or purchases under arrangements made or permit(s) or license(s) issued by the Government, the Contractor shall hold the materials as trustee for the Government and use such materials economically and solely for the purpose of the contract against which they are issued and not dispose them without permission of the Government and return, if required by the Government, all surplus or unserviceable materials that may be left by him after completion of the contract or at its termination of the materials. The freight charges for the return of the materials according to the direction of the purchaser shall be borne by the contractor, in the event of contract being cancelled for any default on his part. The decision of Government shall be final and conclusive.
- 8.3. In the event of a breach of the aforesaid conditions, the contractor shall in addition to throwing himself open to action for contravention of terms of the license (s) or the permit (s) and/or for original breach of trust be liable to account to Government for all moneys, advantages or profits resulting or which in the usual course would have resulted to him by reason of such breach.

#### **9.0 ROYALTIES AND PATENT RIGHTS:**

- 9.1. The contractor shall defray the cost of all royalties, fees and other payments in respect of patents. Patent rights and licenses which may be payable to patented licensee or other person or corporation and shall obtain all necessary licenses. In case of any breach (wilfully or inadvertently) by the contractor of this provision, the contractors shall indemnify the Railway Audit officers, servants, representatives against all claims, proceedings, damages, cost charges, loss and liability which they or any of them may sustain incur or be put to by reason or in consequence of, directly or indirectly, any such breach and against payment of any royalties damages, or other monies which the Railway may have to make to any person or paid in total to the patent rights in respect of the users of any machine, instructions, process, articles, matters or thing constructed manufactured, supplied or delivered by the contractor to his order under this contract.

#### **9.2 Payment of Royalty Charges:**

##### **a.) For all the works, except works of earth work for embankment / cutting and supply of ballast:**

All rates quoted in the tender shall be deemed to be inclusive of all taxes, royalties' payable by the contractor/s to the Govt. or public body or local authority and no additional amount will be paid or claim entertained on this account by the Railway. Contractor shall not have any claim whatsoever as a result of the increase in the rates for such royalties, taxes, duties or any other forms of levies etc. (Concessional Sales Tax Form and Octroi Exemption Certificate will be issued to Contractor on his specific

request, if legally permissible, but Railway shall not be responsible if such form/certificate is not accepted by the concerned authority).

**b.) For works of earth work for embankment / cutting and/or supply of ballast**

- i. All the rates quoted in the tender shall be deemed to be inclusive of all royalties, taxes, duties, octroi or any form of levies etc. payable by the contractor/s to the Govt. or public body or local authority as applicable on the date of opening of tender.

The rate of royalty considered in the rates of tender schedule are as per rates circulated by the Government of Maharashtra vide **Govt. Resolution dated 04.06.2021 which is Rs.600/- per brass (Rs.212.01 per cum).**

Claim towards such royalty should be unfailingly accompanied by proof of payment and rate thereof. In the absence of these, royalty payment will not be released.

- ii. However, in case of any subsequent increase in the rates of royalties, the increased amount will be reimbursed to the contractor, only on production of documentary proof of payment of royalty at such increased rates along with State Govt.'s order. It is clarified that any increase in the statutory taxes, levies, duties etc. shall not be paid by the Railway during the extended completion period if the extension is granted under clause 17(B) of the General Conditions of Contract.
- iii. Similarly in case of decrease in the rate of royalty charges or its waiver, payment of royalty will be regulated by such reduced rate and recovery shall be affected from the contractor accordingly.
- iv. Reimbursement/recovery, if required, shall be worked out separately and submitted along with claims for on-account payments.
- v. In case of all other taxes, duties, octroi or any form of levies etc. no additional amount will be paid or claim entertained on this account by the Railway. Contractor shall not have any claim whatsoever as a result of the increase in the rates for such taxes, duties or any other form of levies etc.
- vi. The amount of reimbursement or recovery, as the case may be, as per revised rate of royalty shall be applicable only for the quantity of works executed by the contractor after the Government Resolution for revision of rate of royalty has come into effect.
- vii. The reimbursement/recoveries as per the revised rate of royalty shall be effective only for the original completion period of the work. However, the amount as per revised rate of royalty is payable/recoverable during the extended period of the contract, provided the PVC was part of the original contract & the extension has been granted on administrative ground, i.e. under Clause 17-A(i), (ii) or (iii) of GCC. Where extensions of time has been granted due to contractor's failure under Clause 17(B) of the General Conditions of Contract, the reimbursement due to increase in rate of royalty shall not be payable for such extended periods, but in case of any decrease in the rate of royalty or its waiver, the difference in the amount will be recovered from the payment of the contractor for such extended periods under Clause 17(B) of GCC.

- 9.3. The contractor will at his own expenses obtain such permits or parwana from whomsoever necessary for carrying out work or for any other purpose as may be necessary to enable him to perform his part of the contract. The Railway will not under any circumstances be liable to obtain any permit, or parwana whatsoever, for the contractor.

**10.0 Use of Patented Items in Works Contract:**

- 10.1 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 specific 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.
- 10.2 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.
- 10.3 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 in record by the concerned Engineer-in-charge executing the contract, before releasing payment for the work done.

#### **11. LEGAL CHARGES:**

A fee of **Rs.400/-** per legal document like partnership deed or power of attorney executed before or after the execution of the contract will be recovered from the contractor for obtaining legal Advice in the Law Office.

#### **12. TAXES / ENVIRONMENT CESS:**

- i). GST, Turn Over Tax on works contract, Octroi, royalty, Toll Tax, Local tax, duties / levies as well as services and any other tax levied by Central Government, State Govt. Or Local bodies, as applicable on the date of quoting the rates shall be payable by the contractor
- ii). **Environment cess of Rs.1/- per m<sup>3</sup> of Earthwork** in filling in embankment shall be levied as per the State Govt.'s directives prevalent during execution of work.

#### **13. INCOME TAX:**

Under Section 194(C) of the Income Tax Act 1961 deduction of 2% plus surcharge if applicable on Income Tax will be made for sums paid for carrying out the work under this contract. The percentage of deduction may however vary as per the amendments if any made in the section 194(C) of IT Act 1961.

#### **14. EMPLOYMENT OF STAFF**

The contract is liable for cancellation if either the contractor himself or any of his employee is found to be a person of Gazetted rank of Engineering Department which includes Civil, Mechanical, Electrical, Signal Telecommunication Departments of Railways whether pensionable or non-pensionable who after retirement has sought engagement as contractor for or in connection with the execution of public works whether on Railway. P.W.D. or Defence Forces or as an employee of such contractor within 1 year of his retirement without obtaining the permission of the President of India before, taking up such engagement or employment.

**15.0 Deployment of Qualified Engineers at Work Sites by the Contractor:**

**This is to be read in conjunction with Clause 26A of Indian Railways Standard General Conditions of Contract (G.C.C.), Part-II (Page No.56 of GCC, July 2022).**

- 15.1 The Contractor shall employ at least two experienced graduate Civil engineers having minimum 3 years of experience in the work of construction of bridges.
- 15.2 In case the contractor fails to employ the Engineers, as aforesaid in Para 16.1, he shall be liable to pay penalty at the rate of Rs.40,000/- (Rupees Forty Thousand only) per month or part thereof, for the default period for the provisions.
- 15.3 The decision of the Engineer-in-charge as to the period & suitability for which, required technical staff was not employed by the contractor and as to the reasonableness of the amount to be deducted on this account shall be final and binding on the contractor.

**16. Handling Vitiating during Variation in Contract Quantities:**

- 16.1 The aspect of vitiating of tender with respect to variation in quantities should be checked and avoided.
- 16.2 As a result of variation, a contract 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

- 16.3 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.
- 16.4 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 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.
- 16.5 The above shall be regulated as under:
- a) 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's letter No.2007/CE.I/CT/18/Pt.XII dated 31.12.2010 hereby gets superseded.

- b) These instructions will be similarly applicable to earning contracts with H-1, H-2 substituted for L-1, L-2 and so on.
- c) Executives while executing the work shall make all efforts to ensure that no vitiation takes place in normal circumstances. Vitiating 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.
- d) Vitiating 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 Vitiating.

#### **17.0 Price Variation for Extra Items:**

- 17.1 The Base Month for 'Price Variation Clause' for Extra USSOR 2021 & CPWD DSR 2021 items shall be as per **Clause 46A.2 of Indian Railways Standard General Conditions of Contract (G.C.C.), Part-II (Page No.69 of GCC, April 2022)**.
- 17.2 In case of Extra NS items, the Base Month for 'Price Variation Clause' shall be taken as month of Sanction by the competent authority, unless otherwise stated elsewhere. The quarter for applicability of PVC shall commence from the month following the month of Sanction of extra items by the competent authority. The Price Variation shall be based on the average Price Index of the quarter under consideration.

#### **18. STORAGE OF INFLAMMABLE ARTICLES:**

No inflammable materials, such as petroleum oil etc. within the meaning of the Indian Petroleum Act and Indian Explosive Act shall be stored at site or adjacent land until the approval of the Railway and necessary license under the Act has been obtained by the Contractor. All due precautions required under the Acts shall be taken by the contractor.

#### **19. ANTI-LARVAL WORKS:**

The contractor shall at his cost carry out all anti-larval works as per the Bye-law of the local authorities concerned or as may be directed by the Engineer during the execution of the work/s under this contract. If the contractor/s fails to carry out such work/s the Railway may carry out the same and recover the cost thereof from the contractor in the same way, as other Railway amounts are recoverable.

#### **20. LAND, SERVICE ROADS, APPROACHES:**

- i) The Contractor has to provide a Site office (approx. 20m<sup>2</sup> area) with basic amenities to Railway staff for controlling day-to-day activities along with toilets, urinals, water/electric connections, etc. at each work site.
- ii) The rates for all items of the schedule shall be inclusive of the cost of all arrangements for crossing obstructions to be crossed in the course of the work over land or across water and the cost of providing and maintenance of approach and/or service roads that may be necessary for bringing and removing the plants, machinery and material to and from the site of work including rent for use and /or compensation for damage if any to intervening private land reversed by such approach/service roads, and including cost of acquisition of land, if required for the purpose. The contractor will be permitted to make use of available service roads of the Railways free of cost. Railway reserves the right to make use of the contractor service road without paying any charges to him.

- iii) After completion of the work, the Contractor shall clear all the land under his temporary occupancy to useable condition without any cost to CENTRAL RAILWAY and hand over to the concerned parties before the completion of Maintenance period.

## **21. Telephone Facilities**

The Contractor shall have to make an arrangement for providing telephone facilities at the site of work at his own cost. The telephone facilities provided by the Contractor shall be allowed to be used by the Railway staff without any charges.

## **22. EMERGENCY WORKS / SAFE WORKING METHODS:**

- i) In the event of any accident or failure occurring in, on or about the work or arising out of or in connection with the construction, completion or maintenance of the work, which in the opinion of the Engineer requires immediate attention, the Railway may bring its own workmen or other agency to execute or partly execute the necessary work or carry out repairs if the Engineer considers that the contractor is not in a position to do so in time, and charge the cost thereon, as to be determined by the Chief Engineer, CENTRAL RAILWAY, CSMT, Mumbai to the contractor.
- ii) The contractors shall at all times, adopt such safe methods of working as will ensure safety of structures, equipment and labour, Safety rules that should be adhered to are given as guidelines in **Appendix-IX**. If at any time, the Railway finds the safety arrangements inadequate or unsafe, the contractor shall take immediate corrective action as directed by the Railway's representative at site. Any directions in the matter shall in no way absolve the contractor of his sole responsibility to adopt safe working methods. The contractor is responsible for providing skilled personnel and adequate expert supervision so as to ensure complete safety.
- iii) The contractor shall design and execute temporary works such as form work and supports so as to ensure absolute safety of contractors personal as well as Railways staff & personnel engaged on the work. The contractor should indemnify Railway against damages and injury to workmen. Railway reserves the right to enforce safety regulations on the contractor and recover any cost which may be incurred for this purpose.
- iv) The following standard safety codes of practice may be followed for general guidance:-
  - a. IS 3764 – 1992 : Safety code for excavation
  - b. IS 3696 (Part-I) – 1987: Safety Code for Scaffolds& Ladders.
  - c. IS 3696 (Part-II) – 1991: Safety Code for Scaffolds& Ladders.
  - d. SP 70 : 2001 – Hand book on Construction Safety Practice

## **23. NIGHT WORK:**

The provision in clause 23 of Standard General Conditions of Contract should be noted regarding execution of work between sunrise and sunset. If the Railway, is however, satisfied that the work is not likely to be completed in time except by resorting to night work, by special order, the contractor would be required to carry out the work even at night without conferring any right on the contractor for claiming extra payment for introducing night working. The decision of the engineer in this regard will be final and binding on the contractor.

**24. NOTICE TO PUBLIC BODIES:**

The contractor shall give to the Municipality, Police and other authorities all notices that may be required by the law and obtain all requisite licenses for temporary obstructions, enclosures and pay all fees, taxes and charges which may be leviable on account of his own operation in execution the contract. He should make good any damage to adjoining premise whether public or private and provide and maintain any light etc. required in night.

**25. FIGURES, DIMENSIONS:**

Figures and dimensions on drawings shall supersede measurements by scale, and drawings to a large scale shall take precedence over those to a smaller scale.

**26. PLEA OF CUSTOM:**

The plea of 'Custom' prevailing will not on any account be permitted as an excuse for infringement any of the conditions of contract or specifications.

**27. DAMAGE FROM ACCIDENTS, FLOODS OR TIDES:**

- i) The contractor shall take all precautions against damage from accidents, floods or tide. No compensation will be allowed to the contractor for his tools, plants, materials machines and other equipment lost or damaged by any cause whatsoever. The contractor shall be liable to make good the damages to any structure or part of a structure, plant or material of every description belonging to the Railway administration, lost or damaged by any cause during the course of contractor's work.
- ii) The Railway Administration will not be liable to pay to the contractor any charges for rectification or repairs to any damage, which may have occurred from any cause whatsoever, to any part of the new structures during construction. No claims in this regard will be arbitrable.

**28. TRESPASS:**

The contractor shall at all times be responsible for any damage or trespass committed by his agents and workmen in carrying out the work, unless such trespass is authorised by the Engineer.

**29. BLASTING:**

- 29.1. In the procurement, transport, storage, issue and use of explosives, the contractor shall abide by the specification and provisions incorporated in the IS Specification No.4081-1986 and IS Specification No. 4756-1992 as amended from time to time. He shall also abide by all the rules and regulations provided in the Indian Explosives Act 1884 amended from time to time and such other Acts and rules as may be enacted and laid from time to time by the Government for such works.
- 29.2. Prior to carrying out any blasting the contractor shall obtain the concurrence of the engineers and shall be at all times bound to carry out his instructions regarding provision of blanketing, the type, number, size and placing and firing of charges. Where the blasting has to be carried out close to running line, the engineer may restrict the sizes and number of shots to be fired at a time so that adjoining tracks and works are not adversely affected and so that the rock beyond the desired profile of the cutting etc. is not cracked or disturbed. Blasting in close proximity to track structures and power lines will be carried out only under traffic power blocks. For works near telephone or telegraph wires, the

contractor must advise the engineer in good time, so that he can satisfy himself that safe working methods are being adopted. The contractor will only fire charges at the time notified to him by the engineer and will observe all precautions considered necessary as ordered by the engineer. The contractor will have no claim for damages or loss due to any delay established or claimed to have occurred to the progress of any part of the work as a result of obeying such instruction of the engineer or taking such safety precautions as to the engineer may order to be taken from time to time.

**30. Payment Through ECS/EFT.**

- a. Tenderer should give consent in a mandate form for receipt of payment through ECS/EFT.
- b. Tenderer to provide the details of bank A/c in line with RBI guidelines for the same. These details will include bank name, Branch name and address, Account type, Bank A/c No. and bank & Branch Code as appearing on MICR cheque issued by bank.
- c. Tenderers to attach certificate from their bank certifying the correctness of all above mentioned information (as mentioned in Para (b) above.)
- d. In case of non-payment through ECS/EFT or where ECS/EFT facility is not available, payment will be released through cheques.

**31. CONSTRUCTION PROGRAMME:**

Construction work should be planned in such a way, that there will be unhindered progress of the bridge construction. For this purpose, construction programme will be finalised by the contractor in consultation with Engineer of CENTRAL RAILWAY, Mumbai whose decision will be final & binding.

Apart from the above, the contractor shall afford all reasonable facilities to other contractors employed by CENTRAL RAILWAY, Mumbai or by any other authority to execute work on the site. This includes instrumentation, testing, etc. In case of disputes, decisions of the Engineer shall be final & binding.

**32. Records, Registers and Returns:**

The Contractor/s shall maintain accurate records, plans and charts showing the dates and progress of all main operations and the Engineer shall have access to this information at all reasonable times. Records of tests made shall be handed over to the engineer's Representative after carrying out the tests. The following registers will be maintained at site by the Contractor/s, which should be seen and signed by the Contractor or his authorised representative on daily basis for compliance of instructions recorded therein for satisfactory completion of work.

(i) Site order Register and Site Instruction Register:

The Contractor/s shall properly sign in site order register, orders given by the Engineer or his representative or his superior officers and comply with them. The Contractor/s shall report the compliance to the Engineer in good time so that it can be checked.

(ii) Labour Register:

This register will be maintained to show daily strength of labour in different categories by the contractor/s.

(iii) Cement Registers:

The register will be maintained to record daily consumption of cement. The quantum of work done for the Ordinary Portland Cement issued on a particular date will also be maintained.

(iv) Steel Register: (Technical):

This register will record the receipts of steel items and details of reinforcement and members wherever steel is used.

(v) LOG book of events:

All events are required to be chronologically logged in this book shift wise and date wise. Register at item (i), (ii), (iii), (iv) and (v) will be signed by the representative of the Engineer and the Contractor will have to sign. The register, Performa Charts etc. will be the property of the Railway.

(vi) Daily progress register:

Which shall indicate daily progress of work done by the contractor shall be got signed at least once in three days Engineer in token of acceptance. The format of the Register will be advised by the Engineer.

(vii) Hindrance Register:

Which shall indicate the obstacles caused due to any reasons such as monsoon, shortage of labours, failure of machinery, natural calamities, strike, shortage of material etc.

(viii) Any other register considered necessary by the Engineer shall be maintained at site in which the representative to the Engineer and the Contractor/s or his/their authorised representative will have to sign. The registers, programs, charts etc. will be the property of the Railway.

**33. Precautions while working in the vicinity of track:**

(a) When the work is required to be done along or near the existing Railway track the contractor/s shall take such steps as are necessary for the safety of the track and labour working at site. He/they will also be required to program his/their working so as not to interfere with the movement of trains. In this regard, contractor will not take up the track work on running lines without the presence of authorised representative of Railway. No extra payment shall be allowed for these precautions and also for crossing track/tracks, if required during the execution of the work. It should be ensured that the ballast of the track (s) is not spoiled or mixed with earth.

(b) In addition to the precaution by the contractor/s for the safety of the track and labour, it may necessary to post flagman in same locations as an additional safety measure, for which the cost shall be recoverable from the contractor/s on the basis of the expenditure incurred by the railways enhanced by 12½% department charges. The contractor/s shall be fully responsible for any damage to or trespass caused by his/their men to any surrounding structure, Railways bear no liability whatsoever on this account.

(c) Training to Supervisors and Operators of Contractor:

The Supervisors and Operators of the Contractor proposed to be deployed at work site, which is close to the running track, shall be imparted mandatory training by the Railway about the safety measures to be adopted while working in the vicinity of running track. Engineer-in charge of the work shall decide the scale, extent & adequacy of training. In case training is imparted at a recognized Rly training

institute, the charges for the same, as decided by Rly, shall be recovered from contractor. A competency certificate to this effect to the individual Supervisor/Operator shall be issued as given below, by a Railway Officer not below the rank of Assistant level. No Supervisor/Operator of the Contractor shall work or allowed to work in the vicinity of running track who is not in possession of valid competency certificate.

**Competency Certificate**

Certified that Shri \_\_\_\_\_ Supervisor/Operator of M/s \_\_\_\_\_ has been trained and examined in safety measures to be followed while working in the vicinity of running Railway track for the work \_\_\_\_\_. His knowledge has been found satisfactory and he is capable of supervising the work safely. This certificate is valid only for the work mentioned in this certificate only.

*Signature and designation of the officer*

All the labour, materials, tools, plants etc. required for ensuring safe running of trains shall be provided by Contractor at his own cost. Wherever lookout men are provided by Railway, charges at the rate of Rs.300/- per man per day shall be recovered from Contractor.

**34. WORK PREPARED AWAY FROM THE SITE:**

The contractor shall give the Engineer written notice of the preparation or manufacture at a place away from site, of any materials or components to be used on the works, stating the place & time of preparation or manufacture, so that the Engineer may inspect all stages of the production process. Failure to give such notice may result in the rejection of the materials or components.

**35. INTERRUPTION OF WORKS DURING MONSOON:**

The contract period shall extend over a few monsoon seasons. Normal period of monsoon in the area is from 15<sup>th</sup> June to 30<sup>th</sup> September. The contractor should therefore, plan and program his work bearing this fact in mind as completion period in inclusive of monsoon.

**36. COMPLETION DRAWINGS:**

Contractor should submit to Railways one set of completion drawings (all detailed drawings) after completion of work, on polyester based tracing films (75 microns thick, one side mat of superior quality) in black indelible ink duly incorporating all additions and alterations in red ink along with a copy of the same on a CD, 6 blue prints and 1 copy on RTF. It will be paid under relevant item.

**37. HANDING OVER OF WORK:**

In addition to what has been stipulated in clause 40 of Standard General Condition of Contract, it is made clear that all the works and materials before being finally taken over by CENTRAL RAILWAY will be entirely liability of the contractor for guarding, maintaining and making good any damages of any magnitude. It is however understood that before taking over such work CENTRAL RAILWAY will not put it to its regular use as distinct from casual or incidental one except as specially mentioned elsewhere in this contract or mutually agreed to.

**38. ALTERNATIVE DUE TO REJECTED WORK:**

In the event of any sub-structure or super-structure are abandoned on account of rejection by the Railway, the extra cost involved in providing further alternative arrangements shall be borne by the Contractor. The rates offered shall be deemed to have provided for this contingency.

**39. Determination of Contract / Determination of Contract Owing to Default of Contractor:**

This shall be dealt with as per Clause 61 & 62 of Standard General Conditions of Contract.

**40. SETTLEMENT OF DISPUTES:**

40.1 Settlement of disputes and differences arising out of contract shall be done as per clauses 63 and 64 of the Standard General Conditions of Contract-April 2022 and amendments from time to time.

40.2 **Claims to be restricted to 20% of contract value-** The provision of Clauses 63 & 64 of the Standard General Conditions of Contract will be applicable only for settlement of claims or disputes between the parties for value less than or equal to 20% of the value of the contract and when claims of disputes are of value more than 20% of the value of the contract, provision of clause 63 & 64 and other relevant clause of the Standard General Conditions of Contract will not be applicable and arbitration will not be a remedy for settlement of such disputes.

40.3 **Arbitrators to be appointed only by General Manager of Railways.**

40.4 The Claimant Contractor shall seek reference to Arbitration to settle the disputes only within the ambit of conditions of mentioned above.

40.5 **Any dispute that arises with regard to this tender / contract shall be dealt within the jurisdiction of Mumbai Court only.**

**41. Issue of Identity cards by Contractors:**

(i) The Contractor is bound to issue Identity card to each and every person employed by him and deployed for execution of the Contract work as per the prescribed format provided in the tender document (**Appendix-XII**), at his cost. Failure on the part of the Contractor to issue Identity cards to their employees will be treated as breach of contract conditions and therefore will be dealt as per Clause No.62 (vii) of General Conditions of Contract.

(ii) It is mandatory on the part of every employee, deployed by the Contractors to keep in his possession the Identity card, issued by the Contractor throughout the execution of the work. Failure to possess such Identity will be treated as unauthorised presence in the Railway premises. Such persons shall be liable for prosecution as per law.

(iii) It is mandatory for the Contractors to submit the list of the employees issued with the Identity cards and deployed for execution of the particular contract, to the Railway's Engineer at site before commencement of the work and also for any subsequent changes made during the execution of the work.

- (iv) No claims whatsoever arising out of implementation of special conditions pertaining to issue of Identity cards shall be admissible.

**42. Special condition of contract for drafting the vehicle and equipment of Contractor in case of accident/natural calamities involving human lives:**

- i) Railway reserves the right to withdraw/draft/take over possession of any of the vehicles and equipment of the contractor deployed by him at the work site in case of Railway accident/natural calamities involving loss of human lives occur and deploy, utilize, engage them for work of relief, restoration of Railway service etc. The said vehicles and equipment along with Drivers/operators shall be immediately handed over to Railway Administration on advice of Engineer or Engineer's Representative. The decision of the Railway as to type, number of vehicle and period of engagement shall be final and binding on the contractor.
- ii) The crew, fuel and maintenance of the vehicles during the above period shall be provided by the Contractor to the satisfaction of Railways.
- iii) The Contractor shall be paid hire charges for the drafted vehicles/equipment by operating suitable Non-Schedule items at the rates decided mutually between the Engineer and the Contractor. Operation of Non-Schedule item will be approved with the vetting of associate finance by DY. CE(C) operating the contract. However, if the Contractor is not satisfied with Engineer's decision, he may appeal to the CAO(C) within 30 days of getting the decision of the Engineer supported by the analysis of the rates claimed. The CAO(C)'s decision after hearing both the parties in the matter would be final and binding on the contractor.
- iv) In case Railway withdraws/drafts/takes possession of Contractor's vehicle/equipment, log book will be maintained by Railway's representative and it will be jointly signed by Railway's authorized representative & contractor's driver of vehicle/operator of equipment. Payment will be made accordingly on agreed rates.
- v) The contractor shall provide following information about the vehicle/equipment available with them at the time of entering into contract.

Sr. No.	Particulars of Vehicle/equipment	No. of Unit	Kind/Make	Capacity	Age & Condition	Present Location	Remarks

**43. Approval of Drawings:**

- 43.1 It should be specifically noted that some of the detailed drawings may not have been finalized by the Railways and will, therefore, be supplied to the contractor as and when they are finalized. No compensation whatsoever on this account shall be payable by the Railway administration.
  - 43.2 No claim whatsoever shall be entertained by the Railway on account of any delay or hold up of the work / works arising out of delay in approval of drawings, changes, modifications, alterations, additions, omission and the site layout plans or details drawings and design and/or late supply of such materials as are required to be arranged by the Railway or due to any other factor on Railway account.
- 44. No claim for idle labours and/or idle machinery etc. on any account will be entertained. Similarly, no claim shall be entertained for business loss or any such loss.**

**45. Safety measures at work site:**

In addition to various instructions/provisions made in the contract document following discipline will be enforced during execution of the work at contractor's own cost.

- i) The equipment can enter Rly premises only from nominated entry points.
- ii) Even in case contractor engage separate supply agency, they have to take permission for the drivers being engaged and ensure presence of assistant driver/competent lookout man who will responsible for all action of movement of vehicle. He should be in proper uniform and with hand signals, warning device etc.
- iii) Night working should be done under direct supervision of Railway official.
- iv) All protective signals, boards etc. shall be provided by the contractor at his cost, for which no extra payment shall be made being incidental to the work.

**46. Precautions while movement/Operation of vehicles/Equipment near running tracks:**

- 46.1 These instructions apply to the plying of Railway's/Contractor's vehicles, trucks, trailers, working of plants/equipment/machinery near running tracks in Gauge conversion/doubling, yard remodelling or other works.
- 46.2 Do ensure that normally a road vehicle is run or machinery is worked so as to maintain a minimum distance of 6.0 m. from centre line of nearest running track.
- 46.3 Do ensure that the land strip adjacent to running tracks, where road vehicle is to ply or machinery is to work, is demarcated by lime in advance to ensure that vehicles/machinery do not come closer to 6.0m of running tracks. Wooden pegs at interval not exceeding 75 mts. should be provided along the lime marking as permanent marks.
- 46.4 If a road vehicle or machinery is to work closer to 6.0m due to site conditions or requirement of work, do ensure to observe the following precautions.
- 46.5 The road vehicle is run or machinery is worked to maintain a minimum distance of 3.5m from centre line of track.
- 46.6 Demarcation of land is done by bright coloured ribbon/nylon chord suspended on 75 cm high wooden/bamboo posts at distance of 3.5 m from centre line of nearest running track.
- 46.7 An authorized Railway's representative is present during plying of vehicle or working of machinery.
- 46.8 Suitable caution order to whistle freely is issued to drivers of approaching train about road vehicles plying or machineries working close to running tracks, whistle boards shall be provided wherever considered necessary.
- 46.9 Look out men are posted along the track at a distance of 800 m from such locations who will carry red flag whistles to warn the road vehicle/machinery users about the approaching trains. On curves where visibility is poor, additional lookout men shall be posted.
  - a) Contractor will provide lookout man
  - b) The lookout man shall be properly trained in warning to staff at work site about approaching train.

- c) Only that lookout man shall be provided at site who have been issued with a competency certificate by the railway supervisor.
  - d) In case it is felt necessary to provide lookout man by railway, it will be charged at rate of Rs.300/- per day per person and shall be recovered from contractor's payments.
- 46.10 Under unavoidable conditions, if road vehicle is to ply or machinery is to work closer to 3.5m due to site conditions or requirement of work, do ensure to observe the following precautions.
- a) Plying of vehicle or working of machinery closer to 3.5m of running track is done only under protection of track, the site is protected as per provisions of Para 806 & 807 of P.Way as case may be.
  - b) Traffic block is imposed wherever considered necessary.
  - c) Presence of a Railway's supervisor is ensured at work site.
- 46.11 When a road vehicle is reversed, do ensure the following:
- a) The location where vehicle is to take a turn is properly demarcated.
  - b) The road vehicle driver should always face the Railway track during the course of turning /reversing his vehicle.
  - c) Presence of an authorized Railway's representative is ensured at such location.
- 46.12 Road vehicle should not ply only between sunset and sunrise –
- a) Do not allow a road vehicle to ply or a machinery to work along the track during night hours.
  - b) In unavoidable situations, however, these may be allowed to work during night hours only in the presence of an authorized Railway's representative and where adequate lighting arrangements are made in addition to other precautions.
  - c) Do not allow a road vehicle machinery/plant etc. when stabled near running tracks to be left at site unattended. It should be properly secured against any possible roll off and always be manned even during off hours.
- 46.13 Electrical cables and singling cables are running along the railway line. Care shall be taken to protect such cables during execution and vehicle movements. Contractor shall take all required precautions as prescribed in Joint Procedural order for undertaking digging work in the vicinity of underground signalling, electrical and telecommunications cable as communicated vide Rly Board's letter No. 2003/Tele/RCIL/1/Pt. IX dated 24.06.2013 in this regard, copy of which can be obtained from the office of Dy.CE(C).
- 46.14 Contractor shall obtain copy of hand book on safety at construction worksite prepared by Central Railway Construction Organisation free from this office on award of contract and religiously follow all safety instructions prescribed therein to see that the work is executed in a safe manner. However GIST of safety instruction issued by Central Railway is given in Appendix-X.
- 47. Implementation of GST Act, 2017 – Procedure for payment of Contractual Bill** (Railway Board's letter No. 2016/CE-I/CT/12/GST/Pt.I; dated 29.06.2017).

On Indian Railways presently work executed by contractor is recorded in measurement books by railway, duly accepted by contractor. Railway prepares on account / final contract certificate for the payable amount based on the work executed and the rates quoted by the contractor duly deducting various statutory taxes like – work contract tax / service

tax/royalties/income tax etc. As per applicable rates. Further, railways deposit the statutory deductions themselves to the concerned authorities.

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

(A) (i) All works contracts are to be provided with goods /service code based on the type of contract. In case contract consists of both goods & service, then interpretation regarding nature of contract shall be done as per clause 8, Chapter III of CGST Act, 2017. The goods/service code is notified by Ministry of Finance and can be downloaded from the website [www.cbec.gov.in](http://www.cbec.gov.in).

(ii) The 'On account / final contract certificate' shall be prepared by the Railway on the basis of quantity of work executed and agreement rates, duly segregating the GST component as detailed in Para (iii) below.

(iii) Since the agreement rates of contracts are inclusive of all taxes as per clause 37 of GCC-2014, the calculation of 'Gross amount of work executed', 'Amount of work executed excluding GST amount' and 'GST amount' in the 'on account / final contract certificate' shall be done as under:

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

$X$  = Amount of work executed excluding GST amount.

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

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

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

(iv) Percentage rate of GST for various types of goods/services as finalised by GST council can be downloaded from the website [www.cbec.gov.in](http://www.cbec.gov.in).

(B) (i) Once the 'on account / final contract certificate' is prepared by railway and communicated to contractor, the contractor shall submit invoice (bill) on his Letter head duly segregating the 'Amount of work executed excluding GST amount' (i.e. "X" & "Y" as mentioned in Para 3(A) (iii) above) along with Invoice No. (bill No.) and all other details required under GST act. The sample GST compliant invoice is annexed herewith.

(ii) In case is liable to be registered under GST Act, Railway shall pay to the Contractor 'Gross amount of work executed' (i.e. "Z" as mentioned in Para 3A(iii) above) duly deducting all other leviable taxes like II Tax, labour cess, royalty etc. as applicable. Contractor shall be liable to pay 'GST amount' to respective authority himself. Whereas, railway shall deposit all other taxes deducted to concerned authority as is being done presently.

(iii) In case contractor is not liable to be registered under GST Act, contractor shall be paid "Amount of work executed excluding GST amount" (i.e. "X" as mentioned in Para 3A(iii) above) duly deducting all other leviable taxes like I/Tax, labour cess, royalty etc. as applicable. Railway shall deposit 'GST amount' as well as all other taxes deducted to concerned authority.

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

**Note:-**

- ❖ All rates quoted in the tender shall be deemed to be inclusive of GST (Goods Service Tax) payable by the contractor/s to the Govt. or public body or local authority as on the date of opening of tender and no additional amount will be paid or claim entertained on this account by the Railway.
- ❖ However, in case of any subsequent increase in the rates of GST, the increased amount will be reimbursed to the contractor, only on production of documentary proof of payment of GST at such increased rates along with State/Central Govt.'s order.
- ❖ Similarly in case of decrease in the rate of GST charges or its waiver, payment of GST will be regulated by such reduced rate and recovery shall be affected from the contractor accordingly.
- ❖ Reimbursement, if required, shall be worked out separately by the contractor and submitted along with claims for on-account payments.
- ❖ Recovery, if required, shall be worked out separately by Railways and the amount so worked out shall be deducted from Contractor's Bills for on account payments.
- ❖ The amount of reimbursement or recovery, as the case may be, as per revised rate of GST shall be applicable only for the quantity of work executed by the contractor after the Government Resolution for revision of rate of GST has come into effect.
- ❖ The reimbursement/recoveries as per the revised rate of GST shall be effective only for the original completion period of the work. However, the amount as per revised rate of GST is payable / recoverable during the extended period of the contract, and the extension has been granted on administrative grounds i.e. under Clause 17-A (i), (ii) or (iii) of GCC. Where extensions of time has been granted due to contractor's failure under Clause 17 (B) of the General Conditions of Contract, the reimbursement due to change in rate of GST shall not be payable for such extended period, however decrease in the rate of GST or its waiver, the difference in the amount will be recovered from the payment of the contractor for such extended periods under Clause 17 (B) of GCC.

**The provision made by these amendments or by any further orders of the Railway Board in connection with the provision of the CGST and SGST Acts, as on the date of opening of the tender, will supersede any other provision in this Tender document if in contradiction.**

**48. MEASUREMENT AND RECORDING OF 'EXECUTED WORKS' BY THE CONTRACTOR IN RAILWAY CONSTRUCTION WORKS:**

(Railway Board's letter No. 2016/CE-I/CT/14/Measurement/3; dt.21.09.2017 & No.2017/CE-I/CT/9; dt.31.05.2023)

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:

Measurement recorded by the Contractor shall be test checked by Railway within 45 days of submission of measurements.

While processing 75% provisional payment bill, concerned Executives shall ensure that supply items given by the Contractor are commensurate with requirement for execution of

works.

The word Deputy CE or its equivalent shall mean equivalent Branch Officer of the Division/RE organization. XEN/AXEN shall mean their equivalent counterparts in Division/RE organization.

**Contractor's Measurement Book:**

1. Railway shall arrange contractor's measurement book (CMB), each having sheet No. 1A to 4A (Form E 1313), followed by 100 machine number pages (Form E 1313, sheet No. 5A) (Appendix-XIII/1A to 5A). On the top of each sheet of CMB, there shall be provision for recording the name of the work, agreement number, name of contractor and CMB number.
2. CMBs shall be printed in such a way so as to keep a clear margin of 50 mm on the left side of page. Further, the left side shall have pinhole tear line at a distance of 15 mm from edge for ease of taking out sheets from these books. The binding shall be within 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:**

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) for further issuance to contractor time to time as per progress of work.
4. CMB shall be registered with unique No. in the Register of Measurement Books (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.
5. In case of change of 'contractor's authorized engineer', fresh approval shall be taken from Dy.CE/C before recording of measurement.
6. While issuing the CMB to contractor, AEN / XEN shall take out sheet No. 2A to 4A from the CMB, take receipt of CMB from contractor on sheet No. 3A (Form E 1313), and keep the same in safe custody.
7. Similar system as for CMB, shall be followed for issuing Field Book/ Level Book (E.131 7/A) to contractor for recording of levels in the field book/level book.

**Measurement**

8. The contractor's authorized engineer shall record the measurements in CMB neatly in his own handwriting, without any use of eraser/overwriting, without use of any typing fluid or any such thing. All cuttings shall be initialed. No page shall be damaged / destroyed. No page shall be kept blank in between the measurements.
9. The Contractor shall communicate the date of measurement to AEN / XEN in sufficient advance to witness any measurement. Witnessing of measurement by railways 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.
10. In on account contract certificate, measurement shall be recorded for the items and quantities to be paid in the concerned on account contract certificate.
11. However, in every 4th on account contract certificate and final contract certificate, the recording of measurement for works executed shall include all the items and

their quantity included in previous on account contract certificates, irrespective of whether to be paid or not in the current On Account Contract Certificate/ Final Contract Certificate.

12. No payment shall be processed on Lump sum measurement taken by contractor's authorized engineer except for earthwork. For earthwork, every 4th bill shall be based on actual levels taken and detailed calculations carried out for the work done.
13. The contractor shall take out carefully 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.
14. At the time of submission of final bill, the contractor shall submit all the remaining CMBs (unused as well as partially used) with him along with bill to AEN / XEN.
15. The contractor shall submit required copies of invoice and on account contract certificate / final contract certificate (similar to form E.1337 and Form E.1338) to the AEN / XEN duly marking them - original or duplicate copy. Original shall be used for release of payment whereas duplicate copies shall be used for record purpose in different offices.
16. In case 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.
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

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.

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.
20. The provisional on account contract certificate shall be passed by Dy.CE/C and payment shall be released by associate finance based on above certification of SSE/JE and AEN / XEN. After release of payment, blank sheet of CMB (if any) shall be crossed by Dy.CE/C before sending the measurement sheets back to AEN / XEN for carrying out required test checks. At this stage measurements shall not be crossed.
21. No provisional payment shall be allowed in final contract certificate. Further, once provisional payment has been released in any on-account contract certificate, the

next on account contract certificate can be raised by contractor only when accounts of previous on account certificate (Provisional as well as remaining payment) has been finalised.

### Test Check

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.
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 earth work 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.

24. Contractor's recorded measurement sheets shall be checked for any corrections/ over writing during test check. All the corrections/over writing shall be initialed by SSE/JE.
25. The discrepancy noted (if any) during test check of recorded measurement shall be communicated by AEN / XEN to the contractor.
26. In case of discrepancy noticed during test check, the contractor shall submit original and required copies of fresh invoice of amount corrected for discrepancy, and in case provisional payment has been released earlier, the required copies of fresh invoice of remaining amount corrected for discrepancy (if any), along with on account/final contract certificate to AEN / XEN.

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

27. AEN / XEN shall submit original copy of invoice and on account contract certificate of remaining amount/ Final Contract Certificate, along with required number of duplicate copies and used sheets of CMB (all used/blank CMBs in case of final contract certificate), duly signed by SSE/JE and AEN / XEN to the Dy.CE/C for passing the bill and release of payment.
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.
29. Once all used sheets of a particular CMB 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. IA to 4A 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 and Register of Measurement Books (Form E1314).

30. The final contract certificate shall be passed by Dy.CE/C only after receipt of all CMBs (used/blank) from AEN / XEN.
31. The provisions of this Para shall be applicable to all the departments of Indian Railways and to be executed through equivalent authorities of respective departments.

**49. Public Procurement (preference to Make in India) Order 2017:**

(Railway Board's letter No.2015/RS(G)/779/5; dt.27.12.2017)

The work shall be carried out only with indigenous resources including men, material, machinery and financial resources. In exceptional cases, where foreign resources are proposed to be deployed, explicit prior written approval of CAO(C) shall be obtained.

**50. Option to take payment from Railways through a letter of credit (LC) arrangement:**

(Railway Board's letter No.2018/CE-I/CT/9; dt.04.06.2018)

- (i) For all 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 the 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 LCs based on online requests received from Railway Accounts Units for tenders opened in financial year 2018-19. SBI branches where the respective Railway Accounts Office has its Accounts (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 request of the contractor. The value of LC to be opened initially as well as extended thereafter shall be finalised by the engineer in consultation with the contractor on the basis of expected progress of work.
  - (e) The LC terms and conditions shall inter-alia indemnify and save harmless the Railway from and against all losses, claims and demands of every nature and description brought or recovered against the Railways by reason of any act or

omission of the contractor, his agents or employees, in relation to the Letter of Credit (LC). All sums payable / borne by 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 Authorisation (format enclosed as Annexure XVII) after passing the bill for completed work, to enable contractor to claim the authorised 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.to 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.

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**SAFETY RULES**

[Para 23(ii)]

1. Suitable scaffolds should be provided for workmen for all works that cannot safely be done from the ground or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra labourer shall be engaged for holding the ladder and if the ladder is used for carrying materials as will, suitable foot-holds and hand holds shall be provided on the ladder and the ladder shall be given an inclination not steeper than one horizontal to four vertical.
2. Scaffolding or staging more than 3.5 metres above the ground or floor swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached bolted, braced and otherwise secured 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 so fastened as to prevent it from swaying from the building or structure.
3. Working platform gangways and stairways should be so constructed that they should not sag unduly or unequally, and where the height of the platform or the gangway or the stairway is more than 3.5 meters 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.
4. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 10 meters in length while the width between side rails in swung ladder shall in no case be less than 300 mm for ladder up to and including 3.5 meters in length. For longer ladders this width should be increased by at least 20 mm for each additional meter 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 sides of work shall be so stacked or placed as to cause danger for 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 defence 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 persons or which may with the consent of the contractor be paid to compromise any claim by any such person.

5. Before any demolition work is commenced and also during the process of the work: -
  - (a) All roads and open areas 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 explosion of flooding. No floor, roof or other part of the building shall be so overloaded with debris or materials as to render it unsafe.
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 on 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 asphalt materials, cement and live mortar shall be provided with protective goggles.
  - (b) Those engaged in white washing and mixing or attaching of cement bags or any materials which are injurious to the eyes shall be provided with protective goggles.
  - (c) Those engaged in welding works shall be provided with welder's protective eyesight lids.
  - (d) Stone breakers shall be provided with protective goggle and protective clothing and seated at sufficiently safe intervals.
7. In case the contractors have to ply vehicles for the purpose connected with the contract adjacent to Railway track, the Railway Administration will be at liberty to post an experienced staff as flag man for guidance of the movements of such vehicles so as to prevent accidents and the contractor will bear wages including all etc. of the staff posted as flag man for the period of Contract for such periods during which such staff is posted for the purposes. The Railway Administration will be sole judge in the absolute discretion, of the fact that it is necessary to post any staff, that which of the staff will be suitable for the purpose, that what should be the wages and other allowance payable by the contractor for staff posted for the purpose. The Railway Administration will have a right without prejudice to other remedies to deduct the wages etc. of such staff from the bills of the contractor in respect of this contract or from any moneys or the contractor, whatsoever, available with the Railway Administration. The contractor will be liable for any over payments under Workman Compensation Act on account of any injury sustained to Railway servant during that period.
8. 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 likely to be sustained during the course of the work.
9. Use of hoisting machines and tackle including their attachment anchorage and supports shall conform the following standards or conditions:
- (a) (i) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defect 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 shall be in-charge of any hoisting machine including any scaffolding.
  - (c) In case of every hoisting machine and of every cabin ring, 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 within the safe working load.  
In case of a hoisting machine having a variable safe working load, each 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 Electrical Engineer-in-charge. As regards contractor's machines, the contractor shall notify safe working load of the machine to the Engineer-in-charge whenever he brings any machinery to site of work and get it verified by the Electrical Engineer concerned.

10. Motors, gearing transmission, electric wiring and the dangerous part 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 descent of the load. Adequate precautions should be taken to reduce to the minimum, the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations, which are already energised 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.
11. 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 washing facilities should be provided at or near places of work.
12. These safety provisions should be brought to the notice of all concerned & displayed on a notice board at a prominent place at the work spot. The persons responsible for compliance of the safety code shall be named herein by the contractor.
13. 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 Labour Officer/Engineer-in-charge of the Department or their representative.
14. Notwithstanding the above clause from (1) to (12) there is nothing in these to exempt the contractor from the operation of any other act or Rule in force in the Republic of India.

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**GIST of safety instruction of Central Railway**

1. The instructions/guidelines regarding safety at work site issued from time to time can be seen in the Office of **Dy.Chief Engineer(C)** at any time during office hours. The successful tenderer shall obtain copy of hand book and copies of instructions/guidelines on safety at construction worksite issued by Central Railway Construction Organisation free of cost from his office on award of contract and religiously follow all safety instructions prescribed therein to see that the work is executed in a safe manner.

The list of important instructions issued in the last five years on safety measures at work site are given as under, copies of which shall be collected by the successful bidder from the Office of the **Dy.Chief Engineer(C)** for ensuring strict compliance of execution of work:

Sr. No.	Date	Letter No.	Subject
1	28/7/2002	EW/187/R/465/9/Vol.II	Compendium on training to supervisors and operators of contractors
2	6/11/2002	EW/187/R/465/9/Vol.II	Compendium of instruction on safety issued by Northern Railway
3	9/2/2004 & 8/6/2004	EW/187/R/465/C ompendium Cir.	Handbook on safety at construction work sites
4	1/9/2004	EW/187/R/WKS-Policy/V	Correction slip No. 69 dated 23.5.2001 for Para No. 826 of IRPWM regarding safe working.
5	17/8/2006	CON/CAO(C)/Misc./Genl./2006	Safety measures to be adopted at work sites
6	15/12/2006	EW/187/R/465/Safety Policy	Safety in dismantling of bridges and structures
7	18/01/ 2008	CE Circular No. 190 vide letter No. T103/PWT/-18 / XXI dated 18.01.2008.	Procedural order for ensuring safety at work site issued by PCE, Central Railway.
8	24/06/ 2013	Rly Board's letter No. 2003/Tele/RCIL/1/Pt.IX	Procedure for Undertaking digging work in the vicinity of underground signaling, electrical and telecommunication cables.

The GIST of important instructions on the above subject are given as under:

- I. The contractor shall not start any work without the presence of railway supervisor at site.
- II. Wherever the road vehicles and/or machinery are required to work in the close vicinity of railway line, the work shall be so carried out that there is no infringement to the Railway's schedule of dimensions. For this purpose, the area where road vehicles and/or machinery are required to ply, shall be demarcated and acknowledged by the contractor. Special care shall be taken for turning/reversal of road vehicles/machinery without infringing the running track. **Barricading shall be provided wherever justified & feasible as per site condition.**
  - (a) The road vehicle shall be run or machinery shall be worked so as not to come closer than 6.0m from centre line of nearest running track.

- (b) The land strip adjacent to running tracks, where road vehicle is to ply or machinery is to work, shall be demarcated by lime in advance in consultation with the Railway's supervisor. Wooden pegs at interval not exceeding 75m, shall be provided along the line marking as permanent marks. The road vehicles shall ply or machinery shall work so as not to infringe the line of demarcation.
- (c)
  - (i) In no case the road vehicle shall run or machinery shall work at distance less than 3.5m from central line of track.
  - (ii) Demarcation of land shall be done by bright coloured ribbon/nylon chord suspended on 75cm. high wooden/bamboo posts at distance of 3.5m from centre line of nearest running track.
  - (iii) Railway Supervisor shall issue suitable caution order to driver of approaching train about road vehicles plying or machineries working close to running tracks. The train driver shall be advised to whistle freely to warn about the approaching train. Whistle boards shall be provided wherever considered necessary.
  - (iv) Look out men shall be posted along the track at a distance of 800m from such locations who will carry red flag and whistle to warn the road vehicle/machinery user about the approaching train.
  - (v) On curves where visibility is poor, addition look out men shall be posted
- (d) Under unavoidable condition, if road vehicles is to ply or machinery is to work closure to 3.5m due to site conditions or requirement of work, following precautions shall be observed.
 

\*Plying of vehicle or working of machinery closure to 3.5m of running track shall be done only under protection of track. Traffic block shall be imposed wherever consider necessary.

\*Railway supervisor shall issue suitable caution order to driver of approaching train about road vehicles plying or machineries working close to running track. The train driver shall be advised to whistle freely to warn about the approaching train.
- (e) The location where vehicle will take a turn shall be demarcated duly approved by railway representative. The road vehicle driver shall always face the Railways track during the course of turning/reversing his vehicle. Presence of an authorized Railways representative shall be ensured at such location.
- III. The road vehicles will ply only between sun rise and sun set.
- IV. Road vehicle shall not be allowed to run along the track during night hours generally. In unavoidable situation, however, vehicle shall be allowed to work during night hours only in the presence of an authorized railway's representative and where adequate lighting arrangement are made and where adequate precaution as mentioned earlier have been ensured.
- V. Nominated vehicle and drivers will be utilised for work in the presence of at least one flagman and one supervisor certified for such work.
- VI. The contractor shall fully responsible for ensuring safety and in case of any accident, shall bare cost of all damages to this equipment and men and also damages to railway and its passengers.
- VII. Assistant Officer/Sr. Scale Officer shall issue competency certificate after checking license and their working to all driver of nominated vehicles/machinery. Inspector at site shall ensure that the driver who does not possess competency certificate will not work at site.

- VIII. 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. This location should be decided by Executive Engineer in-charge of the work at the beginning of construction and intimated to contractor in writing. The barrier should be painted with retro reflective paint at suitable interval to give warning at night.
2. Electrical cables and singling cables are running along the railway line. Care shall be taken to protect such cables during execution and vehicle movements. Contractor shall take all required precautions as prescribed in Joint Procedural order for undertaking digging work in the vicinity of underground signalling, electrical and telecommunications cable as communicated vide Rly Board's letter No. 2003/Tele/RCIL/1/Pt. IX dated 24.06.2013. Tenderers can see copy of this joint procedural order in the Office of **Dy. Chief Engineer(C)**. Successful tenderers shall obtain the copy of this order before commencement of work for their guidelines and ensuring strict compliance.
  3. In case damage is caused to OFC/QUAD cable during execution of the work, the contractor is liable to pay a penalty for damaging the cable. Penalty shall not be levied in case of the following.
    - i) Detailed cable route plan as per clause C-1 OF Rly Board's letter No. 2003/Tele/RCIL/1/Pt. IX dated 24.06.2013 not provided by concerned department or cable is not protected as per laid down procedures.
    - ii) The alignment of the cable does not tally with the information provided to the contractor.
    - iii) The cable depth is found to be less than 800 mm from normal ground level.
    - iv) No representative of S&T department/Railtel was available at site guarding the cable on the fixed pre-determined date and time.
  4. Penalty to be imposed for damages to cable from the contractor due to default on the part of the contractor shall be as under. The decision of Engineer-In-Charge on fixing up of responsibility on contractor on this account will be final and binding on the contractor.

<b>Cable Damaged</b>	<b>Penalty per Location</b>
Only Quad cable or Signalling Cable	Rs. 1.00 Lakh
Only OFC	Rs. 1.25 Lakh
Both OFC & Quad	Rs. 1.50 Lakh
Electrical Cable	Rs. 1.00 Lakh

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**IDENTITY CARD OF RAILWAY CONTRACTOR'S LABOUR**

(Space for Photo)

- I) **Sr. No.**
- II) **Name of Establishment :**
- III) **Name of Contractor:**
- IV) **Name of Contract Worker with address:**
- V) **Signature of Card Holder:**
- VI) **Signature of Contractor on the Photograph with his seal:**

(Countersigned by concerned  
Sr. Supervisor of Railway)

**Validity date of Identity Card**

**PERFORMANCE GUARANTEE BOND**

In consideration of the President of India (hereinafter called "The Government") having agreed to exempt \_\_\_\_\_ (here in after called "the said contractor/s) from the demand, under the terms and conditions of an agreement made between ..... and ..... for ..... (**mention Name of Work with LOA No. & Date**) (here in after called "the said agreement"), of performance Guarantee 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 Bond for Rs. .... (Rupees.....only)

1. We..... (*indicate the name of the Bank*) hereinafter referred to as the Bank, at the request of ----- contractor(s) do hereby undertake to pay to the Government an amount not exceeding Rs. .... (Rupees .....only) 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 of any of the terms or conditions contained in the said agreement.
2. We..... (*indicate the name of the bank*) do hereby undertake (and promise) to pay the amounts due and payable under this guarantee without any demur merely on a demand from the Government stating amount / claim is due by way of loss or damage caused to or would be caused or suffered by the Government by reason of any breach by the said contractor of any of the terms or conditions contained in the said agreement or by reason of the contractor 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. .... (Rupees..... Only).
3. (a) We ..... (*indicate the name of Bank*) undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s) in any suit or proceeding pending before any court or Tribunal relating thereto our liability under this present being absolute and unequivocal.  
  
(b) The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s) shall have no claim against us for making such payment.
4. We, ..... (*indicate the name of bank*) do 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 ..... Office (**of LOA issuing Authority**) / Department / Ministry of \_\_\_\_\_ certify 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 of 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 from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said contractor (s) and to forbear or enforce any of the terms and conditions relating to said agreement and we shall not be relieved from our liability by reason of any such

- [illegible]

Signature of Bank Authorised official	Signature of Bank Authorised official
Name	Name
Designation	Designation
Code	Code
Full Address	Full Address

1.....

2.....

**COVER****E.1313****(Sheet 1A)**

<b>Railway</b> _____
<b>CMB No.</b> _____
<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 _____

(Title page)

E.1313

(Sheet 2A)

<b>Railway _____</b> <b>CMB No. _____</b> <b>CONTRACTOR'S MEASUREMENT BOOK</b>	
Department _____	
Division/Construction Unit _____	
Name of Work _____	
Agreement No. _____	
Name of Agency _____	
Issued to _____ <div style="text-align: center;">(Name &amp; designation)</div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">_____</div> <div style="width: 10%; text-align: center;">on</div> <div style="width: 45%;">_____</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%; text-align: center;">(station)</div> <div style="width: 10%;"></div> <div style="width: 45%; text-align: center;">(date)</div> </div>	
Received by _____ <div style="text-align: center;">(Signature)</div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">_____</div> <div style="width: 10%; text-align: center;">on</div> <div style="width: 45%;">_____</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 5px;"> <div style="width: 45%; text-align: center;">(Designation)</div> <div style="width: 10%;"></div> <div style="width: 45%; text-align: center;">(Station)</div> </div> <div style="display: flex; justify-content: flex-end; margin-top: 10px;"> <div style="width: 45%;">_____</div> <div style="width: 10%; text-align: center;">on</div> <div style="width: 45%;">_____</div> </div> <div style="display: flex; justify-content: flex-end; margin-top: 5px;"> <div style="width: 45%;"></div> <div style="width: 10%;"></div> <div style="width: 45%; text-align: center;">(date)</div> </div>	
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 found correct.	
<div style="display: flex; justify-content: flex-end; margin-top: 20px;"> <div style="width: 40%;">Signature _____</div> </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">Date _____</div> <div style="width: 45%;">Designation _____</div> </div>	

(Sheet 3A)

<b>Railway _____</b> <b>CMB No. _____</b> <b>CONTRACTOR'S MEASUREMENT BOOK</b>																																																					
Name of Work _____ Agreement No. _____ Name of Agency _____ Issued to _____ <div style="text-align: center; margin-top: 10px;">           _____            (Contractor's name)         </div> <div style="display: flex; justify-content: space-between; margin-top: 10px;"> <div style="width: 45%;">           _____            (station)         </div> <div style="width: 10%; text-align: center;">           on _____         </div> <div style="width: 45%;">           _____            (date)         </div> </div> <p style="margin-top: 10px;">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 is torn.</p> <p style="margin-top: 5px;">I understand that the measurement book is very important document and hence shall ensure its proper upkeep and safe custody.</p> <p style="margin-top: 10px;">Received by _____  <div style="text-align: center; margin-top: 5px;">           _____            (Signature of contractor)         </div> <div style="display: flex; justify-content: space-between; margin-top: 20px;"> <div style="width: 30%;">           _____            (Name)         </div> <div style="width: 30%;">           _____            (Station)         </div> <div style="width: 30%;">           _____            (Date)         </div> </div> <div style="margin-top: 20px;">           Date of first entry _____            Date of last entry _____         </div> <p style="margin-top: 20px;">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:</p> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 10px;"> <thead> <tr> <th style="width: 5%;">S. No.</th> <th style="width: 20%;">On Account Bill No.</th> <th style="width: 15%;">Page No. From _____ To _____</th> <th style="width: 10%;">No. of Pages</th> <th style="width: 20%;">Date of receipt in AEN / XEN Office</th> <th style="width: 20%;">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> </p>						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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# SECTION

“C”

## NATURE & SCOPE OF WORK

### **SCOPE OF WORK**

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work: *Balance work of Track Work between Vidyavihar and Parel Stations in connection with Mumbai CST–Kurla 5th & 6th Lines Project.***

**Scope of Work and additional special conditions for Permanent Way Works including Track Linking, Assembling and Handling of P. Way Materials**

The scope of work shall include,

1. Laying and linking of rails and sleepers, including fittings and fastenings.
2. Supply, spreading, levelling, and consolidation of ballast, including initial and final packing.
3. Alignment, levelling, and stabilization of track by manual and/or mechanized means.
4. Welding of rails (AT/FB), as required.
5. Installation and adjustment of SEJs, check rails, guard rails, and other special track fittings.
6. Removal of temporary arrangements and rectification of defects in already executed portions.
7. Execution of track works in yards, loops, turnouts, crossovers, and approaches, as applicable.
8. Coordination with Signalling, OHE, and other allied departments for safe execution of the work.
9. Compliance with approved drawings, specifications, IRS/IRPWM standards, and site requirements.
10. Execution of all incidental, enabling, and ancillary works necessary for completion and commissioning of the track.

#### **1. Track Linking**

- Laying and linking of BG track with PSC/Steel sleepers as per approved drawings and instructions.
- Proper spacing of sleepers and squaring.
- Fixing of rails with appropriate fastenings.
- Alignment, leveling, gauging and initial packing.

#### **2. Assembling of Track Materials**

- Assembling of rails and sleepers into panels at site or depot.
- Fabrication and assembling of Points & Crossings, SEJs, buffer rails, guard rails, etc.
- Drilling, cutting, grinding and finishing of rails as required.

#### **3. Handling of P.Way Materials**

- Loading, unloading, shifting and stacking of rails, sleepers, fittings and other P.Way materials.
- Transportation within Railway premises by approved means.

- Proper stacking as per Railway standards to avoid damage.

#### **4. Welding & Destressing**

- Execution of AT welding/FB welding as directed.
- Cutting and removal of defective rails.
- Destressing of LWR/CWR in accordance with IRPWM provisions.

#### **5. Ballast & Packing Works**

- Spreading, dressing and boxing of ballast.
- Manual/mechanical packing.
- Through packing and final alignment.

#### **6. Dismantling & Relaying**

- Dismantling of existing track panels.
- Grass cutting , Stacking and accounting transportation of released materials.
- Relaying/realignment as per site requirement.

#### **7. Miscellaneous P.Way Works**

- Providing rail closures.
- Attention to creep, buckling, and other track defects.
- Assistance during track machine working.
- Any other

### **Additional Special Conditions**

#### **1. Execution in Live Railway Area**

The work shall be carried out in a live railway environment. The contractor shall ensure absolute safety of running trains by deputing look out man.

#### **2. Compliance with Railway Codes**

All works shall conform to:

- IRPWM (Indian Railways Permanent Way Manual),
- IRS specifications,
- Approved drawings,
- Instructions of Engineer-in-Charge.

#### **3. Traffic Blocks**

Work shall be carried out during traffic blocks/night blocks as permitted. No extra claim shall be entertained for restricted working hours.

#### **4. Deployment of Resources**

The contractor shall deploy adequate skilled manpower, supervisors, tools & plants, rail tensors, jacks, weld kits, etc.

#### **5. Safety Measures**

- Provision of look-out men with safety gears, banner flags, detonators, and caution boards.
- Compliance with safety norms for working near running lines.
- Personal protective equipment (PPE) for all workers.

#### **6. Handling of Materials**

- Care shall be taken to prevent damage to rails, sleepers, and fittings.
- Released materials shall be properly stacked and accounted for.
- Any loss or damage shall be recovered from the contractor.

**7. Quality Control**

- Track geometry tolerances shall meet Railway standards.
- Welding shall be carried out within tolerance limit by certified welders only.
- Rejected work shall be rectified at contractor's cost.

**8. Coordination with Other Departments**

The contractor shall coordinate with Engineering, S&T, OHE and Traffic departments.

**9. Statutory Compliance**

Contractor shall comply with all Labour Laws, EPF, ESI, CLRA, insurance and other statutory provisions.

**10. Measurement & Payment**

Payment shall be made for actual quantities executed and accepted by the Engineer-in-Charge.

**11. No Compensation Clause**

No claim for delay due to non-availability of block, site constraints, or operational exigencies shall be entertained.

**12. Housekeeping**

Site shall be kept clean and free from debris and released Railway material after completion of work.

**Additional Scope of Work and special conditions for : Supplying and Stacking of Machine Crushed Track Ballast**

**1. Supply of Ballast**

- Supplying machine-crushed hard stone ballast conforming to Railway specifications (as per IRS/IRPWM/latest guidelines).
- Ballast shall be of approved source/quarry only.
- The ballast shall be angular, durable, free from dust, clay, organic matter, and other deleterious materials.

**2. Transportation**

- Loading of ballast at quarry/source.
- Transportation to the specified railway site by road/rail as approved.
- All arrangements for transit permits, royalty, quarry permits, etc., shall be made by the contractor.

**3. Stacking at Site**

- Unloading and stacking of ballast at locations as directed by the Engineer-in-Charge.
- Stacking in proper trapezoidal stacks of specified dimensions.
- Proper dressing and measurement of stacks for volume verification.

**4. Quality Control**

- Conducting necessary tests (gradation, impact value, water absorption, flakiness index, etc.) at approved laboratory.
- Submission of test certificates prior to commencement and during supply as directed.

**5. Lead & Lift**

- The rates shall include all leads and lifts unless otherwise specified.
- No extra payment shall be made for multiple handling.

## **6. Protection & Maintenance**

- Protecting stacked ballast from contamination.
- Removing rejected or substandard ballast at contractor's cost.

### **Special Conditions for Supplying and Stacking of Machine Crushed Track Ballast**

1. **Specification Compliance**  
Ballast shall strictly conform to the latest IRS specifications for Track Ballast and Railway Board guidelines.
2. **Approval of Source**  
Supply shall commence only after approval of quarry/source by the Engineer-in-Charge.
3. **Inspection & Rejection**  
The Railway reserves the right to inspect ballast at quarry, during transit, and at site. Substandard material shall be rejected and removed immediately at contractor's cost.
4. **Measurement**  
Measurement shall be made in cubic meters (cum) based on stack measurements after proper deduction for voids as per Railway norms.
5. **Royalty & Statutory Compliance**  
Contractor shall be responsible for payment of royalty, GST, transportation charges, labour laws compliance, insurance, and other statutory requirements.
6. **Safety & Site Discipline**  
The contractor shall ensure safety of railway property and personnel during unloading and stacking operations.
7. **Completion Period**  
The supply schedule shall be strictly adhered to. Delay may attract penalty as per contract conditions.
8. **Environmental Compliance**  
The contractor shall comply with environmental regulations and ensure that quarrying activities are legally authorized.
9. **No Idle Charges**  
No claim for idle labour, machinery, or transportation due to block restrictions or site conditions shall be entertained.
10. **Payment Terms**  
Payment shall be made only for approved and accepted ballast stacked at site.

**e-Tender Notice No DyCECDR-01-2026R**

**Name of Work:** Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

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**SPECIAL CONDITIONS OF CONTRACT : PART I (A)****LOCATION OF SITE AND SCOPE OF THE WORK****A. INTRODUCTION**

1. The proposed track work between Vidyavihar and parel stations under this tender forms part of the Mumbai CST–Kurla 5th & 6th Lines Project, which is included in MUTP Phase II.

The construction of the CSTM–Kurla 5th & 6th lines is planned in two phases:

- **Phase I:** From Vidyavihar (including) to Byculla (excluding)
- **Phase II:** From Byculla (including) to CSMT

**B. General.**

1. At the close of daily work special care is to be taken to clear sites from loose materials, which can be misused for sabotage. etc.
2. No extra payment shall be made for making approaches and access upto worksites wherever required as per site condition
3. The works of the other contractors are also in progress close to the work site. Contractor shall co-ordinate these contractors and execute the work without disturbing the works of other contractors.
4. Contractor has to provide effective communication, phones at site and it should be always available for Railway use. No extra payment will however be made for the same.
5. Central Railway Specifications for Materials & works shall be adopted. Some additional specifications are added herewith. Notwithstanding any provisions made in the C.R specifications, the provisions made in the technical specifications shall be binding on the Contractors. All provisions in Railways manuals such as Permanent way (IRPWM), LWR, Bridge etc are binding on the contractor and all the provisions in these manuals shall be strictly followed by them.
6. These special conditions supplement the conditions of the tender and the contract and conditions incorporated in specifications for materials and works of the Central Railway corrected up to latest correction slip. When provision of these special conditions are at variance with the General Conditions of Contract and other documents mentioned above, then these special conditions will prevail.
7. Contractor must visit the site before quoting rates for the work. He should get acquainted with the approaches, existing site conditions, vicinity of track, vicinity of hutment, availability of labours and other obligatory structures etc. & quote the rate accordingly.

8. In the absence of any specification for any work on material the relevant Indian standard specification would be applicable and where no Indian standard specification exists, relevant international specification or the specification given by Railway would be followed. Decision of Railway in this regard would be final conclusive and binding on the contractor.
9. **Setting Out:** The Contractor shall establish working Bench Marks tied with the Reference Bench Mark in the area soon after taking possession of the site. The working Bench Marks, alignment / levels pegs should in variably got be approved from the Engineer.
10. All dimensions and levels shown on the drawings or mentioned in documents forming part of or issued under the Contract shall be verified by the Contractor on the site and he shall immediately inform the Engineer of any apparent errors or discrepancies in such dimensions or levels.
11. The Railway administration reserves the right to operate fully or partly up to any extent or delete any items of this tender schedule as required as per site condition and the contractor will have no right to claim on this account.
12. Contractor must deploy at least one retired PWI as approved by Railway Engineer. Competency of such PWI & supervisor shall be decided by the Rly. and decision of the Railway Engineer shall be final conclusive and binding on Contractor/s. Contractor has to replace such PWI Supervisor if ordered by the Rly. Site Engineer. The contractor shall engage adequate number of supervisors with experience and well conversant with track laying work. They will be recruited after specific approval of the engineer about working safety rules.
13. Contractor will depute technically qualified (PWI) person to represent him at site of work who will be authorized to sign the acknowledgement of instructions and orders given during course of work and inspections. The instructions acknowledged by the authorized representative, will be binding on the contractor and no separate instructions will be given to the contractors and in absence of such supervisor no work will be allowed to progress.
14. Contractor has to make his own arrangement of water and electricity etc. and Railways no claim will be entertained on this account., by the Railway.
15. The Railway will not provide any new service roads for movement of contractor's vehicles including Plants & machinery. However, the contractor can use existing service roads if any, within Railways premises, free of cost/charges.
16. Contractors have to make approach road/service road wherever required even through the private lands. The element of service road with prior permission of land owner is deemed to have been considered while quoting the rate and no extra, what-so-ever, will be paid to the contractor against the premium / compensation paid by them, (if any), to the land owners, on this account. The Railway however, reserves the rights to make use of these roads formed and maintained by the contractor as and when necessary without any payment to the contractors. The Railways will entertain no claim of compensation on this account. If any road constructed by the Contractor is required to be dismantled afterward, it shall be dismantled by the contractors, as per the instructions of Engineer at the site. Nothing extra will be paid for this work.
17. The contractor will arrange his own tools and plants, crane, lighting equipment's, consumable etc. required for execution for the work.
18. The contractor will be held responsible for any loss or damage or injury caused during the course of work to the labours or to the Railway/ Public Private person due to his negligence. The contractor shall bear all the consequence, losses and expenditure etc: thus involved on that account.

19. The work should be carried out without any interference to normal working of the Railway track and the structures. The Railway reserves the right to have the damages made good by the contractors. The contractor, if necessary shall provide barricades as required while working near the existing running lines. The decision of Engineer-in-charge will be final conclusive and binding on the contractor in this regard.
20. The contractor must ensure the safety of labours engaged by him while crossing the track during the course of execution of work. The Railway will not be responsible for any injury sustained by labours. Any claim for compensation what so ever arising out of such accident shall be paid by the contractor including any fatal accident, thereto.
21. Contractors shall have to keep ready necessary "First Aid" facilities etc available all along, while working in the day or night for labours working.
22. All safety precautions for running of trains in section are to be followed. Contractors will provide lookout men with the flags/H.S. Lamps during block periods and during normal working period also.
23. The site order book/Register, Activity Register & and progress report register will be maintained at site. They will be got signed by the representative of Railways and contractor, daily.
24. Distressing activities shall be carried out under the supervision of Railway Engineer in-charge.
25. Tenderers are required to submit a Bar chart along with the tender documents duly indicating the programme for completion of work in view the total completion period. At no point of time, deviation from programmed schedule will be allowed and Railways will have the liberty to determine the contract in case of any shortfall of the progress in different activities.
26. The rates of all the items are inclusive of sales tax, royalty fees, octroi duty, as payable under the provision of sales Tax Act or local bodies, Act.
27. The Railways will not undertake to supply tools and equipment's to the contractors. However under compelling circumstances the tools and equipment can be given on hire basis if available/ spare able with/by the Railways. Railways shall decide hire charges for each tool so supplied.
28. During the execution of work, the contractor will have to co-ordinate with other contractors working in the section of civil as well as other departments i.e. electrical and S&Tetc. The site order book. Daily activity Register and progress report register will be maintained at site. The representative of Railways and contractor will sign them regularly.
29. Wherever lead or lift is not mentioned or specified: it should be clearly understood that it mean **"All lead and all lifts"** for which no extra payment shall be made.
30. Contractors will have to apply Grease (Specification for Grease No.IS: 480-1981) to 'O' graphite on the central leg of ERC and eye of the MCI insert and then clip should be driven while linking & laying of track or in turnouts & no extra & no extra shall be paid on this account.
31. Site order books, progress report register and material issue register shall be maintained at site and entries will be recorded on day-to-day basis in the register and signed jointly by Railway supervisor and contractor or his authorized representative.

32. All details of handing and taking over sections for different stages of packing, imposition and removal of speed restrictions, measurement of track parameters, accountal of released material etc., should be recorded.
33. Wherever the unit per metre has been used it means per running metre of tracks as a whole consisting of operation on both the rails. It shall not mean that separate payment for left and right will be given unless otherwise specified.
34. No payment will be made for under utilization of overheads, labour, plant & machinery etc.
35. The contractor has to bring one total station instrument at site for fixing centre line of track and alignment of curves which will be always available at site for work. Also he has to bring one auto level for leveling work at site. Nothing extra will be paid on this account.
36. The centre line and level will be given for the alignment of track by the railway with contractor's total station and auto level instruments brought at site by contractor and which shall be maintained and adhered by contractor while laying the track and till the completion of work.
37. The formation in Vidyavihar – Parel section is in progress and will be completed part by part. The Tenderer has to do track linking work as per availability in patches & No claim in this account shall be entertained or paid.
38. After the work is over the ballast section, cess and side drains will confirm to ballast profile as laid down in P.way and other manuals.
39. 1<sup>st</sup> and 2<sup>nd</sup> through packing will be done in accordance with the relevant portion of IRPWM to make the track fit for 20 KMPH and 45 KMPH respectively as stipulated in the item.
40. For transportation / hauling of released / second hand rails, wherever feasible actual weighment will be done, otherwise 5% deduction will be made for wear and tear from the nominal sectional weight.
41. Railway will provide required Traffic & Power block if required for linking newly laid track with existing running line. Contractor shall arrange following resources at least 12 hour prior to commencement of traffic block.
  - a. Minimum 45 labours with experienced supervisor & with requisite tools i.e. 20 Nos. Straight bar, 15 Nos. mortar pan, 15 Nos. wire claws, 6 Nos. double ended spanner, 5 Nos. Hammer, 4 Nos. track lifting jacks (15 MT capacity), 20 Nos. rail tongs etc.
  - b. 2 Rail cutting machine with separate operator (Saw type) & 1 abrasive rail cutting machine with operator fuel, spare blades (Partner or similar).
  - c. 1 machine for drilling of holes in rails with operator.

**ADDITIONAL SPECIAL CONDITION OF CONTRACT – PART- I (B)**

1. The work is in the close vicinity of Rly's running lines and Rlys structures /Pvt structures dwelling. The Contractor should inspect the site and get themselves acquainted with the facilities available, such as approach road and other contingencies for the smooth working.
2. Sales Tax including Turn Over Tax on works contract, Octroi, Royalty, Toll Tax, Local Tax, Duties/Levies as well as services and any other tax levied by Central Government, State Govt. or Local Bodies, as applicable on the date of quoting the rates shall be payable by the contractor. Any subsequent statutory increase after the opening of the tender, shall be borne by the Railways on production of relevant documents by the contractor and after due satisfaction of the Railway. Likewise any statutory decrease in such taxes shall be passed on to the Railways.
3. The work is to be carried out by the side of running track. Every care should be taken to see that train movement is not affected during the course of execution of work.
4. The approach road to the site of work is very limited and at few locations the contractor will have to make his own arrangement for transporting material to the accessible locations by manual handling where trailer can be loaded. No extra payment shall be made on this account.
5. Contractor should depute minimum one Graduate Engineer and diploma holder/Engineer/Retired PWI/PWM at each work site who should be experienced and competent enough to execute the work as per schedule specification and drawings. Railway reserves the right to ask the contractor to replace the above personnel without assigning any reason. . In case of non deployment of Graduate Engineers Rs.40,000/- and for Diploma Holders/PWI/PWM Rs.30,000/- will be deducted per month or part thereof. All the contractors Engineer shall be provided with suitable communication facility like mobile phone.
6. The contractor has to provide one centralised site office for Railway officials duly furnished with fully developed lab including technical staff at site for testing of various materials. A list of equipment/machinery to be kept in the laboratory is given in the Sr No. 41 of additional special condition Part- II(C) of the tender document. The work of laboratory and site office are incidental to the work and therefore No extra payment for setting up the lab and site office for Railway officials will be paid to the contractor. It is expected to establish laboratory within 2 months from the date of acceptance letter. If contractor fail to establish laboratory within 2 months the date of acceptance letter, penalty of Rs. 5000/- per week ) after expiry of two months from the date acceptance) will be imposed on the contractor till establishment of laboratory at site. Further, if contractor fails to establish the laboratory within three months, fine of Rs.5,00,000/- (Rs. Five Lakhs only) will be recovered from the payment of the contractor. Decision of Railway Engineer will be final and binding on the contractor. After completion of work all the equipments/machinery shall be property of the contractor. Contractor shall also arrange container type office at site during the execution of the work for Railway officials with lighting arrangement, toilet, drinking water facility etc. No payment of any type is admissible on this account. After completion of work, the contractor will have to dismantle the site office and take away all the materials. However if the Railways so desires, the structure can be left as it is for any alternate use.
7. For transportation of rails, the calculation of weight shall be done as per standard weight of section of rail transported by contractor. For other fittings the weighment

will be as per actual or weigh bridge or by sample weighment of each item for calculation of total weight.

8. Contractors have to protect the site by barricading to separate the working area from nearest track/any other track/any other location of working area as per the instruction of site Engineer. No work will be permitted to be taken up without required barricading as directed by site engineer based on safety consideration as decided by him. The payment for the same will be made as per the items given in schedule. He will have to maintain the barricades till completion of work at his own cost. After completion of work contractor will dismantle the barricading and take away released materials of barricading with his own cost.
9. Contractor has to remove the godown, shed, site offices after completion of work and clear site shall be handed over back to the Railways. In case contractor fails to remove the same within 1 month from completion of work, the same will become railway's property and Rs. 1 lac penalty will be recovered from final bill.
10. Contractor has to obtain permission from concerned authorities/ private parties to enter into Railways area through their premises and for using their roads.
11. As per good construction practices and norms of monitoring environment conditions, following discipline will be observed during execution of work at contractor's own cost.
  - i) All vehicles should have PUC certificate which is the basic requirement of RTO to maintain environmental pollution in check.
  - ii) All vehicles plying on site should have silencer as per vehicle act. This will prevent noise pollution too.
  - iii) Land contamination by oil spills to be avoided.
  - iv) Temporary structure, shed labour huts etc. should be kept clean and to be removed immediately after completion of work.
  - v) Adequate drinking water supply and sanitation arrangements may be made for labour camps.
  - vi) All safety precaution a site as per special safety conditions of contract may be followed strictly.
  - vii) Personal safety equipments as per need for safe working methods may be provided to workers.
  - viii) First Aid Box may be provided at site.

12. Availability of site for execution of work:

1. Contractor will have to provide labour for taking measurements of work done or during course of work whenever necessary with all equipments needed such as Gauge level, tapes etc. as approved by the Railway and no extra payment will be made for the same.
2. The contractor shall not start any work without the presence of railway supervisor representative at site.
3. Wherever the road vehicles and/or machinery are required to work in the close vicinity of railway line, the work shall be so carried out that there is no infringement to the Railway's schedule of dimensions. For this purpose, the area where road vehicles and/or machinery are required to ply, shall be demarcated and acknowledged by the contractor. Special care shall be taken for turning/reversal of road vehicles/machinery without infringing the running track. **Barricading shall be provided wherever justified & feasible as per site condition.**

a	The land strip adjacent to running tracks, where road vehicle is to ply or machinery is to work, shall be demarcated by lime in advance in consultation with the Railway's supervisor. Wooden pegs at interval
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	not exceeding 75m, shall be provided along the line marking as permanent marks. The road vehicles shall ply or machinery shall work so as not to infringe the line of demarcation
b	In any case the road vehicle shall run or machinery shall work at distance less than 3.5m from central line of track
c	Demarcation of land shall be done by bright colored ribbon/nylon chord suspended on 75cm. high wooden/bamboo posts at distance of 3.5m from center line of nearest running track.
d	Railway Supervisor shall issue suitable caution order to driver of approaching train about road vehicles plying or machineries working close to running tracks. The train driver shall be advised to whistle freely to warn about the approaching train. Whistle boards shall be provided wherever considered necessary.
e	Look out men shall be posted along the track at a distance of 800m from such locations who will carry red flag and whistle to warn the road vehicle/machinery user about the approaching train.
f	On curves where visibility is poor, addition look out men shall be posted
g	Under unavoidable condition, if a road vehicle is to ply or machinery is to work closure to 3.5m due to site conditions or requirement of work, following precautions shall be observed.
h	*Plying of vehicle or working of machinery closure to 3.5m of running track shall be done only under protection of track. Traffic block shall be imposed wherever consider necessary.
i	Railway supervisor shall issue suitable caution order to driver of approaching train about road vehicles plying or machineries working close to running track. The train driver shall be advised to whistle freely to warn about the approaching train.
j	where vehicle will take a turn shall be demarcated duly approved by railway representative. The road vehicle driver shall always face the Railways track during the course of turning/reversing his vehicle. Presence of an authorized Railways representative shall be ensured at such location.
k	The road vehicles will ply only between sun rise and sun set.
l	Road vehicle shall not be allowed to run along the track during night hours generally. In unavoidable situation, however, vehicle shall be allowed to work during night hours only in the presence of an authorized railway's representative and where adequate lighting arrangement are made and where adequate precaution as mentioned earlier have been ensured
m	Nominated vehicle and drivers will be utilized for work in the presence of at least <b><u>one flagman and one supervisor certified for such work.</u></b>
n	The contractor shall fully responsible for ensuring safety and in case of any accident, shall bear cost of all damages to his equipment and men and also damages to railway and its passengers. He will also be liable to be prosecuted for criminal offence under Cr.PC as per provision of Railway Act

o	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. This location should be decided by Executive Engineer in-charge of the work at the beginning of construction and intimated to contractor in writing. The barrier should be painted with retro reflective paint at suitable interval to give warning at night.
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13. Electrical cables and signalling cables are running along the railway line. Care shall be taken to protect such cables during execution and vehicle movements. Contractor shall take all required precautions as prescribed in Joint Procedural order for undertaking digging work in the vicinity of underground signaling, electrical and telecommunications cable as communicated vide Rly Board's D.O. letter No. 2004/Sig/G/7 JPO No.1/Sig/2004 dated 17.12.2004. Tenderers can see copy of this joint procedural order in the Office of Dy. Chief Engineer (C) at Dadar. Successful tenderer shall obtain the copy of this order before commencement of work for their guidelines and ensuring strict compliance.
14. While removing the rails from already laid track the PSC sleepers should not get disturbed. Any disturbance to sleepers should be corrected by the contractor at his own cost within a week time. In case of failure by contractor to rectify the damage done, the same will be got done through other agency at the risk & cost of the contractor and in addition a penalty of Rs. 50,000/- will be levied for the damage/disturbance.
15. During the execution of work if any cable of other Dept./Govt. is found exposed, the same should be protected as advised by Railways by the contractor at his own cost. If the same is damaged by the contractor the cost will be recovered as per extant rules and in addition a penalty of Rs. 50,000/- will be levied for the damage/disturbance.
16. Contractor will be responsible for giving correct alignment in straight and in curve portion required as per proposal depending upon degree of curvature, until alignment is approved by PWI-in-charge. It will be responsibility of contractor to rectify the defects till it is approved by Engineer -in-charge. for which no extra payment will be made.
17. Contractor shall arrange his own dip lorry or material lorry/dolly etc. for carrying of rails, fittings etc. over track wherever required as per site conditions. Labour for protection of track etc. to be arranged by contractor under directives of Railways engineer at site.
18. The consumable stores like graphite, oil, cotton waste, coal tar, paint, painting brushes etc. required for the work will have to be arranged by the contractor at his own cost required as per the current prevailing circulars.
19. Relevant provisions of Code. IRPWM, LWR and SWR manuals with latest correction slips and Chief Engineer Circulars shall be observed strictly by the contractor at all times as per the directives of the Railways Site Engineer.
20. In addition, in case there is any current standard circular of Railway Board/RDSO or Chief Engineer to be followed for any track standard, the same could be enforced to be followed under directives of the Railways Engineer -in-charge of the above work.
21. Contractor will have to provide labour for taking measurements of work done or during course of work whenever necessary with all equipments needed such as Gauge, level, tapes etc. as approved by the Railway. No extra payment will be made for the same.

22. Each fish plated joint will be lubricated as per IRPW Manual, para No.241. For this a stiff paste of plumbago (Graphite) and Kerosene oil made in proportion of 3Kg. of plumbago to 2Kg. of Kerosene oil may be used. Black oil or reclaimed oil may be used for fish bolts and nuts. No extra payment shall be allowed for the same.
23. For laying of track to final alignment and levels and calculating the layout of Yards/Turnout, contractor will have to use the computer programmes for curve realignment, vertical alignment and layout calculations developed by IRICEN PUNE. These programmes will be made available to contractor by Railway free of cost, but for running of these programmes and taking the output in printed form, contractor will have to arrange in each of two site office one Laptop with latest configuration alongwith one A-3 ink jet printer at his own cost. All these documents & records etc. will be the property of Railways after the completion of work. Also for record keeping purpose contractor should bring the digital camera of more than 10 mega pixel with optical zoom 12x or more, preferably of Sony or similar standard make with all standard accessories and after completion of the work, the same may be taken back by the Contractor/s.
24. Contractor should strictly arrange Abrasive rail cutter for block working, otherwise Rs. 3000/- (Rupees Three Thousand only) penalty per block will be imposed and recovered from the running on account bill of the contractor.
25. The completion period shall be 36 (thirty six) months from the issue of the acceptance letter including monsoon.
26. Hilti make PD42 laser range meter to be brought by Contractor during execution of work for measuring distance, C/L and alignment correction.

27. **SPECIAL CONDITIONS FOR BALLAST SUPPLY**

1. The contractor should get himself fully acquainted with the site conditions, stacking locations availability of ballast materials approach road, proximity etc. to site before quoting the rates.
2. The ballast should conform to the revised specification only i.e. as per RDSO's specification for track ballast No.IRS-GE-I of June, 2004 duly amended till date of tender opening.
3. Tenderer will make arrangement for all types of the testing of ballast in any Government recognized Laboratory as required by the Engineer-in-charge at his own cost. No extra payment for the same will be made.
4. The contractor will, at his own expenses obtain such permit or parwana for quarrying or any other purpose as may be necessary to enable him to perform his part of the contract. The Railway will not, under any circumstances, be liable to obtain any permit or parwana whatsoever.
5. The contractor will have to bring the ballast sieve of 65mm, 40mm, 20mm square mesh size of sieve 1.0 x 0.7 x 0.10m one measuring box of size 0.3m x 0.3m x 0.3m (internal dimension) at the time of measurements of ballast without which the measurement of ballast may not be taken. The contractor will make arrangement for weighment at site by electronic weighment devices and bring the steel measuring tape and staff for measuring height.
6. Approx. 16000 m<sup>3</sup> of Ballast is required by the Railway in the length and will be stacked on ground as directed by Engineer. The contractor will make his own arrangements to ensure that supply is made at every location where ballast is required by the Railway.

7. There are some hindrances at site, no extra claim will be entertained or any compensation on account of any delay on account of this will be considered. Only extension may be considered/granted for the purposes.
8. If stacking area is not available at any particular location the contract will concentrate his supply in the remaining length where the stacking area is made available. The contractor will also simultaneously advise the Executive Engineer and Assistant Engineer concerned for short supply on this account.
9. The contractor should note that no claim will be entertained or any compensation will be paid on account of stacking area not available at any particular locations.
10. Stacking area will be provided by the Railway. If the contractor intends to supply more than stipulated quantity in any month he will advise of his intension in advance to the concerned Executive Engineer/Assistant Engineer so that extra stacking area could be adequately provided in time.
11. The contractor may be required to acknowledge the stacking area given for ballast stacking.
12. If contractor stacks ballast at any place other than the stacking area given to him without obtaining prior approval for proper stacking area, Assistant Engineer may refuse to measure the stack/s. Contractor will have to remove this ballast and restack at the specified stacking areas at his own cost.
13. The stacking area given by the Railway will be cleaned and leveled by the Tenderer at his own cost. No extra payment will be made on this account.
14. The ballast supply should be given as per T.P. wise requirement given by the Engineer-in-charge.
15. On each running bill the royalty (MM 11) to be submitted in this office in original. If not submitted then as per Collector's letter Rs...../- per m3 will be deducted from account bill. On submitting the original paper & documentary proof of payment made, the royalty will be released

#### **28. Setting Out:**

The Contractor shall establish working Bench Marks tied with the Reference Bench Mark in the area soon after taking possession of the site. The working Bench Marks/levels should be got approved from the Engineer. All dimensions and levels shown on the drawings or mentioned in documents forming part of or issued under the Contract shall be verified by the Contractor on the site and he shall immediately inform the Engineer of any apparent errors or discrepancies in such dimensions or levels.

29. **Testing to be done by contractor at his own cost.** The tenders should note that the rates of the items are inclusive of all the testing charges required for on site or laboratory testing of all the materials for passing of the materials as specified in this tender document or required as per IRS or IS Codes on relevant Codes periodic and timely testing of materials and submitting test results/certificates thereto will be the responsibility of the contractors.

The work of setting out shall be deemed to be a part of general works preparatory to the execution of work and no separate payment shall be made for the same.

- a) All the above mentioned items of work are entirely incidental to the construction work & shall not be paid separately unless otherwise specified in Tender Document.

30. The tenderer should visit the site and get himself acquainted thoroughly with the

site conditions before tendering especially the constraints, hindrances, hurdles encumbrances etc. & quote their rates accordingly. A suitable extension, if required, on account of delay in handing over site or locations for stacking etc. shall be granted based on the actual need/ working condition and progress at site.

31. Tenderers are advised to examine approachability, availability of roads, water, electricity etc. Also tenderer should study the location, site conditions as on date before bidding, as well as, local conditions including labour availability etc. which are likely to be encountered while work is to be carried out. However the contractor/s may have to make service/approach roads wherever required even through the private land, at their own cost and consequences. The element of making the service road with prior permission of land owner is deemed to have been considered and accounted for while quoting the rates & no extra compensation or claim, whatsoever, will be payable to the contractor on this account.
32. The contractor will have to pay for water supply if any given from Railway's any source at a rate of one percent on the amount of all cement involving items of work appearing in the bills payable to the contractor in respect of which such water has been used by the contractor and such charges shall be deducted from sums due or payable by the Railway to the contractor from time to time. Connections to labour camps will not be permitted.
33. The work shall be done in the full safety measures as per special condition of contract and list of safety instructions.
34. The excavated surplus/released material shall not be dumped on the road. It shall be transported away immediately for which payment will be arranged under appropriate item.
35. Contractor has to provide all necessary signage, boards etc. for road traffic diversion, safety precaution, work in progress etc if required. Being incidental to work, no extra payment for the same will be made. Contractor has to take all necessary precautions for the safety of the road traffic also.
36. While doing the work, if any obstruction is met with, or encountered such as water pipeline, sewerage, gas pipeline, electrical cable, telephone cable or any other structure which is to be cleared, it will be removed by the Railway at their own cost or the Tenderer/Contractor will be asked to remove the obstruction for which necessary payment shall be made to the Contractor. The spoil earth and excavated muck, which is not found usable, shall be led& carried away from the railway's area, for which payment will be made under the relevant item of tender schedule.
37. In the similar area, some other works may be in progress, Contractor has to coordinate with those agencies for executing the work smoothly, without disturbing the work of other agencies. Contractor has to follow all environment pollution norms strictly and also to note that it may not be possible to work in night hours due to noise pollution.
38. All IRS/IS/IRC codes required for the work shall be kept at site, and shall be always available for Railway officials during complete time period from start of work till

completion. Copies published by Indian Railways and not available to outsiders shall be arranged by Railways. Copies of IS codes and other codes available in Market shall however be purchased by contractor for keeping at site. In case of failure, Railway's may purchase the same and recover charges from the contractor/s.

39. The contractor shall make his own arrangements for electricity for the operation of mechanical equipment's required for the execution of work and / or for the purpose of lighting for working during, day/ night time. Wherever , it is convenient to the Railway Administration , the electric supply may be made available to the contractor provided the contractor shall arrange at his own cost/expense to effect and install the connection and lay additional wiring , provide meter and other accessories on the site. Such work of laying wiring etc, shall be done under complete supervision of qualified staff and a certificate shall be required to be submitted to the effect that the work of wiring has been done as per rules or the work shall have to be got done through Railway Organization and the charges for the same shall have to be borne by the contractor as per extant rules.
40. The Contractor shall not be entitled to any compensation for interruption or failure of the electric supply. The contractor will have to pay for such electric supply from Railway at rate decided by Railway Administration and such charge shall be directly deposited by contractor to the concerned Railway department. In addition, contractor will have to deposit security deposit as prescribed by Electrical department for electrical connection. In case of non deposition of amount by the contractor, the same will be deducted from bills OR sums due or payable by the Railway to the contractor from to time.
41. One semiskilled & Two Unskilled labours shall be arranged by the contractors immediately after acceptance letter is received by the contractor and shall continue to remain till completion of work for carrying out necessary day to day works like layout marking, assisting in measurement handling of various survey instruments records, register etc. The semiskilled staff should be well conversant with computer working in AUTO CAD, MS WORD, MS EXCEL, etc, for day to day site office working. No payment for this will be made. Failure to comply this will invite necessary recovery. The decision on rates of recovery as worked out & approved by Engineer in charge will be final and binding on the contractor.
42. It is expected that contractor will deploy fully trained / skilled manpower during execution of work and for finishing items. Paint of the quality of work or jointing detailing is poor, 10% of the cost of item will be withheld unless the defects pointed out by site in-charge are duly rectified.
43. Contractor has to employ his own watchmen to safeguard the materials and maintain day to day statement showing consumption, balance and up-to-date quantity of cement ballast & P.Way material including fittings & fixtures etc.
44. The construction work has to be done as per the Railway's approved design drawing only approval of Engineer –in- charge.
45. Contractor will have to carry out the work in day time only. Night working will only

be permitted if warranted for or required with the permission of concerned officer in charge of premises.

46. Safety guidelines to be followed during execution of work. All Regulation of Control by the State and Local Government and Accident Insurance in respect of labour employed shall be fully followed by the Contractor/s.
47. No claim whatsoever, will be entertained by the Railway on account of any delay or hold up of the works arising out of, by or in consequence of delay in approval of drawings, plans changes, modification, alterations, additions, omission & the site layout plans of details drawings and design and or late supply of such material as are required to be arranged or supplied by the Railway or due to any other factors whatsoever, on Railway Accounts.
48. No claim for idle labour and or idle machinery etc. on any account whatsoever will be entertained. Similarly, no claim shall also be entertained for business loss or any such loss even if preferred or raised by the contractors.
49. Photographs, site record & video film of work during execution of work: The contractor shall maintain adequate records with photography (both digital & hard copy) and videography of important activities during the execution of entire work. For this purpose contractor shall arrange Digital Camera of 14.1 Mega Pixel and video camera of professional quality and maintain the same with all accessories including operator from commencement till completion of work at his own cost.
50. Contractor should bring within one month of issue of acceptance letter, at least one no. DELL Inspiron 580 Desktop computer with Intel® Core™ i5-750 processor (2.66 GHz, 1333 MHz FSB, 8 MB Cache) or similar equivalent with Genuine Windows® 7 Home Basic with MS Office Home & Business 2010 with 21.5" full HD monitor, 4 GB DDR3 SDRAM, 640GB SATA Hard Disk with Dell Care maintenance and MACAFE Antivirus security software (15 months), along with One A-3 size printer Office jet 6500 All-in-one (HP), preloaded with all essential. Software's for monitoring day to day progress & quantity calculation / Bills etc. during the progress of work. No extra payment will be made to contractor on this account, contractors should take in to a/c this aspect while quoting rate in Tender. The above computer shall be provided with licensed Software of AutoCAD, Antivirus, MS Office Professional, of latest version available in market along with separate software for Calculation of Earthwork as approved by Engineer. Contractors shall also be responsible for ensuring the working conditions of PC and Printer & shall arrange required repairs (AMC) and spares including consumables like cartridges for printers & stationery including CDs and Pen-drives etc. till completion of work including extended completion period, if any. This can be taken away by the Contractors after completion of work.
51. It may also be borne in mind that High Tension / Low tension Electrical wires are running across at the site. The contractors will have to take all precaution while doing the excavation and construction activities.
52. Also, other underground electrical cables & pipe line of other / Govt. are running across the alignment. The contractors are advised to detect them well in advance

before starting the excavation/ Track work including excavation (E/work) involved (if any) and advise them to remove the same from the railway boundary at their own expenses / cost. No extra cost or compensation shall be paid or considered by Rlys. nor same will be quoted as reason for extension to time limit / completion if any.

53. **Completion drawings:** The contractor has to submit completion drawings of the work. The drawings shall be submitted on reproducible tracing films of 75 micron double matt type of approved quality available in the market of min. size 594x841 mm indicating all the details of completed earthwork along with notes of general and technical nature on the drawings. These tracing shall be got approved from the Railway and the drawing shall be treated as complete only after the approval by the Railway. In addition to the completion plans the contractor shall also submit the drawing stored on CD-ROM (two CD-ROMs) in AutoCAD. They shall also require to provide 6 (six) sets of the ammonia copies /prints of these drawings. The rates quoted by the tenderer for various item includes the rate for submission of drawings for completion plan of and nothing extra will be paid for this work. However, if contractor fails to submit the completion drawings, recovery at the rate of Rs.10,000/- per drawing shall be made from the contractor's bills or any other dues payable by Railway
54. In the event of any difference of opinion in regard to any item of work not explicitly covered by specifications or codes or in regard to the Interpretation of specifications including codes, the directions and decisions of the Chief Engineer (Construction) in charge shall be final conclusive and binding on the successful tenderer. All such changes, modifications to designs and decisions shall not be entitled for any claim or compensation for payment. No plea of customs or usage shall be entertained. The tenderer should note that there may be changes after approval of drawings plans etc. as per site conditions, which they are bound to carry out and comply with. There may be changes, modifications in the drawings even during the construction stage or before completion of the work and the successful tenderer shall not be entitled for any claim or compensation on this account and shall be bound to carry out all these changes, modifications without additional liability as covered in revised drawings plan as may be required to suit the completion of the work.

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**ADDITIONAL SPECIAL CONDITION OF CONTRACT – PART-I (C)**

**a) Issue and accountal of new/released material**

1. The Railway's material will be issued on specific requisition of the contractor and as per requirements consistent with progress of work from the railway's depots or at any other specified location as per direction of Engineer -in-charge at site.
2. The contractor will be responsible for safe custody of all the track fittings and materials handed over to him for linking of track and any losses due to breakages, thefts or misuse will have to be made good by the contractor before the track is handed over by the contractor to the railway.
3. Track materials issued by the Railway shall be used solely and economically for the purpose of the work covered by this contract only. The materials shall be used in such quantities and proportions as specified in the terms of work & as are indicated in the Schedule & in the relevant specification of drawings as approved by the Engineer whose decision thereon shall be final and binding on the contractor. Wastage of or damage to such materials in any manner shall be totally avoided.
4. Any materials left over as surplus or as scrap out of the material supplied by the railways free of cost, shall be returned to the Railways at railway's depots or other godowns anywhere as directed by engineer -in-charge at site. Materials shall be returned in good sound and whole condition.
5. The safe custody of all types of P.Way materials released and surplus will be the responsibility of the contractor till the same are returned and handed over to the nominated Railways depots. The recovery will be made from the contractor for loss of Railways materials by his workmen as per the extent rules.
6. Contractor will be responsible for collecting released material if any and transporting it to Railway stores depot and stacking as directed by Engineer in charge.
7. In case it is noticed that on completion or termination of the work, the consumption of the material has been found in excess of the quantities laid down and the contractor is unable to account fully for the material issued either due to neglect in the safe custody or for any other reasons whatsoever, the cost of such quantity of the material will be recovered from the contractors at twice the prevailing procurement cost, at the time of last issue i.e. 2 times purchase price plus 5% freight charges.
8. In case some of the newly placed fittings are found to be damaged, broken, it shall be replaced by contractor free of cost.
9. Any loss due to possible theft or any other account will be contractor's responsibility for which no payment will be made by the Railways and final payment will be made as per fittings used and counted in the completed track.
10. Security of Track fittings when fixed in track or at his depot will be contractor's responsibility.
11. All released materials, till they are disposed off to depots will remain with contractor and the contractor will be responsible for safeguarding the same. Any loss will be recovered at double of prevailing rates plus codal charges as decided by Railway.
12. The materials like small fittings etc. form site depot to actual place of work will have to be transported by the contractor at his own cost. No claim will be entrained on account of crossing of the track if any and the rate quoted should be inclusive of all lead and handling and also cover all precautions to lift and stack properly as are considered necessary during the course of execution.

**(b) Spreading out stone ballast from stack.**

1. Ballast will be carried from ballast stacks along the alignment and will be spread evenly wherever required as directed by Railway Engineer.
2. The ballast from the stack should be removed right up to the bottom of the stack till stacking ground becomes visible.
3. As far as possible, the stack once broken should be completely run out unless instructed otherwise by the Inspector Supervisor at site.
4. Railway will provide ballast in stacks on or near the formation however, in case there is less ballast central drain will have to be made and ballast so collected will be utilised for series of packing. In case of single line, excess ballast in the central portion to be utilized for the packing and maintaining the track parameter. Rate shall include this aspect.
5. For leading out ballast, the measurements of Railways stacks already done will be adhered to for the sake of payments
6. The ballast cushion to be provided shall be 350 mm.

**(b) Laying and linking of track**

1. The work will involve Laying and fixing predrilled and pre-cut rails on previously laid sleepers, fixing fish plates and fish bolts and other rail and rail-sleeper fastenings such as clamps as per Railway's drawing and / or as per extant instructions, fixing keys/ clips and other rail and rail-sleeper fastenings to obtain gauge as per Railway's drawing and / or as per extant instructions, fixing grooved rubber pads liners and elastic rail clips as per standard drawing and as per extant instructions.
2. Rates shall be inclusive of the following items of work of assembling of track:
  - a) Incidental loading, unloading of stone ballast by head load or by any other means such as trucks, dumpers Contractor's dip lorry etc.
  - b) Incidental loading, unloading and stacking at site all Railways materials/released material during transportation of the same.
  - c) Straightening the rails/rail panels by JIM-Crowing or by mechanical Hydraulic rail benders before linking them in the track.
  - d) Incidental hauling of rails, and MBC sleepers to bring on exact location while laying and linking of track.
  - e) Making up standard ballast profile after initial packing.
  - f) Standard gap has to be maintained on the rails joints.
3. Removing shrubs, weeds, grass and all other unwanted materials from formation and dressing and leveling before the laying of track.
4. The center line and levels will be given for the alignment of track by the Railway, which should be maintained by the contractor and adhered to while laying the track.
5. The above item of the work envisages laying and linking of sleepers and rails of section as specified in the schedule and fixing rail and rail-sleeper fastenings and fittings etc. Including all leads, lifts / descents etc, unless otherwise mentioned in the respective items, and all incidental works.
6. The measurements for payment shall be per running metre of track as stipulated in the item, measure to the nearest centimetre.
7. The work shall be carried out as per the Railway's standard drawings, project sheets, provisions contained in Indian Railway's Permanent Way Manual and the extant and other instructions.

8. Rail / Rail panels of equal length shall be used in pair for laying and fixing.
9. Rail joints shall be square to alignment, while on the curved alignment; cutting of inner rails shall be done at suitable intervals when lead of inner rail is equal to half pitch. (Cuts to be paid for separately).
10. The fish bolts shall be applied one coat of black oil as prescribed. Hammering of fish bolts is strictly prohibited. The fish bolts shall not be over tightened and shall be tightened with standard spanner / torque spanner. The inner two fish bolts should be tightened first.
11. The frozen (gapless) joints are required to be provided at specified locations such as at combination fishplates, joints behind CMS Crossings and SEJs with closure etc.
12. It shall be ensured that the handling of rail is as per extant instructions and shall not infringe the Railway's schedule of Dimensions.
13. Use of kinky rail should be avoided.
14. Marking on rails with punch or chisel is prohibited.
15. The driving of the keys / clamps shall be done with a standard keying Hammer / approved mechanical means.
16. The above keying / clamping operation shall be completed on the base rail first which shall be first aligned and fixed in position before the other rail is fixed to the gauge as stipulated.
17. The gauge shall be maintained as per para 403 of the Indian Railways Permanent Way Manual or as per extant instructions.
18. The contractor will have to straighten the rails by Jim crow or with hydraulic bender before putting them in track wherever necessary.
19. Oiling and greasing of fish plates before fastening the rails will have to be done with contractors tools and consumables like plumage, kerosene oil, black oil, brushes etc. For 100 nos. of single rails joints the requirement is approximately as under: No extra payment for this will be made. Rate of linking track should include this work.

Plumago - 11 lbs/5Kgs.

Kerosene oil - 7-1/2 lbs/3.40 Kg.

Black oil - 6 lbs/2.72 Kg.

20. No extra payment shall be made either for testing or rectification of defects. Engine shall be provided by Railway without hire charges for testing of track.
21. All lead will mean lead up to one Km. on either side unless otherwise specified in the description of non-scheduled items.
22. Contractor should quote his rates inclusive of all the works arising out of Special Conditions of Contract incidental, applicable to each non-scheduled item for which no separate payment is intended to be made to the contractor.
23. The hiring and position of crane for lifting of sleepers and rails is entirely the responsibility of contractor.
24. Contractor will have to give spacing for laying MBC sleepers on rails as per drawing supplied to them at the rate of 1660 / 1540 Nos. in a KM as directed at site by the engineer.
25. Contractor will be responsible for giving correct alignment in straight and in curve portion required as per proposal depending upon degree of curvature, until alignment is approved

by PWI-in-charge. It will be responsibility of contractor to rectify the defects till it is approved by Engineer -in-charge for this work no extra payment will be made.

26. Contractor shall arrange his own dip lorry or material lorry/dolly etc. for carrying of rails, fittings etc. over track wherever required as per the site conditions. Labour for protection of track, wherever required, is to be arranged by contractor under directives of Railways engineer at site.
27. The materials like small fittings from site depot to actual place of work will have to be transported by the contractor at his own cost. No claim will be entertained on account of crossing of the track if any and the rate quoted should be inclusive of all lead and handling and also cover all precautions to lift and stack properly as are considered necessary during the course of execution.
28. The consumable stores like graphite, oil, cotton waste, coal tar, paint, painting brushes etc. required for the work will have to be arranged by the contractor at his own cost required as per the current prevailing circulars.
29. 1<sup>st</sup> and 2<sup>nd</sup> through packing will be done in accordance with the relevant provisions of IRPWM to make the track fit for 20 KMPH and 45 KMPH respectively as stipulated in the items.
30. Contractor shall be permitted to construct temporary sheds for his labour/stores etc subject to condition that hygienic condition shall be maintained at all the level in the surrounding. The contractor at his own cost shall arrange water supply and electric connections. All this temporary sheds/stores so constructed shall be removed by the contractor and site cleared of all debris, leftover material etc. shall be handed over back to Railway otherwise Railway reserves the right to stop refund of security deposit and /or/ payment of final bill etc. In this matter decision of the Railway Authorities shall be final, conclusive and binding on the contractor.
31. After the work is over, the ballast section, cess and side drains will conform to ballast profile as laid down in manuals.
32. Squaring of sleepers-Gauge variations and kinks inevitably result from sleepers getting out of square.
33. The spacing of sleepers on the sighting rail should first be checked and correctly chalk-marked. Corresponding marks should then be made on the other rail using the square at every point.
34. Squaring should be done by planting the crowbars firmly against the sleeper and pushing it. Under no circumstances should sleepers be hammered. Sleepers that are squared should be re-gauged immediately, the fastenings tightened and repacked.
35. Contractors will have to apply Grease (Specification for Grease No.IS:480-I98I) to 'O'graphited on the central leg of ERC and eye of the MCI insert and then clip should be driven while linking and laying of track or in turnouts. No extra payment shall be allowed for the same.
36. Track geometry after laying the track shall conform to Track Geometry Standard during initial laying.

a Gauge )	Sleeper to sleeper variation	(+/-)	2 mm
b Expansion ) gap	Over average gap worked out by recording 22 successive gap	(+/-)	2 mm

c Joints )	i) Low joints not permitted		
	ii) High joints not more than	(+/-)	2 mm
	iii) Squareness of joints on straight	(+/-)	10 mm
d Spacing of ) sleepers	With respect to theoretical spacing	(+/-)	20 mm
e Cross level )	To be recorded on every 4 <sup>th</sup> sleeper	(+/-)	3 m
f Alignment )	On straight on 40 metre above	(+/-)	2 mm
	On curves of radius more than 300 mm on 20 metre variation over theoretical versions.		5 mm
	On curves of radius less than 500. on 20 metre variation over theoretical versions		10 mm
g Longitudinal ) level	Variation in longitudinal level with reference to approved longitudinal sections.		50 mm

37. **Slewing of track to correct alignment:** Slewing of track should be directed by the mate who on straights should sight the rail from a distance of 50 to 60 meters. On curves, the peg should be erected first and the slewing done. When Slewing, the crow bars should be planted well into the ballast at an angle not more than 30 degrees from the vertical otherwise lifting of track may occur.

38. **Gauging:** The basic requirement is uniform gauge over a continuous stretch so long as it is within the permissible limits of tightness or slackness. Gauging should only be done after ensuring that sleepers are truly square, Standard key hammers shall always be used, Beaters and heavier hammers should not be used, as this causes over driving of keys/ER Clips and strain M.I. inserts. The Track gauge should be held firm with one lug against the base rail and the other end being swiveled over the opposite rails. The tightest position obtained determines the correct point to test the gauge.

39. **Spacing of sleepers:** The spacing of sleepers on the sighting rail should first be checked and correctly chalk-marked. Corresponding marks should then be made on the other rail using the square at every point.

40. **Boxing of ballast section and tidying:**

- After completing the preceding operations in sequence, clean ballast should be dressed to the specified dimensions, template being used for the purpose, Hemp chords 6mm dia of a sufficient length should be used for lining the top and bottom edges of the ballast, if inadequate, full section of ballast should be provided near the rail seat, the deficiency being reflected along the centre of the track and not under the rails or in the shoulder.
- The cess should then be tidied up. Where earth ridging exists at the edge of the bank, this should be removed. Cess should be maintained to the correct depth below rail level according to the ballast section and formation profile.
- If track Geometry is not maintained and any mishap takes place on the track being maintained by contractor, due to track deficiency, contractor will be held responsible for the same and loss to Railway will be recovered from the contractor as deemed fit.

d. In switch portion contractor has to carryout all ancillary works for S&T requirement i.e. housing of tongue rail with stock rail, for adequate length, grinding of head of stud bolt, grinding of special chair etc. as directed by site Engineer. The payment of assembly can be made after completion of works for S&T requirement on producing written certificate from Site Engineer.

41. Contractor has to arrange the following equipment's as listed below for execution of work in entire construction period. However based on the progress and necessity of at site, Engineer- in- charge may revise to increase or decrease necessary equipment's as per site requirements.

1	Water tank for storage of water for construction & curing purpose 10,000 capacity (Minimum)	1 No
2	Concrete mixture with weigh batcher	1 No.
3	Automatic water measuring equipment	1 No.
4	One Generator with 3 phase Electric connection or 2 electric generators with sufficient capacity required for operation of various construction equipments.	2 Nos
5	Diesel water pumps	2 Nos
6	Electric motor operated water pumps	4 Nos.
7	Electric motor operated vibrators	As required
8	Diesel operated vibrators	3 Nos.
9	Vibrating Needles – 60mm dia	3 Nos.
10	Vibrating Needles – 40mm dia	5 Nos.
11	Form vibrators	As required
12	Electric motor operated mixer	- do -
13	Concrete cube moulds 15x15x15 cms size ISI mark	- do -
14	Permeability Test apparatus with moulds	- do -
15	Slump test apparatus	- do -
16	Lift for transporting / Lifting of material	- do -
17	Electronic Balance of 5 kg capacity with least count of 0.1 gm. and a physical Balance of 20 kg capacity.	2 Nos.

18	Platform balance 300 kg capacity	1 Number
19	Set of IS sieves with lid and pan for sieve analysis of materials:	2 set
20	Water testing kit for chloride, sulphate and pH value	1 set
21	Thermo meter (Mercury in glass and digital)	2 Nos. Each
22	Kerosene or gas stove or electric hot plate	1 Number
23	Glassware's, spatulas, wire gauzes, steel scales, measuring tape, casseroles, enameled trays of assorted sizes, pestle-mortar, porcelain dishes, gunny bags, plastic bags, chemicals, digging tools like pickaxes, shovels etc.	As required
24	First aid box	1 set
25	Compression strength testing machine of 200 tonne capacity	1 Number at each work site in progress
26	Cube mould of size 15 cm x 15 cm x 15 cm	30 Numbers at each work site in progress
27	2 volt test apparatus for testing of CPCC / FBEC	1 Number
28	Measuring Jars & plates	As required
29	Electric Oven	1 Number
30	Alcometer. (Magnetic gauge)	1 Number
31	Dry Bulk Density Test apparatus (sand pouring cylinder, tray, can etc.) complete.	2 Set
32	Computer with licensed software as per following specification of HP/Compaq/Dell / Apple macbook pro or Lenovo make. <u>a)Computer</u> :- Processor Intel i5, RAM – 4 GB, HDD – 1 TB, 21" LED Monitor, DVD R/W with one A3 size colour inkjet printer	1 Numbers

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## **SECTION**

***“D”***

**Technical specifications**

**e-Tender Notice No.: DyCECDR-01-2026R**

**Name of Work:** “Balance work of Track work between Vidyavihar and Parel stations in connection with Mumbai CST-Kurla 5th & 6th lines Project.

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**TECHNICAL SPECIFICATIONS FOR TRACK WORKS****(A) General**

- 1 Railway Specifications for Materials & works shall be adopted. Some additional specifications are added herewith. Notwithstanding any provisions made in the C.R specifications, the provisions made in the technical specifications shall be binding. All provisions in Railways manuals such as Permanent way (IRPWM), LWR, Bridge etc. are binding on the contractor & all the provisions in these manuals shall be strictly followed.
- 2 These special conditions supplement the conditions of the tender and the contract and conditions incorporated in specifications for materials and works of the Central Railway corrected up to latest correction slip. When provision of these special conditions are at variance with the General Conditions of Contract and other documents mentioned above, then these special conditions will prevail.
- 3 Contractor must visit the site before quoting rates for the work. He should get acquainted with the approaches, existing site conditions, vicinity of track, vicinity of hutment, availability of labours & other obligatory structures etc. & quote the rate accordingly.
- 4 In the absence of any specification for any work on material the relevant Indian standard specification would be applicable and where no Indian standard specification exists, relevant international specification or the specification given by Railway would be followed. Decision of Railway in this regard would be final and binding on the contractor.
- 5 Setting Out: The Contractor shall establish working Bench Marks tied with the Reference Bench Mark in the area soon after taking possession of the site. The working Bench Marks, alignment / levels pegs should be got approved from the Engineer.
- 6 All dimensions and levels shown on the drawings or mentioned in documents forming part of or issued under the Contract shall be verified by the Contractor on the site and he shall immediately inform the Engineer of any apparent errors or discrepancies in such dimensions or levels.
- 7 The Railway administration reserves the right to operate fully or partly up to any extent or delete any items of this tender schedule as required as per site condition and the contractor will have no right to claim on this account.
- 8 Contractor has to make his own arrangement of water and electricity etc. and Railways will entertain no claim on this account.
- 9 The Railway will not provide any new service roads for movement of contractor's vehicles. However, the contractor free of charges can use existing service roads within Railways premises.
- 10 Contractors have to make approach road/service road wherever required even through the private lands. The element of service road with prior permission of land owner is deemed to have been considered while quoting the rate and no extra, what-so-ever, will be paid to the contractor against the

**Tenderers****DyCECDR**

premium / compensation paid by them, if any, to the land owners on this account. The Railway however, reserves the rights to make use of these roads formed and maintained by the contractor as and when necessary, without any payment to the contractor. The Railways will entertain no claim on this account.

- 11 The contractor will arrange his own tools and plants, crane, other equipments, consumable etc. required for doing the work.
- 12 The contractor will be held responsible for any loss or damage or injury caused during the course of work to the labours or to the Railway/ Public Private person due to his negligence. The contractor shall bear all the consequence losses and expenditure thus involved on that account.
- 13 The work should be carried out without any interference to normal working of the Railway track and the structures. The Railway reserves the right to have the damages made good by the contractor. The contractor, if necessary, shall provide barricades as required while working near the existing running lines. The decision of Engineer-in-charge will be final and binding on the contractor in this regard.
- 14 The contractor must ensure the safety of labourer engaged by him while crossing the track during the course of execution of work. The Railway will not be responsible for any injury sustained by labourers. Any claim for compensation what so ever arising out of such accident shall be paid by the contractor including any fatal accident.
- 15 Contractors shall have to keep ready necessary first aid facilities etc. available all along while working in the day or night for labours while working.
- 16 All safety precautions for running of trains in section are to be followed. Contractors will provide lookout men with the flags/H.S. Lamps during block periods and during normal working period also.
- 17 Tenderers are required to submit a Bar chart along with the tender documents duly indicating the programme for completion of work within prescribed completion period showing activities & resource deployment.
- 18 The rates of all the items are inclusive of sales tax, royalty fees, octroi duty, as payable under the sales Tax Act or local bodies Act. The Railways will not pay to the contractor any of these taxes and the contractor will not be compensated for any amount paid by him by way of such taxes or duties.
- 19 The Railways will not undertake to supply tools and equipment's to the contractors. However, under compelling circumstances the tools and equipment can be given on hire basis if available / spare-able with/by the Railways. Railways shall decide hire charges for each tool.
- 20 During the execution of work, the contractor will have to co-ordinate with other contractors working in the section of civil as well as other departments i.e., electrical and S&T. The site order book and progress report register will be maintained at site. The representative of Railways and contractor will sign them.
- 21 Relevant provisions of Codes, I.R. P.Way manual, LWR manual, AT welding specifications etc. shall be observed strictly by the contractor at all times as per the directives of the Railways Site Engineer.
- 22 In addition, in case there is any current standard circular of Railway Board/RDSO or

Chief Engineer to be followed for any track standard, the same could be enforced to be followed under directives of the Railways Engineer -in-charge of the above work.

- 23 Wherever lead or lift is not mentioned it should be clearly understood that it means "All lead and all lifts" for which no extra payment shall be made.
- 24 Contractor will have to provide labour for taking measurements of work done or during course of work whenever necessary with all equipments needed such as Gauge level, tapes etc. as approved by the Railway no extra payment will be made for the same.
- 25 If any tools i.e., Bar straightening, wire claw, pick beaters, screening baskets etc. if available will be given to contractor, then hire charges will be paid by contractor at the rate decided by Railway.
- 26 Contractors will have to apply Grease (Specification for Grease No.IS: 480-1981) to 'O' graphite on the central leg of ERC and eye of the MCI insert and then clip should be driven while linking & laying of track or in turnouts.
- 27 All details of handing and taking over sections for different stages of packing, imposition and removal of speed restrictions, measurement of track parameters, accountal of released material etc., should be recorded.
- 28 Wherever the unit per meter has been used it means per running meter of tracks as a whole consisting of operation on both the rails. It shall not mean that separate payment for left and right rail will be given unless otherwise specified.

**(B) Transportation of Track materials**

1. For sleepers to be transported from sleeper factory, the loading will be done by Concrete Sleeper factory free of cost.
2. Unloading will be done at the site with the help of the crane by the Contractors trained/skilled staff and the sleepers/ rails shall be stacked in proper sequenced batches, thus avoiding the possibility of mixing up. The unloading shall be done near the track to the extent approachable road exists and stacked as directed by the Site Engineer
3. Railway will not be responsible for any damage or accident to the vehicles as well as any labour working on the vehicle during the contract.
4. The concrete sleeper should be handled carefully during transportation, unloading and stacking. The contractor will be held responsible for any damage or loss to the concrete sleeper during transit or unloading.
5. The contractor will arrange transit Insurance for the sleepers being transported.
6. Payment for the transportation charges will be arranged only after the receipt of the materials by the consignee and not on proof of dispatch.
7. All incidental charges like Octroi, Road tax, entry tax, etc. will be borne by the contractor.
8. Fittings will, generally, be supplied from the Railway Depot. However, it may be required to transport the material from other locations also.
9. All the materials shall be kept clear of infringement during loading, unloading and

handling

10. Weigh-bridge charges, if any are to be paid by the Contractor.
11. Rate of transportation includes making up of temporary approach roads to the locations / Points of unloading and stacking of sleepers / rails in the section at the location as directed by Engineer-in-Charge.
12. Excess material unloaded in section shall have to be re-transported and stacked to correct locations by the contractor at his own cost as per instruction of Engineer-in-Charge.
13. All efforts will be made by Railways to supply required number of sleepers / Railway within stipulated completion period. However, if due to unforeseen reasons beyond the control of manufacture, supply is delayed, the contractor shall be granted suitable extension. However, no claim or compensation on this account will be entertained.
14. Railway's materials in charge of contractor may be subjected to check by the Railway officials at any time and the contractor shall give all facilities for inspection / counting of the materials.
15. After unloading of the Rails, the same should be stacked as per para 254 of Indian Railway P. Way Manual 2004 and as directed by Engineer-in-Charge whose decision in this regard will be final and binding on the contractor and only then the item will be considered as completed.
16. Measurement: -  
 For sleepers of any kind, transported from a sleeper factory, the weight given by the factory will be taken.  
 For transportation of released / second hand sleepers, actual weighment will be done initially to arrive at the unit weight per sleeper and subsequently the payment will be done on unit weight thus arrived.  
 For transportation of loose fittings, miscellaneous items, mixed items, the payment will be done on actual weighment.

For transportation / hauling of released / second hand rails, wherever feasible actual weighment will be done, otherwise 5% deduction will be made for wear and tear from the nominal sectional weight.

**(C) Issue and accountal of new/released material**

1. The Railway's material will be issued on specific requisition of the contractor and as per requirements consistent with progress of work from the railway's depots or at any other specified location as per direction of Engineer -in-charge at site.
2. The contractor will be responsible for safe custody of all the track fittings and materials handed over to him for linking of track and any losses due to breakages, thefts or misuse will have to be made good by the contractor before the track is handed over by the contractor to the railway.
3. Track materials issued by the Railway shall be used solely and economically for the purpose of the work covered by this contract only. The materials shall be used in such quantities and proportions as specified in the terms of work & as are indicated in the Schedule & in the relevant specification of drawings as approved by the Engineer whose decision thereon shall be final. Wastage of or damage to such materials in any manner shall be totally avoided
4. Any materials left over as surplus or as scrap out of the material supplied by the railways free of cost, shall be returned to the Railways at railway's depots or other go downs anywhere as directed by engineer -in-charge at site. Materials shall be returned in good and whole condition.
5. The safe custody of all types of P. Way materials released and surplus will be the

responsibility of the contractor till the same are returned and handed over to the nominated Railways depots. The recovery will be made from the contractor for loss of Railways materials by his workmen as per extent rules.

6. Contractor will be responsible for collecting released material if any and transporting it to Railway stores depot and stacking as directed by Engineer in charge.
7. In case it is noticed that on completion or termination of the work, the consumption of the material has been found in excess of the quantities laid down and the contractor is unable to account fully for the material issued either due to neglect in the safe custody or for any other reasons the cost of such quantity of the material will be recovered from the contractors at twice the prevailing procurement cost, at the time of last issue i.e. 2 times purchase price plus 5% freight charges.
8. In case some of the newly placed fittings are found to be damaged, broken, it shall be replaced by contractor free of cost.
9. Any loss due to possible theft or any other account will be contractor's responsibility for which no payment will be made by the Railways and final payment will be made as per fittings used and counted in the completed track.
10. Security of Track fittings when fixed in track or at his depot will be contractor's responsibility.
11. All released materials, till they are disposed off to depots will remain with contractor and will be responsible for safeguarding the same. Any loss will be recovered at double of prevailing rates as decided by Railway.
12. The materials like small fittings etc. from site depot to actual place of work will have to be transported by the contractor at his own cost. No claim will be entrained on account of crossing of the track if any and the rate quoted should be inclusive of all lead and handling and also cover all precautions to lift and stack properly as are considered necessary during the course of execution.

**(D) Spreading out stone ballast from stack**

1. Ballast will be carried from ballast stacks along the alignment and will be spread evenly wherever required as directed by Railway Engineer. Initially carpet layer of 10-15 cm as directed by Railways Engineer shall be laid on prepared formation which will be rolled by roller & then after linking of track, balance ballasting is to be done to achieve the desired ballast profile given by IRPWM.
2. The ballast from the stack should be removed right up to the bottom of the stack till stacking ground becomes visible. Care shall be taken to see that ground soil is not mixed in ballast while loading by JCB from stack bottom.
3. As far as possible, the stack once broken should be completely run out unless instructed otherwise by the Railway's Site Engineer.
4. For leading out ballast, the measurements of Railways stacks already recorded for ballast supply work will be considered for payments & no claim on this account will be admissible.

**(E) Laying and linking of track**

1. The work will involve Laying and fixing New rails/predrilled and pre-cut rails on previously laid sleepers at specified spacing, fixing fish plates and fish bolts and other rail and rail-sleeper fastenings such as clamps as per Railway's drawing and / or as per extant instructions or keeping provision for flash butt welding, fixing keys/ clips and other rail and rail-sleeper fastenings to obtain gauge as per Railway's drawing and / or as per extant instructions, fixing grooved rubber pads, liners and elastic rail clips as per standard drawing and as per extant instructions.
2. Rates shall be inclusive of the following items of work of assembling of track:
  - a) Incidental loading, unloading and stacking at site all Railways

- materials/released material during transportation of the same.
- b) Straightening the rails / rail panels by JIM-Crowing or by mechanical Hydraulic rail benders before linking them in the track.
  - c) Incidental hauling of rails, and MBC sleepers to bring on exact location while laying and linking of track.
  - d) Making up standard ballast profile after initial packing.
  - e) Standard gap has to be maintained on the rails joints.
  - f) Dressing and leveling of top of formation before the laying of track.
3. The center line and levels will be taken for the alignment of track by Contractor's Engineer using his own theodolite/level which will be checked by Railway's Engineer & confirmed for carrying out work. These shall be maintained & further adhered while laying of track.
  4. The above item of the work envisages laying and linking of sleepers and rails of section as specified in the schedule and fixing rail and rail-sleeper fastenings and fittings etc. Including all leads, lifts / descents etc, unless otherwise mentioned in the respective items, and all incidental works.
  5. The measurements for payment shall be per running meter of track as stipulated in the item, measure to the nearest centimeter.
  6. The work shall be carried out as per the Railway's standard drawings, project sheets, provisions contained in Indian Railway's Permanent Way Manual and the extant instructions.
  7. Rail / Rail panels of equal length shall be used in pair for laying and fixing.
  8. Rail joints shall be square to alignment, while on the curved alignment; cutting of inner rails shall be done at suitable intervals when lead of inner rail is equal to half pitch. (Cuts to be paid for separately).
  9. The fish bolts shall be applied one coat of black oil as prescribed. Hammering of fish bolts is prohibited. The fish bolts shall not be over tightened and shall be tightened with standard spanner / torque spanner. The inner two fish bolts should be tightened first.
  10. The frozen (gapless) joints are required to be provided at specified locations such as at combination fishplates, joints behind CMS Crossings and SEJs with closure etc.
  11. It shall be ensured that the handling of rail is as per extant instructions and shall not infringe the Railway's schedule of Dimensions.
  12. Use of kinky rail should be avoided.
  13. Marking on rails with punch or chisel is prohibited.
  14. The above keying / clamping operation shall be completed on the base rail first

- which shall be first aligned and fixed in position before the other rail is fixed to the gauge as stipulated.
15. The gauge shall be maintained as per para 403 of the Indian Railways Permanent Way Manual or as per extant instructions.
  16. The contractor will have to straighten the rails by Jim crow or with hydraulic bender before putting them in track wherever necessary.
  17. Oiling and greasing of fish plates before fastening the rails will have to be done with contractors' tools and consumables like plumage, kerosene oil, black oil, brushes etc. For  
100 nos. of single rails joints the requirement is approximately as under. No extra payment for this will be made. Rate of linking track should include this work.  

Plumago	-	11 lbs/5Kgs.
Kerosene oil	-	7-1/2 lbs/3.40 Kg.
Black oil	-	6 lbs/2.72 Kg.
  18. No extra payment shall be made either for testing or rectification of defects. Engine shall be provided by Railway without hire charges for testing of track.
  19. All lead will mean lead up to one Km. on either side unless otherwise specified in the description of non-scheduled items.
  20. Contractor should quote his rates inclusive of all the works arising out of Special Conditions of Contract incidental, applicable to each non-scheduled item for which no separate payment is intended to be made to the contractor.
  21. The hiring and position of crane for lifting of sleepers and rails is entirely the responsibility of contractor.
  22. Contractor will have to give spacing for laying MBC sleepers on rails as per drawing supplied to them at the rate of 1660/1540 Nos. in a KM, as directed at site by the engineer.
  23. Contractor will be responsible for giving correct alignment in straight and in curve portion required as per proposal depending upon degree of curvature, until alignment is approved by PWI-in-charge as per IRPWM para no .....It will be responsibility of contractor to rectify the defects till it is approved by Engineer -in-charge for this work no extra payment will be made.
  24. Contractor shall arrange his own dip lorry or material lorry/dolly etc. for carrying of rails, fittings etc. over track wherever required as per site conditions. Labour for protection of track, wherever required, is to be arranged by contractor under directives of Railways engineer at site.
  25. The materials like small fittings from site depot to actual place of work will have to be transported by the contractor at his own cost. No claim will be entertained on account of crossing of the track if any and the rate quoted should be inclusive of all lead and handling and also cover all precautions to lift and stack properly as are considered necessary during the course of execution.
  26. The consumable stores like graphite, oil, cotton waste, coal tar, paint, painting

brushes etc. required for the work will have to be arranged by the contractor at his own cost required as per the current prevailing circulars.

27. 1st and 2nd through packing will be done in accordance with the relevant provisions of IRPWM to make the track fit for 20 KMPH and 45 KMPH respectively as stipulated in the items.
28. Contractor shall be permitted to construct temporary sheds for his labour/stores etc subject to condition that hygienic condition shall be maintained at all the level in the surrounding. The contractor at his own cost shall arrange water supply and electric connections. All this temporary sheds/stores so constructed shall be removed by the contractor and site cleared of all debris, leftover material etc. shall be handed over back to Railway otherwise Railway reserves the right to stop refund of security deposit and /or/ payment of final bill etc. In this matter decision of the Railway Authorities shall be final and binding on the contractor.
29. After the work is over, the ballast section, cess and side drains will conform to ballast profile as laid down in manuals.
30. Squaring of sleepers-Gauge variations and kinks inevitably result from sleepers getting out of square. Squaring of sleepers shall be ensured as per IRPWM para no .....
31. The spacing of sleepers on the sighting rail should first be checked and correctly chalk- marked. Corresponding marks should then be made on the other rail using the square at every point (as per IRPWM para no ).
32. Squaring should be done by planting the crowbars firmly against the sleeper and pushing it. Under no circumstances should sleepers be hammered. Sleepers that are squared should be re-gauged immediately, the fastenings tightened and repacked.
33. Contractors will have to apply Grease (Specification for Grease No.IS:480-I98I) to 'O' graphited on the central leg of ERC and eye of the MCI insert and then clip should be driven while linking and laying of track or in turnouts. No extra payment shall be allowed for the same.
34. Track geometry after laying the track shall conform to Track Geometry Standard.

a.	Gauge	Sleeper to sleeper variation	(+/-)	2 mm
b.	Expansion gap	Over average gap worked out by recording 22 successive gap	(+/-)	2 mm
c.	Joints	i) Low joints not permitted		
		ii) High joints not more than	(+/-)	2 mm
		iii) Square-ness of joints on straight	(+/-)	10 mm
d.	Spacing of sleepers	With respect to theoretical spacing	(+/-)	20 mm
e.	Cross level	To be recorded on every 4th sleeper	(+/-)	3 mm
f.	Alignment	On straight on 40 meter above	(+/-)	2 mm
		On curves of radius more than 300m on 20 meter variation over theoretical versions.		5 mm
		On curves of radius less than 500m on 20 Meter variation over theoretical versions		10 mm

g.	Longitudinal level	Variation in longitudinal level with reference to approved longitudinal sections.		
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35. Slewing of track to correct alignment: - Slewing of track should be directed by the mate who on straights should sight the rail from a distance of 50 to 60 meters. On curves, the peg should be erected first and the slewing done. When slewing, the crow bars should be planted well into the ballast at an angle not more than 30 degrees from the vertical otherwise lifting of track may occur.
36. Gauging: - The basic requirement is uniform gauge over a continuous stretch so long as it is within the permissible limits of tightness or slackness. Gauging should only be done after ensuring that sleepers are truly square, Standard key hammers shall always be used, Beaters and heavier hammers should not be used, as this causes over driving of keys/ER Clips and strain M.I. inserts. The Track gauge should be held firm with one lug against the base rail and the other end being swiveled over the opposite rails. The tightest position obtained determines the correct point to test the gauge.
37. Spacing of sleepers: The spacing of sleepers on the sighting rail should first be checked and correctly chalk-marked. Corresponding marks should then be made on the other rail using the square at every point.
38. Boxing of ballast section and tidying:-
  - a. After completing the preceding operations in sequence, clean ballast should be dressed to the specified dimensions, template being used for the purpose, Hemp chords 6mm dia of a sufficient length should be used for lining the top and bottom edges of the ballast, if inadequate, full section of ballast should be provided near the rail seat, the deficiency being reflected along the centre of the track and not under the rails or in the shoulder.
  - b. The cess should then be tidied up. Where earth ridging exists at the edge of the bank, this should be removed. Cess should be maintained to the correct depth below rail level according to the ballast section and formation profile.
  - c. If track Geometry is not maintained and any mishap takes place on the track being maintained by contractor, due to track deficiency, contractor will be held responsible for the same & loss to Railway will be recovered from the contractor as deemed fit.
  - d. In switch portion contractor has to carryout all ancillary works for S&T requirement i.e., housing of tongue rail with stock rail, for adequate length, grinding of head of stud bolt, grinding of special chair etc. as directed by site Engineer. The payment of assembly can be made after completion of works for S&T requirement on producing written certificate from Site Engineer

**(F) Specification for cutting of rails**

1. The above item of work envisages cutting of rails on cess / running track as specified in the schedule at isolated locations / nominated Depots / Stacks complete with handling of rails and all incidental works.
2. The measurements for payment shall be for each complete cut at the specified points.

3. The work shall be carried out as per provisions in Permanent Way Manual.
4. The cut shall be made by Rail cutting machine (saw type) or by abrasive Rail cutter as specified in the contract.
5. The cut shall be made in a plane at right angle to the foot as well as the running edge of the rail. The burr, if any, shall be removed.
6. Flame / Gas cutting is forbidden use of Jim-crow to aid cutting is forbidden.
7. The contractor shall arrange for the rail cutting machine (saw type) and hacksaw blade and / or the abrasive rail cutter and abrasive disc which should be procured from the approved firm(s) for manufacture / supply of the same, a list of which is given in the Annexure. The rate includes cost of operation and maintenance of these machines.
8. For cutting of rails and drilling holes in rails, these shall be done through mechanical means only preferably petrol driven machines. For cutting of rail in block, use of abrasive rail cutter will be mandatory. The Contractor will be required to keep sufficient number of machines for such purposes in the section along with stand by, as no delay on account of non-availability of these machines will be acceptable.

**(G) Specification for drilling holes in rails**

9. The above item of work envisages drilling and chamfering of holes of prescribed diameter in rails on cess / running track as specified in schedule at isolated locations / nominated Depot / Stacks complete with handling of rails and all incidental works.
10. The measurements for payment shall be for each hole drilled including chamfering complete.
11. The work shall be carried out as per the Railway's standard drawings and / or as given in Indian Railways Permanent Way Manual.
12. The drilling shall be done by Rail drilling machine only. Punch or Reaming / Drifting shall not be permitted. After drilling the hole, the same shall be chamfered with chamfering tools to remove burrs and for work hardening the hole, on both sides of rail web. The use of flame / gas cutting equipment is forbidden.

**(H) Handling of rails and Protection of rail surface:-**

1. Surface notches of even less than 0.75mm depth are liable to cause rail fracture in service, therefore avoid impact abrasion of rails against separators in wagons and round link chains slings for securing the rails.
2. Use conventional slings for lifting rails made of flat link chains. Lifting of rails preferably with magnet lifting device.
3. These rails are thermally very sensitive and are likely to develop metallurgical defects, if exposed to localized heating which produces very hard and brittle material, therefore avoid heating, flame cutting on or adjacent to rails and contact with electric arcs and molten metal splashes, i.e., from loose cables or adjacent welding operations.
4. Do flame cutting when found essential after pre-heating, a minimum of 10 cm. of rail length on either side of the cutting about 250-350 degrees uniform movement of heating torch before starting cutting operations.
5. The rails can with stand normal degree of corrosion but localized corrosion in fitting may cause subsequent rail fractures therefore avoid contact with injurious substances, which produce high corrosion of steel, i.e., acids, alkalis, salts etc. Stack rails on a well-drained place over uniform supports of wooden battens.
6. The single point slinging increases risk of excessive bending and surface damage to the rails. The overhang beyond the outer lifting point should not be greater than one half the distance between lifting points therefore avoid single point slinging. Use two-point slinging for rail length up to 10 meter. Next four point slinging with 36 metre rails.
7. Railways will give recommended locations of lifting points for various rail lengths on demand by contractors. Suitably increase to number of lifting points when handling welded panel of longer length. Use of lifting beams fitted with slings is desirable.
8. Safety of personnel: Avoid standing under suspended loads. Use protective gloves

and clothing to minimize the risk of skin abrasion. Wear distinctive colored helmet and clothing for easy identification by crane and machinery drivers to avoid accident.

**(I) First and subsequent packing:**

1. Provision has been kept for two round of through packing for making the track fit for speed of 45 Kmph. Details of track parameters for which thorough packing is enclosed with the specifications of the tender and in Permanent Way Manual. The work should be carried out strictly as per the direction of the Engineer In-charge.
2. Through packing of newly laid plain track/ slewed track or Turnouts includes spacing, squaring, gauging, aligning on straight/ curved portion, bringing the track parameters within limits prescribed in IRPWM, boxing, dressing, ballast section as per standard profile with contractor's labour, tools and plants etc.
3. Before carrying out any through packing joint measurement of track parameters as mentioned in IRPWM will be jointly recorded by Railway's representative and contractor's representative. The parameters will be again jointly recorded after the completion of through packing the contractor.
4. Each round of through packing will be carried out as per Item No. 224 of IRPWM. The track parameters should be brought within the tolerances as per para No. 316 of IRPWM.

**(J) Assembly and laying of turnouts**

1. The turnouts should be assembled on uniform layer of stone ballast of specified thickness for which payment will be made under the item of running out of ballast.
2. The stock joint of the switch to be kept perfectly square.
3. All fittings and components as per standard drawing of turnouts are to be provided and they will be fully tightened. This item includes provision of switch and crossing gauge tie plates.
4. Rail closer for turnouts will be cut as per standard drawing for the turnouts on PSC sleepers.
5. Provision of stretcher bars and allied fixtures will have to be done in collaboration with S&T department.
6. Holes and cuts will be paid extra.
7. The Turnouts will be assembled as per RDSO Drg.No.T-4733 & 4734 for 1 in 12 (52 Kg), T-4866 and 4877 for 1 in 8½ (52 Kg), T-4219 and 4220 the standard drawings. For 1 in 12 (60 kg), T-4966 and 4967 for 1 in 8½ (60 Kg).
8. For making a machine joints, a drill of 27.5 mm or 28 mm will be used.
9. Tongue rail will have to be set flush with stock rails over tapered portion of tongue rail by jim-crowing and other adjustment like packing, lifting of adjoining switch and the length of stretcher bars etc.
10. Opening of 115 mm will be provided at both LH & RH sides of the toe of the switches.
11. The gap between the top of leading stretcher bar and bottom of stock rail should not be more than 1.5 mm on both LH and RH sides.
12. This item includes fixing of gauge tie plate on switch portion and may involve filing of butt plate, drilling of additional hole etc. for setting of switch.
13. This item will be carried out in collaboration with S&T department.
14. In switch portion contractor has to carryout all ancillary works for S&T requirement i.e., housing of tongue rail with stock rail, for adequate length, grinding of head of stud bolt, grinding of special chair etc. as directed by Site Engineer. This work should be finished during traffic block only. The payment of assembly can be made after completion of works of S&T requirement on producing written certificate from Site Engineer.

**(K) Track Tamping by Machines:-Pre-tamping attention:-**

To achieve good results the contractor should carryout the following preparatory work before taking up the tamping: -

- (a) Ballasting where there is shortage of ballast.
- (b) Heaping up of ballast in the tamping zone, to ensure effective packing.
- (c) Making up of low cess.
- (d) Cleaning of pumping joints and providing additional clean ballast, where necessary.
- (e) Attending to Hogged joints before tamping.
- (f) Tightening of all fittings and fastenings like fish bolts and keys, splitting of cotters, and replacement of worn out fittings.
- (g) Removing & replacing broken and damaged sleepers with good sleepers.
- (h) Squaring of sleepers and spacing adjustment; re-gauging to be done as necessary.
- (i) Adjusting creep and expansion gap in rails.
- (j) Examination of rails for cracks etc.
- (k) Realining of curves which are badly out of alignment.
- (l) Clearing of ballast on sleepers to make them visible to the operator.
- (m) All obstructions such as signal rods, cables, pipes, level crossing check rails, etc., likely to be damaged by the tampers should be clearly marked and made known to the tamping operator before he starts work. Tight overhead clearance should also be brought to his notice; the beginning and end of transitions should be marked. Super elevation should be marked on every second sleeper so that it can guide the operator for leveling up correctly.

Post Tamping Attention:-The contractor shall pay attention to the following points :-

- (a) As some of the rigid fastenings might get loose, tightening of fittings should be done immediately after tamping.
- (b) Any broken fitting should be replaced.
- (c) Proper quality check of work done by tamping machine is important. Immediately after the tamping work, the track should be checked, in respect of cross levels and alignment, and action taken as considered necessary.
- (d) The ballast should be dressed neatly and proper consolidation of ballast between the sleepers should be done.

\*\*\*\*

1. SPECIFICATION FOR LEADING / HAULING COLLECTIONS AND STACKING / SPREADING OF RAILS.

1. The above item of work envisages:-

- (i) Leading/Hauling/stacking rails from Railway's nominated depots/stacks/ locations and
- (ii) Stacking/spreading the rails or rail panels at the nominated Depots/ Stacks/ Location, as per Railway's requirements and/or as directed by the Engineer or his representative completed with all incidental works.

2. The nominated Locations for the purpose of this work shall have been inspected by the Contractor before submitting the Tender.

2. SPECIFICATION FOR LEADING/HAULING COLLECTIONS AND STACKING / SPREADING OF RAILS.

1. The above item of work envisages:-

- (i) Leading/Hauling/stacking rails from Railway's nominated depots/stacks/locations and
- (ii) Stacking/spreading the rails or rail panels at the nominated Depots/Stacks/ Location, as per Railway's requirements and/or as directed by the Engineer or his representative completed with all incidental works.

2. The nominated Locations for the purpose of this work shall have been inspected by the Contractor before submitting the Tender.

3. Without in any way restricting or modifying the provision of the General Conditions of the Contract in this regard, the rates for the above quoted work shall be inclusive of (except as specifically provided in the schedule of work) all costs of Contractor labour, Equipments, Consumables, Tools & Plants and Machinery etc. complete for the above.

4. The work shall be carried out strictly as per instructions laid down in Indian Railway's Permanent Way Manual and / or as per instructions of the Engineer or his Representative whose decision in this regard shall be final and conclusive.

5. In addition to the above, the work shall be conform to the following:-  
Carrying rail on the heads or shoulders is prohibited. For handling rails, sings, rail tongs, rail dollies etc. or other similar equipment shall only be used.

- (i) While stacking/spreading rails care shall be ensure that:

- (a) The rails are sorted rail-section wise and/or class wise.
- (b) The rails are stacked/ spread on level ground.
- (c) These rails are support and stacked in a manner directed by the Engineer or his Representative.

- (d) The rails are so spread a store stevenly along their entire length or on supports closely spaced with the flat-footed rails resting on the foot.

- (e) In case of spreading rails along side track, the rails will be paired as per the instructions of the Engineer-in-charge.

- (ii) While working in the vicinity of existing open line track it should be carried out only under the Supervision of the Railway's Engineer or his authorized representative and to ensure that Schedule of dimensions are not infringed with.

1. In addition to the above, the work shall conform to the following:
  - (i) While handling adequate care should be taken to avoid any physical damage to the sleepers. In case of damage to sleepers due to negligence of contractor, recoveries will be made from contractor's bills and Engineer's decision in this regard will be final.
  - (ii) While stacking sleepers care shall be taken to ensure that:-
    - a) The sleepers are sorted out separately as directed by the Engineer or his Representative.
    - b) The sleepers are stacked on reasonably level ground.
    - c) The sleepers are supported in a manner directed by the Engineer or his Representative.

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### 3. SPECIFICATION FOR REMOVING EXISTING RAILS/RAIL PANELS FROM TRACK.

- 1 The above item of the work envisages removing existing rails/rail panels from existing track at locations as per Railway's requirements and /or as directed by the Engineer or his Representative complete with removal of rail sleeper, fastenings, fish plate, bolts etc. and all incidental works.
2. The nominated locations for the purpose of this work shall have been inspected by the contractor before submitting the Tender.
3. Without in any way restricting or modifying the provisions of the General Conditions of contract in this regard, the rate for the above quoted work shall be inclusive of all costs of contractor's labour, materials, consumables, tools & plants and machinery etc. complete for the above.
4. The work shall be carried out strictly as per the Railway's standard drawings, instructions laid down in Indian Railway's Permanent Way Manual and the instructions of the Engineer or his Representative whose decision in this regard shall be final inconclusive.
5.
  - i. The work will involve removing fish plated and fish bolts, sleeper rail fastenings and removing the rail from the sleepers and placing it safe distance away from the track, as directed by the Engineer in charge.
  - ii. Theworkshallbecarriedoutonlyunderthesupervisionoftheengineerincharg eof his authorized representative under full traffic block.
  - iii. The rails removed from the track should be cleared from the existing track as directed by the engineer in charge and should not infringe the Railway schedule of dimensions.
  - iv. Fishplates, bolts, nuts and clips/keys etc. removed during the operation should stacked as directed by the engineer in charge. Payment for extra leads, if any, shall be made under the relevant items of the schedule.
  - v. For handling rails, slings, rail tongs, rail dollies etc. or other similar standard equipments should only be used.

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#### 4. SPECIFICATION FOR INSERTING RAILS/RAIL PANELS IN EXISTING TRACK

1. The above item of the work envisages inserting Railway's rails off section as specified in the schedule including providing and fixing Railway's rail and rail sleeper fastenings and fittings etc. complete on existing sleepers at locations as per Railway's requirements and/or as directed by the Engineer or his Representative complete including all incidental works.
2. The nominated locations for the purpose of this work shall have been inspected by the contractor before submitting the Tender.
3. Without in any way restricting or modifying the provisions of the General Conditions of Contract in this regard, the rate for the above quoted work shall be inclusive of all costs of Contractor's labour, materials, consumables, tools & plants and machinery etc. complete for the above.
4. The work shall be carried out strictly as per the Railway's standard drawings, instructions laid down in Indian Railway's Permanent Way Manual and the instructions of the Engineer or his Representatives whose decision in this regard shall be final and conclusive.
5. The work will involve: -
  - (i) Inserting predrilled and precut rails on previously laid sleeper as per railway's drawing and / or as directed by the Engineer-in-charge.
  - (ii) Rail / Rail panels of equal length shall be used in pairs for inserting and joints shall be square.
  - (iii) Rail joints shall be square to alignment, while on the curved alignment, cutting of inner rails shall be done at suitable intervals when lead of inner rail is equal to half pitch (Cuts to be paid for separately).
  - (iv) Fixing railway's fish plate and fish bolts and other rails and rail-sleeper fastenings as per railway's drawing and / or as directed by the engineer – in-charge. The fish bolts shall be applied one coat of black oil as specified by Engineer – in – charge. In case of LWR track, instead of provision of fish plated joints, contract shall arrange for requirements of SKV welding/FB welding joint provision as per directives of Engineer taking care of relevant specification applicable.
  - (v) Hammering of fish bolts is prohibited. The fish bolts should not be over tightened and the first two fish bolts to be tightened first. Baring of bolts as required by Railway will be done by the Contractor at no extra cost.

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## 5. SPECIFICATION FOR REMOVING SLEEPERS FROM EXISTING TRACK.

1. The above item of the work envisages removing sleepers from existing track at locations as per Railway's requirements and / or as directed by the Engineer or his Representative complete with removal of rail-sleeper fastenings etc. and all incidental works.
2. The nominated Depots / Stacks / Locations for the purpose of this work submitting the Tender.
3. Without in any way restricting or modifying the provisions of the General Conditions of Contract in this regard, the rate for the above quoted work shall be inclusive of all costs of Contractor's labour, materials, consumables, tools & plants and machinery etc. complete for the above.
4. The work shall be carried out strictly as per the Railway's standard drawings, instructions laid down in Indian Railway's Permanent way manual and the instructions of the Engineer or his Representative whose decision in this regard shall be final and conclusive.
5. The work shall be carried out only under the supervision of the Engineer – in – charge or his authorized representative under speed restriction.
6. The work will involve.
  - (i) Removing sleeper – Rail fastenings and removing the sleepers from the track including bare minimum removal of ballast to enable the removal of sleepers.
  - (ii) The sleepers removed from the track should be cleared from the existing track as directed by the Engineer – in – charge and should not infringe the Railway schedule of dimensions.
  - (iii) Sleepers and the fittings removed during the operation should be stacked as directed by the Engineer– in – charge.
  - (iv) For handling sleepers standard equipments should only be used and it must be ensured that no damage is caused to the sleeper. In case of damage to sleepers due to negligence of Contractor recoveries will be made from the Contractors bills and the Engineer decision in this regard would be considered as final.
  - (v) While handling concrete sleepers extra care is to be taken by using suitable tools/equipments /gadgets to avoid damage to concrete sleepers.
  - (vi) Fixing Railway's key / clips and other rail and rail – sleeper fastenings to obtain gauge as per Railway's drawing and /or as directed by Engineer– in-charge.
  - (vii) In case of inserting rails / rail panels on concrete sleepers this work will include fixing grooved rubber pads, liners and elastic rail clips as directed by the Engineer and as per the standard drawing.
  - (viii) The work shall be carried out only under the supervision of the Engineer-in-charge of his authorized representative under full traffic block.
  - (ix) It should be ensured that the handling of rail is as directed by the Engineer in charge and should not infringe the Railway schedule of dimensions.
  - (x) For handling rails, slings, rail tongs etc. or other similar standard equipments should only be used.
  - (xi) Marking on rails with punch or chisel is prohibited.
  - (xii) The driving of the keys shall be done with a standard keying hammer (1.8Kg.)
  - (xiii) The above operation shall be completed on the base rail first, aligned and fixed to the gauge as stipulated.

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6. SPECIFICATION FOR INSERTING SLEEPERS IN EXISTING TRACK:-

1. The above item of the envisages inserting sleepers as specified in the schedule in the existing track locations as per Rly's requirements and / or as directed by the Engineer or his representative complete with providing of rail-sleeper fastenings etc. & all incidental works.
2. The nominated locations for the purpose of this work shall have been inspected by the Contractor before submitting the Tender.
3. Without in any way restricting or modifying the provisions of the GCC in this regard, the rate for the above quoted work shall be inclusive of all costs of Contractor's labour, materials, consumables, tools & plants and machinery etc. complete for the above.
4. The work shall be carried out strictly as per the Rly's Standard drawings, instructions laid down in Indian Railway's Permanent Way Manual and the instruction of the Engineer or his Representative whose decision in this regard shall be final and conclusive.
5. The work shall be carried out under the supervision of the Engineer-in-charge or his authorized representative under speed restriction.
6. The work will include: -
  - i. Inserting the sleepers in the existing track including providing rail-sleeper fastenings etc. as directed by the Engineer-in-charge.
  - ii. The sleepers' positions shall be marked on the rail foot by the contractor any they should be inserted exactly at this location. Work should be executed in a manner so as not to infringe the Railway's schedule of dimension.
  - iii. The rail-sleeper fastenings like keys, clips, rubber pads, liners. Loose jaws etc. should be fitted as per The Railways standard drawing or as directed by the Engineer-in-charge.
  - iv. For handling sleepers standard equipments should only be used and it must be ensured that no damage is caused to the sleeper. In case of damage to sleepers due to contractor's negligence recoveries would be made and Engineer decision in this regard would be final.
  - v. While laying concrete sleepers necessary steps have to be ensured to prevent seizure of ERCs inserts. All the ERCs & MCI inserts be thoroughly cleaned. Grease to IS408-1981 (specification for Grease No.0 Graphite) should be applied on the central leg of the ERC and eye of MC I insert and then the clip should be driven at the time of making the panels. The grease will be arranged by the contractor.
  - vi. The sleepers and rail-sleeper fastenings will be provided free by the railway.
7. On stretches where deep screening is not being done simultaneously the work will also include.
  - i. Removing ballast at location where sleeper is to be inserted up to 50mm below the bottom of sleeper being inserted.
  - ii. Putting back the ballast so removed into track after the insertion of the sleeper.
  - iii. Initial packing of the sleeper so inserted so as to maintain track geometry as directed by Engineer-in-charge.

8. SPECIFICATION FOR SHALLOW SCREENING OF TRACK:-

1. The above item of work envisages shallow screening of ballast as outlined in para of IRPWM.
2. The work of shallow screening to be carried out without any speed restriction and without any traffic block.
3. The work involves removing ballast between sleepers & shoulder up to 50 mm below sleeper bottom. The ballast so removed, shall be screened by using portable Ballast cleaners/ inclined ballast screens. Use of wire baskets is not permissible for screening.

4. Muck/spoils to be disposed off suitably for ensuring proper drainage of track.
5. Where track is laid with LWR & CWR extra care and precautions as envisaged in LWR manual to be followed.

## ANNEXURE-I

**A. TRACK GEOMETRY STANDARD DURING INITIAL LAYING:**

a)	Gauge	Sleeper to sleeper variation	(+/-)	2 mm
b)	Expansion gap	Over average gap worked out by recording successive gap	(+/-)	2 mm
c)	Joints	i) Low joints not permitted		
		ii) High joints not more than	(+/-)	2 mm
		iii) Square ness of joints on straight	(+/-)	10 mm
d)	Spacing of sleepers	With respect to theoretical spacing	(+/-)	20 mm
e)	Cross level	To be recorded on every 4th sleeper	(+/-)	3 mm
f)	Alignment	On straight on 40 metre above	(+/-)	2 mm
		On curves of radius more than 300m on 20 metre variation ever theoretical versions.		5 mm
		On curves of radius less than 500. on 20m variation over theoretical versions		10 mm
g)	Longitudinal level	Variation in longitudinal level with reference to approved longitudinal sections.		50 mm

Squaring of sleepers-Gauge variations and kinks inevitably result from sleepers getting out of square.

- i) The spacing of sleepers on the sighting rail should first be checked and correctly chalk-marked. Corresponding marks should then be made on the other rail using the square at every points.
- ii) Squaring should be done by planting the crow bars firmly against the sleeper and pushing it. Under no circumstances should sleepers be hammered. Sleepers that are squared should be re-gauged immediately, the fastenings tightened and repacked.

**B. SLEWING OF TRACK TO CORRECT ALIGNMENT:**

- i) Slewing of track should be directed by the mate who on straights should sight the rail from a distance of 50 to 60 meters. On curves, the peg should be erected first and the slewing done.
- ii) When Slewing, the crow bars should be planted well into the ballast at an angle not more than 30 degrees from the vertical otherwise lifting of track may occur.

**C. GAUGING:**

- i) The basic requirement is uniform gauge over a continuous stretch so long as it is within the permissible limits of tightness or slackness.
- ii) Gauging should only be done after ensuring that sleepers are truly square, Standard key hammers shall always be used, Beaters and heavier hammers should not be used, as this causes over driving of keys/ER Clips and strain M.I. inserts.
- iii) The Track gauge should be held firm with one lug against the base rail and the other end being swiveled over the opposite rails. The tightest

position obtained determines the correct point to test the gauge.

**D. SPACING OF SLEEPERS:** - The spacing of sleepers on the sighting rail should first be checked and correctly chalk-marked. Corresponding marks should then be made on the other rail using the square at every point.

**E. BOXING OF BALLAST SECTION AND TIDYING:-**

- i. After completing the preceding operations in sequence, clean ballast should be dressed to the specified dimensions, template being used for the purpose, Hemp chords 6mm dia of a sufficient length should be used for lining the top and bottom edges of the ballast, if inadequate, full section of ballast should be provided near the rail seat, the deficiency being reflected along the centre of the track and not under the rails or in the shoulder.
- ii. The cess should then be tidied up. Where earth ridging is existing at the edge of the bank, this should be removed. Cess should be maintained to the correct depth below rail level according to the ballast section and formation profile.
- iii. If track Geometry is not maintained and any mishap takes place on the track being maintained by contractor, due to track deficiency, contractor will be held responsible for the same and loss to Railway will be recovered from the contractor.

## GUIDELINE FOR HANDLING AND MAINTENANCE OF 60KG/52KG/ 90UTS RAILS

1. PROTECTION OF STRAIGHTNESS: - Barely visible straightness deviation, for example, a deflection of 0.75 mm. Over 1.5 meters span, renders a rail unacceptable and requires careful handling and stacking therefore.

## AVOID:

- Heavy Static Loading.
- Sudden impact of dynamic loading
- Excessive end drop and flange overlaps while lifting, moving,
- Localized points or line contact loading in stacking
- Criss-cross stacking of rails of alternative layers straight angles as far as possible.

## DO:

- Keep rails horizontal and straight while lifting, moving.
- Stack rail of same length on firm level base of well-drained soil preferably of concrete with uniform support of wooden battens of about 4" thickness.
- Stack subsequent Layers on uniformly placed spacers and keep rail ends in vertical alignment with base support.
- Keep rail ends in vertical alignment.
- Place rails of shorter length in upper layers.

2. PROTECTION OF RAIL SURFACE.

Surface notches of even less than 0.75mm depth are liable to cause rail fracture in service, therefore:

## AVOID:

- Impact abrasion of rails against separators in wagons.
- Round link chains slings for securing the rails.

## DO:

- Use conventional slings for lifting rails made of flat link chains.
- Lifting of rails preferably with magnet lifting device.

3. PREVENTION OF METALLURGICAL DAMAGE:

These rails are thermally very sensitive and are likely to develop metallurgical defects, if exposed to Localised heating which produces very hard, brittle and failures, therefore:

## AVOID:

- Heating, flame cutting on or adjacent to rails.
- Contact with electric arcs and molten metal splashes, i.e., from loose cables or adjacent welding operations.

## DO:

- Flame cutting when found essential after pre-heating, a minimum of 10 cm. of rail length on either side of the cutting about 250-350 degrees uniform movement of heating torch before starting cutting operations.

4. PROTECTION FROM CONTACT WITH INJURIOUS SUBSTANCES:

The rails can withstand normal degree of corrosion but localized corrosion in fitting may cause subsequent rail fractures therefore:

## AVOID:

- Contact with injurious substances, which produce high corrosion of steel, i.e., acids, alkalis, salts etc.

DO:

- Stack rails on a well-drained place over uniform supports of wooden battens.

5. SLINGING PRINCIPLES: - The single point slinging increases risk of excessive bending and surface damage to the rails. The overhang beyond the outer lifting point should not be greater than one half the distance between lifting points therefore:

AVOID:

- Single point slinging.

DO:

- Use two point slinging for rail length upto 10 meter.
- Next four points slinging with 36 meter rails.
- Recommended locations of lifting points for various rail lengths will be given by Railways on demand by contractors.
- Suitably increase to number of lifting points when handling welded panel of longer length.
- Use of lifting beams fitted with slings is desirable.

- 6 SAFETY OF PERSONNEL:

AVOID:

- Standing under suspended loads:

DO:

- Use protective gloves and clothing to minimize the risk of skin abrasion.
- Wear distinctive coloured helmet and clothing for easy identification by crane and machinery drivers to avoid accident.

- 7 PREFERABLE LIFTING AND HANDLING DEVICES:

Magnet lifting device, in this device two or more magnets depending on the rail length are suspended from a lifting spreader beam.

GOVERNMENT OF INDIA  
MINISTRY OF RAILWAYS

Indian Railway Standard  
Specification for  
Fusion Welding of Rails  
By Alumino – Thermic Process

Serial No. IRST-19-2021

(Incorporating up to A&C Slip No. 2 of June' 2015)

RESEARCH DESIGNS & STANDARDS ORGANISATION LUCKNOW – 226011



No. IRST-19- 2012



**Tenderers**

**DyCECDR**

## Amendment History:

Sr No.	Amendment Date	Version	Reasons for Amendment
1	1961	1.0	First issue of specification
2	1965	2.0	-
3	1984	3.0	-
4	1994	4.0	-
5	2012	5.0	Technological improvements in the AT Welding process and additional provisions for implementation of upgraded AT welding technology with superior weld performance on Indian Railways
6	2020	6.0	Inclusion of AT welding technique for R260 and 1175 HT grade Rail.
7	2021	7.0	Para 3.4.1 (i) modified and bag colour code for combination grade rails added. Para 4.4.2 modified and foot note under table 1B is also modified. Foot note under table-2 in para 4.4.3.1 is modified. Last paragraph in para 4.5 added. Para 12.5.1 and para 12.5.1 (i) modified. New sub-para v) added under para 13.1. Under para 13.3 sub-para iv) is modified and new sub-para vi) added. Para 14.0 Field trial is modified and Annexure-5, 5A, 5B & 5C added accordingly. Foot note under table-4 in para 15.1 is removed.

INDIAN RAILWAY STANDARD SPECIFICATION FOR FUSION WELDING OF RAILS  
 BYALUMINO – THERMIC PROCESS Serial No. IRS T-19- 2021

## FOREWORD

This specification is issued under the fixed serial No. T-19. This was originally adopted in 1961 and was revised in 1965, 1984, 1994, 2012 and 2020. Since then, number of amendments have been made in this specification on account of technological improvements in the Alumino – thermic (AT) welding process. Besides this, R&D work was undertaken on upgraded AT welding technology. This sixth revision includes current technological improvements in the AT Welding process and inclusion of AT welding techniques for R260 and 1175 HT grade Rail.

AT Welding technique, this was approved as per IRS T-19:2020 shall remain valid. However, “TECHNICAL REQUIREMENTS FOR THERMIT PORTIONS” as specified in Part A and “ACCEPTANCE TEST OF JOINTS WELDED AT SITE” as specified in Part C of this specification IRS T-19:2021 shall be applicable.

## 1.0 INTRODUCTION

- 1.1** The soundness of the welds produced by alumino – thermic process depends on the quality of (a) Alumino - thermic mixture hereinafter referred to as the ‘MIXTURE’ and (b) the technical control exercised during the preparation for and the execution of the welding by this process.
- 1.2** The quantity of the ‘MIXTURE’ required for welding one rail joint shall be called a ‘portion’.
- 1.3** A batch shall consist of a number of ‘portions’ manufactured from similarly and simultaneously treated raw materials.
- 1.4** “Portions” manufactured by agencies approved by RDSO and accepted by nominated inspecting authority shall only be used.
- 1.5** Except for welds executed for laboratory evaluation and acceptance tests, which are done by RDSO, all other welds shall be executed under the supervision of personnel possessing valid competency certificate from Thermit Portion Plant, Northern Railway, Charbagh, Lucknow or Thermit Welding Centre (TWC), South-Central Railway, Vijayawada.
- 1.6** No changes in weld design, range of weld metal chemistry, its acceptance tests and the methods of welding shall be made without the consent of the approving authority. Approving Authority shall mean Director General, Research Design & Standards Organization (Ministry of Railways), Manak Nagar, Lucknow – 226011 or his

representative.

**1.7** The numerical values may be rounded off as per IS: 2.

## **2.0 SCOPE**

**2.1** This specification is for AT Welding of rails conforming to IRS Specification for Flat bottom rails i.e. IRS T-12.

**2.2** This Indian Railway Standard covers: -

- (i) Technical requirements for thermit portions and welded joints including various acceptance tests.
- (ii) Procedure for approval of Alumino-thermic “portion manufacturers”
- (iii) Procedure for approval of A.T. Welding Supervisors, Welders and contracting firms.
- (iv) Acceptance tests for in-situ and cess Alumino -thermic joints.
- (v) Procedure for approval of Alumino- thermic portion manufacturers with upgraded Alumino- thermic welding technology.

**2.3** Reference Documents: This standard refers to the following Indian Standards of the Bureau of Indian Standards. These shall be available at the manufacturers’ works for reference.

- (i) IS:2 Rules for rounding off numerical values
- (ii) IS:187 Cotton long cloth
- (iii) IS:9738 Polyethylene bags for general purposes
- (iv) IS:2500 (Pt. I) Sampling inspection tables:  
Part I inspection by attributes and by count of defects.
- (v) IS:1500 Method for Brinell hardness test for metallic materials.

**2.4** All the provisions contained in RDSO’s ISO procedures laid down in Document No. QO-D-8.1-11 dated 01.07.2020, Version No: 1.3, (titled “Vendor-Changes in approved status”) and subsequent versions/amendments thereof, shall be binding and applicable on the successful vendor/vendors in the contracts floated by Railways to maintain quality of products supplied to Railways.

**2.5** Nominal Gap and its tolerance

S.N	Nominal Gap (in mm)	Tolerance (in mm)
1	25	±1
2	50	±1
3	75	±1

## PART A: TECHNICAL REQUIREMENTS FOR THERMIT PORTIONS

**3.0 SUPPLY OF THE "PORTIONS"**

**3.1** The 'portions' shall be submitted for acceptance batch wise as per following provisions:

- a) The manufacturers shall have ISO 9001:2015 certifications. A batch may consist of 600 portions or part thereof manufactured on the same day from similarly treated raw materials and processing and mixing of all ingredients being done completely under automation by adequate and separate feeder channels. (The nature and category of complete automation and process control will be certified by the inspecting authority for permitting such batch). However, if automatic working of any of the feeder channels gets stopped, the production shall be stopped.
- b) Batch numbering shall be given year-wise in eight-digit code, whose first two digits will indicate the year of manufacture, next two digits will indicate the month of manufacture and the balance 4 digits, the serial number of the batch. The batch number at the beginning of each year shall, therefore, commence from 0001.

**3.2** Every portion shall be packed in a moisture proof bag of Polyethylene to IS:9738, "Indian Standard Specification for Polyethylene bags for general purposes" Grade HM HDPE of 150-micron thickness which shall be sealed so as to make it airtight. The Polyethylene bag shall then be packed in a heavy duty bag made of New cloth to IS:187 or any other superior packaging approved by RDSO. The open end of this packaging shall be stitched and sealed in such a manner that there is no access to the 'portion' without damaging the bag / packaging or breaking its seal.

**3.3** Following particulars shall be indicated on two similar labels – One placed inside the Polyethylene bag containing the portion and the other outside with the seal on the bag:

-

- i) Batch No.
- ii) Portion No.
- iii) Date of manufacture
- iv) The section of rail to be welded
- v) The grade of rail to be welded
- vi) Welding technique
- vii) Automatic Tapping/ Manual Tapping
- viii) Insignia of the firm
- ix) Any other information

**3.4** In order to have ease in identification of portions of various rail sections & grade as well as various techniques in field by welder, the packing of portions shall be done as

under: -

**3.4.1 52 Kg & above Rail Sections:**

- (i) The portion of 52 Kg and above rail sections shall be packed in bags of different colour as per Rail Grades and combination of Rail grades. The colour of bags containing portions shall be as per table below:

S.No.	Rail grade	Colour
1.	72 UTS	Red
2.	90 UTS	Green
3.	R260	Violet
4.	1080 HH	Yellow
5.	1175 HT	Blue
6.	R260 with 90 UTS	Orange
7.	R260 with 1175 HT	Pink
8.	1175 HT with 90 UTS	Brown

- (ii) The Insignia of the firm and rail section (52 Kg/ 60 Kg / 60E1 etc.) shall be printed in contrast colour on the exterior of the cloth bag of above mentioned colour so that it is clearly visible.
- (iii) For manual tapping system portions shall be marked with Bold Letter “M” and for auto tapping system Bold Letter “ATT” shall be marked on the bag in same colour as used for marking the Rail Section. The letter size indicating Rail section & Tapping System shall be of minimum 150 mm height. The marking on Bags will be done on both the faces as per following example:

52 Kg (M): for 52 Kg Rail Section with Manual Tapping System

52 Kg (ATT): for 52 Kg Rail Section with Automatic Tapping System

**3.4.2 Rail Sections below 52 Kg:**

The portions for Rail section below 52 Kg, i.e. 90R, 75R & 60R shall be packed in White bags. The Insignia, Rail section shall be marked as per the colour scheme for the rail grade given at Para 3.4.1 (i).

- 3.5** The bags containing portion shall be packed in a sturdy wooden/Heavy duty corrugated card board/Metallic container. No container with the portion bags shall weigh more than 60 kg. Any bag of ‘portion’ found damaged at the time of delivery shall NOT be accepted.

The container shall have a coloured strip of 75mm width printed at the middle of the box as per the colour scheme given in the para 3.4 above of this specification. The coloured strip shall run at the centre of faces having lesser area and top of th

container. The insignia of the firm, rail section and tapping system shall also be printed on the exterior of the container on the other two faces having larger area. The rail section and tapping system ('M' for Manual tapping system or ATT for auto tapping system) be printed in letters of 25mm width (minimum) having overall 150mm height (minimum).

#### 4.0 ACCEPTANCE TESTS:NORMAL INSPECTION

Two portions shall be randomly selected per batch and weight of each portion shall be within  $\pm 0.25\%$  of the approved weight of the portion which shall be recorded by the inspector.

Both portions shall be utilized for execution of test weld as per approved parameters for AT Welding technique. One joint each shall be made with maximum gap and minimum gap respectively by considering the tolerance specified for nominal gap as specified in para 2.5 of this specification.

#### TIGHTENED INSPECTION

Tightened inspection shall be implemented as soon as two out of five consecutive batches have been non-acceptable on original inspection.

In tightened inspection, three portions shall be randomly selected per batch and weight of each portion shall be within  $\pm 0.25\%$  of the approved weight of the portion which shall be recorded by the inspector. All the three portions shall be utilized for execution of test weld as per approved parameters for AT Welding technique. At least one joint each shall be made with maximum gap and minimum gap respectively by considering the tolerance specified for nominal gap as specified in para 2.5 of this specification.

#### SWITCHING FROM TIGHTENED TO NORMAL INSPECTION

When tightened inspection is carried out, normal inspection shall be reinstated when five consecutive batches have been considered acceptable.

While executing the test joint, characteristics of the Alumino-thermic reaction, i.e. whether it is quiet, normal or boiling shall be observed and if the reaction is found to be boiling, the batch shall be rejected. The reaction and tapping shall be within  $20 \pm 3$  seconds for manual tapping. In case of A.T. welding technique with Auto tapping thimble/ One shot crucible, the reaction and tapping time shall conform to the tapping time range approved for the particular AT welding technique, as

indicated in approval certificate and QAP of Firm. Following tests shall be conducted for assessing the quality of portion:

- i) Visual Surface Examination as per Para 4.1.
- ii) Checking of weld metal dimensions as per Para 4.2.
- iii) Ultrasonic test on test weld as per Para 4.3.
- iv) Mechanical and metallurgical test as per Para 4.4 except for "Fusion Zone Shape and dimension" as mentioned in para 4.4.4.
- v) Weld metal chemistry test as per Para 4.5.

#### 4.1 Visual Surface Examination

Welded joint shall be cleaned and examined carefully to detect any visible defect like cracks, blow holes, shrinkage, mismatch, surface finish (smooth surface finish required) etc. Joint which shows visible defect shall be considered as defective.

The bottom of the joint shall be checked by feeling with fingers as well as inspecting with the help of a mirror for presence of 'fins' at the parting line of the mould. If fin is observed in joint, the joint shall be considered as defective."

#### 4.2 Checking of weld metal dimensions

Weld metal dimensions of test weld shall be compared with approved weld metal dimensions of that particular AT Welding technique and it shall be within the range specified as mentioned in the approval of the technique.

#### 4.3 Ultrasonic test on test weld

Ultrasonic test on test weld shall be carried out as per procedure laid down for Ultrasonic testing of AT Welds by hand probing in 'Manual for Ultrasonic testing of rails & welds' Revised, 2012" along with its latest revision and updated correction slips, issued by RDSO, Lucknow. In case by the ultrasonic testing, weld is in DFW(O) or DFW (R) category, the joint shall be considered as defective. The Position of any apparent defects found by ultrasonic testing shall be recorded so that they may be revealed by sectioning. Cuts shall be positioned at least 5mm from any apparent defects located by the ultrasonic testing. For each defect, the size shall be determined by progressively grinding or machining and measuring until the maximum dimension is found.

#### 4.4 Mechanical and Metallurgical tests on test welds

- 4.4.1 Two new rail pieces of same section and grade, each minimum 650 mm long, shall be used to make test weld joints. The welded joint shall be made as per the technique offered by the manufacturer. The rail table and sides of the rail head shall be finished to the geometrical tolerances specified in Clause 18.2.

#### 4.4.1 Hardness test

Brinell hardness test shall be carried out at the welded zone, heat affected zones and parent metal of the rails in accordance with IS: 1500, "Method for Brinell Hardness test for steel". The test shall be done on the top surface of the head of the test weld with a ball of 10 mm Dia. and a test load of 3000 kg maintained for 10 secs. The average hardness values of different rail chemistry on rail running surface of unaffected parent rail as per testing procedure and provisions specified in IRS/T-12-2009 along with its latest revision and updated correction slips are given in Table 1A for reference –

Table - 1A

Type of rail	72 UTS rail	90 UTS rail	R260 rail	1080 Head Hardened rail	1175 HT grade rail
Running Surface Hardness (BHN)	229*	Min 260	260-300	340-390	350 -390

\* For 72 UTS rail, average hardness (BHN) is 229

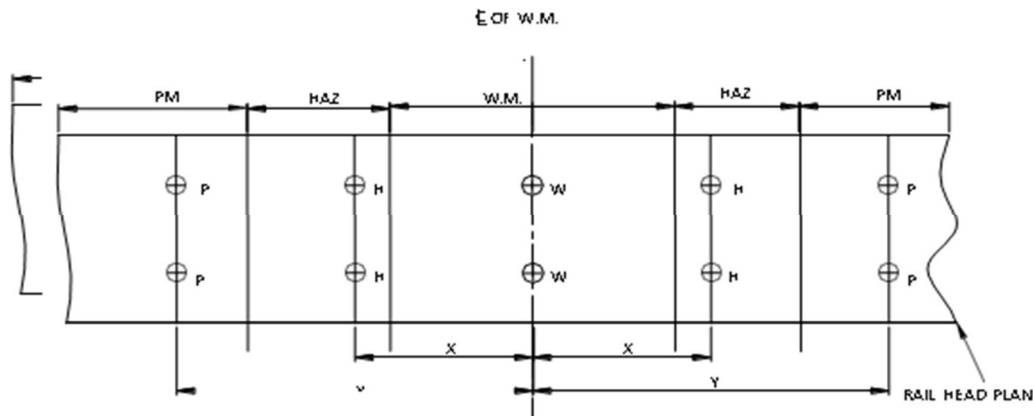


Fig.1

The average hardness number (of two readings) determined for the weld metal (WM), heat affected zone (HAZ) and parent metal (PM) at location shown as 'W' 'H' & 'P' respectively in fig. 1 shall be as per table – 1B given below:

(i) For 25mm gap SKV welding & for any preheating device used.

(a) For 52 Kg Section

X = 40 mm

Y = 100 mm

(b) For 60 Kg / 60 E1 Section

X = 45 mm

Y = 100 mm

- (ii) For 50mm gap combination joint welding & for any preheating device  
used X = 60 mm  
Y = 120 mm
- (iii) For 75 mm wide gap welding & for any preheating device  
used X = 80 mm  
Y = 150 mm

Table 1B

S. No.	Rail Section/ Grade	Hardness BHN	
		Weld Metal (W)(Weld centre-line)	Heat affected zone(H) (at locations shown in Fig. 1 above)
1.	72 UTS rail of all sections with normal & wide gap	229 + 20 - 0	+ 20 of actual parent metal hardness (location 'P')
2.	90 UTS (880 grade) rails of all sections with normal & wide gap	265 + 30 - 0	+30 to -10 of actual parent metal Hardness (Location 'P')
3.	52 kg (90 UTS) Vs 90R (72 UTS) combination joint with 50mm gap	265 + 30 - 0	+30 to -10 of actual parent metal Hardness (Location 'P')
4.	60 kg (90 UTS) Vs 52kg (90 UTS) combination joints with 50mm gap	265 + 30 - 0	+30 to -10 of actual parent metal Hardness (Location 'P')
5.	60kg, 1080 H.H. rail,	321 (min.)	Not less than [actual parent metal hardness (Location 'P') – 60] BHN
6.	60 kg / 60 E1, R260 grade rail	265 + 30 - 0	+30 to -10 of actual parent metal hardness (location 'P')
7.	60 kg / 60 E1, 1175 HT grade rail	350±20	Not less than [Actual parent metal hardness (location 'P')-60] BHN

Note: For Combination Joint of 60kg (R260) Vs 52kg (90UTS) rail with 50mm gap or Joint of 60kg (R260) Vs 60kg (90UTS) rail with 25mm nominal gap, Hardness values corresponding to R260 grade rail as specified above shall be considered.

Similarly, for AT welding Joints of 60kg (90UTS) Vs 60kg/60E1 (1175 HT grade) rails and 60kg/60E1 (R260) Vs 60kg/60E1 (1175 HT grade) rails, with 25 mm Nominal gap, Hardness values corresponding to 60kg/60E1 (1175 HT grade) rail as specified above shall be considered.

Rail used for AT welding shall be confirming to IRST-12-2009 along with its latest revision and updated correction slips. Certificate regarding parent metal hardness shall be provided by AT weld portion manufacturer firms at the time of approval of AT welding technique and whenever required by RDSO.

#### 4.4.2 Transverse breaking load test

4.4.3.1 The test weld shall be supported on cylindrical or semi cylindrical supports having a distance of one meter between them from centre to centre. The weld shall be at the centre of the span and loaded in such manner that the foot of the rail is in tension. The diameter of mandrel and the supports shall be between 30 to 50mm. The load shall be gradually increased (rate of loading shall not exceed 2.5 t/sec) till rupture occurs. The test weld shall withstand minimum transverse breaking load as indicated in column 4 of Table-2. The deflection at center at the actual transverse breaking load shall not be less than that specified in column 5 of Table-2.

Table – 2

S. No.	Rail Type	Rail Section	Min. transverse breaking load in tonnes	Min. deflection in mm at the centre at the actual transverse breaking load
1	2	3	4	5
A.	72 UTS to IRS T-12 for normal gap welding & wide gap (75 mm) welding	60R	50	15
		75R	55	15
		90R	65	15
		52Kg	85	18
		60 Kg	95	18
B.	90 UTS to IRS T-12 for normal & wide gap(75mm) welding	75R	60	15
		90R	80	15
		52kg	90	15
		60 kg	115	15
C.	Combination joint (50mm gap)	*52kg (90 UTS)/	70	15
		90R (72 UTS) 60kg (90 UTS)/	90	15

		52kg (90 UTS)		
D.	1080 Head Hardened Rails to IRS T-12 for normal gap welding	60kg	115	12
E.	60 kg / 60 E1, R260 grade rail for Normal & wide gap (75mm) welding	60kg / 60 E1	122.5	15
F.	60 kg / 60 E1, 1175 HT grade rail for Normal & wide gap (75mm) welding	60kg / 60 E1	122.5	12

**\* 90UTS portion shall be used in 52Kg/90R combination joints.**

**Note:** For Combination Joint of 60kg (R260) Vs 52kg (90UTS) rails with 50mm gap – transverse breaking load and min. deflection values corresponding 52kg (90UTS) joint and for Joint of 60kg (R260) Vs 60kg (90UTS) rails with 25mm nominal gap - transverse breaking load and min. deflection values corresponding to 60kg/60E1, R260 grade rail as specified above shall be considered.

Similarly, for AT welding Joints of 60kg (90UTS) Vs 60kg/60E1 (1175 HT grade) rails and 60kg/60E1 (R260) vs 60kg/60E1 (1175 HT grade) rails, with 25 mm Nominal gap, transverse breaking load and min. deflection values corresponding to 60kg/60E1, 1175 HT grade rail as specified above shall be considered.

4.4.3.2 If the fracture does not occur through weld, a slice shall be cut transversely at the weld and etched in boiling 1:1 Hydrochloric acid for about 20 minutes to determine casting defects if any.

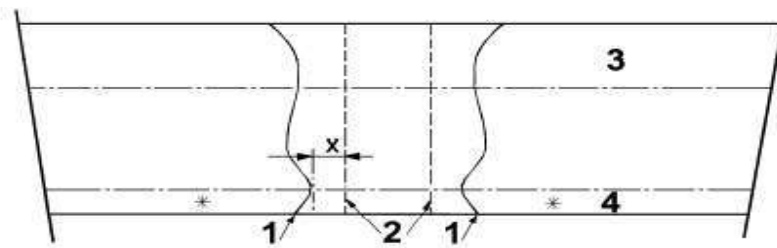
**4.4.3.3 Macro Examination:**

The fractured surface of the weld, or in case where macro - etching is done on transverse section through the joint, shall not show defects such as blow holes, porosity and inclusions etc. having individual size greater than 2mm dia. There shall not be more than three defects of size

$\leq 2\text{mm}$  dia. The distance between two defects of size  $\leq 2\text{mm}$  dia. shall not be less than 20mm. The macro - etched transverse section shall not show cracks of length 2mm or greater. The defects shall not be interconnected and none of these shall extend up to the outer surface of the weld. There shall not be any lack of fusion and clustered porosities. The fractured surface shall also not show the presence of accretions or mirror like surface and shall be crystalline in appearance.

**4.4.3 Fusion Zone-Shape and dimension**

After macro examination, measurements of the fusion zone shall be made on the cuts illustrated in Fig. 2 the minimum distance X (Fig. 2) between the parent rail ends before welding and the fusion line shall be equal to or greater than 3mm.

**Key**

- \* Datum marks on foot tip
- 1 Fusion line
- 2 Rail ends before welding
- 3 Rail head
- 4 Rail foot

**Figure-2: Shape of fusion zone on the etched longitudinal vertical section**

The fusion zone shall exhibit a symmetrical shape about the welding gap. The visible heat affected zones on each side of the weld shall be measured on the rail running surface centre line. The visible heat affected zone shall be symmetrical about the longitudinal axis of the rail and transverse axis of the weld.

#### **4.5 Weld Metal Chemistry Test:**

Full chemical analysis is to be conducted on the rail weld running surface at 10mm away from the weld transverse axis. The chemical composition of the weld so determined shall conform to the following:

Grade of rail	C %	Mn %	+Si %	S %	P %	V %*	Mo %*	Al% %	Cr %	Cu %	Ni %	Sn %	Sb %	Ti %	Nb %
<b>90UT S/ R260, 1080 HH</b>	0.45	0.80	0.50	0.05	0.05	0.10	0.10	0.02	0.20	--	--	--	--	--	--
	- 0.70	- 1.30	(max)	(max)	(max)	- 0.15	- 0.25	- 0.60	(max)						
<b>72 UTS</b>	0.40	0.80	0.50	0.05	0.05	0.10	0.10	0.02	0.20	--	--	--	--	--	--
	- 0.55	- 1.20	(max)	(max)	0.05 (max)	- 0.15	- 0.25	0.02 - 0.6	(max)						

								0							
1175 HT	0.50	0.50	0.00	0.00	0.00	0.10	0.10	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
	1.00	1.40	1.75	0.035	0.035	0.65	0.40	0.60	0.80	0.20	0.20	0.02	0.02	0.05	0.02

Working range of each element for 1175 HT grade shall be as mentioned below

SN	Element	Working range
1	Carbon	$\pm 0.12$
2	Silicon	$\pm 0.25$
3	Manganese	$\pm 0.20$
4	Phosphorous	Not Specified
5	Sulphur	Not Specified
6	Chromium	$\pm 0.20$
7	Aluminium	$\pm 0.20$
8	Vanadium	Not Specified
9	Niobium	Not Specified
10	Nickel	Not Specified
11	Copper	Not Specified
12	Tin	Not Specified
13	Antimony	Not Specified
14	Titanium	Not Specified
15	Molybdenum	Not Specified

The firm shall define the mean value for each element with a working range in Table above. Actual values shall not vary by more than the working range and this range shall fit within the permitted range

\* Either Vanadium or Molybdenum may be used as grain refiner.

+In case single shot crucible is used, the maximum limit of Si% may be taken as

1.20 % for 90 UTS /R260/1080 Head Hardened rail, and 72UTS rails.

Weld metal chemistry for AT welding Joint of 90UTS / R260 Vs 1175 HT grade railsshall be same as that specified for 1175 HT grade rails.

#### **4.6** Rejection of Batch

If the results of any of the tests referred to in clause 4.1, 4.2, 4.3, 4.4.2, 4.4.3.1,

4.4.3.3 and 4.5 are found to be unsatisfactory for any of the test weld as specified in para 4.0 of this specification, the batch will stand rejected.

#### **5.0** DISPOSAL OF REJECTED BATCH:

In the event of a batch failing to comply with the requirement of Para 4, the manufacturer will dispose off the rejected portions by igniting off the portions and converting them into metallic form at a safe place in presence of RDSO officials. The rejected batch shall be kept separately duly marked "Rejected" on each pack in red. Proper record of disposal shall be maintained.

#### **6.0** ACCEPTANCE

**6.1** Acceptance shall be done batch wise. Every individual batch

that satisfies the conditions prescribed in this specification shall be accepted.

Each bag containing the portion shall be sealed by the manufacturer and the container shall be suitably stamped/sealed by the Inspecting Officer. The stamp/seal shall be such that it shall not be possible to open the container without breaking stamp/seal.

- 6.2** The manufacturer shall dispatch the accepted portions immediately to the consignee so as to reach consignee within 30 days from the date of issue of inspection certificate.

#### 7.0 DISPOSAL OF REJECTED PORTIONS

In case the batch fails to meet the requirements of clause 4, it shall be rejected. The rejected portions shall be separately stored and a proper accountal shall be kept. The disposal of these rejected portions shall be carried out as per clause 5.0 of this specification.

#### 8.0 TESTING FACILITIES

The manufacturer shall, at his own expense, supply all labour, materials, consumables, rail pieces and appliances for testing carried out in presence of the Inspecting Officer, in his own premises or at any other acceptable place in accordance with this specification.

#### 9.0 INSPECTION OF PREMISES AND RECORDS

The purchaser or the Inspecting Officer shall have free access to the premises of the manufacturer at all reasonable times. They shall be at liberty to inspect all the records and the manufacture of 'portions' at any stage.

### **PART B: APPROVAL OF "PORTIONS MANUFACTURERS"**

- 10.0** The approval of 'Portion manufacturer' shall be given separately for each rail section/grade/chemistry of rail and for each technique of welding.

- 10.1** The variants for various parameters of A.T. welding technique are given below. Permitted combination of following variants shall be treated as a welding technique.

S.No	Parameter	Variants
.		
1.	Rail section/ grade/ chemistry	Rail section/ grade/chemistry chosen shall be as per their respective latest version of IRST-12.

2.	Parameters forming Technique of	Pre-heating system	Compressed Air petrol/ Compressed AirLPG (Mechanical pressurization) or similar	Oxy LPG/ Oxy Propane or similar
3.		Pre-fabricate d mould	3 piece mould	
			Manually pressed	Core shooted
4.		Tapping system	Auto tappin g	
5.		Crucible system	Single shot #	

**NOTE:-**

- (i) The firm shall furnish the details of preheating equipment along with drawing of preheating burner and its position with respect to rail top and center line of mould for preheating.
- (ii) The firm shall furnish the details and drawing for positioning of single shot crucible with respect to rail top and center line of mould. The tapping height with respect to rail top shall also be mentioned in the drawing.
- (iii) The agency / firm shall furnish critical process timing viz. Preheating time, tapping time, mould waiting time, time for passage of First train on AT weld etc for AT welding technique. The complete welding process starting from the cutting of rail to passage of first train shall be completed within the time period of 70 minutes for one AT weld.
- (iv) Pre heating system deployed shall have facility to record and save the pre heating parameters viz. pressure and time, firm details, welder details and weld location details for a particular weld along with facility to send these preheating parameters and related details automatically as SMS to concerned Railway officials immediately after finishing of preheating. It shall be possible to send this SMS simultaneously up to 10 mobile numbers. This facility shall be developed and implemented in all Pre heating equipments by the firm within a time period of one year from date of implementation of this specification i.e. IRST-19:2020.

# Single shot crucible shall be considered only with pre-fitted Auto tapping thimble.

**10.2** For upgraded A.T. welding techniques offered in reference to clause 22 Part E of IRST-19 specification, approval shall be given to AT welding technique for each rail section/grade/chemistry separately irrespective of the other variants chosen.

**11.0** For the purpose of approval, the following definitions shall apply.

**11.1** “Portion Manufacturer” shall mean the organization manufacturing the ‘portion’. In addition, the “Portion Manufacturer” may execute A.T. Welding of rail joints by his own technique approved by RDSO.

**11.2** “Approving Authority” shall be Director General, Research Designs & Standards Organization, Ministry of Railways, Manak Nagar, Lucknow – 226011 or his representative.

**12.0** PROCEDURE FOR APPROVAL OF “PORTION MANUFACTURERS”

**12.1** The **Portion Manufacturer** (referred as ‘Firm’ here in after) will approach RDSO through “On-line vendor registration system” for approval of their firm for manufacturing of AT portions and welding of rail joints indicating the rail for which portion is being offered and the welding technique. If any firm is approved in the AT welding technique for 90UTS or R260 grade rail then only the firm, shall be allowed to develop the AT welding technique for 1175 HT grade rail.

**12.2** The application for approval shall be submitted by the firm as per Vendor Registration Guidelines available on RDSO website.

**12.3** The payments shall be made by means specified in Vendor Registration Guidelines available on RDSO website.

**12.4** If the information submitted by the applicant is prima facie found to be satisfactory, the approving authority can take a call to inspect the premises of the applicant for assessment or approving authority may grant dispensation from the assessment, particularly, if the applicant is already registered with RDSO for any Other AT welding Technique. Firm shall submit the internal test results of offered AT welding technique in prescribed proforma. In case assessment is required to be carried out then, only after the satisfactory assessment, internal test results of offered AT

welding technique in prescribed proforma shall be submitted. Lab evaluation will be carried out after internal test results are found satisfactory on scrutiny.

## **12.5 Tests and trials for approval of "Portion Manufacturers"**

**12.5.1** The Portion Manufacturer shall manufacture a batch of 150 'portions' at his own cost. 25 number samples shall be drawn at random by the Approving Authority and their weight be recorded. The weight of the portions shall be within  $\pm 0.25\%$  of the average weight. Following laboratory tests shall be carried out at the manufacturer's work premises:

- i) Twelve test weld joints shall be made as per clause 4.4.1 in which six joints each shall be made with maximum gap and minimum gap respectively by considering the tolerance specified for nominal gap as specified in para 2.5 of this specification. While executing the test joints, characteristics of the Alumino-thermic reaction, i.e. whether it is quiet, normal or boiling shall be observed and if the reaction is found to be boiling, the technique shall be rejected. The reaction and tapping time for AT welding technique with Auto tapping thimble/ one shot crucible, shall conform to the tapping time range indicated in respective QAP.
- ii) The joints shall be subjected to following tests:
  - a) **Visual Surface Examination** of all the joints, as per clause 4.1 of this specification.
  - b) **Ultrasonic test** on all the joints shall be carried out as per procedure laid down for Ultrasonic testing of AT Welds in 'Manual for Ultrasonic testing of rails & welds' Revised, 2012" with its latest revision and updated correction slips, issued by RDSO, Lucknow. In case the weld is in DFW(O) or DFW (R) category, the joint shall be considered as defective. The Position of any apparent defects found by ultrasonic testing shall be recorded so that they may be revealed by sectioning. Cuts shall be positioned at least 5mm from any apparent defects located by the ultrasonic testing. For each defect, the size shall be determined by progressively grinding or machining and measuring until the maximum dimension is found.
  - c) **Brinell Hardness Test** on all the joints as per clause 4.4.2 of this specification.
  - d) **Transverse load and deflection test** on six randomly selected joints by taking three each from the joints with maximum gap and

minimum gap respectively, as per clause 4.4.3 of this specification.

- e) **Weld metal chemistry test** shall be conducted on above six test joints as per clause 4.5 of this specification.
- f) **Macro examination** shall be undertaken on deep etched longitudinal section across the weld on the remaining six joints. This examination shall not reveal any lack of fusion or cracks. The Macro examination shall not show defects such as blow holes, porosity and inclusions etc. having individual size greater than 2mm dia. There shall not be more than three defects of size  $\leq 2\text{mm}$  dia. The distance between two defects of size  $\leq 2\text{mm}$  dia. shall not be less than 20mm. The macro - etched transverse section shall not show cracks of length 2mm or greater. The defects shall not be interconnected and none of these shall extend up to the outer surface of the weld. There shall not be any lack of fusion and clustered porosities.

For confirming any defect found in macro examination, magnetic crack detection test shall also be carried out.

- g) **Microscopic examination:** Samples for microscopic examination shall be taken and prepared in accordance with Annexure-1. The structure of the fusion zone shall conform with that defined by the supplier firm, which shall not contain martensite or bainite examined at x 100 magnification. The visible heat affected zone shall not contain any bainite or martensite examined at x 100 magnification. The structure shall be recorded. For 1080 HH and 1175 HT grade rail, ASTM grain size number shall not be less than 3.
- h) **Fusion Zone-Shape and dimension:** After macro examination Fusion Zone-Shape and dimension shall be recorded on all six joints tested for macro examination as per para 4.4.4 of this specification. The minimum distance X (Fig 2) between the parent rail ends before welding and the fusion line shall be equal to or greater than 3mm.

#### **12.5.2 Rejection of A.T. Welding Technique:**

If the results of any of the tests referred to in clause 12.5.1 above fail to meet the requirements of the test, the technique shall be rejected. The technique can be reoffered by the firm as per provisions of Vendor Registration Guidelines available on RDSO website

- 12.6** The approving authority shall have free access to the premises of the portion manufacturer at all reasonable times. The portion manufacturer shall furnish all the technical data to the approving

authority as and when call for.

### **13.0 FATIGUE TEST**

**13.1** Fatigue testing of thermit welding technique shall be arranged by the firm at his own expense. Following principle shall be followed:

- i) For 90UTS metallurgy – Anyone section out of 52kg / 60kg (when both the sections have been developed the lighter section shall be selected for fatigue testing).
- ii) For R260 metallurgy – Anyone section out of 60Kg / 60E1
- iii) For 1175 HT metallurgy – Anyone section out of 60Kg / 60E1
- iv) Development of any other AT Welding technology such as wider gap, 1080 Head Hardened rails shall also be got separately fatigue tested before standardization. However, one section for one technique shall be required to be fatigue tested.
- v) For AT welding joints of different grade of Rails viz R260 to 90 UTS, R260 to 1175HT, 90 UTS to 1175HT grade rails - Anyone section out of 60Kg / 60E1.

**13.2** The weld samples shall be tested in a recognized laboratory/test centre.

**13.3** Following scheme shall be followed for fatigue testing of thermit welded rail joints: -

- i) Three weld samples shall be made in presence of RDSO representatives.
- ii) The weld samples shall be made with one meter long new rail pieces to have an overall length of 2.0m. The rail and joint shall be ultrasonically tested.
- iii) Testing shall be done for stress ranges of tensile 20 kg/mm<sup>2</sup> to compressive 4 kg/mm<sup>2</sup> (these are the stresses on the bottom surface of rail foot). The test frequency shall be anyone frequency between 8.33 Hz to 12 Hz. Details of Fatigue testing equipment is at **Annexure- 4** of this specification
- iv) A joint shall be deemed to have passed if it withstands a minimum of 2 million cycles except for joints of 1175 HT grade rails. For joints of 1175 HT grade rails, a joint shall be deemed to have passed if it withstands a minimum of 5 million cycles. For AT welding joints of different grade of Rails viz R260 to 90 UTS, R260 to 1175HT, 90 UTS to 1175 HT grade rails - A joint shall be deemed to have passed if it withstands a minimum of 2 million cycles
- v) The technique shall be deemed to have cleared fatigue test if all the three samples pass the above test.

- vi) Subject to the results of the tests in clause 12 and 13 above being satisfactory, firm shall be approved provisionally in the list of “RDSO vendors for developmental orders” for a period of two years.

**13.4**      Rejection of A.T. Welding technique:

If the results of Fatigue test referred in clause 13.3 above, failed to meet the requirements of the fatigue test, the technique shall be rejected. The technique can be reoffered by the firm as per provision of Vendor Registration Guidelines available on RDSO website.

**14.0**      FIELD TRIALS

- 14.1** Subject to the results of the tests in clause 12 and 13 above being satisfactory, firm shall be approved provisionally in list of ‘RDSO vendors for development orders’. 100 weld joints (for AT welding technique of same grade of rails) by the firm in first contract shall be executed in presence of Zonal Railway representative, not below the rank of JE/SSE. These field trial joints shall be monitored by concerned Zonal Railway as trial joints for a period of one year or till passage of 10 GMT traffic over the joint, whichever is earlier. Considering requirement of welded joints (For AT welding technique of different grades of rails) being very less in number and joints scattered over large stretches and larger time consume, field trial shall not be required for approval of technique for combination welding. The trial joints shall be distinctly marked by painting letter “T” on the web of the rail beyond 300 mm from the joints. Field trial report shall be prepared as per Annexure - 5 and submitted to the RDSO by the Zonal Railway after signature of firm’s representative and nominated Zonal Railway official not below the rank of JE/SSE and countersigned by concerned sectional ADEN.
- 14.2** Ultrasonic test on field trial weld joints shall be carried out by the Zonal Railway as per procedure laid down for Ultrasonic testing of AT Welds in Manual for Ultrasonic testing of rails & welds’ Revised, 2012” along with its latest revision and updated correction slips, issued by RDSO, Lucknow. Up to a maximum of 1% defective welds shall be cut and re-welded by the firm at his own expense. If more than 1% joints are found defective, further welding shall be discontinued considering the technique to be unsatisfactory. All the defective joints shall be removed from track by the firm at his own expense. The initial USFD report shall be prepared as per Annexure – 5A and submitted to the RDSO.

- 14.3** After a passage of 10 GMT traffic over the joints or a period of one year whichever is earlier, Zonal Railway shall conduct USFD test of the trial joint as per procedure given in “Manual for Ultrasonic testing of rails & welds’ Revised, 2012” along with its latest revision and updated correction slips, issued by RDSO, Lucknow. The USFD report shall be

prepared as per Annexure – 5B and submitted to the RDSO. Final inspection of trial joints shall be carried out as per clause 18 of this specification by Zonal Railway and Field Trial report shall be submitted

as per proforma given in Annexure –5C jointly signed by the Firm’s representative and nominated Zonal Railway official not below the rank of JE/SSE and countersigned by concerned sectional ADEN. Failure of more than 1% joints of field trial (Including Ultrasonic examination) will render the technique unacceptable and firm shall be delisted from the list of “RDSO vendors for developmental orders for particular technique”. AT welding contract shall be short closed for particular technique. AT welded joints already executed by the firm shall be ultrasonically tested and good AT welded joints shall be allowed to remain in the Track. In case, the weld is in DFW (O) or DFW (R) category in the ultrasonic examination, the joint shall be considered as defective.

- 14.4** After satisfactory field trial report, provisional approval of the firm in the “List of RDSO vendors for developmental orders” shall be regularized for a time period of 5 years from the date of provisional approval.

## **15.0** REQUIREMENTS FOR UPGRADATION TO APPROVED

### A.T. WELDING TECHNIQUES

- 15.1** Up gradation to pre-heating system, tapping system, pre-fabricated mould and crucible system in **already approved A.T. welding techniques**, shall require assessment as described hereinafter. The basic technique and upgrades are defined in Table 4 below:

**Table 4**

S.No.	Parameters	Basic technique	Offered upgrade to basic technique	Remarks
	Pre-heating system	Air petrol mixture with manual pressurisation	Compressed Air-petrol (mechanised pressurization), Oxy LPG, Oxy Propane or similar/superior	i) One or more upgrades can be offered simultaneously
2	Tapping of molten metal	Manual tapping	Automatic tapping	ly. ii) There shall be no change in weld metal dimensions in up-graded technique over approved limits for basic technique.
3	Type of Pre-fabricated mould	Two piece manufactured by manual pressing	Three piece manufactured by manual pressing, Three piece manufactured by core shot technology (Machine pressing)	
4	Crucible system	Multiple crucibles	Single shot crucible	

**15.1.1** Three piece mould shall be manufactured as per the “Specification of 3-Piece Pre- Fabricated Mould Manufactured by A.T. Portion Manufacturers for use during A.T. Welding of Rails” given at **Annexure -2.**

**15.2** For approval of process up-gradation, the requirements of lab test (as per para 12.5), and fatigue test (as per para 13) shall be fulfilled for each rail section/grade separately.

**15.3** The execution and evaluation of field trial joints as per para 14 shall be undertaken post approval i.e. after the approval has been granted to the up-graded technique based on evaluation as per para 15.2 above. The approval shall be reviewed on fulfillment of

GMT/Duration criteria for trial joints as prescribed in para 14.1 and continuation of the approval shall be subject to the performance of trial joints being found satisfactory as per para 14.2 & 14.3.

## **16 PART C: PROCEDURE FOR APPROVAL OF AT WELDINGSUPERVISORS AND WELDERS**

**16.1** For the purpose of approval, the following definitions shall apply: -

“Welding Supervisor” shall mean a railway official with adequate knowledge and competence for supervising and executing Alumino Thermic welding of rail joints. “Welder” shall mean an individual with adequate skill and competence for executing Alumino Thermic welding of rail joints at site. The approval of Welders for execution of Alumino – Thermic welds at site shall be given separately for the following categories of welding techniques: -

- a) Welding of R260/ 90UTS/ 72UTS (52Kg & 60Kg/60E1) rails with standard gap
- b) Wide gap welding
- c) Welding of 1080 Head Hardened rails with standard gap
- d) Welding of 1175HT rails with standard gap

**16.2** Competency certificates for welding supervisors and welders of the zonal Railways shall be issued by the Thermit Portion Plant of Northern Railway at Lucknow or Thermit Welding Centre, (TWC), South-Central Railway at Vijayawada. Competency certificates for welders of firms shall be issued by DG (M&C) RDSO, Lucknow.

**16.3** For other than departmental welders, test weld joints will be made using any rail section at the discretion of the approving authority. Welders found competent shall be deemed to be fit for A.T. welding of all rail sections for the particular category as per clause 16.1. For execution of test weld joints, the welder desirous of obtaining approval shall have to utilize his own welding team, rails, implements and ‘portions’ procured from approved manufacturers.

**16.4** The firm shall pay, in advance, charges for certification of welders as per rates decided by RDSO for this purpose. Payment shall be made through SB Collect’ through ‘E-Payment to RDSO’ link under Vendor Interface on RDSO website ([www.rdsso.indianrailways.gov.in](http://www.rdsso.indianrailways.gov.in)).

**16.5** Six test welds shall be made by the welder and his team for the particular category of welding technique (as per clause 16.1) for which approval is sought. Following tests shall be carried out at the sponsoring firm's works premises: -

- a) Ultrasonic test on test weld joints shall be carried out as per procedure laid down for Ultrasonic testing of AT Welds in 'Manual for Ultrasonic testing of rails & welds' Revised, 2012" along with its latest revision and updated correction slips, issued by RDSO, Lucknow. In case, the weld is in DFW(O) or DFW (R) category in the ultrasonic examination, the joint shall be considered as defective.
- b) The ultrasonically sound joints will be subjected to following tests:-
  - i) Visual examination and joint geometry as per clause 18.1 and 18.2 respectively.
  - ii) Brinell hardness test on all the test welds as per clause 4.4.2
  - iii) Transverse load and deflection tests on any three test welds as per clause 4.4.3
  - iv) Magnetic crack detection and macro examination of remaining three test welds longitudinally sectioned across the weld as per clause 12.5.1 (ii) (f).

**16.6** If the test results are satisfactory, a provisional competency certificate, valid for two years, shall be issued to the firm's welder. The provisionally approved welder's competency certificates shall be re-assessed by RDSO in case of firm's welder after two years of issue of provisional competency certificate then Regular Competency Certificate will be issued to the welder, which is valid for the period not more than five years.

For departmental welder and Welding Supervisor, TPP/Lucknow or TWC/ Vijayawada issues

- a) Provisional competency certificate for departmental welder (valid for executing 100 joint or 6 months whichever is earlier) after successful completion of "Initial Course of Welders" (TW1 course).
- b) Regular competency certificate for departmental welder (valid for 2 years) if the defective weld percentage is less than 1% of the welds executed by the welder (Minimum 50 welds to be executed by the welder within 6 months), the result of the test weld and after successful completion

of “Refresher Course for Welders” (TW2 course).

- c) The trained departmental welders shall attend “Refresher Course for Welders” (TW2 course) within 2 years of issue of regular competency certificate for revalidating their competency certificate.
- d) Welding Supervisor shall be issued competency certificate after successful completion of “training course for supervisors” (TW3). The welding supervisor shall not be normally required to undergo this course again.

**16.6.1** For the purpose of reassessment, the welder shall submit, to the approving authority, the following details duly countersigned by the concerned Assistant Engineer of Zonal Railway: -

- a) A record of joints welded by him
- b) No. of joints failed in service

**16.6.2** Based on the above details and personal interview, the approving authority will issue competency certificate. Fresh competency certificate will have to be issued whenever there is a change in the process of welding or when a person who has been earlier trained and issued with a competency certificate has not been executing welding for a period of more than 2 years or the work done by him has been rated as unsatisfactory.

**16.6.3** Renewal of competency certificate will be made based on performance or actual testing.

**16.6.4** Following methodology shall be used for issuing the Identification Code Number for welders /supervisors of Railway or firm:

- a) Certificate number for welder/supervisors of Zonal Railway

The format for the certificate number of the welder/supervisor of the Zonal Railway shall be as follows:

A	A	B	B	B	B	C	C	C
---	---	---	---	---	---	---	---	---

- b) Certificate number for welders of portion manufacturers and welding contractors.

The format for the certificate number of the welders of the portion manufacturers and welding contractors shall be as follows:

A	A	B	B	B	B	C
---	---	---	---	---	---	---

A	A
---	---

Where,

Code number for the firm to which the welder/supervisor belongs i.e. 00 for AT portion manufacturing firms

01 for departmental welders

02-99 for welders of welding contractors. The codes shall be allotted for different contractual agencies undertaking AT welding of rails (other than portion manufacturers)

B	B	B	B
---	---	---	---

Specific person number (from 0001 to 9999) the specific person number will be continuous for a Zonal Railway/Firm.

c) For para 16.6.4 (a) i.e. for welders/supervisors of Zonal Railways:

First two/three initials of the Railway to which the supervisor or welder belongs.

or

For para 16.6.4 (b) i.e. for welders of portion manufacturing firms and welding contractors: Code allotted for the portion manufacturing firms, for whom welders of portion manufacturing firms and welding contractors are approved.

Alphabetic codes allotted to the existing portion manufacturing firms are given below:

**ITC** =T, Railtech / **HTI**=H, **QTPL**=O, **SIRIL**=S, **RMPL**=R, ,  
**TPP(NR)**=N, **CDI**=C, **PTEW**=P

In case of welders belonging to the welding contractors, this code will signify the portion manufacturing firm for which the competency certificate of welder is valid.

For example, 010001ECo would indicate a departmental welder/supervisor of East Coast Railway with specific person number 0001. Similarly, 000001T would indicate a welder/supervisor with specific person no. 0001 of portion manufacturer whose code is 'T' i.e. ITC. 020001H would indicate a welder, belonging to welding contractor whose code is 02, having specific person number of 0001 and having competency for welding with portion/technique of portion manufacturing firm with code 'H'.

The Organization issuing competency certificates shall ensure that there is no duplication of the Identification Code Number.

A Bi-annual list of firm's welders having valid competency certificates will be uploaded on RDSO web site. Details of approved AT

welders may be seen on website [www.rdso.indianrailways.gov.in](http://www.rdso.indianrailways.gov.in) under button activity of Metallurgical & Chemical Directorate. Copy of Welder's competency certificate of the firm will be uploaded on TMS by Track Design Directorate.

Zonal Railways shall constantly update and maintain the list of supervisors and welders along with their identification code number.

## **PART D: ACCEPTANCE TEST OF JOINTS WELDED AT SITE**

### **17.0 EXECUTION OF WELDS AT SITE**

- 17.1** Alumino - Thermic welding of rails shall be executed at site only by certified welder having valid competency certificate. For welding supervisor's competency certificates shall be issued by TPP, Lucknow/ Thermit Welding Centre (TWC), Vijayawada (See Part 'C-Para 16.2').
- 17.2** All Alumino – thermic welding work shall be executed with the use of weld trimmer and profile grinder. Additionally, rail tensors shall be used wherever work is done on long welded rails.
- 17.3** In case, AT welding is carried out by the firm's welder, quality of AT weld shall be ensured by the firm's welder and role of welding supervisor (Railway official) is limited to arrangement of traffic block. However, in case, AT welding is carried out by the departmental AT welder, then, both supervisor and welder will be responsible for quality of AT welding.

Note: In case of welding of old rails dispensations for not using weld trimmers and profile grinder shall be obtained from Chief Engineer.

## **18.0 ACCEPTANCE TESTS**

### **18.1 Visual examination**

All the welded joints shall be cleaned and examined carefully to detect any visible defect like cracks, blow holes, shrinkage, mismatch, surface finish (smooth surface finish required) etc. Any joint which shows visible defect shall be declared defective.

The bottom of the joint shall be checked by feeling with fingers as well as inspected with the help of a mirror for presence of 'fins' at the parting line of the mould. If fins observed in any joint, the joint shall be declared defective."

### 18.2 Joint Geometry

All the finished welded joints shall be checked to ensure that the joint geometry is within the following tolerances: -

i	Vertical misalignment	+1.0mm -0.0mm	(Measured at the end of 1m straight edge)(Fig.8 (a))
ii	Lateral misalignment	$\pm 0.5$ mm	(Measured at the centre of 1m straight edge) (Fig. 8 (b))
iii	Head finishing on sides	$\pm 0.3$ mm	On gauge side (Measured at the centre of 10cm straight edge (Fig. 8 (c))
iv	Finishing top table surface	+0.4mm -0.0mm	(Measured at the end of 10cm straight edge (Fig. 8 (d))

**Note:** Dispensation for joint geometry, in case of old rails may be permitted by Chief Engineer. The details of geometry of each joint shall be jointly signed by the firm's and railway's representative and kept as a record. Any joint found not conforming to the above stipulations shall be cut and rewelded, free of cost, by the firm.

### 18.3 Ultrasonic testing

Ultrasonic test on welded joints shall be carried out by the Zonal Railway as per procedure laid down for Ultrasonic testing of AT Welds in 'Manual for Ultrasonic testing of rails & welds' Revised, 2012" along with its latest revision and updated correction slips, issued by RDSO,

Lucknow. In case, the weld is in DFW(O) or DFW

(R) category in the ultrasonic examination, the joint shall be considered as defective.

This testing shall be completed as early as possible after welding but in any case not later than 30 days. All the joints which are found to be defective shall be cut and re-welded by the firm at its own cost.

Where one bad joint is required to be replaced by two new joints, the entire cost of both the joints shall be borne by the firm. Such re-welded joints shall also be tested ultrasonically and if found defective, shall again be cut and re-welded free of cost. However, cumulative number of AT welds defective in ultrasonic testing and in other criteria shall be limited to provisions as per clause 19.1.

For upgraded AT welding techniques approved in terms of Part E of IRS T-19: 2020, cumulative number of failed AT welds in ultrasonic testing and in other criteria shall be limited to as per clause 19.1.1.

### 18.3.1 Defective/ Fractured joints:

In case, cumulative number of AT welds failed in criteria given in clause 19.1/19.1.1 exceeds stipulated percentage in respective clauses, following action shall be taken:

- i) Action as per contract conditions be initiated.
- ii) Railway shall be at liberty to suspend further welding.
- iii) The details of welds executed against a particular contract, % defective /fractured welds against total no. of welds executed be compiled as per the following format:

S. No.	Name of welding firm/welders	Total no. of welds for which contract was awarded (Rail section wise)	No. of welds executed against contract	No. of fractured welds and their % w.r.t. (3)	No. of USFD defective welds and their % w.r.t. (3)	Total % defective/fractured [(5)+(6)]
(1)	(2)	(3)	(4)	(5)	(6)	(7)

- i) All defective joints shall be broken with the help of Jim crow in presence of firm's representative and a joint report be prepared. Defects observed on fractured faces shall be recorded in form of photograph/ sketch.
- ii) Sectional DEN/Sr. DEN shall carry out investigation/analysis for all in track fractured joints and joints broken as per iv) above. Information shall be compiled in the format indicated below:

S. No.	Km / Post	Rail section/ UTS	Year of rolling	Joint no. (marking punched on the	USFD defective joints (in Initial acceptance testing)			Fractured joints	Remarks
					Prob e *	Peak pattern (travel	Defects observed (if any) on fractured faces of defective AT welds (broken	Defects observed on fracture faces	

				e weld)		& peak height) *	with the help of Jim crow)	(if any)	
( 1 )	(2)	(3)	(4)	( 5 )	(6 )	( 7 )	( 8 )	( 9 )	(10)

\* If defective in flange testing, supporting calculation be also enclosed in terms of Note in Chapter 8 of 'Manual for Ultrasonic testing of rails and welds, Revised 2012'.

- iii) The investigation report prepared by sectional DEN/ Sr. DEN be sent to Executive Director/Track-II, RDSO, Lucknow through Chief Track Engineer for appraisal and suggesting further action.
- iv) The defective joints taken out of track and fractured joints be preserved for undertaking investigation by RDSO, if required.

#### **18.1 Sample Test Joint:**

One out of every 100 joints welded per batch shall be selected at random by the purchaser or by the inspecting officer within one month of welding and subjected to hardness and transverse load test as per clause

4.4.2 and 4.4.3 of this specification respectively and the joint shall comply with the provisions laid down therein.

**18.1.1** In the event of the failure of sample test joint in any of the requirements of this specification, the Railway will be at liberty to suspend further welding. However, two more randomly selected joints from the same lot of 100 joints shall be subjected to re-tests as per clause 4.4. Both the joints shall clear all the tests. If the report is also not satisfactory, further welding of joints shall be suspended until the firm has examined the welding technique and satisfies the requirements of Clause 4 by

welding one test joint. The clearance for re-commencement of welding shall be given by RDSO.

#### **19.0 GUARANTEE**

19.1 Rail joints welded by a firm shall be guaranteed against failure which includes failures in execution, acceptance, acceptance & regular ultrasonic testing and during service up to 2 years from the date of welding the joints in track or from the date such welded

joints made 'on cess' and inserted in the track are open to traffic. Any such welded joints which fail in the criteria given above within the guarantee period shall be re-welded free of cost by firm as per stipulations of clause 18.3.

However, cumulative number of failed AT welds including rewelded joints in criteria given above up to 2 years, shall not exceed 2% of the total quantity of joints in a particular contract. A penalty of three times the rate of supply and execution of joints shall be payable by the firm for each joint failing in above criteria.

- 19.1.1 For upgraded AT welding techniques approved in terms of Part E of IRS T-19: 2021, the joints welded by a firm shall be guaranteed against failure which includes failures in execution, acceptance, acceptance & regular ultrasonic testing and during service up to 120 GMT or 3 years whichever is earlier, from the date of welding the joints in track or from the date such welded joints made 'on cess' and inserted in the track are open to traffic. Any such welded joints which fail in the criteria given above within the guarantee period shall be re-welded free of cost by firm as per stipulations of clause 18.3. However, cumulative number of failed AT welds including rewelded joints of upgraded AT welding technique in criteria given above up to 120 GMT or 3 years whichever is earlier, shall not exceed 0.4% of the total quantity of joints in a particular contract. A penalty of three times the rate of supply and execution of joints shall be payable by the firm for each joint failing in above criteria.
- 19.2 In case of failure of sample test joints (refer Clause 18.4), the period of guarantee for 100 joints represented by the sample joint shall be extended for a further period of one year. In case of failure of joints or joints exhibiting signs of failure by cracking within extended period of guarantee, the joints shall be re-welded free of cost by the supplier as per stipulations of clause 18.3.
- 19.3 The welded joints with the extended period of guarantee shall be punch marked 'X' on the right of markings for month/year in addition to the markings prescribed in Clause 20. Such marked joints shall be kept under careful observation by the purchaser.

## 20.0 MARKING

Each joint shall have a distinctive mark indicating month, year of welding, firm and welder identification code number (as appearing on his competency certificate) at non-gauge face side of AT weld on head as given below:

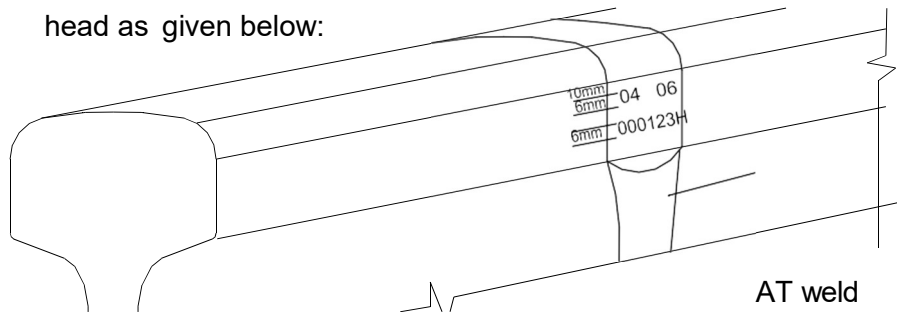


Figure 3 : Location of marking on non-gauge face of welds

M	M
---	---

Month

Y	Y
---	---

Last two digits of year

A	A	B	B	B	B	C	C	C
---	---	---	---	---	---	---	---	---

**(Identification code)**

where,

A	A
---	---

Code number for the agency to which the welder belongs i.e. 00 for AT portion manufacturing firms

01 for departmental welders

02-99 for welders of welding contractors. The codes shall be allotted for different contractual agencies undertaking AT welding of rails (other than portion manufacturers)

B	B	B	B
---	---	---	---

– Specific person number (from 0001 to 9999) The specific person number will be continuous for a Zonal Railway/Firm.

C – For welders of Zonal Railways: First two/three initials of the Railway to which the supervisor or welder belongs

or

For welders of portion manufacturing firms and welding contractors: Code allotted for the portion manufacturing firms, for

whom welders of portion manufacturing firms and welding contractors are approved.

Alphabetic codes allotted to the existing portion manufacturing firms are given below:

**ITC** =T, Railtech/ **HTI**=H, **OTPL**=O, **SIRIL**=S, **RMPL**=R,  
**TPP(NR)**=N, **CDI**=C, **PTEW**=P, **ORA**=A

In case of welders belonging to the welding contractors, this code will signify the portion manufacturing firm for which the competency certificate of welder is valid.

The marking shall be embossed on the non gauge face side of AT weld by punching after finishing of the weld in letters/digits of 6mm height located as indicated in Figure 3 above.

In addition to this, alphabetic code allotted to portion manufacturing firm as per above e.g. T, H, N etc. and year of manufacture (last two digits of the year) shall also be embossed on the mould to appear on web collar.

For example, 010001ECo would indicate a departmental welder/supervisor of East Coast Railway with specific person number 0001. Similarly, 000001T would indicate a welder/supervisor with specific person no. 0001 of portion manufacturer whose code is 'T' i.e. ITC. 020001H would indicate a welder, belonging to welding contractor whose code is 02, having specific person number of 0001 and having competency for welding with portion/technique of portion manufacturing firm with code 'H'."

## **21.0 WITHDRAWAL OF APPROVAL OF PORTION MANUFACTURER/ WELDING SUPERVISOR/ WELDER FROM APPROVED LIST**

The approving authority can delete the name of any Portion Manufacturer/Welding Supervisor/Welder from the approved list based on complaints regarding the performance.

Zonal Railways shall investigate and inform RDSO regarding the poor performance of the AT welder, if the total numbers of defective/ fractured welds executed by him exceeds 2%. The competency certificate of AT welder may be withdrawn and his name will be removed from the list of approved welders based on report and recommendation of Zonal Railway.

## **22.0 PART E: APPROVAL OF PORTION MANUFACTURERS FOR UPGRADED A.T.WELDING TECHNOLOGY**

**22.1** The approval of Portion Manufacturer for upgraded AT welding technology, under this part shall cover firms falling in following categories and having/ intending to have in India manufacturing facilities for portion and consumables and other infrastructural facilities for training of welders and execution of welds. However, the firm shall have manufacturing facilities for portion & consumables and other infrastructural facilities for training of welders & execution of welds as laid down in 'Item specific guidelines for vendor approval/extension of approval for manufacturing of AT portion and execution of AT joints (Documents no. TDG 0017,with latest Revision)' with latest correction slips in India before applying for registration of their firm for approval for manufacturing of AT portion and execution of AT welds of rail.

**22.1.1** Category-I Global Firms

**22.1.1.1** The firm shall be manufacturer of portions and consumables such as moulds, crucible, luting paste, auto thimble etc.

**22.1.1.2** The firm must have a proven international technology, which shall mean that at least 5000 welds must have been executed using the technique on high speed passenger carrying lines (160km/hour and higher) or lines carrying axle loads of 25tonnes and higher in at least three countries. Certificates in this regard from relevant railway systems shall be furnished.

**22.1.1.3** The firm shall have produced and supplied at least 1 million welding kits for variousaluminio-thermic welding processes.

**22.1.1.4** The firm shall possess sound technical and R&D credentials.

**22.1.1.5** The firm shall possess necessary infrastructure namely manpower and machinery for undertaking execution of welds on Indian Railways.

**22.1.1.6** A certificate regarding having complied less than 0.4% failure rate during execution, acceptance, acceptance ultrasonic testing and in service up to 120GMT or 3 years whichever is earlier (this includes weld failures and welds declared defective during regular ultrasonic testing up to three years of installation) from Railway system satisfying speed /axle load criteria given at Para 22.1.1.2, is to be furnished.

**22.1.2** Category-II

**22.1.2.1** Indian firms, having technical collaboration with global firms fulfilling requirements mentioned for Category-I in Para 22.1.1 for manufacturing of portions and consumables, training of welders and execution of welds subject to the condition that the global partner firm categorically gives undertaking regarding sharing of responsibility towards maintaining required standards of consumables, welders and welds and fulfillment of

service performance requirements of welds with their Indian counterpart.

**22.1.3** Category-III

**22.1.3.1** Firms not meeting requirements of Category I & Category II above, but having experience of manufacturing, supplying and executing at least ten thousand AT welds on track having speed of 100Kmph or more and axle load of 20.32t or more. Approval to such firms shall be on provisional basis for three years with condition that such firms shall be eligible to get order up to maximum 25% and 40% of tendered quantity, if the offer is received from single firm and more than one firm respectively, besides fulfilling other provisions contained in this Part.

**22.2** “Approving Authority” shall be Director General, Research Designs & Standards Organisation, Ministry of Railways, Manak Nagar, Lucknow – 226011 or his representative.

**22.3** The approval of ‘Portion manufacturer’ shall be given as per clause Part B of this specification.

**22.4** The welding techniques shall be suitable for axle loads of 25t (freight services at maximum speed of 100 kmph)/18.8t (passenger services at maximum speed of 150 kmph). Operation of 32.5t axle load freight trains and passenger trains up to 200kmph is also contemplated. Separate techniques can be offered suiting to various combinations of axle loads and speeds.

**22.5** PROCEDURE FOR APPROVAL OF PORTION MANUFACTURERS:

**22.5.1** The application for approval shall be submitted by the firm as per “On-line vendor registration system” for approval of their firm for manufacturing of AT portions and welding of rail joints.

**22.5.2** The documents to be submitted by firm in support of credentials shall be as per therequirement of the category in which firm has offered for approval. Further clearance will be given to firm only after the credentials are fulfilled. If in case, documents are found incorrect at any stage of approval/ after approval, the approval process shall be discontinued/ approval shall be withdrawn.

**22.5.3** After credentials are found satisfactory based on records submitted by firm, the applications shall be submitted by firm as per procedure given in Vendor Registration Guidelines available on RDSO

website.

- 22.5.4** The payment shall be made by means specified in 'Vendor Registration Guidelines' available on RDSO website.
- 22.5.5** If the information submitted by the applicant is prima facie found to be satisfactory, the approving authority shall inspect the premises of the applicant for assessment.
- 22.5.6** If the assessment is satisfactory, firm shall be advised to offer their welding technology along with complete details of the process and process parameters e.g. rail section/chemistry, type of preheating, type of crucible used, type of mould, tapping system, weld metal dimensions, weld metal chemistry, fusion width, extent of HAZ, hardness profile etc. After receipt of process details and range of various parameters, firm shall be advised for execution of joints for lab evaluation. During this process the parameters advised by firm shall be verified. In case there is variation, the parameter values obtained during lab evaluation shall be treated as final and frozen for reference.

**22.6** TESTS AND TRIALS FOR APPROVAL OF 'PORTION MANUFACTURERS'

- 22.6.1** The Portion Manufacturer shall manufacture a batch of minimum 50 portions in presence of RDSO representatives at his own cost. Sample portions required for execution of AT welds for lab tests including fatigue test, shall be drawn at random from above mentioned batch by the Approving Authority and their weight be recorded. The weight of the portions shall be within  $\pm 0.25\%$  of the average weight.
- 22.6.2** Following laboratory tests shall be carried out at the manufacturer's works premises or at a laboratory mutually agreed upon between the manufacturer and the approving authority.
  - 22.6.2.1** Twelve test weld joints shall be made as per technique offered by the manufacturer. For preparing these joints, two new rail pieces of same section and grade, each minimum 650 mm long shall be used. The rail table and size of rail head shall be finished. The weld joints shall be subjected to following tests.
    - 22.6.2.1.1** Ultrasonic test on test weld joints shall be carried out as per procedure laid down for Ultrasonic testing of AT Welds in 'Manual for Ultrasonic testing of rails & welds' Revised, 2012" or

its latest revision along with updated correction slips, issued by RDSO, Lucknow. Welds shall not have defects. In case, the weld is in DFW(O) or DFW (R) category in the ultrasonic examination, the joint shall be considered as defective.

- 22.6.2.1.2** Brinell hardness test on all the joints as per clause 4.4.2. The hardness profile obtained shall be recorded. Hardness profile other than Clause 4.4.2 may be permitted, provided-
- a) Firm shall provide proof of present use of proposed hardness profiles on railway network having mixed traffic elsewhere in the globe along with certificate of satisfactory performance from user Railways.
  - b) Firm shall give undertaking that wear on the welds up to traffic equivalent to the half life of rails shall remain controlled to the extent so as to not require replacement of weld on this account.
- 22.6.2.1.3** Transverse load and deflection test as per clause 4.4.3 on six randomly selected joints..
- 22.6.2.1.4** Weld metal chemistry test shall be conducted on six randomly selected test joints on the rail weld running surface at 10mm away from weld transverse axis and composition of steel shall be determined for carbon, manganese, silicon, sulphur, phosphorous, vanadium, molybdenum, aluminium & chromium etc.
- 22.6.2.1.5** Macro examination on deep etched longitudinal section, across the weld on the remaining six joints shall be conducted. This examination shall not reveal any lack of fusion or cracks. Other welding defects, e.g. porosity, inclusions etc. in the weld area in longitudinal section shall be recorded in % of weld area. The size of any individual defect shall also be recorded. For confirming any defect found in macro examination, magnetic crack detection test may also be carried out.
- 22.6.2.1.6** Microscopic examination: Samples for microscopic examination shall be taken and prepared in accordance with Annexure- 1. The structure of the fusion zone and visible heat affected zone shall conform to that defined by the supplier at x 100 magnification.
- 22.6.2.1.7** Any other specific parameter having bearing on performance of welds in service shall also be specifically brought out by the firm along with methodology for measurement/assessment of the

same. Such parameters shall be measured and recorded.

**22.6.3** Fatigue Test

This shall be undertaken as per Para 13 of Part B of specification.

**22.6.4** Provisional Approval

- 22.6.4.1** In case of results of above tests are satisfactory, the firm shall be granted provisional approval for a period of 3 years for execution of welds on the revenue track.

**22.2.1** Field Trial

- 22.2.1.1** First 250 joints, executed as part of first contract by the firm using portions of batches duly inspected and passed by RDSO representative, shall be monitored as part of field trial. These joints shall be ultrasonically tested by the Zonal Railway soon after welding and periodically as laid down for Ultrasonic testing of AT Welds in 'Manual for Ultrasonic testing of rails & welds' Revised, 2012" along with its latest revision and updated correction slips. In case, the weld is in DFW(O) or DFW

(R) category in the ultrasonic examination, the joint shall be considered as defective. The joints shall exhibit less than 0.4% failure rate during execution, acceptance, acceptance ultrasonic testing and in service up to 120GMT or 3 years whichever is earlier. This includes weld failures and welds declared defective during regular ultrasonic testing up to three years of installation. The data of failure rate will be obtained from concerned CTE of the Railway.

- 22.2.1.2** If percentage of defective welds including failures exceeds 0.4% at any stage, the trial shall be discontinued considering the technique to be unsatisfactory. The defective welds, shall be removed from the track, cut and re-welded by the manufacturer at his own expense.

- 22.3** The approving authority shall have free access to the premises of the portion manufacturer at all reasonable times. The portion manufacturer shall furnish all the technical data to the approving authority as and when call for.

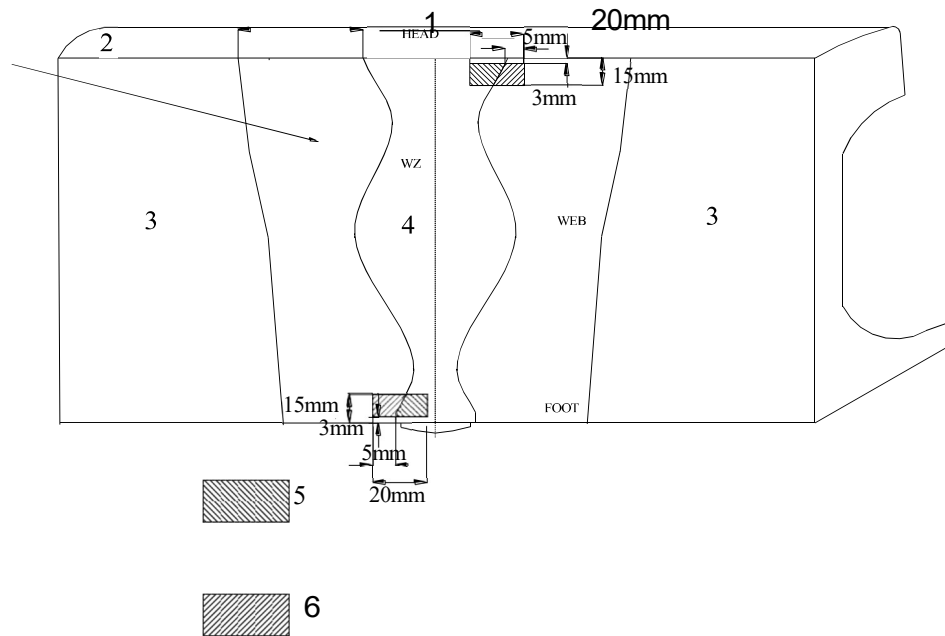
- 22.4** A Bank Guarantee for an amount equal to 30% of the cost of contract, apart from the usual performance guarantee, will have to be submitted by the firm as guarantee against fulfillment of guaranteed service life by the executed welds within one month from the award of the contract. This bank guarantee will be released after successful service life of 120GMT or completion of three years, by the executed

welds, whichever is earlier.

- 22.5** Acceptance test of joints welded at site shall be as per Part-D of this specification.
- 22.6** The firm will be required to provide training to Indian Railway welders in India free of cost for undertaking emergent repair welding on Indian Railway network using approved AT welding technique of the firm as per requirement. A certificate shall be issued by the firm to the successful welders. These trained welders shall be then required to obtain competency certificates from TPP/Lucknow or TWC/Vijayawada for execution of welds on Indian Railway track using firm's approved technique.

### PROCEDURE FOR MICROSCOPIC EXAMINATION OF THE VISIBLE HEATAFFECTED ZONE AND FUSION ZONE OF WELDS

Samples for microscopic examination shall be taken in accordance with Figure given below. The samples shall be prepared and etched in 2% Nital.



**Figure 4**-Scheme for taking samples for microscopic examination

#### Key

1. Width of the visible heat affected zone to be measured at the weld longitudinal centre line of the running surface.
2. Visible heat affected zone.
3. Unaffected parent rail.
4. Weld fusion zone.
5. Area of fusion zone to be examined microscopically.
6. Area of visible heat affected zone to be examined microscopically.

**ANNEXURE -2**

**SPECIFICATION OF 3-PIECES PRE-FABRICATED MOULD MANUFACTURED BY AT  
PORTION MANUFACTURERS FOR USE DURING AT WELDING OF RAILS  
AS PER IRST-19- 2021**

**0.0 FOREWARD:**

**0.1** Indian Railways have introduced Alumino-thermic welding of rail joints since five decades. The mould required for accommodating molten thermit steel around the joint to make a bond between the rails, was earlier made of green sand. Due to introduction of short preheating process in eighties, the moulding practice was switched over to prefabricated sodium silicate dry sand mould or Pre-Fabricated Mould (PFM) with an intention to minimize the welding time and bring improvement in quality of joint.

Earlier 2 pieces PFM were used in Indian Railways. The main drawback of 2 pieces PFM was the appearance of Fins at the bottom of AT joints. To overcome this AT welding defect a new 3 pieces PFM has been developed as per the figure given in Fig.1. Third bottom piece of one set-

3 pieces PFM during AT welding shall not result the bottom fin. However, care must be taken during fitment of 3 pieces PFM so that the two-parting line at the rail flange edges are avoided.

**1.0 SCOPE:**

This standard includes basic requirements & quality control of raw materials required for moulding, manufacture of moulds, quality control during manufacture and of finished product and packing conditions for use during A.T. welding of rails of different sections as per IRS-T-19-2020. This standard shall be applicable for A.T. Portion manufacturers.

**2.0 REFERENCES:**

While preparing this standard following specifications have been referred to:

IRS-T-19- 2020 IRS Specification for fusion welding of rails by Alumino-thermic process

IS:1918-66 (Reaffirmed 2003) Method of physical tests for foundry sands. IS:1987-2002 Specification for High Silica sand for use in foundries.

IS:6773-78 (Reaffirmed 2003) Specification for Sodium Silicate for use in foundries.

IS:10091-81(Reaffirmed 2003) Specification for Iron Oxide Powder for use in foundries.

IS:2-1960(Reaffirmed 2006) Rules for rounding off numerical values.

IS:12446-2007 Specification for Bentonite for use in foundries. IS:10033-1992 (Reaffirmed 2003) Zircon and Graphite based core and mould washes

IS:307-1966 (Reaffirmed 2006) Carbon-di-oxide gas of commercial grade

IS:9738-2003 Polyethylene Bags for General Purposes

IS: 11099-1984 (Reaffirmed 2005) Universal Sand testing machines.

The latest publication of above specification shall be consulted by the users.

### 3.0 ARRANGEMENT OF 3 PIECES PFM

One set of PFM shall comprise 3 pieces of moulds (2 Parts are in identical shape & sizes placed side by side and 3<sup>rd</sup> part is placed at the bottom) as per following sketch:



FRONT VIEW OF  
MOULD IN TWO  
IDENTICAL PIECES

SIDE VIEW OF  
MOULD IN TWO  
IDENTICAL PIECES

TOP VIEW OF MOULD  
BOTTOM THIRD PART

**Fig-5** (Figure is indicative only)

**4.0 RAW MATERIALS:****4.1 HIGH SILICA SAND:**

- 4.1.1** The silica sand shall be of appropriate grade in respect of chemical composition & grain fineness as per IS: 1987-2002. The grade used as per requirement of firm shall be indicated in QAP of firm. The grain shape shall be mostly of sub angular to rounded shape.
- 4.1.2** The manufacturer shall keep record/ inspection certificate of high silica sand, being used in the production as per IS-1987-2002 with proper traceability. The manufacturer shall also carry out its own inspection check on the Silica sand and proper record shall be maintained with traceability.

**4.2 SODIUM SILICATE:**

- 4.2.1** Sodium silicate used as a binding agent for pre-fabricated mould shall be of appropriate grade as per IS: 6773-1978 (Reaffirmed 2003). The grade used as per requirement of firm shall be indicated in QAP of firm.
- 4.2.2** The manufacturer shall keep record/inspection certificate of sodium silicate, being used in the production as per IS: 6773-1978 (Reaffirmed-2003) with proper traceability. The manufacturer shall also have its own inspection check on sodium silicate batch wise as per Appendix-I and proper record shall be maintained with traceability.

**4.3 IRON OXIDE:**

- 4.3.1** Iron oxide is added to the sand mixture to increase the hot strength of the mould. The iron oxide shall be free from clay and in powder form. Iron oxide to IS: 10091-81(Reaffirmed-2003) shall be used as Iron Oxide ingredient.
- 4.3.2** The manufacturer shall keep record/inspection certificate as per IS-10091-1981 (Reaffirmed-2003) with proper traceability of Iron oxide, being used in the production

**4.4 CARBON DI-OXIDE GAS:**

Carbon-di-oxide gas shall be of commercial grade to IS: 307-66 (Reaffirmed 2006). The manufacturer shall keep record of Carbon-di-oxide gas, being used in the production as per IS-307-66 (Reaffirmed 2006) with proper traceability.

**4.5 MOULD WASH:**

- 4.5.1** To achieve good finish of the weld surface, mould wash shall be used. It shall be alcohol base Zircon wash Gr. ZA to IS: 10033-92 (Reaffirmed 2003) (See Appendix- II).

- 4.5.2** The manufacturer shall keep record/inspection certificate of mould wash being used in the production as per IS-10033-92 (Reaffirmed 2003) with proper traceability. The manufacturer shall also have its own inspection check of mould wash batch wise as per Appendix -II and proper record shall be maintained with traceability.

## **5.0 PRODUCT CHARACTERISTICS:**

- 5.1** The mould shall be manufactured by no-bake, sodium silicate process using detachable pattern and shall be suitable for welding the required rail section.
- 5.2** The dimension of the mould shall be such as to give required weld metal geometry of the joint approved by RDSO. The mould shall fit properly with the rail and in the mould shoe.
- 5.3** The mould may be suitably reinforced for adequate stiffness and stiffener design & location shall be a part of the drawing.

## **6.0 PRODUCT TRACEABILITY:**

The insignia containing firm's code allotted (I**I**C=T, Railtech/ **H**TI=H, **Q**TPL=O, **S**IRIL=S, **R**MPL=R, **C**DI=C, TPP(NR)=N, **P**TEW=P, OR**A**=A as per AT welding Manual) and year of manufacture shall be embossed in the mould during manufacture for identification.

## **7.0 QUALITY CONTROL:**

- 7.1** Quality control shall be carried out in two stages:
- Inspection during manufacture.
  - Inspection of the finished mould.

## **7.2 INSPECTION DURING MANUFACTURE:**

- 7.2.1** Firm shall have a Quality Assurance Plan duly approved by the competent authority.
- 7.2.2** Firm shall keep all the records of quality checks of all incoming raw materials as mentioned in Cl. 4.0 of this Annexure-2. The process control activities shall also have necessary inspection record as per the approved QAP.
- 7.2.3** The proportion of the ingredients, pressure and time of passing of CO<sub>2</sub> gas shall also be checked.
- 7.2.4** The dimensions of the pattern for its conformity to the drawings of approved weld design shall also be checked. All the measuring

instruments shall be maintained in functional order.

- 7.2.5** Record of important parameters like moisture content, permeability, hardness and compressive strength (As per IS: 11099-1984-Reaffirmed-2005) of test block of 50x50 mm for every batch i.e. Muller/ Mixer batch of production shall be maintained.

### **7.3** INSPECTION OF THE FINISHED MOULD:

- 7.3.1** For Inspection of finished mould, the Batch size shall be production of each day subject to maximum of batch size of AT welding portion of firm+5%, which shall be included in QAP of firm.

- 7.3.2** The mould shall be sound and it shall not break during transit under normal condition. The name of the test and their frequency, to be carried out on finished mould by the manufacturer at their own and by purchaser or nominated firm shall be as under:

S.No.	Test	Sample size	Remarks
1.	Visual Examination	1% of Batch size rounded off to next higher number	As per para 7.3.3
2.	Dimensional check	2% of Batch size rounded off to next higher number	As per para 7.3.4
3.	Ringing Test	1% of Batch size rounded off to next higher number	As per para 7.3.5
4.	Hardness Test	1% of Batch size rounded off to next higher number	As per para 7.3.6
5.	Internal surface of mould for proper mould wash	1% of Batch size rounded off to next higher number	As per para 7.3.7
6.	Weld metal dimensions	1 per Batch, to be checked along with AT welding Portion inspection.	As per para 7.3.8

The tests shall be carried out at manufacturer's premises. If any test is conducted by outside approved firm, the cost of the test is to be borne by the manufacturer.

### **7.3.3** VISUAL EXAMINATION:

The prefabricated mould shall be checked visually for any visible imperfection, such as surface condition etc.

**7.3.4** **DIMENSIONAL CHECK:**

Dimensional check shall be carried out on 2% of the moulds for their conformity to the respective drawing, fitment with rail end and in mould shoe.

The weld profile dimension achieved in AT weld using developed 3 pieces PF mould shall conform to the approved weld profile dimension. Dimension of 3 pieces PF mould as width and depth at respective web, foot and bottom which affect the weld profile dimension of AT weld will be indicated in QAP of firm and the same shall be standardized during approval. The prescribed limit of Weld profile dimensions as shown in Appendix-III shall be as under:

<b>S. No.</b>	<b>Location of dimensional check</b>		<b>Range (In mm)</b>
1	Web	W1	$\pm 3$
2		D1	$\pm 2$
3	Flange Top	W2	$\pm 3$
4		D2	$\pm 2$
5	Flange Bottom	W3	$\pm 3$
6		D3	$\pm 2$

**7.3.1** **RINGING TEST:**

Ringling Test shall be carried out by using a small and light hammer made of 10 mm steel rod for checking soundness and degree of ramming during manufacture. The mould shall have characteristic ringing sound and shall not break.

**7.3.2** **HARDNESS TEST:**

Hardness Test shall be carried out on the plane surface of the mould using a duly calibrated core hardness tester (scratch type). The min. hardness value for a silicate carbon-di-oxide hardened mould shall be 70. The hardness test shall be carried out as per Cl.26 of IS: 1918-66 (Reaffirmed 2003).

**7.3.3** **INTERNAL SURFACE OF MOULD FOR PROPER MOULD WASH:**

Surface finish shall be checked on the moulds for uniform and sufficient coatings as per Cl.7.3 of APPENDIX-II.

**7.3.4 WELD METAL DIMENSIONS:**

Dimensional check shall be carried out on the finished rail joints using mould pairs for conformity of the approved weld profile dimension of respective AT portion manufacturer.

**7.3.5** All requisite Testing facilities to Inspecting officials shall be provided by the manufacturer at their own cost. The Inspecting officials shall have free access at manufacturer's works in working hours to assess the quality of manufacturing process.

**7.3.6** The manufacturer shall provide test results of raw materials and the batches offered for inspection to the Inspecting officials.

**8.0 SHELF LIFE:**

Shelf life of mould shall be 12 months minimum from the date of manufacturing. Retest of One pair of the mould will be carried out after expiry of 12 months to ascertain the soundness of the mould.

**9.0 PACKING:**

**9.1** Each pre-fabricated mould shall be individually packed and sealed in polyethylene bags made out of polyethylene conforming to IS: 9738-2003 Grade HM HDPE of 150 micron thickness or as prescribed by IRS-T-19 2020.

**9.2** A pair of such packed moulds shall again be packed in carton paper boxes confirming to IS: 2771 (Second Revision). Proper sealing shall be done on each carton.

**9.3** Each carton shall be clearly marked giving manufacturer's name, date of manufacture and rail section, batch number for easy identification.

ANNEXURE-3

**SPECIFICATION OF SINGLE SHOT CRUCIBLE MANUFACTURED BY AT  
PORTIONMANUFACTURERS FOR USE DURING AT WELDING OF RAILS  
AS PER IRST-19- 2021**

**0.0 FOREWARD:**

**0.1** Indian Railways have introduced Alumino-thermic welding of rail joints since five decades. The crucible required for in which the thermit reaction takes place. With the introduction of this crucible it is no more requirement to carry many equipment like heavy long life crucible, fork, stands, ring, crucible cap etc. to the site for conducting the welding. By providing metallic body outside the crucible gives safety against breakage of crucible with a Lid for preventing the molten metal spill out during reaction.

1.0 SCOPE:

This standard includes basic requirements & quality control of raw materials required for manufacture of single shot crucible, quality control during manufacture and of finished product and packing conditions for use during A.T. welding of rails of different sections as per IRS-T-19-2020. This standard shall be applicable for A.T. Portion manufacturers.

2.0 REFERENCES:

While preparing these standard following specifications have been referred to:

IRS-T-19-2020 IRS Specification for fusion welding of rails  
by Alumino-thermic process

IS:1918-66 (Reaffirmed 2003) Method of physical tests  
for foundry sands.

IS:1987-2002 Specification for High Silica sand for use in  
foundries. IS:6773-78(Reaffirmed 2003) Specification for  
Sodium Silicate for use in foundries.

IS:10091-81(Reaffirmed 2003) Specification for Iron Oxide  
Powder for use in foundries.

IS:2-1960(Reaffirmed 2006) Rules for rounding off  
numerical values. IS:12446-2007 Specification for  
Bentonite for use in foundries.

IS:307-1966 (Reaffirmed 2006) Carbon-di-oxide  
gas of commercial grade

IS:9738-2003 Polyethylene Bags for General Purposes

IS: 11099-1984 (Reaffirmed 2005) Universal Sand testing machines.

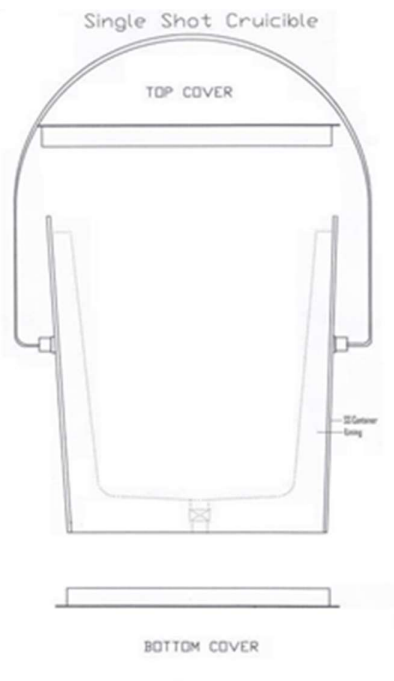
The latest publication of above specification shall be consulted by the users.

### 3.0 ARRANGEMENT OF SINGLE SHOT CRUCIBLE

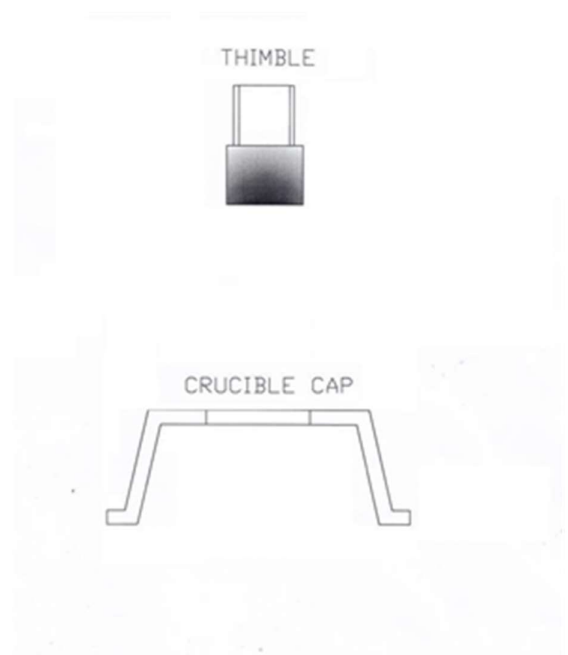
One set of single shot crucible consist of three parts -

- Main crucible body where the thermit reaction takes place.
- Crucible cap which is placed on top of the crucible during thermit reaction for preventing the molten metal spill out during thermit reaction.
- Bucket with handle shall be provided for carrying the Single shot Crucible. Lid of the crucible which is placed on the top is used for sealing the crucible for safe transportation & storage.

This crucible shall be for single use only.



**Single Shot Crucible**



**Crucible cap (X-section at diameter)**



**Lid (X-section at diameter) Fig-  
(Figure is indicative only)**

6

**4.0 RAW MATERIALS:****4.1 HIGH SILICA SAND:**

- 4.1.1** The silica sand shall be of appropriate grade in respect of chemical composition & grain fineness as per IS: 1987-2002. The grade used as per requirement of firm shall be indicated in QAP of firm. The grain shape shall be mostly of sub angular to rounded shape.
- 4.1.2** The manufacturer shall keep record/ inspection certificate of high silica sand, being used in the production as per IS:1987-2002 with proper traceability. The manufacturer shall also carry out its own inspection check on the Silica sand and proper record shall be maintained with traceability.

**4.2 SODIUM SILICATE:**

- 4.2.1** Sodium silicate used as a binding agent for Crucible shall be of appropriate grade as per IS: 6773-1978 (Reaffirmed 2003). The grade used as per requirement of firm shall be indicated in QAP of firm.
- 4.2.2** The manufacturer shall keep record/inspection certificate of sodium silicate, being used in the production as per IS: 6773-1978 (Reaffirmed-2003) with proper traceability. The manufacturer shall also have its own inspection check on sodium silicate batch wise as per Appendix-I and proper record shall be maintained with traceability.

**4.3 IRON OXIDE:**

- 4.3.1** Iron oxide is added to the sand mixture to increase the hot strength of the Crucible. The iron oxide shall be free from clay and in powder form. Iron oxide to IS: 10091-81 (Reaffirmed-2003) shall be used as Iron Oxide ingredient.
- 4.3.2** The manufacturer shall keep record/inspection certificate as per IS: 10091-1981 (Reaffirmed-2003) with proper traceability of Iron oxide, being used in the production.

**4.4 CARBON DI-OXIDE GAS:**

Carbon-di-oxide gas shall be of commercial grade to IS:307-66 (Reaffirmed 2006). The manufacturer shall keep record of Carbon-di-oxide gas, being used in the production as per IS: 307-66 (Reaffirmed 2006) with proper traceability.

**CRUCIBLE CONTAINER OF STEEL SHEET WITH HANDLE:**

- 4.4.1** The container shall be of appropriate thickness and as per approved drawing submitted by the individual manufacturer. It shall be strong enough to protect the Single shot Crucible during transportation.

**4.5 OTHER INGREDIENTS - THIMBLE PARTS:**

The Crucible shall be fitted with in-built Automatic tapping thimble which allows to flow the liquid steel automatically into the prefabricated mould.

**5.0 PRODUCT CHARACTERISTICS:**

- 5.1** The crucible shall be manufactured by no-bake, sodium silicate process using detachable pattern and shall be suitable for thermit welding.
- 5.2** The dimension of the crucible shall be such as to give required accommodation for taking weld metal reaction.
- 5.3** The crucible may be suitably in house in a steel sheet container for safety of the crucible.

**6.0 PRODUCT TRACEABILITY:**

The insignia containing firm's code allotted (I**T**C=**T**, Railtech/ **H**TI=**H**, **Q**TPL=**O**, **S**IRIL=**S**, **R**MPL=**R**, **I**EA=**F**, **C**DI=**C**, TPP(**N**R)=**N**, **P**TEW=**P** as per AT welding Manual) and year of manufacture shall be Marked in the crucible during manufacture for identification.

**QUALITY CONTROL:** Quality control shall be carried out in two stages:

- a) Inspection during manufacture.
- b) Inspection of the finished crucible.

**6.1 INSPECTION DURING MANUFACTURE:**

- 6.1.1** Firm shall have a Quality Assurance Plan duly approved by the competent authority.
- 6.1.2** Firm shall keep all the records of quality checks of all incoming raw materials as mentioned in Cl. 4.0 of this Annexure-3. The process control activities shall also have necessary inspection record as per the approved QAP.
- 6.1.3** The proportion of the ingredients, pressure and time of passing of CO<sub>2</sub> gas shall also be checked.
- 6.1.4** The dimensions of the pattern for its conformity to the drawings of approved design shall also be checked. All the measuring instruments shall be maintained in functional order.
- 6.1.5** Record of important parameters like moisture content, permeability, hardness and compressive strength (As per IS: 11099-1984-Reaffirmed-2005) of test block of 50x50 mm for every batch i.e. Muller/ Mixer batch of production shall be maintained.

**6.2 INSPECTION OF THE FINISHED CRUCIBLE:**

**6.2.1** For Inspection of finished crucible, the Batch size shall be production of each day subject to maximum of batch size of AT welding portion of firm+5%, which shall be included in QAP of firm.

**6.2.2** The crucible shall be sound and it shall not break during transit under normal condition. The name of the test and their frequency, to be carried out on finished crucible by the manufacturer at their own and by purchaser or nominated firm shall be as under:

S.No.	Test	Sample size	Remarks
1.	Visual Examination	1% of Batch size rounded off to next higher number	As per Para 7.3.3 below
2.	Dimensional check	2% of Batch size rounded off to next higher number	As per Para 7.3.4 below

The tests shall be carried out at manufacturer's premises. If any test is conducted by outside approved firm, the cost of the test is to be borne by the manufacturer.

**6.2.3 VISUAL EXAMINATION:**

The prefabricated crucible shall be checked visually for any visible imperfection, such as surface condition, crack, moisture etc.

**6.2.4 DIMENSIONAL CHECK:**

Dimensional check shall be carried out on 2% of the Crucible for their conformity to the respective drawing.

**6.2.5** All requisite Testing facilities to Inspecting officials shall be provided by the manufacturer at their own cost. The Inspecting officials shall have free access at manufacturer's works in working hours to assess the quality of manufacturing process.

**6.2.6** The manufacturer shall provide test results of raw materials and the batches offered for inspection to the Inspecting officials.

**8.0 SHELF LIFE:**

Shelf life of Crucible shall be 12 months minimum from the date of manufacturing. Retest of One Crucible will be carried out after expiry of 12 months to ascertain the soundness of the crucible.

**9.0 PACKING:**

**9.1** Each Crucible shall be individually packed and sealed in polyethylene bags made out of polyethylene conforming to IS: 9738-2003 Grade HM HDPE of 150 micron thickness or as prescribed by IRS-T-19-2020.

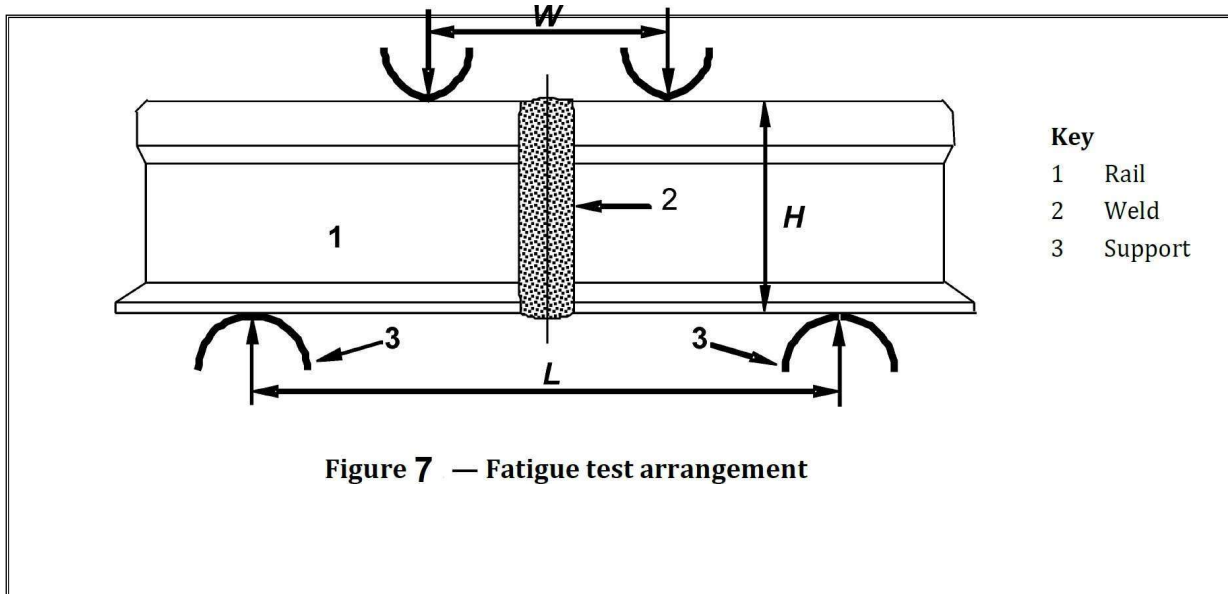
**9.2** Such packed Crucible shall again be packed in carton paper boxes

confirming to IS: 2771 (Second Revision). Proper sealing shall be done on each carton.

- 9.3** Each carton shall be clearly marked giving manufacturer's name, date of manufacture and rail section, batch number for easy identification.

**FATIGUE TEST ARRANGEMENT FOR AT WELDS**

Test shall be conducted in four point bending with stress range and Test frequency as specified in the Para 13.3 of this specification.



**Figure 7 — Fatigue test arrangement**

The inner span (W) shall be a minimum 150 mm plus weld collar width under the foot. The outer span (L) shall exceed the inner span by at least twice the rail height (H) and shall be symmetrical about the inner span

$$L \geq W + 2 \cdot H$$

The inner and outer spans shall be measured and recorded. The distances from the centre line of the actuator to the loading points shall be measured and recorded. Corresponding dimensions on either side of the actuator centre line shall not differ by more than 3 mm.

The radius of curvature of the loading points shall not be less than 40 mm. The loading point contact surfaces shall be free to translate or rotate so that friction between the loading points and the specimen is minimized.

ANNEXURE-5

**General information of field trial joints for AT welding technique for..... grade rails with-----mm gap, Compressed Air-Petrol pre-heating, three piece mould (Zircon washed) and Single ShotCrucible fitted with Automatic tapping thimble developed by M/s .....**

1. Name of welding supervisor and Competency details :
2. Name of welder and Competency details :
3. Portion's Batch no. :
4. Date of manufacture of portion :
5. Weight of portion :
6. Heating Technique :
7. Heating Device :
8. Type of Mould :
9. Welding done in situ/cess :
10. Tapping Time :
11. Chipping device and time :
12. Grinding done by :
13. Under Sr. Section Engineer :
14. Section :
15. Division :
16. GMT of the section :

**Sign of Firm's**

**Representative**

**Sign of Nominated Railway  
official  
(Not below the rank of JE/SSE)**

**Counter sign of  
concerned**

**sectional ADEN**

**Tenderers**

**DyCECDR**




Sign of Firm's  
Representative

Sign of Nominated Railway  
official  
(Not below the rank of JE/SSE)

Counter sign of  
concerned  
sectional AXEN

**ANNEXURE-5A**

**INITIAL USFD TEST REPORT OF FIELD TRIAL JOINTS FOR AT  
WELDING TECHNIQUE FOR..... DETAILS OF AT  
WELDING TECHNIQUE**

**..... DEVELOPED BY  
M/s.....**

**Machine Details:- (Make, Model no. and Sl.No.)**

SL.	Section(Between Station)	Joint No.	Location KM/TP	Chainage	Line UP/DN	LH/RH	Rail	Ultrasonic Test Results For*					Remarks#
								0° PROBE/2MHZ	AT WELD HEAD scanning 70° PROBE/2MHZ	AT WELD FLANGE scanning 70° PROBE/2MHZ	AT WELD FOOT scanning 45° PROBE/2MHZ	TAN DE M PRO BE scann ing 45° PRO BE/ 2MHZ	
1		1											
2		2											
3		3											
4		4											
5		5											
6		6											
7		7											
8		8											
9		9											
10		10											
-		-											
50		50											

**Tenderers**

**DyCECDR**

\*For each type of USFD testing if any flaw peak is observed, Details of peak height (in terms of Full scale eight)/travel and location (as per Note given at Chapter 8 of USFD Manual) be given ,Write "OK" if satisfactory.

# Classification of AT weld as per USFD Manual be indicated Write "OK" if satisfactory.

**Signature of Operator   Counter signed with date and  
designations  
AXEN**

**ANNEXURE-5B****FINAL USFD TEST REPORT OF FIELD TRIAL JOINTS FOR AT  
WELDING TECHNIQUE FOR .....DETAILS OF AT WELDING TECHNIQUE**

..... DEVELOPED BY  
M/s.....

**Machine Details:-** (Make, Model no. and SI.No.)

SL.	Section(Between Station)	Joint No.	Location KM/TP	Chainage	Line UP/DN LH/RH	Rail	Section	Ultrasonic Test Results For*					Remarks#
								0° PROBE/2MHZ	AT WELD HEAD scanning 70° PROBE/2MHZ	AT WELD FLANGE scanning 70° PROBE/2MHZ	AT WELD FOOT scanning 45° PROBE/2MHZ	TAN DE M PRO BE scann ing 45° PRO BE/ 2MHZ	
1		1											
2		2											
3		3											
4		4											
5		5											
6		6											
7		7											
8		8											
9		9											
10		10											
-		-											
50		50											

**Tenderers**

**DyCECDR**

\*For each type of USFD testing if any flaw peak is observed, Details of peak height (in terms of Full scale height)/travel and location (as per Note given at Chapter 8 of USFD Manual) be given ,Write "OK" if satisfactory.

# Classification of AT weld as per USFD Manual be indicated Write "OK" if satisfactory.

**Signature of Operator**

**Counter signed  
with date and  
designation  
(Not below DyCECDR rank officer)**

**ANNEXURE-5C****Final Inspection Report of Field Trial Joints**

**Final Inspection report of field trial joints for AT welding technique for....  
rails with \_\_\_\_\_ mm  
gap, Compressed Air-Petrol pre-heating, three piece mould (Zircon washed)  
and Single Shot Cruciblefitted with Automatic tapping thimble developed by  
M/s .....**

1. Name of welding supervisor  
and Competency details :
2. Name of welder and  
competency details :
3. Portion's Batch no. :
4. Date of manufacture of portion :
5. Weight of portion :
6. Heating Technique :
7. Heating Device :
8. Type of Mould :
9. Welding done in situ/cess :
10. Tapping Time :
11. Chipping device and time :
12. Grinding done by :
13. Under Sr. Section Engineer :
14. Section :
15. Division :
16. GMT of the section :

**Sign of Firm's****Representative****Sign of Nominated Railway  
official  
(Not below the rank of JE/SSE)****Counter sign of  
concerned****sectional AXEN**

Final Inspection Report of Field Trial Joints

Final Inspection report of field trial joints for AT welding technique for ..... rails with mm gap, Compressed Air-Petrol pre-heating, three piece mould (Zircon washed) and Single ShotCrucible fitted with Automatic tapping thimble developed by M/s

.....

SN	Joint No.	Km/ post	Chainage	UP/DN	LH/RH	Between	Date of Welding	In Situ/ Cess	Date of Laying	USFD Result	Tolerance in Weld		Physical condition	Remarks
											With 1m stretched: +1.0mm -0.0mm Lat: ±0.5mm	With 10 top: +0.4mm -0.0mm Lat: ±0.3mm		

Sign of Firm's  
Representative

Sign of Nominated Railway  
official  
(Not below the rank of JE/SSE)

Counter sign of  
concerned  
sectional AXEN

**APPENDIX-I****REQUIREMENTS FOR SODIUM SILICATE**

Extracts from **IS: 6773-1978** (Reaffirmed -2003)

**CI.4.2** The material shall conform to requirements given in Table below: (For appropriate grade to be decided by the manufacturer)

S.No.	Characteristic	Requirement	Method of Test (Ref to Clause No. in Appendix A of IS:6773-1978)
i)	Total soluble silica (as SiO <sub>2</sub> ), percent by mass		A-3 and A-5
ii)	Total alkalinity (as Na <sub>2</sub> O), percent by mass		A-4 and A-5
iii)	Mass ratio of total soluble silica (as SiO <sub>2</sub> ) to total alkalinity (as Na <sub>2</sub> O)		A-6
iv	Relative density at 20° C		--
v)	Total invert sugar contents, percent		A-7

**CI. 7.1(c)** Date of manufacture and date of expiry, if any.

**REQUIREMENTS FOR ALCOHOL BASE ZIRCON WASH**

Extracts from **IS: 10033-1992** (Reaffirmed-2003)

**Cl.5 Condition of the material:**

The material shall be of uniform nature free from lumps whether in powderpaste or in ready to use form.

**Cl.6.1 Chemical composition of Zircon-wash Gr-ZA:**

When tested in accordance with IS: 10085-1982, the ZrO<sub>2</sub> content of ZAGrade wash shall not be less than 60 percent.

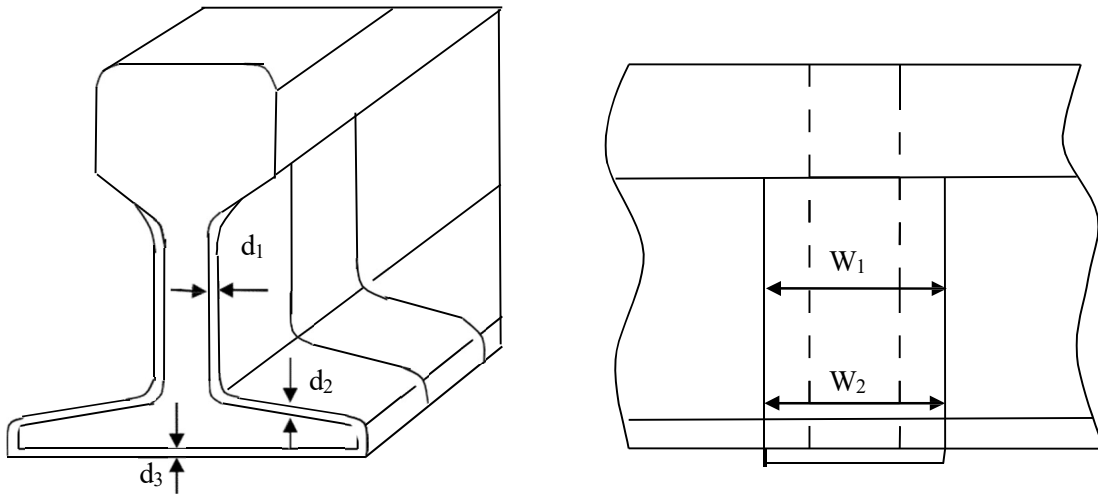
**Cl.7.3 Coating Quality:**

Wash when prepared and applied as per the recommendation of suppliers shall be of the following quality:

- a) The wash shall give an uniform coating free of cracks before and after baking.
- b) The dried coating shall be hard enough so that by scratching with nail, the coating does not peel off or by gentle rubbing material is not transferred to the finger.
- c) Alcohol base coated surface after ignition shall be free from wet patches in the surface.

**Cl.11.1** The bags or the containers shall be marked with manufacturer's name, production batch No., date of manufacture and date of expiry.

**LOCATION OF  
APPROVED WELD PROFILE DESIGN/ DIMENSION**



$W_1$ = Width at the centre of web at the location of  $d_1$  as shown in

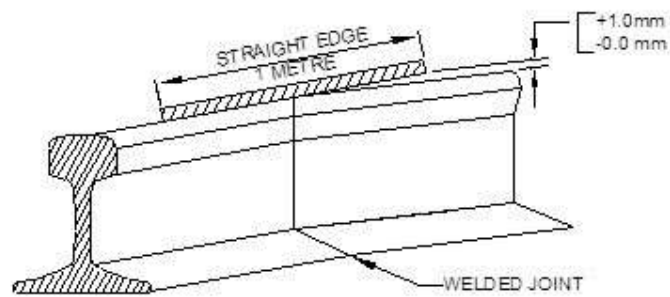
Fig.  $W_2$ = Width of reinforcement at foot at the location of  $d_2$  as shown in Fig.

$W_3$ = Width of reinforcement at bottom of flange at the location of  $d_3$  as shown in Fig.

$d_1$ = Thickness of reinforcement at

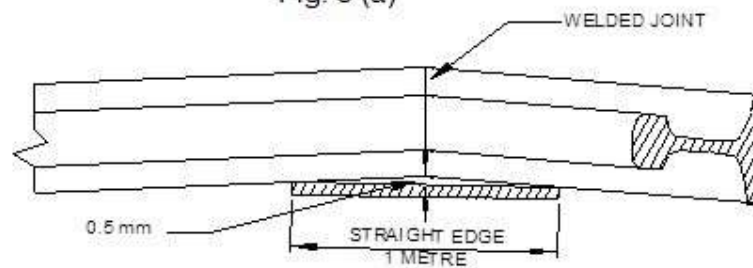
web  $d_2$ = Thickness of reinforcement at foot

$d_3$ = Thickness of reinforcement at bottom of



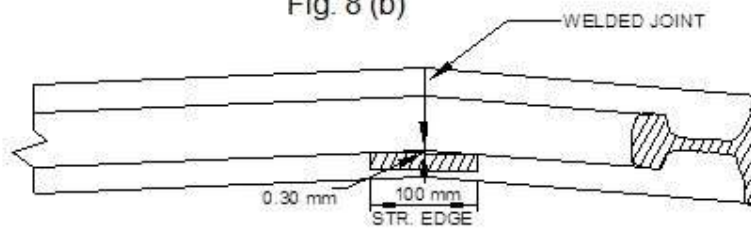
TOLERANCE FOR VERTICAL MISALIGNMENT OF WELDED JOINT

Fig. 8 (a)



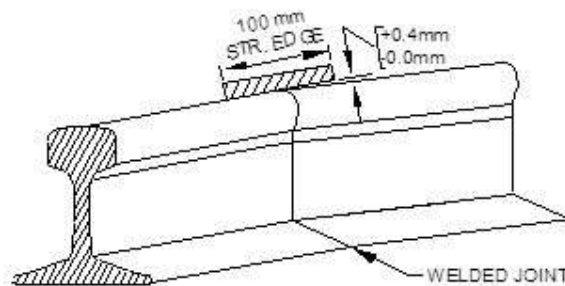
TOLERANCE FOR LATERAL MISALIGNMENT OF WELDED JOINT

Fig. 8 (b)



TOLERANCE FOR FINISHING ON SIDES OF HEAD OF WELDED JOINT

Fig. 8 (c)



TOLERANCE FOR FINISHING TOP TABLE SURFACE OF WELDED JOINT

Fig. 8 (d)

*With Correction Slip No. 1, dt.  
3.3.2005 Correction Slip no. 2 dt.  
12.6.2006  
Correction Slip no. 3 dt. 05.01.2009  
Correction Slip no. 4 dt. 10.05.2016*



**SPECIFICATIONS FOR**

**TRACK BALLAST**

**GE:IRS-1**

**JUNE-2004**

**CONTENTS**

	<b>Title</b>	<b>Page No.</b>
1	Scope	1
2	Detailed Specifications	1
3	Conditions for submission of tender	3
4	Method of measurement	3
5	Sampling and Testing	4

**ANNEXURES**

(Test Methods based on relevant IS Codes)

1	Aggregate Abrasion Value	6
2	Aggregate Impact Value	7
3	Water Absorption	8

### **SPECIFICATION FOR TRACK BALLAST**

1. **SCOPE:** These specifications will be applicable for stone ballast to be used for all types of sleepers on normal track, turnouts, tunnels and deck slabs etc on all routes.
2. **DETAILED SPECIFICATIONS:**
  - 2.1 **GENERAL**
    - 2.1.1 **Basic Quality:** Ballast should be hard durable and as far as possible angular along edges/corners, free from weathered portions of parent rock, organic impurities and inorganic residues.
    - 2.1.2 **Particle shape:** Ballast should be cubical in shape as far as possible. Individual pieces should not be flaky and should have generally flat faces with not more than two rounded/ sub rounded faces.
    - 2.1.3 **Mode of manufacture:** Ballast for all BG main lines and running lines, except on 'E' routes but including 'E' special routes, shall be machine crushed. For other BG lines and MG/NG routes planned/sanctioned for conversion, the ballast shall preferably be machine crushed. Hand broken ballast can be used in exceptional cases with prior approval of Chief Track Engineer/CAO/C. Such approval shall be obtained prior to invitation of tenders.

On other MG and NG routes not planned/sanctioned for conversion hand broken ballast can be used for which no approval shall be required.

## **2.2 PHYSICAL PROPERTIES**

- 2.2.1 Ballast sample should satisfy the following physical properties in accordance with IS:2386 Pt.IV-1963 when tested as per the procedure given in Annexure-I & II.

	BG, MG & NG(planned/sanctioned those For conversion) conversion)	NG & MG(other than planned for
Aggregate	30% Max.*	35% Max.
Abrasion value		
Aggregate	20% Max.*	30% Max.
Impact value		

\* In exceptional cases, on technical and/or economic grounds relaxable upto 35% and 25% respectively by CTE in open line and CAO/C for construction projects. The relaxation in Abrasion and Impact values shall be given prior to invitation of tender and should be incorporated in the Tender document.

- 2.2.2 To carry out Impact Test on ballast, a test sample of ballast pieces (about 5 kg in weight) of size 10 mm to 12.5 mm will be required. Appropriate care should be taken by the railways that ballast selected for breaking down to 10 mm to 12.5 mm size for Impact Test should be random from the ballast supply to avoid any subjectivity in selection of test sample. Alternatively, the test sample in the recommended range of size be got manufactured along with the ballast in sufficient quantity required for this test.
- 2.2.3 The '**Water Absorption**' tested as per IS 2386 Pt.III-1963 following the procedure

given in Annexure III should not be more than 1%. This test however, *to be prescribed at the discretion of CE/CTE in open line and CAO/Con. For construction projects.*

- 2.2.3.1 The power of relaxing for water absorption limit should be delegated to CTE in open line/CAO on construction for specified areas. However, maximum water absorption in any case should not be allowed more than 2.5%.  
(Correction Slip No. 3)

## **2.3 SIZE AND GRADATION**

### **2.3.1 Ballast should satisfy the following size and gradation:**

- a) Retained on 65mm Sq.mesh sieve 5% Maximum
- b) Retained on 40mm Sq.mesh sieve\* 40%-60%
- c) Retained on 20mm Sq.mesh sieve Not less than 98% for machine crushed  
Not less than 95% for hand broken

- 2.3.1.1 In exceptional cases, where it is considered necessary on technical considerations, to reduce the maximum size of ballast for NG lines, CTE may modify the size & gradation of the ballast as defined above. In case of such modifications, provision given in para 2.3.2 to 2.3.4 below shall also be suitably modified. This will be finalized before invitation of tenders and should be incorporated in the tender documents. (Correction Slip No. 1 )

### **2.3.2 Oversize ballast**

- i) Retention on 65mm square mesh sieve.  
A maximum of 5% ballast retained on 65mm sieve shall be allowed without deduction in payment. In case ballast retained on 65mm sieve exceeds 5% but does not exceed 10%, payment at 5% reduction in contracted rate shall be made for the full stack. Stacks having more than 10% retention of ballast on 65mm sieve shall be rejected.
- ii) In case ballast retained on 40mm square mesh sieve (machine crushed case only) exceeds 60% limit prescribed in 2.3.1 (b) above, payment at the following reduced rates shall be made for the full stack in addition to the reduction worked out at i) above.
  - 5% reduction in contracted rates if retention on 40mm square mesh sieve is between 60% (excluding) and 65% (including).
  - 10% reduction in contracted rates if retention on 40mm square mesh sieve is between 65% (excluding) and 70% (including).
- iii) In case retention on 40mm square mesh sieve exceeds 70%, the stack shall be rejected.
- iv) In case of hand broken ballast supply, 40mm sieve analysis may not be carried out. The executive may however ensure that the ballast is well graded between 65mm and 20mm size.

### **2.3.3 Under Size Ballast:** The Ballast shall be treated as undersize and shall be rejected if-

- i) Retention on 40mm Sq. Mesh sieve is less than 40%.
- ii) Retention on 20mm square mesh sieve is less than 98% (for machine crushed) or 95% (for hand broken).

### **2.3.4 Method of Sieve Analysis:**

- 2.3.4.1 The test sieves used for sieve analysis shall conform to the specifications given in Annexure -IV.

2.3.4.2 While carrying out sieve analysis, the screen shall not be kept inclined, but held horizontally and shaken vigorously. The pieces of ballast retained on the screen can be turned with hand to see if they pass through but should not be pushed through the sieve.

2.3.4.3 The percentage passing through or retained on the sieve shall be determined by weight. The weighing equipment used shall NOT have least count more than 100 grams. (Correction Slip No. 4)

### 3. CONDITIONS FOR SUBMISSION OF TENDER

3.1 Each tenderer at the time of tendering shall submit the test report of Impact Value, Abrasion Value, Water Absorption Value from approved laboratories and the list of these laboratories shall be mentioned in the tender documents.

3.2 The tenderer shall also furnish an undertaking as incorporated in the tender document that the ballast supply at all times will conform to Specifications for Track Ballast as specified by Railway.

### 4. METHOD OF MEASUREMENT

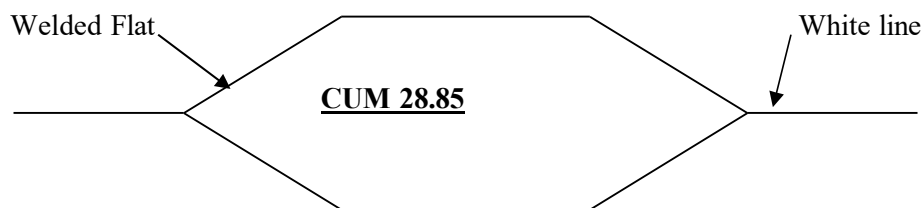
#### 4.1 Stack Measurement

Stacking shall be done on a neat, plain and firm ground with good drainage. The height of stack shall not be less than 1m except in hilly areas where it may be 0.5m. The height shall not be more than 2.0m. Top width of stack shall not be less than 1.0m. Top of stack shall be kept parallel to the ground plane. The side slopes of stack should not be flatter than 1.5:1 (Horizontal : Vertical). Cubical content of each stack shall normally be not less than 30 cum in plain areas and 15 cum in hilly areas.

#### 4.2 Wagon Measurement

4.2.1 In case of ballast supply taken by direct loading into wagons, a continuous white line should be painted inside the wagon to indicate the level to which the ballast should be loaded. The cubical content in cubic meter corresponding to white line should also be painted on both sides outside the wagon.

4.2.2 In addition to painted line, mentioned in para 4.2.1, short pieces of flats (cut pieces of tie bars or otherwise) with cubical contents punched shall be welded at the centre of all the four sides as permanent reference. In case the supply is taken in general service wagon, actual measurements will be taken.



#### 4.3 Shrinkage Allowance

Payment shall be made for the gross measurements either in stacks or in wagons without any deduction for shrinkage/voids. However, when ballast supply is made in wagons, shrinkage upto 8% shall be permitted at destination while verifying the booked quantities by the consignee.

## 5. SAMPLING AND TESTING

### 5.1 General

- 5.1.1** 5.1.1 The samples shall be drawn with due diligence and adequate precaution so that they represent the true nature and condition of the ballast.
- 5.1.2** 5.1.2 Being a heterogeneous material, the gradation of ballast loaded in wagons and/or dumped/inserted in the track may not remain same as that initially checked in stacks, due to lifting, loading, transportation, unloading etc. Similarly in case of direct loading into wagons, the gradation of ballast at destination may not remain same as that at source, due to loading, transportation etc. Therefore, the samples from wagons and track are not representative samples as far as gradation is concerned. Even in the same stack, results of two checks may not be same.
- 5.1.3** The samples from a stack taken after lapse of a long period of stacking are not representative samples of the ballast initially supplied in the stack, due to settling down of smaller size particles in voids underneath, dirt/dust getting accumulated in the stack, rains etc.

### 5. Sampling Frequency

In order to ensure supply of uniform quality of ballast, the following norms shall be followed in respect of sampling, testing and acceptance:

- 5.2.1** On supply of the first 100 cum, the tests for Size & Gradation, Abrasion Value, Impact Value and Water Absorption (if prescribed) shall be carried out by Railway. Further supply shall be accepted only after this ballast satisfies the specifications for these tests. Railway reserves the right to terminate the contract as per GCC at this stage itself in case the ballast supply fails to conform with any of these specifications.

#### 5.2.2 Subsequent tests shall be carried out as follows

Type of Tests	Supply in stacks	Supply in wagons
a) Size and Gradation Tests.	One for each 100 cum or part thereof in any stack	One for each 100 cum or part thereof for quantity to be loaded in wagons
b) Abrasion Value, Impact Value and Water Absorption Value (*)	One Test for every 2000 cum	

**\*\*** These tests shall be done for the purpose of monitoring quality during supply. In case of the test results not being as per the prescribed specifications at any stage, further supplies shall be suspended till suitable corrective action is taken and supplies ensured as per specifications. One for each 100 cum or part thereof in any stack The above tests may be carried-out more frequently, at the discretion of Railway.

- 5.2.3** All tests for Abrasion Value, Impact Value and Water Absorption should be got done through approved laboratories or Railway's own laboratories (list of these laboratories shall be mentioned in the tender document). These tests, subsequent to award of contract, shall be done at Railway's cost.

#### 5.3 Supply of ballast in Stacks

### 5.3.1 Sampling Procedure

- (i) At the time of formation of stacks, sufficient care should be taken to ensure that there is sufficient space around the stack to facilitate movement of JCB/Power Equipments. The length and width of each stack shall be kept in such a way that every part of the stack is accessible to the JCB or Power Equipment, to be deployed for drawing "Samples".
- (ii) In case of ballast supply in stacks, three "Samples" each of 0.3-0.5 cum volume, one, sample each from two sides and one sample from top after removing outer layer (150-200 mm) should be collected from stack for every 100 cum or part thereof, by JCB or other suitable Power Equipment.
- (iii) The location (in plan) and depths of sampling points shall be varied for different "Samples" and different stacks in a lot
- (iv) "Gross Sample" should be prepared by thoroughly mixing the three "Samples" collected as in (ii) above, using JCB bucket or any other suitable Power Equipment, on a clean, flat and hard surface.

Note: In exceptional cases of site specific constraints, approval of Competent Authority (Engineer-in-charge) shall be taken prior to invitation of tender, for using manual means for collection and mixing of "Samples", and this should be incorporated in the Tender Document.

- (v) A "Test Sample" of volume 0.027 cum shall be drawn from each of the "Gross Sample", by the method described in Para 5.3.1 (vi), for carrying out Size & Gradation tests.
- (vi) Method for drawing "Test Sample": The ballast in "Gross Sample" shall be scooped into a cone shaped pile by taking care to drop each scoopful exactly over the same spot. After the cone is formed, it shall be flattened by pressing the top of cone with a smooth surface. Then it is cut into quarters by two lines which intersect at right angles at the centre of the cone. The bulk of the sample is reduced by rejecting any two diagonally opposite quarters. The remaining ballast shall be mixed and "test sample" shall be drawn for testing. After drawing "test sample" the left over ballast of "Gross Sample" shall be dumped back in the stack.

- (vii) In case clean, flat and hard surface is not available then a tarpaulin or any other suitable sheet may be used on a flat surface for mixing, drawing and sieve analysis of samples.

5.3.2 In case of stacks of volume more than 100 cum, more than one "Test Samples" will be tested for Size & Gradation. In such cases, the sieve analysis results of all the "Test Samples" shall individually conform to following gradation, for acceptance/rejection of the whole stack:

- (i) Retention on 20mm Sq. Mesh Sieve shall not be less than 98% for machine crushed ballast (not less than 95% for hand broken ballast).
- (ii) Retention on 40mm Sq. Mesh Sieve shall be between 40 to 70%.
- (iii) Retention on 65mm Sq. Mesh Sieve shall not be more than 10%.

The full payment/reduced payment for the whole stack, as given in Para 2.3 of the "Specifications for Track Ballast (IRS-GE-1, June-2004)", shall be decided based on the average of the sieve analysis results of all the "Test Samples" for a stack.

### 5.4 Supply of ballast in Heaps for Loading directly in Wagons :

5.4.1 Sampling Procedure Samples of ballast shall be collected from heaps of ballast proposed to be loaded into the wagons. For this, the contractor shall inform ADEN in-charge in writing sufficiently in advance before placement of rake, about the location of ballast heaps from where it is to be loaded into wagons. ADEN in-charge shall decide the location of heaps from which sampling is to be done, judiciously covering the entire quantity of ballast to be loaded in the rake.

5.4.2 Based on the approx. quantity of ballast to be loaded in the rake, methodology for sampling of ballast to be followed shall be the same as in Para-5.3.1 and 5.3.2 above.

1. **Apparatus** **Aggregate Abrasion Value (Based on IS:2386 Part IV-1963)**

**ANNEXURE-I**

- 1.1 The abrasion test for track ballast shall be carried out using **Los-Angles Machine** as per fig.1.
- 1.2 The **abrasive charge** shall consist of 12 nos. cast iron or steel spheres approx. 48mm dia and each weighing between 390 and 445 gm ensuring total weight of charge as  $5,000 \pm 25$ gm.

1.3 **IS sieves** of sizes 50mm, 40mm, 25mm and 1.70mm.

1.4 **Drying Oven**

2. **Test Sample**

- 2.1 The test sample of 10,000gm shall consist of clean ballast conforming to the following grading:

- Passing 50mm and retained on

40mm square mesh sieve 5,000 gm@

- Passing 40mm and retained on 25mm square mesh sieve

5,000

gm@ @ tolerance of  $\pm 2\%$  permitted.

- 2.2 The sample shall be dried in oven at  $100 - 110^\circ\text{C}$  to a constant weight and weighed (Weight 'A').

3. **Test Procedure**

The test sample and the abrasive charge shall be placed in the Los-Angeles abrasion testing machine and the machine rotated at a speed of 20-33 revolutions/minute for 1000 revolutions. At the completion of test, the material shall be discharged and sieved through 1.70mm IS sieve.

4. **Analysis and reporting of the Result**

- 4.1 The material coarser than 1.70mm IS sieve shall be washed, dried in oven at  $100 - 110^\circ\text{C}$  to a constant weight and weighed (weight B).

- 4.2 The proportion of loss between Weight "A" and Weight "B" of the test sample shall be expressed as a percentage of the original weight of the test sample. This value shall be reported as:

$$\text{Aggregate Abrasion Value} = \frac{A-B}{A} \times 100$$

**ANNEXURE-II**

**Aggregate impact value  
(Based on IS:2386 Part IV-  
1963)**

**1. Apparatus**

The apparatus shall consist of the following

- a) **Impact testing machine** conforming to IS:2386 part IV-1963 as per fig.2.
- b) **IS Sieve** of sizes 12.5mm, 10mm and 2.36mm.
- c) **A cylindrical metal measure** of 75mm dia & 50mm depth.
- d) **A tamping rod** 10mm circular cross section and 230mm length, rounded at one end.
- e) **Drying Oven**

**2. Test Sample**

- 2.1 The test sample shall be prepared out of track ballast so as to conform to following grading:
  - Passing 12.5mm IS sieve      100%
  - Retention 10mm IS sieve      100%
- 2.2 The sample shall be oven dried for 4 hours at a temperature of 100-110°C and cooled.
- 2.3 The measure shall be filled about one-third full with the prepared aggregate and tamped with 25 strokes of the tamping rod. A further similar quantity of aggregate shall be added and a further tamping of 25 strokes given. The measure shall finally be filled to overflowing, tamped 25 times and the surplus aggregate struck off, using and tamping rod as a straight edge. The net weight of the aggregate in the measure shall be determined to the nearest gm (weight 'A').

**3. Test Procedure**

- 3.1 The cup of impact testing machine shall be fixed firmly in the position on the base of the machine and the whole of the test sample placed in it and compacted by 25 strokes of the tamping rod.
- 3.2 The hammer shall be raised 380mm above the upper surface of the aggregate in the cup and allowed to fall freely on to the aggregate. The test sample shall be subjected to a total of 15 such blows, each being delivered at an interval of not less than one second.

**4. Analysis and Reporting of the result**

- 4.1 The sample shall be removed and sieved through 2.36mm IS sieve. The fraction passing through shall be weighed ( Weight 'B' ). The fraction retained on the sieve shall also be weighed ( Weight 'C' ) and if the total weight (B+C ) is less than the initial weight ( Weight 'A' ) by more than one gm, the result shall be discarded and a fresh test made.
- 4.2 The ratio of the weight of the fines formed to the total sample weight

shall be expressed as a percentage.

$$\text{Aggregate Impact Value} = (B/A) \times 100$$

- 4.3 Two such tests shall be carried out and the mean of the results shall be reported to the nearest whole number as the Aggregate Impact Value of the tested material.

# 1. Apparatus

## ANNEXURE-III

### Water Absorption (Based on IS: 2386 Part III-1963)

The apparatus shall consist of the following:

- a) **Wire Basket-** Perforated, electroplated or plastic coated, with wire hangers for suspending it from the balance.
- b) **Water tight** container for suspending the basket.
- c) **Dry soft Absorbent cloth** 75x45 cm size 2 nos.
- d) **Shallow Tray** of minimum 650 square cm area.
- e) **Air tight container** of capacity similar to basket.
- f) **Drying Oven.**

# 2. Test Sample

A sample of not less than 2000gm shall be used.

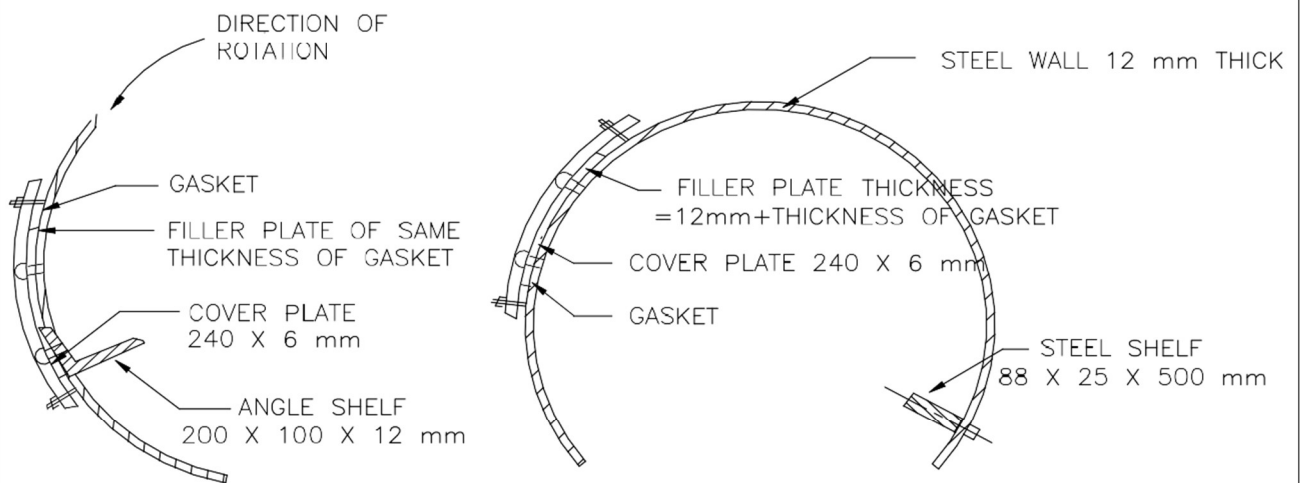
# 3. Test Procedure

- 3.1 The sample shall be thoroughly washed to remove finer particle and dust, drained and then placed in the wire basket and immersed in distilled water at a temperature between 22-32°C.
- 3.2 After immersion the entrapped air shall be removed by lifting the basket and allowing it to drop 25 times in 25 seconds. The basket and sample shall remain immersed for a period of 24 ± ½ hours afterwards.
- 3.3 The basket and aggregate shall then be removed from the water, allowed to drain for few minutes, after which the aggregate shall be gently emptied from the basket on to one of dry clothes and gently surface dried with the cloth transferring it to second dry cloth when the first will remove no further moisture. The stone aggregate shall be spread on the second cloth and exposed to atmosphere (away from direct sunlight) until it appears to be completely surface dry. The aggregate then shall be weighed (Weight 'A').
- 3.4 The aggregate shall then be placed in an oven at a temperature 100 - 110°C for 24 hours. It shall then be removed from oven, cooled and weighed (weight 'B').

# 4. Analysis and Reporting of the Result

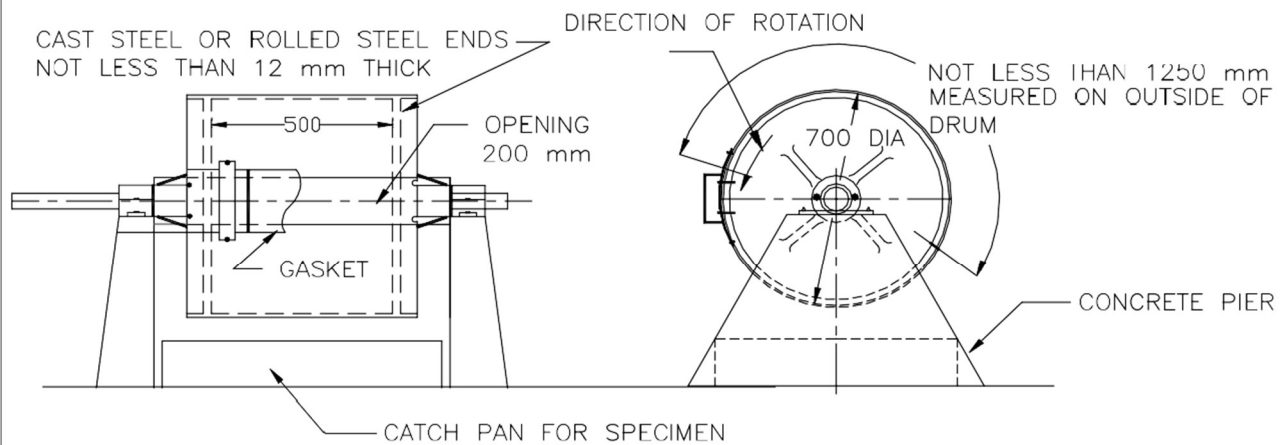
$$\text{Water Absorption} = \{(A-B)/ B\} \times 100$$

- 4.1 Two such tests shall be made and individual and mean results shall be reported.



ALTERNATIVE DESIGN OF ANGLE SHELF

PREFERRED DESIGN OF PLATE SHELF AND COVER

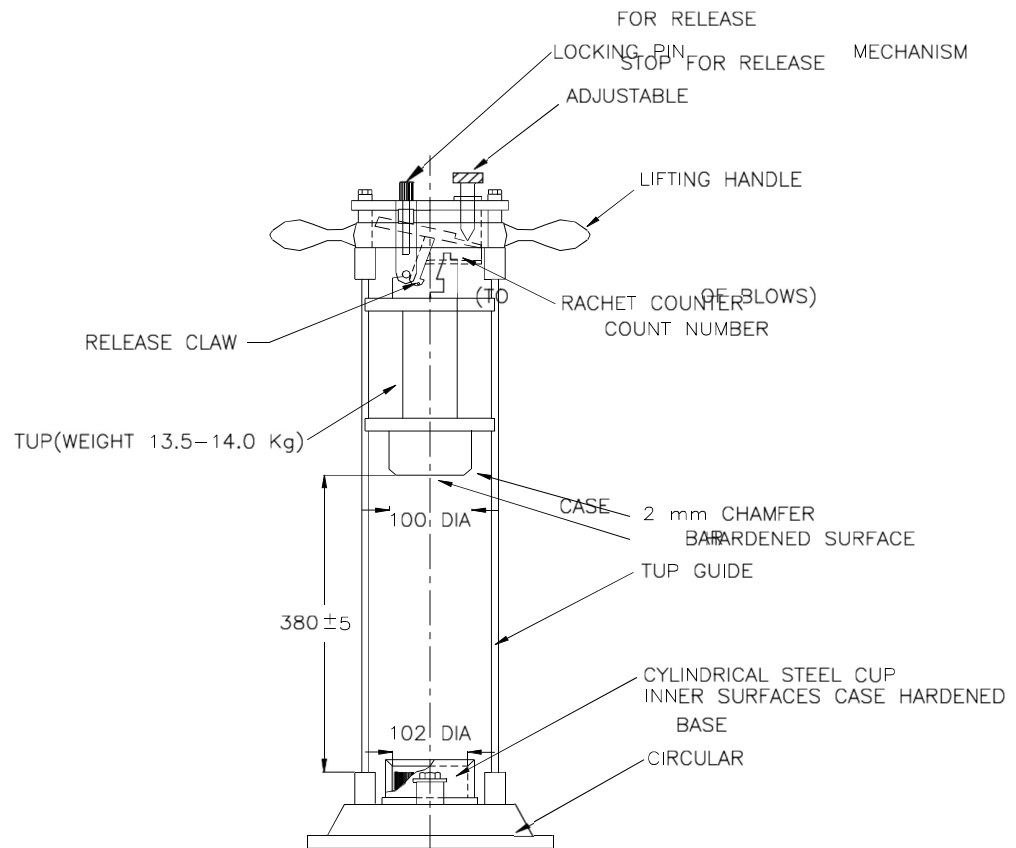


ALL DIMENSIONS ARE IN MILLIMETRES.

NOTE 1 -SHAFT BEARING WILL BE MOUNTED ON CONCRETE PIERS OR OTHER RIGID SUPPORTS.

NOTE 2 -SUGGESTED HORSE POWER FOR MOTOR IS NOT LESS THAN ONE.

## LOS ANGELES ABRASION TESTING MACHINE



ALL DIMENSIONS ARE IN MILLIMETRES.

### AGGREGATE IMPACT TEST MACHINE

**\*\*\*END OF TENDER DOCUMENT (TECHNICAL BID)\*\***