

**SOUTH EAST CENTRAL RAILWAY
(CONSTRUCTION ORGANISATION)**

TENDER DOCUMENT

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

DATE AND TIME OF CLOSING OF TENDER BID :15.00 Hours on 10.07.2026

TENDER NOTICE NO. :- CEC-NGP-26-27-06, dated: 10.06.2026

(Open e-Tender with Single Packet System)

TOP SHEET

TENDER NOTICE NO. :- CEC-NGP-26-27-06, dated: 10.06.2026

(Open e-Tender with Single Packet System)

Name of work:- "Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR."

Approx Tender Value	Rs.547.37 Lakhs.
Earnest Money/Bid Security	Rs 10,94,800.00/-
Cost of Tender Document	NIL
Period of completion	Twelve (12) months including monsoon.
Tender closing date	Up to 15.00 Hrs on 10.07.2026
Tender Opening Date	15.30Hrs on 10.07.2026

Note:

- 1.0. E-Tender forms are non-transferable and the same is to be submitted with digital signature by the tenderer already registered with the site.
- 2.0 The submitted e-tender will be considered as digitally signed by the tenderer as a confirmation from the tenderer that the tenderer has read, agreed and accepted all the conditions under laid down documents as well as Schedule of Tender, General and Special Conditions.
- 3.0 *Inclusion of "Letter of Credit" as Mode of Payment in Works Tenders or Service Tenders, is applicable to this tender and copy of the same is uploaded in IREPS Portal. (Ref to Rly Boards Lr.No.- 2018/CE-I/CT/9 dated 04.06.2018.*

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TENDER NOTICE No. :- CEC-NGP-26-27-06. Dated:-10.06.2026

Open e-Tenders with Single Packet System & are invited on behalf of the President of India, for execution of the following works from the intending contractors who fulfils the following eligibility criteria for the works as detailed below.

Name of work	Approximate value (Rs.)	Earnest money (Rs.)	Tender closing date	Completion period
Name of work:- "Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR."	Rs. 547.37 Lakhs.	₹ 10,94,800.00/-	10.07.2026	Twelve (12) months including monsoon.

1.0 Eligibility Criteria:

1.1 Technical criterion: The tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:

- Three similar works each costing not less than the amount equal to 30% of advertised value of the of tender.

OR

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

OR

- One similar work costing not less than the amount equal to 60% of advertised value of the tender,

NOTE: Similar work for the purpose of Technical Eligibility Criteria, under Item no. 1.1 above, Civil engineering works of P.way works, Track linking, Supply of stone crushed ballast, etc' above, shall mean "Any Civil Engineering works or P.way work comprising of any type of track linking and Supply or Supply and spreading of machine crushed ballast for Railway works."

Note for item-1.1:

(i) 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.

(ii) Work experience certificate from private individual shall not be considered.

However, in addition to work experience certificates issued by any Government Organization, work experience certificate issued by Public Listed Company having average annual turnover of Rs.500 Crore and above in last three 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.

1.2 Offers submitted by Joint Venture are not permitted.

1.3 Financial Eligibility Criterion: 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 tenderer shall submit requisite information as per Annexure-IV, along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/Certificate from Chartered Accountant duly supported by Audited Balance Sheet.

1.4. Bid Capacity: Not required.

Eligibility criteria include bid capacity also; the tenderer will be qualified only if its available bid capacity is equal to or more than the total value of the present tender. The available bid capacity shall be calculated as under:-

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

NOTE: -

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

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.

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

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

(b) In case, 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.

(c) 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.

NOTE:- Date of inviting tender shall be the date of publishing tender notice on IREPS website.

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

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

Explanation for clause 1 including clause-1.1 to 1.5 - 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.
5. 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.
6. 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-1.1 above, the same shall be considered for the purpose of fulfillment of credentials.
7. 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.
8. In case of newly formed partnership firm, the credentials of individual partners from previous propriety firm(s) or dissolved previous partnership firm(s) or split previous partnership firm(s), shall be considered only to the extent of their share in previous entity on the date of dissolution / split and their share in newly formed partnership firm. For example, a partner A had 30% share in previous entity and his share in present partnership firm is 20%. In the present tender under consideration, the credentials of partner A will be considered to the extent of 0.3×0.2 * value of the work done in the previous entity. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc.
9. In case of existing partnership firm, if any one or more partners quit the partnership
10. 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.

11. 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.
 12. 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.
 13. 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.
 14. 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.
 15. 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".
 16. In case a tenderer is LLP, the credentials of tenderer shall be worked out on above lines similar to a partnership firm.
 17. In case company 'A' is merged with company 'B', then company 'B' would get the credentials of company 'A' also.
- 2. 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 South East Central Railway (Construction organization) shall submit along with his / their tender: 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.

- (i) Audited Balance Sheet duly certified by the Chartered Accountant regarding contractual payments received in the past.
- (ii) 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.
- (iii) A copy of certificate stating that they are not liable to be disqualified and all their statements/documents submitted along with deed are true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-V and V(A). Non submission of a 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.
- (iv) The Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the Railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the Railway there under.
- (v) (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.
- (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.
- (vi) Declaration or An undertaking from the tenderer(s) that he is not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which he or JV in which HUF was / is a partner/member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause-62 of the General Conditions of Contract.
- (vii) PAN Card details- copy of PAN Card to be submitted.
- (viii) Bank A/c details of the tenderer(s):- Any payment to the

contractor/tenderer including releasing of the EMD of un-successful tenderer(s) will be done through electronic transfer for which the tenderer/contractor must furnish the following details-

Sl. No.	Items	Details to be Furnished
1.	Name of the Account Holder	
2.	Name of the Bank	
3.	Branch of Bank and full address	
4.	Account Number as appearing in the Cheque Book	
5.	RTGS/IFSC Code	
6.	Account Type (i.e. Current or Saving)	

3. Bid Security: Tender must be accompanied with Bid Security of requisite amount as mentioned in NIT deposited through Internet Banking or e-payment gateway only or submitted as Bank Guarantee bond (Format enclosed) from a Scheduled commercial bank of India **in favour FA&CAO/Con/S.E.C.Railway, Bilaspur**. The Bank Guarantee shall be valid for a period of 90 days beyond the bid validity period. The scanned copies of the instruments are to be uploaded with tender document. Tenders not accompanied by requisite amount of Bid Security in acceptable form, will be **‘Summarily Rejected’** and no correspondence what-so-ever will be entertained on this account. 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 Dispatch & Receipt section of the office of Chief Project Manager West (Con)/SECR/Nagpur, Kings Way, DRM OFFICE COMPLEX/SOUTH EAST CENTRAL RAILWAY , Nagpur before closing date for submission of bids (i.e). 18.00 Hrs on 09.07.2026 (i.e. excluding the last date of submission of bids) [One working day before date of submission of bids].
- (iii) Non submission of scanned copy of Bank Guarantee with the bid on e- tendering portal (IREPS) and/or non submission of original Bank Guarantee within the specified period shall lead to ‘Summarily 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 “Chief Project Manager West (Con)/SECR/Nagpur.” 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 (Chief Project Manager West (Con)/SECR/Nagpur, Kings Way, DRM OFFICE COMPLEX/SOUTH EAST CENTRAL RAILWAY , Nagpur).
- (viii) If the envelope is not sealed and marked as instructed above, the Railway assumes no responsibility for the misplacement or pre mature opening of the contents of the bid submitted

and consequent losses, if any, suffered by the bidders.

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, as detailed above, on submission of Registration Certificate issued by appropriate authority.
- (iii) Labour Cooperative Societies shall submit only 50% of above Bid Security detailed above.
- (iv) **Any other firms including MSME/NSIC registered firms, Government owned PSU (Public Sector Undertakings) shall have to deposit the requisite amount of Bid Security for this instant tender.**

4.0 Documents mentioned & as required to be submitted with the offer which have been detailed in Chapter-I of the tender document.

5.0 The last date and time of submission tender: Upto 15:00 hours on 10.07.2026.

6.0 Date and time of opening of technical bid: At 15:30 hrs on 10.07.2026.

7.0 Price variation clause : Price variation clause (PVC) will be applicable under this contract. (As per Cl. 46A of Part-II of GCC April 2022)

CHAPTER-I**DETAILS OF DOCUMENTS TO BE SUBMITTED ALONG WITH OFFER****(Tenderers are requested to read the following carefully)**

For documents to be uploaded with tender offer, the tenderer(s) must read the NIT and instructions to tenderers in detail. For ready reference a concise listing of documents to be submitted along with offer are as under. However, these are not exhaustive and all document/certificate as detailed in the Tender Document and Indian Railway Standard General Conditions of Contracts, April-2022 should be submitted along with the offer duly mentioning the Annexure No. vide which it has been submitted.

Sl. No.	Item	To be mentioned by the tenderer as his Annexure No. (Annexure numbering by the tenderer as annexures attached with the offer to be same for that Annexures mentioned in this tender document).
1.0	Documents in support of eligibility criteria:	
(a)	Document in support of Technical Criteria: Completion/ substantially completion certificate/ certificates of similar nature of works (similar nature as defined in the NIT) completed in last seven years (ending last day of month previous to the one in which tender is invited). The certificate should be issued by the competent authority authorised by the concerned Organization, which will in general includes (i) Scope of works in details, (ii) date of award, (iii) completion period as per original agreement, (iv) actual date of completion, (v) value of work as per original agreement/revised sanctioned value if any, (vi) value of completed works etc. (vii) Final bill prepared or not; final bill paid or not and if paid then what was the amount etc. (viii) Work experience certificate for similar nature of work is also to be submitted with/supported by the Letter of Acceptance (LOA)/Contract Agreement duly enclosing the tender schedules for the said work claiming as similar nature of work in view of work experience certificate.	Annexure

(a). (i)	In case of Partnership firm, for evaluation of technical eligibility following legal documents are to be submitted in terms of Explanation note for clause-10 including clause 10.1 to 10.5 - Eligibility Criteria of GCC-2022: “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. (Refer sub-clause-6 to 14 of clause-10 of GCC-2022).	Annexure
(b)	The tenderer(s) having work experience certificate issued by Public listed company following documents must have been enclosed along with offer, otherwise the particular work experience certificate issued by Public listed company will not be considered as valid and no further correspondence will be made in this regard:	
(i)	Proof of having average annual turnover of Rs.500 crore and above in the last three financial years excluding the current financial year by Public listed company who have issued the work done certificate.	Annexure
(ii)	Proof regarding listing of the Public listed company on National Stock Exchange or Bombay Stock Exchange, incorporated/registered at least 5 years prior to the date of opening of tender.	Annexure
(iii)	Authorization of the person authorized by the Public listed company to issue such certificates.	Annexure
(iv)	Along with the work experience certificate, the tenderer must have submit, 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.	Annexure
(c)	Document in support of Financial Eligibility Criteria: The tenderers shall submit requisite information as per Annexure-IV, along with copies of Audited Balance Sheet duly certified by the Chartered Accountant/Certificate from Chartered Accountant duly supported by Audited Balance sheet.	Annexure

(d)	Document in support of Bid Capacity as per format given in Annexure-III of tender document duly verified by Chartered Accountant .	Annexure
2.0	Bid Security / Earnest Money Deposit (EMD):	
3.0	Certificate as per Annexure-V and V(A) of Tender Document.	Annexure
4.0	Documents as prescribed vide clause-14 and 15 of Indian Railway Standard General Conditions of Contracts, April-2022– Part-I. Clause-14 & 15 of GCC-2022 are reproduced below:	
5.1	Documents to be submitted along with Tender (Clause-14 of GCC-2022):	
(i)	The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm / Company / 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: All documents in terms of Para-10 of the Tender Form (Second Sheet) of GCC-2022.	Annexure
(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) of GCC-2022.	Annexure Annexure

(c)	<p>Partnership Firm:</p> <p>The tenderer shall submit documents as mentioned in clause-18 of the Tender Form (Second Sheet) of GCC-2022.</p> <p>The Partnership Firms participating in the tender should be legally valid under the provisions of the Indian Partnership Act.</p> <p>(ii) The partnership firm should have been in existence or should have been formed prior to submission of tender. Partnership firm should have either been registered with the Registrar or the Partnership deed should have been notarized prior to date of tender opening as per the Indian Partnership Act.</p> <p>(iii) The tenderer shall submit all documents as mentioned in para-18 of the Tender Form (Second Sheet) of GCC-2022.</p> <p>(v) A notarized copy of partnership deed or a copy of the Partnership deed registered with the Registrar.</p> <p>(vi) 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 (if not covered in the Partnership deed).</p>	<p>Annexure</p> <p>Annexure</p> <p>Annexure</p> <p>Annexure</p> <p>Annexure</p>
(d)	<p>Company registered under Companies Act'2013:</p> <p>(i) The copies of MOA (Memorandum of Association) / AOA (Articles of Association) 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 explanatory notes in clause-10 of the Tender</p>	<p>Annexure</p> <p>Annexure</p> <p>Annexure</p> <p>Annexure</p>

	Form (Second Sheet) of GCC-2022.	
(e)	<p>LLP (Limited Liability Partnership):</p> <p>If the tender is submitted on behalf of a LLP registered under LLP Act-2008, the tenderer shall submit along with the tender:</p> <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 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 in 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.</p> <p>(v) All other documents in terms of explanatory notes in para-10 of the Tender Form (Second Sheet) of GCC-2022</p>	<p>Annexure</p> <p>Annexure</p> <p>Annexure</p> <p>Annexure</p> <p>Annexure</p>
(f)	Registered Society & Registered Trust: The tenderer shall submit:	
	(i) A copy of the Certificate of Registration.	Annexure
	(ii) A copy of Memorandum of Association of Society/Trust Deed.	Annexure
	(iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust.	Annexure
	(iv) A copy of Rules & Regulations of the Society.	Annexure
	(v) All other documents in terms of explanatory notes in para-10 of the Tender Form (Second Sheet) of GCC-2022.	Annexure

	<p>Note:</p> <p>(i) 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.</p> <p>(ii) 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.</p> <p>(iii) A tender from JV / Partnership firm etc. shall be considered only where permissible as per the tender conditions.</p> <p>(iv) 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.</p>	
6.2	<p>Clause-15 of GCC-2022</p> <p>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 upto the stage</p>	Annexure

	<p>of signing the agreement except in case where such specific person is authorised 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.</p> <p>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.</p> <p>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 whether the power of attorney is being issued. However, the power of attorney provided by bidder's from countries that have signed the Hague Legislation Convention'1961 are not required to be legalized by the Indian Embassy if it carries a conforming Appostille Certificate.</p>	
7.0	<p>Employment/Partnership etc. of Retired Railway Employees: Please refer clause-16 of Indian Railway Standard General Conditions of Contracts–April'2022– Part-I regarding employment of Retired Railway Employees and submit the information in this regard or submit statement to this effect that no such retired Engineer or retired gazetted officer is so associated with the tenderer, as the case may be. If information as required as per 16(a), 16(b) or 16(c) of GCC-2022 has not been furnished, contract is liable to be dealt in accordance with provision of clause-62 of the Standard General Condition of Contract-2022.</p>	Annexure
8.0	Certificate of Familiarization.	Annexure
9.0	Declaration or an undertaking from the tenderer(s) that he is not blacklisted or debarred by Railways or any other Ministry /	Annexure

	Department of Govt. of India from participation in tender on the date of opening of bids, either in individual capacity or as a member of the partnership firm or JV in which he or JV in which HUF was / is a partner/member. Concealment / wrong information in regard to above shall make the contract liable for determination under Clause-62 of the General Conditions of Contract.	
10.0	PAN Card details- copy of PAN Card to be submitted.	Annexure

CHAPTER – II

INSTRUCTION TO TENDERERS

1. General

1.1 E-tender has been invited for and on behalf of the President of India through website www.ireps.gov.in for the work mentioned against the tender notice number available in the website. Tenderers are to bid online only in the above mentioned website. No Manual offer is acceptable against this tender. No Tender document in hard copy will be sold against this tender. Please read the Instructions to Tenderers for e-tendering, Indian Railway Standard General Conditions of Contract, April-2022 with Correction Slips, Special Conditions of Contract before filling the e-tender through online.

1.2 E-Tender forms are not transferable and the same is to be submitted with digital signature by the Tenderer already registered with the site.

1.3 The submitted e-tender forms will be considered as digitally signed by the tenderer as a confirmation from the tenderer that the tenderer has read, agreed and accepted all the conditions and laid down documents, as well as Schedule of Tender, General and Special Conditions.

1.4 The tender offer complete in all respect and with all documents is to be submitted online by e-tendering process through the website www.ireps.gov.in before the closing time/date of this tender as mentioned in the NIT (Notice Inviting Tender). Tenderer can revise the bids any number of times till the closing time/date of the tender. No manual offers shall be accepted.

1.5 The Railway may, of its' own or in response to any clarification requested/suggested by any person including that from the tenderer, may modify this tender document at its sole discretion at least 15 days before the due date of closing of the tender as corrigendum.

1.6 Corrigendum as required may be issued at least 15 days prior to the closing of the tender. These corrigenda of this tender, if any, as issued time to time will be available on web site at least 15 days in advance of closing of tender. The tenderers are requested to check the website before submitting their offer whether any such corrigendum to the tender has been issued or not and revise the offer if required accordingly failure on the part of tender on this aspect will be solely tenderers responsibility.

1.7 This document is the Standard Tender Document which consists of the Instruction to the Tenderers, NIT (Notice Inviting Tender), General Conditions of the Tender, Special conditions of the tender, Tender schedules, Specifications of the works & various Annexures, drawings etc. All the above-mentioned documents taken together shall constitute the complete tender document hereafter referred to as "Tender Document" and have to be read together and acted upon accordingly. No part of the tender document can be relied upon or acted upon in isolation

1.8 The Railway and the website will have no responsibility for incorrect evaluation of cost and thereby incorrect cost of work and ranking of tenderers, if the schedule is not filled incorrectly and unambiguously for each item. No claim or clarification of a tenderer regarding applicability, inclusion or exclusion of any element of tax or duty or any other change in the offer subsequently (after closing of the tender) will be entertained. For this the tenderers are advised to read the Instructions, General Conditions, Special Conditions and other Instructions carefully before submission of tender.

1.9 In case of any problem with the portal is faced while filling the e-tender, Tenderers are advised to contact with the Helpdesk of IREPS portal who will render all help and assistance related with the website and portal except that related with the details of the tender. Railway will not take any responsibility for non-participation in the e-tender online for the reasons related to the website and portal or server etc beyond the control of railways.

1.10 Railway and the IREPS website will not take the responsibility for any online payment made by the tenderer and debited from his/their account towards the tender cost or Earnest Money due to wrong or manipulation of the menus or any reasons related with the IT or found unsuitable for the tender etc. Railway and IREPS website will not

entertain any claim in this regard or refund the paid amount. 1.11 The tenderer 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 & V(A). In addition to Annexure – V, in case of other than Company/Proprietorship Firm, Annexure V(A) shall also be submitted by each member of a Partnership Firm/Joint Venture (JV)/ Hindu Undivided Family (HUF)/Limited Liability Partnership (LLP) etc as the case may be. Non submission of above certificate by the bidder shall result in Summarily Rejection of his/their bids. 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.

1.12 With the submission of the certificate as mentioned above, the practice of verification of tenderer's documents by the Railway may be dispensed with. However, the Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the railway there under.

2. Inspection of drawings Drawings for the work can be seen in the office inviting this tender on any working day during working hours. The drawings are only for the guidance of tenderers. Detailed working drawings, if required based on the drawings mentioned above, will be given by the Engineer or his representative from time to time as the work will be planned for starting the execution at sites and deployment of adequate required resources will be done by the contractor at sites.

3. Omissions and 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.

4. Opening of E-tender:- 4.1 The e-tenders will be opened online using the IREPS portal. No representative is required to be present for opening of tender and details of rates quoted and ranking of all the bidders etc. shall be available to the bidders in the website after the opening of the tender.

4.2 In case the date of closing mentioned in the Notice Inviting Tender is declared a holiday/bandh/strike etc. on any account, the date of closing tender online will not be changed as the application in the website of IREPS does not permit submission of any offer after closing date and time of the tender. However, opening of tenders online will be on any convenient day after the closing date/time of tenders.

4.3 Tender with any special conditions may not be considered.

4.4 The tenderer(s) shall quote single percentage rate for each schedule on IREPS Portal indicating above or below or at Par and same shall be uniformly applicable on all individual items of tender schedule.

5. Validity of Offer

The Tenderer(s) shall keep the offer open for a minimum period of 90 days from the date of opening of the Tender. It is understood that the tender documents have been issued to the Tenderer(s) and the Tenderer(s), is / are permitted to tender in consideration of the stipulation on his / their part that after submitting his / their tender subject to the period being extended further, if required by mutual agreement from time to time, he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to the Chief Engineer/Dy. Chief Engineer/Divisional Engineer of South East Central Railway. If the tenderer fail to observe or comply with the foregoing stipulation, the amount deposited as Earnest Money for the due performance of the above stipulation, shall be forfeited to the Railway.

6. Acknowledgement by Tenderers

It shall be deemed that by submitting the tender, the Tenderer has:

- (a) made a complete and careful examination of the tender Document;
- (b) received all relevant information requested from the Railway;
- (c) acknowledged and accepted the risk of inadequacy, error or mistake in the information provided in the tender document or furnished by or on behalf of the Railway;
- (d) acknowledged and agreed that inadequacy, lack of completeness or incorrectness of information provided in the tender document, hereinabove shall not form a basis for any claim for compensation, damages, extension of time for performance of its obligations, loss of profits etc. from the Railway, or a ground for termination of the Contract;
- (e) agreed to be bound by the undertaking provided by it under and in terms hereof.

7. 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 is sued 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.

8. Clarification on Bid

8.1 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.

8.2 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.

9.0 Award of work

After selection, a Letter of Acceptance (the "LOA") shall be issued, in duplicate, by the Railway to the selected tenderer and the selected tenderer shall, within 10 (ten) days of the issue of the LOA, sign and return the duplicate copy of the LOA in acknowledgement thereof. In case the duplicate copy of the LOA duly signed by the selected tenderer is not received by the stipulated date, the Railway may, unless it consents to extension of time for submission thereof, forfeit and appropriate the EMD of such tenderer in full on account of failure of the selected tenderer to acknowledge the LOA, and cancel the LOA.

10. Execution of Contract Document-

The tenderer whose tender is accepted shall be required to appear in person at the office of Chief Administrative Officer (Construction)/SECR or concerned Engineer, as the case may be, or if tenderer is firm or corporation, a duly authorised 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 Railway 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 thereupon 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 tender for that work.

11. Novation Agreement- The contractor(s) has to sign the Novation Agreement in addition to the contract agreement signed vide clause 11 above. This novation agreement is applicable to the works chargeable to EBR-IF fund. This novation agreement will be signed by (i) the Railway (ii) the Contractor and (iii) Indian Railway Finance Corporation Limited. As per Novation Agreement, the invoices shall be issued by capturing GSTIN of contractor (as the supplier) and GSTIN of IRFC (as the bill-to party). Also the contractor shall submit the invoice (2 copies), issued in the name of IRFC, to Railway for processing payment by Railway to contractor subject to applicable TDS under Income Tax, GST or any other applicable laws. IRFC shall be responsible to comply with Income Tax and GST laws in relation to filling of returns.

12. Right of the Railway to deal with Tender: The Railway reserves the right of not to invite tenders for any of Railway 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.

12.a. 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.

12.b. Permission to Bid for a bidder from a country which shares Land boundary with India: Any bidders 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 of 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.

13. Fraud and Corrupt Practices The Tenderers and their respective employees shall observe the highest standard of ethics during the selection process. Notwithstanding anything to the contrary contained in this tender document, the Railway shall reject a tender without being liable in any manner whatsoever to the tenderer, if it determines that the tenderer has, directly or indirectly or through an agent, engaged in corrupt practice, fraudulent practice, coercive practice, undesirable practice or restrictive practice in the selection process. In such an event, the Railway shall, without prejudice to its any other rights or remedies, forfeit and appropriate the EMD or Security Deposit, as the case may be.

For the purposes of this clause, the following terms shall have the meaning hereinafter respectively assigned to them:

(a) "corrupt practice" means (i) the offering, giving, receiving, or soliciting, directly or indirectly of anything of value to influence the action of any person connected with the selection process (for avoidance of doubt, offering of employment to or employing or engaging in any manner whatsoever, directly or indirectly, any official of the Railway who is or has been associated in any manner, directly or indirectly with the selection process or the LOA or has dealt with matters concerning the contract or arising there from, before or after the execution thereof, at any time

prior to the expiry of one year from the date such official resigns or retires from or otherwise ceases to be in the service of the Railway, shall be deemed to constitute influencing the actions of a person connected with the Selection Process; or

(ii) engaging in any manner whatsoever, whether during the selection process or after the issue of the LOA or after the execution of the contract, as the case may be, any person in respect of any matter relating to the Project(s) or the LOA or the Contract, who at any time has been or is a contractor of the Railway in relation to any matter concerning the Project(s);

(b) "fraudulent practice" means a misrepresentation or omission of facts or disclosure of incomplete facts, in order to influence the selection process;

(c) "coercive practice" means impairing or harming or threatening to impair or harm, directly or indirectly, any persons or property to influence any person's participation or action in the selection process;

(d) "undesirable practice" means (i) establishing contact with any person connected with or employed or engaged by the Railway with the objective of canvassing, lobbying or in any manner influencing or attempting to influence the Selection Process; or (ii) having a Conflict of Interest; and

(e) "restrictive practice" means forming a cartel or arriving at any understanding or arrangement among tenderers with the objective of restricting or manipulating a full and fair competition in the selection process.

14. Other Instructions:

i) The instructions to the Tenderer(s) shall be deemed to form a part of the tender document.

ii) It is desirable that Tenderer(s) should have a copy of SECR USSOR-2021, Indian Railway Standard General

Conditions of Contracts–April-2022 and tenderer have gone through all the conditions of contract and specifications etc. embodied therein. The copy of SECR USSOR-2021 and Indian Railway Standard General Conditions of Contracts–April-2022 can be obtained on payment of an amount specified for copy of each Volume on any working day during office hours, subject to availability, in the office of General Manager (Engineering), S.E.C.Railway, Bilaspur. Further, the copy of Indian Railway Standard General Conditions of Contracts –April-2022 and the correction slips can be downloaded from web site www.indianrailways.gov.in.

- iii) South East Central Railway does not bind itself to accept the lowest or any other tender nor does it undertake to assign reason for declining to consider the Tender.
- iv) The Railways reserve the right to accept the tender either for the full quantity of work or part thereof or divide the works amongst more than one tenderer(s) without assigning any reasons for any such actions.
- v) Tender documents in which tenderer(s) submits offer on On-Line mode shall become the property of the Railway and the Railway shall have no obligation to return the same to the Tenderer(s).
- vi) In case of non-acceptance of a tender by the Railway Administration for any reason whatsoever, the tenderer(s) cannot claim for the expenses incurred by him in submitting the tender offer for the work or for any other account.
- vii) If the tenderer(s) deliberately gives / give the 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.
- viii) 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 condition 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.

15. Procedure for conduct and reporting of Reverse Auction. [Not Applicable]

- i) Initial e-RA period: This shall be the initial time interval for e-RA. E-RA shall be open for this duration. Initial e-RA period for the instant tender will be 04 hours.
- ii) Auto extension period: In case any offer is received in the time period equal to auto extension period before close of initial e-RA period, the e-RA shall be extended for time equal to auto extension period from the time of last bid. There shall be no upper limit on number of auto extensions. When no offer is received in the last auto extension period, e-RA shall close. Auto extension period for the instant tender shall be 30 minutes
- iii) Minimum decrement in percentage of value of the last successful bid: 0.3**
- iv) Date and time for start of e-RA shall be communicated to the qualified tenderers by the department after evaluation of the Technical Bids.
- v) After submission of Initial Price Bid, tenderers will not be allowed to revise the taxes and other levies.
- vi) During auction period, identities of the participating tenderers will be kept hidden.
- vii) Minimum admissible bid value will be last bid value minus minimum decrement as specified by the tendering authority before starting of reverse auction. Starting point of reverse auction shall be the lowest Initial Price Bid of the tenderer eligible for award of contract.
- viii) After close of the RA, tabulation of last (minimum) bids received from all the tenderers will be generated and made visible to Railways and participating tenderers.
- ix) Bidders shall not be allowed to withdraw their last offer.
- x) L-1 will be defined as the lowest bid obtained after the closure of R.A. session.

16. Other details of Reverse Auction:

- i) Offers found eligible for award of contract/meeting eligibility criteria shall be categorized as Qualified for Award of Contract for the purpose of e-RA.

ii) Offers not complying with essential technical & commercial requirements of the tender shall be declared as Ineligible for award of contract. iii) Initial Price Offer of only those bidders categorized as Qualified for Award of contract shall be opened and tabulated by system separately.

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

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

* If the number of tenderers qualified for Award of Contract is less than 3, RA shall not be done and tender may be decided on the basis of Initial Price Offer(s).

iv-b) MSE(Micro & Small Enterprises) Criteria: Not applicable for works contract.

iv-c) Make in India Criteria: All bidders eligible for benefits under Public Procurement (Preference to Make in India) Order-2017, found Qualified for Bulk Order/Award of Contract and are within the specified range of price preference of lowest Initial Price Bid shall be permitted to participate in the Reverse Auction, irrespective of their inter se ranking on the basis of Initial Price Bid. Such bidders shall be over and above the number of vendors selected for Reverse Auction as per para (iv-a).

v) During Reverse Auction process, bidders shall not be allowed to bid a rate higher than the lowest Initial Price Offer.

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

CHAPTER-III**(DECLARATION FROM TENDERERS)****Tender Notice No. CEC-NGP-26-27-06, Dated: 10.06.2026****(Open e-Tender with Single Packet System)****To**

**The President of India,
Acting through the Chief Project Manager (West) /Con, S.E.C.
Railway, Nagpur.**

Sir,

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 tender open for acceptance for a period of 90 days from the date fixed for opening the same and in default thereof, I/we will be liable for forfeiture of my/our "Earnest Money. I/We offer to do the work for South East Central Railway, at the rates quoted in the attached schedule and hereby bind myself/ourselves to complete the work in all respects within **Twelve (12) months including monsoon** 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, Schedule of Rates with all correction slips up-to-date for the present contract.
3. A sum of **₹ 10,94,800.00/-** has already been deposited online as Earnest Money. Full value of the Earnest Money shall stand forfeited without prejudice to any other right or remedies in case my/our Tender is accepted and if:
 - (a) I/We do not submit the Performance Guarantee within the time specified in the Tender document;
 - (b) I/We do not execute the contract documents within seven days after receipt of notice issued by the Railway that such documents are ready; and
 - (c) I/We do not commence the work within fifteen days after receipt of orders to that effect.
4. (a) I/We am/are a Startup firm registered by Department of Industrial Policy and Promotion (DIPP) and my registration number is Valid upto (Copy enclosed) and hence exempted from submission of Bid Security.
5. We are a Labour Cooperative Society and our Registration No. is with and hence required to deposit only 50% of Bid Security.
6. Until a formal agreement is prepared and executed, acceptance of this tender shall constitute a binding contract between us subject to modifications, as may be mutually agreed to between us and indicated in the letter of acceptance of my/our offer for this work.
7. I/We have read and understood Special Conditions of Contracts, Instructions to tenderer(s) and the stipulations made in the scope of work & Schedules of quantities and rates governing the works under this contract, in addition to and/or in part sub-session of the South East Central Railway Unified Standard Schedule of Rates 2021, and Indian Railways Standard General Condition of Contract April-2022 (with upto date correction slips) and Indian Railways Unified Standard Specification (Works & materials) 2021-Volume I & II (with latest

amendment) and agree to carry out the work.

Signature of Witnesses:
(1) _____
(2) _____

Signature of Tenderer(s)

Date _____

Address of the Tenderer(s)

CHAPTER – IV
(CERTIFICATE OF FAMILIARISATION)

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

I/We hereby solemnly declare that I/We have visited the site of above work and have familiarized myself/ourselves of the working conditions there in all respects and in particular the following:-

- (a) The area and the constraints therein.
- (b) Availability of Service/approach passage.
- (c) Soil Conditions at Site of the Work.
- (d) Sources and Availability of construction materials like good earth, blanketing materials sand, aggregate etc .
- (e) Rates & availability for Construction Materials.
- (f) Availability of Local Labour Skilled/Unskilled and the Prevailing Labour Rates.
- (g) Availability of Water & Electricity.
- (h) Availability of Space for Putting Up Labour Camps, Offices, Store Go down, Engineering Yard Etc.
- (i) Likely site constraints in collecting materials and the working constraints etc.
- (j) Existing Road Network (Highways or Other Type) and Availability of Service Roads.

CHAPTER – V
(SCOPE OF WORK)

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

The scope of work involves-

- 1-P.way work involving Insertion and Dismantling of turnouts, Track linking, Slewing of track, Welding, Transportation of materials, insertion of Glued joints and Ballast supply etc.
- 2-Civil Works- Earthwork in cutting, Construction of drain and other miscellaneous works.

NOTE:

- i) The scope of work, as above, is for general guidance of tenderer. Railway reserves the right to alter, modify, enhance or reduce the scope of work, as per the actual site requirement, approved plan, or any other technical reason, and any such decision shall be binding on the tenderer/ contractor. Priority for any part of work shall be as decided by the Engineer in Charge.
- ii) The maintenance period of the work will be for a period of **12 (Twelve) months or passage of one monsoon** (15th June to 15th Sept), **from the date of completion of work, whichever is later.**
- iii) Railway, at its discretion, reserves the right to get additional work of similar nature executed at any other location under the jurisdiction of CPM West(Con)/SECR/NGP on same terms and conditions.

CHAPTER - VI**SPECIAL CONDITIONS OF CONTRACT**

1.	<p>General.</p> <p>The following documents (including addendum slips, correction slips, Corrigendum slips issued upto date of opening of the tender) shall govern the works under this contract, in addition to and /or in part suppression of the USSOR - 2021 of South East Central Railway & Indian Railways Standard General Conditions of Contract published in April-2022 updated with correction slip issued upto ACS-11. 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, following shall be the order of precedence:</p> <ul style="list-style-type: none"> (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-April-2022 updated with correction slip issued upto ACS-11. (vii) Indian Railways Unified Standard Schedule of Rates (USSOR-2021) & Indian Railways Unified Standard Specifications (IRUSS)-Formation Works, Bridge Works, P.Way-Works 2021, updated with correction slips issued upto date of inviting tender, or as otherwise specified in the Tender Document, if applicable in the contract. (viii) CPWD Delhi Schedules of Rates {DSR 2023 (DSR - Vol I, DSR Vol II, DSR-Horticulture & Landscaping-2020)}, CPWD Specification 2023 (Vol I & Vol II) for execution of all Civil Engineering works related to Building work, Road works and Horticulture works (except Formation works, Bridge works and P.Way works) if applicable in the tender. (ix) IR Specifications/Guidelines updated with correction slips issued upto date of inviting tender or as otherwise specified in the Tender Documents. (x) Relevant B.I.S. Codes updated with correction slips issued upto date of inviting tender or as otherwise specified in the Tender Documents. <p>In case of conflict between provisions of IRS/IRC/IS specifications the precedence will be in the same order.</p> <p>Any specifications/conditions stated by the Tenderer(s) in the covering letter submitted by him along with the tender shall be deemed to be a part of the contract only to such an extent as has been expressly accepted by the Railway.</p> <p>In case of any ambiguity, the decision of Chief Administrative Officer (Construction)/South East Central Railway/Bilaspur shall be final & binding.</p>
2.	<p>All measurements, methods of measurements, meaning and item of specifications and interpretation of Special Conditions of Contract made by the Engineer on behalf of the Railway shall be final and binding and shall be considered as "Excepted matters" in terms of Clause-63 of Indian Railways Standard General Conditions of Contract published in April-2022.</p>

3.	Change of address: Any change in the address of the Contractor, shall be forthwith intimated in writing to Engineer. The Railway will not be responsible for any loss or inconvenience suffered by the Contractor on account of his failure to comply with this.
4.	Office communication: The contractor shall maintain Mobile number, a FAX machine, e-mail on registered email ID and a telephone connection in his office in working condition throughout the currency of the contract through which the Railways may be able to pass on any instructions to him. In case of any change, the same shall be advised to the Railway. As a measure to improve quality and progress of work, mobile communication should be available with the contractor's site engineer so that he can be contacted by railway.
5.	Deployment of plant and machinery: The deployment of plant and machinery including moving machines shall be such as not to infringe or cause damage to Railway track or any other Government or private properties. Operation of such equipment involving infringement to moving dimensions prescribed in the Schedule of Dimensions of the Railway shall not be undertaken without the prior approval of the Engineer. Contractor/s shall be wholly responsible for any loss or damage resulting from violation of this clause.
6.	Damages By Accidents/Rain/Flood/Cyclones/Earthquake etc.:
6.1.	The contractor(s) shall take all precautions against damages from accidents, rain, floods, cyclone, earthquake or tides etc. No compensation shall be allowed to the contractor for his tools, Plants, materials, machines other equipment lost or damaged by any cause whatsoever. The contractor(s) shall make good the damages to any structure, plant or materials of every description belonging to the Railway Administration, lost or damaged by any cause during the course of construction work. Contractors are solely responsible for safety and security of his all resources and have to arrange the same in case any loss or damage so as to adhere to the program of completion of the work. Neither party shall by reason of such event be entitled to terminate the contract.
6.2.	The Railway Administration will not be liable to pay the contractor any charges for rectification or repairs that may have occurred from any cause whatsoever, to any part of the new structures during currency of contract. No claims in this regard will be arbitrable.
7.	The contractor has to take all precautions required to be taken for working in the electrified territories. Railways will not be responsible for any loss to life of Contractor's workmen. In case of any mishap, the decision of the Railway will be final & the agency has to bear the cost of the damages for which it is held responsible by the Railways.
8.	The contractor's have to make their own arrangement for barricading/protection arrangements required for safety of their labour, tools, plants and machineries, as well as the train/road traffic from any mishap due to any reason.
9.	In case of emergency , such as in the event of any accident or failure of contractor for completion or maintenance of the works which is in the opinion of the Engineer requires immediate attention, the Railway may bring its own workmen or other agency to execute such work or part of the necessary work or carry out repairs, if the Engineer considers that the Contractor/s is/are not in a position to do so in time and charge the cost thereof to the contractor(s), as shall be determined by the Engineer-in-charge to the Contractor.

10.	<p>Night work: 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.</p> <p>The Contractor at his own cost shall make all arrangements including adequate lighting in this connection. He will be responsible for safety and security of the labour and equipment's and take all precautions for the same.</p>
11.	<p>Service Roads: The Contractor(s) will be permitted to make use of the service roads already existing in the possession of the Railway. All service roads required by the contractor within or outside Railway boundary shall be constructed by the Contractor at his own risk and cost and all these roads shall be maintained by the Contractor at his own cost. The Railway reserves the right to make use of the service roads as and when necessary without any additional payment to the Contractor. All approaches to take the tools and plants to the site of work/river bed shall be made by the Contractor(s) and no extra payment will be made for this.</p>
12.	<p>Recovery of water charges: The contractor shall be responsible for the arrangements to obtain supply of water necessary for the work. In case the Railway arrange supply of water, the cost will be recovered at the rate of Rs.2/-(Rupees Two only) per 4546 liters (1000 gallons) subject to the conditions stipulated in Clause –31 of the Indian Railway Standard General Conditions of the Contract, April-2022. In the event of water being used from Railway well/other source either in use or abandoned recovery at the rate of Rs.2/- per 4546 liters (1000 gallons) will be made.</p>
13.	<p>Electricity:</p> <p>(a) Any electric supply required at site for whatsoever purpose, shall be arranged by the Contractor/s. The Contractor/s shall be responsible for the arrangements for obtaining electric supply at his own cost, and rates quoted shall include the cost of providing electric supply arrangements required for the work.</p> <p>If required by Contractor/s, the Railway Administration may give required assistance in recommending to State Electricity Board for giving necessary electric connection to the Contractor for execution of works.</p> <p>(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.</p>
14.	<p>Loss of Work Orders: If the original work order issued to the contractor is lost by him for any reason whatsoever and the Contractor demands for supply of a duplicate of the same, a penal levy of Rs.100/- (Hundred only) for each work order shall be imposed on him for the issue of a duplicate copy.</p>
15 (a).	<p>Income Tax Deduction: In respect of works, the contract value of, which is more than Rs.10,000/- each, a deduction of 2% and cess if any at the extant rate on the gross payment from each of the Contractor's bills shall be made in terms of section 194(e) of the Income Tax Act of 1961 & 1991.</p>

15 (b).	GST: The contractor shall get himself registered with appropriate Authority for the purpose of Goods & Service Tax as the case may be and submit the proof of such registration for the information of Railway. The Tax at the prescribed percentages will be deducted from contractor's bills as per the respective State Government acts.
16.	Provision of Efficient and Competent staff at Work Sites by the Contractor:
16.1.	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.
16.2.	The Contractor shall at once remove from the works any agents, permitted sub-contractor, supervisor, workman of 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.
16.3.	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 Indian Railway Standard General Conditions of Contract published in April-2022.
17.	Hire of Railway's Plant & Machinery: It would be clearly understood that it is entirely the Contractor's responsibility and liability to procure all the machinery, tools and plants, and their spare parts that are required for the efficient and methodical execution of the work. Delay in procurement of such items due to their non-availability or due to difficulty in importing or any other causes whatsoever, will not be taken as an excuse for slow or nonperformance of work. The Railway may at their discretion give on hire to the Contractor any plant as considered necessary by the engineer, if available with Railway. However it does not guarantee hiring any machinery and it shall not entertain any claim or compensation due to Railways inability to supply any plant/machinery or the condition of the railway's plant/machinery supplied on hire shall not be taken as an excuse for slow progress or for non- performance of the work.
18.	Hire charges of Plant & Machinery: The railway administration shall charge the contractor for the hire of machinery and plant supplied to him. The rate of hire charge for the plant and machinery given by the railway will be evaluated by the Railway Administration and intimated to the contractor in advance.
19.	Running expenses:- Running expenses including fuel, lubricant and other stores and labour if any supplied by the Railway will also be paid for by the contractor at rates to be determined by the Railway. The contractor should make his own arrangement for taking delivery of fuel, lubricant and other stores, transporting the same to site of work and storing or use as per prescribed rules. In case of such supply of fuel, lubricant and other stores the actual cost plus 7% (for storing etc.) increased by 12% for supervision charges and for the labour supplied, the actual pay and allowances granted to the Railway servant with additional percentage charges laid down in Para-258 of the Indian Railway Establishment code volume- II plus 12% supervision charges shall be charged. Recoveries on this account will be made from the contractor's running bills. It must be noted that no claims will lie with the Railway for it's liability to supply fuel, lubricant and other stores aforesaid for late supply.

20.	Right to Recall:- The Railway shall reserve to itself the right to recall any plant/machinery without assigning any reasons by giving one month's notice or at any time without notice in the event of its being required by the Railway for an unforeseen emergency. In either case, the Railway shall not be liable to pay any compensation to hirer for the loss that may be caused by the withdrawal of the plant.
21.	Statutory Certificate Etc.: While the machine(s) is/are in the possession of the contractor(s), he/they shall be responsible for seeing that any inspection certificate or license required under any Government Act is obtained in due time. The contractor shall also be responsible for seeing that all required precautions are observed in using the plant as well, and he shall be responsible for any accident that may occur from the use of the plant.
22.	Storage of Railway Materials: The Contractor shall make his own arrangements at the site of work for the safe storage and custody of Railway material issued to him. Such Railway materials issued to the Contractor and stored at the site of work shall be open for inspection by the Engineer or his representative at all times.
23.	Released materials such as boulders from existing pitching, if dismantled, trees if cut, etc will be Railways property. The materials have to deposited at the nearest Railway store depot/Railway station or as desired by the Engineer-in-Charge and payment for leading/transportation will be made as per South East Central Railway Unified Standard Schedule of Rates 2021. No extra rates for cutting trees or jungle clearance will be paid. Weighment arrangements will have to be made by the contractor and the cost of such weighment is deemed to have been included in the rates.
24.	Maintenance Period: The maintenance period subject to the conditions stipulated in Clause-47 of the Indian Railway Standard General Conditions of the Contract-April-2022 shall be 06 (Six) months from the date of completion of work or passage of one full monsoon (15th June to 15th Sept) whichever is later.
25.	Extension of time of Contract- Extension of time in contract will be governed by the Clause No.17, 17-A & 17-B of Indian Railway Standard General Condition of Contract, April-2022.
26.	IS/IRS Specifications: Wherever any reference to Code, specification etc. is made in this document, it shall be taken as a reference to the version issued upto the date of publication of Tender Notice. If any other version of the code or specification is to be made applicable for any item(s), the rates for that item(s) shall be mutually negotiated.
27.	Tree Cutting: If the section passes through forest land, the contractor or his labour is prohibited to cut the trees for the purpose of firewood or for any other purpose. Cutting of trees as required under the items of works indicated in the tender schedules may be carried out strictly as directed by the Engineer or his representative of the work. Unauthorized felling of trees will result in prosecution and imprisonment. It is the contractor's responsibility to cause no damage to the forest growth and any fuel required by the Contractor for his own use or for the use by his labourers, or for the work shall be arranged by the Contractor at his own cost. The Contractor shall take this aspect into consideration while quoting the rates against the tender.
28.	Approval of Samples of Material: All materials to be used in the work by the Contractor shall be subject to the prior approval of the Engineer. Contractor shall submit samples of materials to be used in the work.
29.	Mode of payment for running/final bills: All the payments will be made through Electronic Fund Transfer /DD/Remote pay out by State Bank of India or as decided by the Railway Administration.

30.	<p>Royalty Charges:</p> <p>Payment of Royalty charges the approved procedure for deduction of royalty amount from agencies is as below: (i). total approx., amount of Royalty for quantities of earthwork , ballast, etc. of contract shall be assessed with prevailing rates of Royalty.(ii) In absence of Royalty paid certificate/Royalty clearance certificate, a uniform deduction of 10% will be made from running bill amount. The deduction will start from third bill and onwards, every on-account bill. (iii) The recovery will be made up to the total amount of royalty calculated vide para (i) above, duly deducting the amount for which Royalty paid certificate/Royalty Clearance certificate is submitted by the agencies. (iv) On submission of Royalty paid certificate/Royalty Clearance certificate for any amount the following will be calculated; total royalty calculated as (i) above- Royalty paid Certificate/Royalty Clearance Certificate amount -Royalty deducted @10% per RA Bill at any stage, the positive amount will be continued to be deducted and if the amount is in negative, the same will be refunded to the agency. (v) However, the full amount as calculated vide (iv) above will be deducted/recovered before passing the last bill or refund of PG/SD etc. (vi) Railway will refund all deducted amount without any interest after submission of Royalty paid certificate//Royalty Clearance Certificate for the total executed quantities of earthwork, ballast etc. issued from State Government. (vii) In addition to the above recovery, the recovery for DMF (District Mineral Foundation) charges, which are also part of Royalty clearance certificate, shall be made from the bills of Contractor executing work related to mineral. The recovery shall be according to the rate fixed by respective authority of concerned state government under jurisdiction of which the work being executed.</p>
31.1.	<p>Security Deposit:</p> <p>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 Deposit or the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security, to the contractor.</p> <p>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.</p> <p>The irrevocable Bank Guarantee submitted towards security deposit shall be initially valid upto 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-17, 17A & 17B of the Standard General Conditions of Contract.</p> <p>Note: Security Deposit deposited in cash by the contractor to recover 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 Crores, such refund/return of the already available</p>

	Security Deposit is permitted upto two times and in a contract of value equal to or more than Rs.50 Crores, such refund/return of the already available Security Deposit is permitted upto 3 times.
31.2.	<p>Refund of Security deposit:</p> <p>(i) Security Deposit mentioned in para-31.1 above shall be returned to the Contractor along with or after the following:</p> <p>(a) Final Payment of the Contract as per clause-51(1) of Indian Railways Standard General Conditions of Contract, April-2022 and</p> <p>(b) Execution of Final Supplementary Agreement or Certification by Engineer that Railway has No Claim on Contractor and</p> <p>(c) Maintenance Certificate issued, on expiry of the maintenance period as per clause-50(1) of Indian Railways Standard General Conditions of Contract, April-2022, in case applicable.</p> <p>(ii) Forfeiture of Security Deposit: Whenever the contract is rescinded as a whole under clause-62(1) of these conditions as per GCC-2022, the Security Deposit already with railways under the contract shall be forfeited. However, in case the contract is rescinded in part or parts under clause-62(1) of these conditions as per GCC-2022, the Security Deposit shall not be forfeited.</p> <p>(iii) 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 Indian Railways Standard General Conditions of Contract, April-2022 will be payable with interest accrued thereon.</p>
32.	<p>Performance Guarantee:</p> <p>(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 22nd day after the date of issue of LOA. Further, if the 60th day happens to be a declared holiday in the concerned office of the Railway, submission of PG can be accepted on the next working day.</p> <p>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 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.</p> <p>The failed Contractor shall be debarred from participating in re-tender for that work.</p> <p>The successful bidder shall submit the Performance Guarantee (PG) in any of the following forms, amounting to 5% of the original contract value and additional Performance Guarantee as per clause 16(4)h in any of the following forms:</p> <p>(i) A deposit of Cash;</p> <p>(ii) Irrevocable Bank Guarantee;</p> <p>(iii) Insurance Surety Bond as per Annexure-XVII given in ACS-9 to</p>

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

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

Unit Trust Certificates at 5% below market value or at the face value whichever is less. Also, FDR in favour of FA&CAO/SECR/BSP (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.
 - 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 Part-II of IRSGCC-April-2022.
- (h) If a tender is accepted on the quoted rates of bidder which is below the advertised tender**

	<p>value, an additional performance security shall be submitted by the bidder as below:</p> <table border="1"> <tr> <th>Bid Quoted in % of Advertised Cost</th><th>Additional Performance Guarantee (%)</th></tr> <tr> <td>Below 0-5%(inclusive)</td><td>Nil</td></tr> <tr> <td>Below 5%</td><td>5%</td></tr> </table>	Bid Quoted in % of Advertised Cost	Additional Performance Guarantee (%)	Below 0-5%(inclusive)	Nil	Below 5%	5%
Bid Quoted in % of Advertised Cost	Additional Performance Guarantee (%)						
Below 0-5%(inclusive)	Nil						
Below 5%	5%						
	<p>(c) 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:</p> <ul style="list-style-type: none"> (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. 						
33.	<p>If contractor fails to apply for extension of time on valid and reasonable grounds as acceptable to the railway after expiry of the date of completion/extended date of completion, in such situation, Railway reserves the right to terminate the contract agreement without issuing 'Seven Days' and 'Fourty Eight Hours'. It may be noted that for non-fulfilment of the contract the railways reserve the right to claim the damages under clause-62 of GCC in addition to any other rights available to it under law.</p>						
34.	<p>Variations in Extent of Contract:-</p>						
34.1	<p>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.</p>						
34.2	<p>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.</p>						
	<p>(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:</p>						
	<p>(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.</p>						

	(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.
	<p>(d) Variation to quantities of Minor Value Item:</p> <p>The limit for varying quantities for minor value items shall be 100% (as against 25% prescribed for other items). A minor value item for this purpose is defined as an item whose original agreement value is less than 1 % of the total original agreement value.</p> <p>(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;</p> <p>(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;</p> <p>(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.</p>
	(iv) In case of earthwork, the variation limit of 25% shall apply to the gross quantity of earthwork items and variation in the quantities of individual classifications of soil shall not be subject to this limit.
	(v) As far as Standard Schedule of Rates (SSOR) items are concerned, the variation limit of 25% would apply to the value of SSOR schedule as a whole and not on individual SSOR items. However, in case of Non Standard Schedule of Rates (SSOR) items, the limit of 25% would apply on the individual items irrespective of the manner of quoting the rate (single percentage rate or individual item rate).
34.3.	Valuation of Variations: The enlargements, extensions, diminution, reduction, alterations or additions referred to in para-34.2 above 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 items/quantities of work falling outside the purview of the provisions of para-34.2 above shall be paid for at the rates determined under Clause-39 of Indian Railways Standard General Conditions of Contract, April- 2022.
35.	Vitiating during variation in Contract Quantities: As a result of variations, a contract

shall be considered “vitiated” only when, the following percentage variation in contract value between tenderers are noticed to have been exceeded.		
Sl. No.	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
When the percentage difference between present Contractor and new L-1 is noticed as becoming beyond the values specified above, Railway may take decision at its’ discretion whether fresh tender shall be invited for the extra quantities or to negotiate the rates with the existing contractor and decision of Railway Administration in this regard shall be final and binding to the contractor. 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. However, the Executives while executing the work shall make all efforts to ensure that no vitiation takes place in normal circumstances. Vitiation should be an exception rather than a routine affair. Vitiation should always be computed with respect to the items, rates, quantities and conditions as available at the time of tender opening and subsequent changes/additions by way of new items will not be counted for computing vitiation.		
36.	<p>(A) MOBILISATION ADVANCE & INCENTIVE CLAUSE: Mobilization advance and incentive clause will not be applicable under this contract.</p> <p>(B) Measurement of works: Measurement by the contractor for the works executed will not be allowed for this contract.</p>	
37.	<p>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”:</p> <p>The tenderers for carrying out any construction work must get themselves registered from the Registering Officer under Section-7 of the Building and other Construction Workers Act’1996 and rules made thereto by the concerned State Govt. and submit certificate of Registration issued from the Registering Officer of the concerned State Govt. (Labour Deptt.). The cess shall be deducted from contractor’s bills as per provisions of the Act.</p>	

38.	<p>Employees' Pension Scheme'1995 :</p> <p>Para 3(1) : From and out of the contributions payable by the employer in each month under Section-6 of the "Act" or under the rules of the Provident Fund of the establishment which is exempted either under clauses (a) and (b) of sub-section (1) of Section-17 of the Act or whose employees are exempted under either paragraph-27 or paragraph:27-A of the Employees' Provident Fund Scheme'1952, a part of contribution representing 8.33 per cent of the Employee's pay shall be remitted by the employer to the Employees' Pension Fund within 15 days of the close of every month by a separate Bank Draft or Cheque on account of the Employees' Pension Fund contribution in such manner as may be specified in this behalf by the Commissioner. The cost of the remittance, if any, shall be borne by the employer.</p> <p>Para 3(2) : The Central Government shall also contribute at the rate of 1.16 per cent of the pay of the members of the Employees' Pension Scheme and Credit the contribution to the Employees' Pension Fund:</p> <p>Provided that where the pay of the member exceeds Rs.6,500/- (Rs Six thousand and five hundred) per month, the contribution payable by the employer and the Central Government be limited to the amount payable on his pay of Rs.6,500/- (Rs. Six thousand and five hundred) only.</p> <p>Para 4 : Payment of Contribution:</p> <p>The employer shall pay the contribution payable to the Employees' Pension Fund in respect of each member employed by him directly or by or through a contractor.</p> <p>It shall be the responsibility of the principal employer to pay the contributions payable to the Employees' Pension Fund by himself in respect of the employees directly employed by him also in respect of the employees employed by or through a contractor.</p>
39.	<p>Employees' Deposit Linked Insurance Scheme'1976:</p> <p>Para 7: Contribution:</p> <p>(1) The contribution payable by the employer and the Central Government under sub-section (2) and sub-section (3) of Section 6-C of the Act, shall be calculated on the basis of the basic wages, dearness allowance (including the cash value of any food concession) and retaining allowance, if any, actually drawn during the whole month whether paid on daily, weekly, fortnightly or monthly basis.</p> <p>Provided that where the monthly pay of an employee exceeds six thousand five hundred rupees, the contribution payable in respect of him by the employer and the Central Government shall be limited to the amounts payable on a monthly pay of six thousand five hundred rupees including dearness allowance, retaining allowance (if any) and cash value of food concession.</p> <p>Para 8: Mode of Payment of Contribution:</p> <p>The contribution by the employer shall be remitted by him together with administrative charges at such rate as the Central Government may fix from time to time under sub-section-4 of Section 6-C of the Act, to the Insurance Fund within fifteen days of the close of every month by a separate Bank Draft or cheque or by remittance in cash in such manner as may be specified in this behalf by the Commissioner. The cost of remittance, if any, shall be borne by the employer.</p> <p>It shall be the responsibility of the employer to pay the contribution payable by himself in respect to the employees directly employed by him and also in respect of the employees employed by or through a contractor.</p>

40.	<p>Following should be complied under this contract:</p> <p>(i) Payment to the contract labourers should be made through bank/cheque.</p> <p>(ii) Identity Card should be issued to all contract workers.</p> <p>(iii) Necessary step should be taken to deduct Provident Fund from the payment made to the contract labour and ensure that the same is credited to their Provident Fund Account.</p> <p>(iv) Medical facilities from ESI, if applicable.</p>
41.	<p>Provisions of Payments of Wages Act: The Contractor shall comply with the provisions of the Payment of Wages Act' 1936 and the rules made there under 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 or 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.</p>
41.1.	Provisions of Contract Labour (Regulation and Abolition) Act, 1970:
41.1.1	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.
41.1.2	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.
41.1.3	The Contractor shall pay to the labour employed by him directly or through subcontractors 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 subcontractors in connection with the said work, as if the labour had been immediately employed by him.
41.1.4	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.

41.1.5	In every case in which, by virtue of the provisions of the aforesaid Act or the rules, the Railway is obliged to pay any amount of wages to a workman employed by the Contractor or his sub-contractor in execution of the work or to incur any expenditure on account of the contingent, liability of the Railway due to the Contractor's failure to fulfil his statutory obligations under the aforesaid Act or the rules, the Railway will recover from the Contractor, the amount of wages so paid or the amount of expenditure so incurred and without prejudice to the rights of the Railway under the Section 20, Sub-Section (2) and Section 2, Sub-Section (4) of the aforesaid Act, the Railway shall be at liberty to recover such amount or part thereof from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India. The Railway shall not be bound to contest any claim made against it under Sub-Section (1) of Section 20 and Sub-Section (4) of Section 21 of the aforesaid Act except on the written request of the Contractor and upon his giving to the Railway full security for all costs for which the Railway might become liable in contesting such claim. The decision of the Chief Project Manager -West (Con) SEC Railway, Nagpur regarding the amount actually recoverable from the Contractor as stated above shall be final and binding on the Contractor.
41.2.1	Provisions of Employees Provident Fund and Miscellaneous Provisions Act, 1952: The Contractor shall comply with the provisions of Para 30 & 36-B of the Employees Provident Fund Scheme, 1952; Para 3 & 4 of Employees' Pension Scheme, 1995; and Para 7 & 8 of Employees Deposit Linked Insurance Scheme, 1976; as modified from time to time through enactment of "Employees Provident Fund & Miscellaneous Provisions Act, 1952", wherever applicable and shall also indemnify the Railway from and against any claims under the aforesaid Act and the Rules.
41.2.2	<p>Contractor is to abide by the provisions of various labour laws in terms of above clause 54, 55, 55-A and 55-B of Indian Railways Standard General Conditions of Contract. In order to ensure the same, an application has been developed and hosted on website 'www.shramikkalyan.indianrailways.gov.in'. Contractor shall register his firm/company etc. and upload requisite details of labour and their payment in this portal. These details shall be available in public domain. The Registration/ updation of Portal shall be done as under:</p> <p>(a) Contractor shall apply for onetime registration of his company/firm etc. in the Shramikkalyan portal with requisite details subsequent to issue of Letter of Acceptance. Engineer shall approve the contractor's registration in the portal within 7 days of receipt of such request.</p> <p>(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.</p> <p>(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.</p> <p>(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.</p> <p>(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.</p>

41.2.3	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."
42.	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 subcontractor 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.
43.	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.
44.	INSPECTION VEHICLES The contractor shall be responsible to provide One (01) nos. inspection vehicle (Innova/Safari/Creta/Scorpio or equivalent) in good condition (Model not more than 3 years old at any point of time during the currency of contract) for the full contract period including further Extension of Times (EOTs) exclusively for the movement of Engineer or his authorized representative from their headquarter to work sites and to & fro movement at various sites or any other locations as and when required for all official purpose. The contractor shall bear all expenditures in this regard including toll taxes etc. and running cost up to 3500 Kms. per month (but may exceed over 3500 Kms.) on all days/working days. No separate payment shall be admissible on this account. If vehicle is not provided from the day of start of work execution (as per GCC and contract conditions) or vehicle not provided in any day or at any time/instances during the entire period of execution of work/contract, then penalty of Rs.3000/- per day/per occasion per vehicle will be imposed. Vehicles to be provided as per the direction of Engineer – in – Charge.
45.	SITE OFFICE The contractor will set up a reasonably furnished site office with all furniture & accessories, having minimum area 50 Sqm. as directed by the Engineer at a central location either by hiring a building or by erecting temporary building/Pre-fab-building with proper electric arrangement, water supply and sanitary fittings with good roofing & flooring for exclusive use of the Engineer and his representative. Minimum 02 Nos. computers and 02 Nos. printer should be available at this office with internet facilities. Also to be provided with all the required surveying equipments viz. Total stations, Auto levels etc.

46.	A) Deployment of Engineers & Staff		
	The contractor shall provide and keep on the works, during the execution of the works, efficient and competent Engineers to ensure that the work is executed strictly as per provisions of the contract. It shall be the obligation on the part of the contractor to provide the following minimum engineering staff at site: -		
	Sr. No.	Position/Qualification/Experience	Minimum nos. to be deployed
	1	Project Manager – Degree holder with minimum experience of 10 years in the field Railway/Highway.	1
	2	Engineer (Quality Control) – Degree holder with minimum experience of 3 years/Diploma holders with minimum experience of 5 years' experience in the field.	1
	3	Site Engineer (Civil) – Degree holder with minimum experience of 3 years/Diploma holders with minimum experience of 5 years in the field.	1
	4	Survey Engineer - Degree holder with minimum experience of 3 years/Diploma holders with minimum experience of 5 years in the field.	1
	<p>In addition to the above, requisite no. of staff for laboratory and other supervisory staff shall be deployed by the contractor. The technical staff shall be got approved in writing from the Engineer (whose approval may be withdrawn any time) for supervision of works and to receive direction from the Engineer or his representative of the work on behalf of the contractor. The supervisory staff of the contractor will not be changed without the approval of the Engineer.</p> <p>In addition to above, 04 (four) skilled labours for assisting in various works related with instant tender such as taking levels, measurements, chowkidar, security patrolling, night watchman etc. as the requirement may be and decided by Engineer. These four labours shall be provided by contractor but shall be deployed and controlled by the Assistant Executive Engineer/Executive Engineer as per requirement. These skilled labours shall report to Engineer's representative and normally shall not be changed frequently as they are to be trained and made familiar with Railway's requirement. In case the contractor failed to provide above said labourers, a recovery @ notified by Government (Labour rate) shall be done. In this regard decision of Executive Engineer/Assistant Executive Engineer shall be final and binding.</p> <p>The contractor has to deploy the Project Manager, Construction Manager, Engineer (Quality Control) and Survey Engineer within one month of issue of the letter of acceptance. The site engineers shall be deployed by the contractor as per the deployment program/method statement approved by the Engineer. In case, the contractor fails to deploy sufficient Engineers as described above, the Engineer shall be entitled to recover the following amount from the dues of the contractor:-</p>		
	1	Non Deployment of Project Manager	Rs. 80,000/- per month or part thereof
	2	Non Deployment of Site Engineer/Engineer (Quality Control)/Survey Engineer.	Rs. 40,000/- per month or part thereof

	<p>The decision of the Engineer as to the period for which the required technical staff was not employed by the contractor and as to reasonableness of the amount to be deducted on this account shall be final and binding on the contractor.</p> <p>The details of skilled manpower/workers trade wise i.e. skilled, semiskilled workers, labour, arrangement of boarding/lodging along with the details of permanent staff shall be submitted by the contractor within 15 days after the award of work to him. This shall be submitted along with the program of works.</p>
47.	<p>The contractor shall start the work within 15 days as per GCC and will have to submit within 30 days from the issue of LOA as per GCC, the bar chart/mile stone, preferably in M.S .Project for the various activities showing the completion of the work within the stipulated completion period for the approval of the Engineer.</p>
48.	<p>LABORATORY</p> <p>Contactor shall establish a Central laboratory for carrying out testing to ensure compliance as per the Quality Assurance Plan (QAP) as per details in this document. The laboratory should be well equipped for the testing facilities for the following in addition to the other requirements as per QAP.</p> <p>Concrete –Set of IS Sieves for coarse and fine aggregate, slump cone, cube molds, Compression strength testing machine & other equipment's and testing facility as required from time to time as per the direction of Engineer-in-charge.</p> <p>Earth Work –Grain size analysis, Atterberg Limits, Modified Proctor density (OMC & MDD), Field Density (OMC & MDD), CBR test equipment etc.& other equipment's and testing facility as required from time to time as per the direction of Engineer-in-charge.</p> <p>The above central laboratory shall have facility for carrying out all tests required, as per Specifications or as stated elsewhere in the contract, including supply of laboratory equipment and also provision of adequate numbers of qualified personnel, erection, maintenance and running of laboratory including all consumable like chemicals and reagents etc. If the laboratory is not provided within one month from issue of Letter of Acceptance, a deduction of ₹2,00,000/- per month or part thereof will be made. In addition of these, field testing equipment's are also to be arranged wherever required and instructed by Engineer. Further, cost of tests and all incidental and departmental charges etc. carried out at any 3rd party/other approved laboratory/test house shall be borne by the contractor.</p> <p>Steel & Cement and other materials testing:- As per the direction of Engineer-in-charge, at 3rd party testing has to be done by the contractor and for the same all costs to be bear by the contractor and no extra payment will be made to the contractor by the Railway.</p>
49.	<p>(a). For protection of track during construction at sites adjacent to the existing running railway tracks, sufficient nos. banner flags, red hand flags, tri-color torches for night time to be kept at all such sites.</p> <p>(b). Also for protection of existing track & formation, proper protection to be ensured by providing sheet piles, concrete piles etc.</p>

50.	<p>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.</p> <p>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.</p>
	<p>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.</p>
50.1	<p>Rates for Extra Items of Works:</p> <p>Standard Schedule of Rate (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 “ Schedule of Rates of Railway” modified by the tender percentage as accepted in the contract for that chapter of Standard Schedule of Rates (SSOR). However, the cumulative value of all such extra item(s) together (modified by the respective tender percentage) shall not exceed 10% of the original contract value.</p> <p>For item(s) not covered under this sub-clause, the rate shall be decided as agreed up on between the Engineer and the Contractor before execution of such items of work as sub-clause-(b) below.</p> <p>(a) 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.</p> <p>The assessment of rates for extra items shall be arrived at based on the prevailing rates of labor, machinery & materials and by taking guidance from the following documents in order of priority:</p> <ul style="list-style-type: none"> (i) Analysis of Rates for “Unified Standard Schedule of Rates of Indian Railways (USSOR)-2021”. (ii) Market Analysis.

50.2.	Provided that if the Contractor commences work or incurs any expenditure in regard thereto before the rates as determined and agreed upon as lastly hereunto fore-mentioned, then and in such as case the Contractor shall 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 Project Manager -West (Con) SEC Railway, Nagpur within 30 days of getting the decision of the Engineer, supported by analysis of the rates claimed. The Chief Project Manager -West (Con) SEC Railway, Nagpur decision after hearing both the parties in the matter would be final and binding on the Contractor and the Railway.
51.	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.
52.	<p>Offloading of Part(s) of Work:-</p> <p>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 in GCC-2022), if the Engineer is of the opinion that:-</p> <p>(i) Such Offloading of works (up to 5% of original contract value) would enable successful completion of contract/work,</p> <p>(ii) Termination/ Part termination of the contract at this stage is not be in the interest of the Railway/work; and</p> <p>(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;</p> <p>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 (i.e) (as per Annexure- VIIB in GCC-2022). 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.</p>
53.	Providing live feed of worksite through IP based video cameras- The contractor shall provide IP based video cameras at the various locations as decided by Engineer-in-charge, to provide live feed on the mobile phones of concerned Railway officials and on screen in the office of the CE/Con, and maintain the same during entire period of contract, including extended period, if any. The cost of this shall be deemed to be inclusive in the quoted rates. If required, the location of these IP based cameras, may be changed/shifted, as per subsequent progress of works/subsequent site requirements and cost of such shifting shall also be deemed to be inclusive in the quoted rates.

54.	Conservancy charges if applicable as per the extant policy guidelines shall be recovered for this contract.
55.	e-Measurement Book ('e'-MB): For all contracts costing more than Rs. 5 Crore, Contractor's e-MB is mandatory and Contractor's e-MB should be part of Tender Document
56.	During execution if railway feels to amend the issued approved drawings by way of increasing or decreasing no. of bridges, formation length, construction of residential and service buildings, non schedule items, USSOR-2021 and DSR- 2021 (Vol-I&II) items, etc., the contractor shall be ready for such a situation and shall have no claim over it.
57.	On completion of the work, a completion drawing to be submitted in softcopy and in 5 Hardcopies duly signed by the In-charge Supervisors involved and AXEN/XEN concerned, as directed by Engineer-in-Charge.

CHAPTER-VII**(SPECIAL CONDITIONS OF CONTRACT)****Price Variation Clause (PVC):- To be as per GCC-April-2022.**

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).

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.

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.

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.

5. No price variation shall be admissible for fixed components.

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 Components		1A, 2&3A	4A	5A	6A	7	8A	9A	1B, 3B, 4B, 5B,	1C, 3C, 4C, 5C,	3D, 4D, 5D, 6D	3E, 4E, 5E, 6E,
1	Fixed	*	15	15	15	15	15	15	15	15	15	15	15
2	Labour	Lc	20	25	30	20	50	20	20	0	0	10	25
3	Steel	Sc	0	0	0	0	0	0	0	85	0	50	0
4	Cement	Cc	0	0	15	0	0	0	0	0	85	0	0
5	Plant Machinery & Spares	PMc	30	15	5	20	15	20	30	0	0	10	30
6	Fuel & Lubricants	Fc	25	15	5	15	15	20	15	0	0	10	20
7	Other Materials	Mc	10	15	30	30	5	25	20	0	0	5	10
8	Detonators & Explosives	Ec	0	15	0	0	0	0	0	0	0	0	0
	Total		100	100	100	100	100	100	100	100	100	100	100

* It shall not be considered for any price variation.

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

1. Earthwork in Formation

1A. All Item(s) excluding 1B or/and 1C

1B. Item(s) for supply of Steel

1C. Item(s) for supply of Cement

2. Ballast Supply Works**3. Tunnelling Works (Without Explosives)**

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

3B. Item(s) for supply of Steel

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

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

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

4. Tunnelling Works (With explosives)

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

4B. Item(s) for supply of Steel

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

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

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

5. Building Works

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

5B. Item(s) for supply of Steel

5C. Item(s) for supply of Cement

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

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

6. Bridges & Protection work

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

6B. Item(s) for supply of Steel

6C. Item(s) for supply of Cement

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

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

7. Permanent Way linking

8. Platform, Passenger Amenities

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

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

8C. Item(s) for supply of Cement Item

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

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

9. Any Other Works not covered in Classification 1 to 8

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

9B. Item(s) for supply of Steel

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

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

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

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

$$(i) L = \frac{(W \text{ or } WSF \text{ or } WF \text{ or } WSFL \text{ or } WFL) \times (LQ - LB) \times LC}{LB \times 100}$$

$$(ii) M = \frac{(W \text{ or } WSF \text{ or } WF \text{ or } WSFL \text{ or } WFL) \times (MQ - MB) \times MC}{MB \times 100}$$

$$(iii) F = \frac{(W \text{ or } WSF \text{ or } WF \text{ or } WSFL \text{ or } WFL) \times (FQ - FB) \times FC}{FB \times 100}$$

$$(iv) E = \frac{(W) \times (EQ - EB) \times EC}{EB \times 100}$$

$$(v) PM = \frac{(W \text{ or } WSF \text{ or } WF \text{ or } WSFL \text{ or } WFL) \times (PMQ - PMB) \times PMC}{PMB \times 100}$$

$$(vi) S = \frac{(W \text{ or } WS \text{ or } WSF) \times (SQ - SB) \times SC}{SB \times 100}$$

$$(vii) C = \frac{(W \text{ or } WC) \times (CQ - CB) \times CC}{CB \times 100}$$

(II) For Railway Electrification Works:

$$(viii) T = [0.4136 \times (CQ - CB) / CB] \times 85$$

$$(ix) R = [0.94 \times (RT - RO) / RO + 0.06 \times (ZT - ZO) / ZO] \times 85$$

$$(x) N = [(PT - PO) / PO] \times 85$$

$$(xi) I = [(IT - IO) / IO] \times 85$$

$$(xii) G = [(MQ - MB) / MB] \times 85$$

$$(xiii) Er = [(LQ - LB) / LB] \times 85$$

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

Signature of tenderer(s)/Contractor(s)

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Quantities for ferrous items)

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

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

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

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

LC % of Labour Component in the item(s)

MC % of Material Component in the item(s)

FC % of Fuel Component in the item(s)

EC % of Explosive Component in the item(s)

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

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

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

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

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

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

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

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

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

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

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

LQ Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for

the average price index of the 3 months of the quarter under consideration

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

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

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

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

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

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

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

PMQ Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for ‘Manufacture of machinery for mining, quarrying and construction’– published in RBI (Reserve Bank of India) Bulletin, for the average price index of 3 months of GCC April 2022 74 the quarter under consideration.

SB The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9 of GCC-April-2022; for the base period.

SQ The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9 of GCC-April-2022; for the 3 months of the quarter under consideration.

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

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

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

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

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

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

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

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

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

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

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

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

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

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

SL	City	Railway
1.	Delhi	Northern, North Central, North Eastern,

		North Western
2.	Kolkata	Eastern, East Central, East Coast, Northeast Frontier, South Eastern, Southeast Central
3.	Mumbai	Central, Western, West Central
4.	Chennai	Southern, South Central & South Western

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.

Note:- Above Price Variation Clause should be read in conjunction with provisions of Clause-46A of Indian Railways Standard General Condition of Contract published in April- 2022.

Annexure-I**BANK GUARANTEE FORMAT (For Performance Guarantee).**

(For the purpose of submission of Performance Guarantee after award of work and before execution of contract agreement by the successful tender)

In consideration of the President of India (hereinafter called "the Government") having agreed to exempt _____ (hereinafter called "the said Contractor/s") from the demand, under the terms and conditions of this Agreement dated _____ made between _____ and Dy.CE/Con/III/G(Beneficiary FA&CAO/SECR/BSP) for _____ (hereinafter 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 for Rs. _____ (Rupees _____) we, _____ (hereinafter referred to as (indicate the name of the bank) " the Bank") at the request of _____ (Contractor's) do hereby undertake to pay to the Government an amount not exceeding Rs. _____ against any loss or damage caused to or suffered or would be caused to or suffered by the Government by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said Agreement.

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

3. We under take to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/supplier(s) in any suite or proceeding pending before any court or Tribunal relating thereto our liability under this present being absolute and unequivocal.

The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the contractor(s)/supplier(s) shall have no claim against us for making such payment.

4. We, _____ (indicate the name of the bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance/ of the said 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/ Department) Ministry of _____ certifies that the terms and conditions of the said

Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the ____ we shall be discharged from all liability under this guarantee thereafter. .

5. We _____ (indicate the name 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(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance, act or omission on the part of the Government or any indulgence by the Government to the said Contractor(s), or any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.

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

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

Dated the _____ day of _____ 2026

For _____

(Indicate the name of the bank)

NOTES:

- (1) *If the tenderer submit Performance Guarantee in the shape of Bank Guarantee, then it will be accepted only if the same matches verbatim with the given format.*
- (2) **The Bank Guarantee/extension of the B.G. if any in future to be submitted by the supplier(s)/ contractor(s) should be sent directly to the concerned authorities by the issuing Bank under Registered Post A/D**

Format for Bid Security (Annexure-II)

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 **Chief Project Manager West (Construction)/S.E.C. Railway, Nagpur,****Beneficiary : FA&CAO/Con/S.E.C.Railway, Bilaspur.**

Date:

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

In consideration of the President of India acting through Chief Project Manager West (Con)/S.E.C. Railway, Nagpur (***Designation & address of Contract Signing Authority***), Kingsway, **DRM OFFICE COMPLEX /SOUTH EAST CENTRAL RAILWAY, Nagpur -440001**, (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 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 upto and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Bank shall be final, conclusive and binding, absolute and unequivocal on the Bank notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.
3. The Bank shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the Bidder and without the Railway being required to show grounds or give reasons for its demand of the amount so demanded.
4. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.
5. The bank agrees that no change, addition, modifications to the terms of the Bid

Signature of tenderer(s)/Contractor(s)

For Chief Project Manager West(Con)/Nagpur

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	BRACH
BANK NAME	STATE BAND 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 Seal and authorized
signature(s) [Name in Block
letters]

[Designation with Code No.]

[P/Attorney] No.

Witness:

1. Signature, Name & Address & Seal
2. Signature, Name & Address & Seal

Bank

Sea

1 [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 – III**Performa for Bid Capacity**

Bid Capacity: The Bid Capacity of the tenderer may be submitted in the following format duly enclosing documents mentioned in this regard in the NIT.

Sl. No	Name of work and contract agreement no. with date	Name and address of employers	Contractual Agreemental value in Cr	Revised value if any in Cr	Completion time as per original agreement and any extension granted.	Payment received upto date of opening of this tender in Cr	Balance Amount of ongoing work to be completed in next 'N' years. in Cr
1	2	3	4	5	6	7	8

Note-

1. The tenderer has to furnish the above details of ongoing works and also the works which are awarded but not yet started. In case of no works in hand a NIL statement should be furnished. This statement should be submitted duly verified by Chartered Accountant.

Annexure-IV

Each Bidder must fill in this form separately:

NAME OF BIDDER:

Annual Contractual Turnover Data for the Previous $\frac{3}{4}$ Years (Contractual Payment only)			
Year	Amount Currency	Exchange Rate	Indian National Rupees Equivalent
Average Annual Contractual Turnover for last 3 years			

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

SEAL AND SIGNATURE OF THE BIDDER

Certified that all figures and facts submitted in this form have been furnished after full consideration of all observations/notes in Auditor's reports. _____

(Signature of Chartered Accountant)

Name of CA: _____

Registration No: _____

(Seal)

ANNEXURE – V**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 South East Central 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 . 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**.
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.
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 am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

Signature of tenderer(s)/Contractor(s)

For Chief Project Manager West(Con)/Nagpur

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.

ANNEXURE-V(A)

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

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

1. I/we certify that.....(constituent firm/constituent partner) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
2. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed),

SEAL AND SIGNATURE OF THE CONSTITUENT
FIRM/CONSTITUENT PARTNER

Place:

Dated

ANNEXURE-VI**Insurance Surety Bond for Performance Security**

Name of the issuer of surety bond:

President of India,
Acting
through..... ,
..... Railway.

Date:.....

.....

Surety Bond No:.....

Issue Date:.....

Amount of Bond:.....

Expiry Date:.....

WHEREAS, In consideration of the President of India acting through..... (Designation & address of contract signing authority),..... Railway,....., (hereinafter called "The Railway") having accepted the bid of M/S XXXXX hereinafter called the contractor, for the work of XXX" under invitation for bids No XXXX Dated XXXXX, Vide Letter of Acceptance No.....

AND

WHEREAS, the contractor is required to furnish Performance Security for the sum of Rs. XXXX (**Rupees XXXX Only**), in the form of Surety Bond, being a condition precedent to the signing of the Contract Agreement.

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 I payment under the Bond must be received by us on or before that date.
9. The Surety agrees that the Railways right to demand payment of aforementioned full amount in one instance or demand payments in parts totalling up to the aforementioned full amount in several instances will be valid until either the aforementioned full amount is paid to the Railway or the Bond is released by Railway before the Expiry date.
10. The Surety agrees that its obligation to pay any amount demanded by the Railway before the expiry of this Bond will continue until the amount demanded has been paid in full.
11. The expressions Surety and Railway hereinbefore used shall include their respective successors, administrators and assigns.
12. The Surety hereby undertakes not to revoke the Bond during its currency, except with the previous consent in writing of the Railway. This Bond is subject to the Uniform Rules for Demand Bonds, ICC Publication No. 758.
13. We, the Surety Insurer, further agree that the Authority shall be the sole judge to decide as to whether the Bidder is in default of due and faithful fulfilment and compliance with the terms and conditions contained in the Bidding Documents including, inter alia, the failure of the Bidder to keep its Bid open during the Bid validity period set forth in the said Documents, and the decision of the Authority that the Bidder is in default as aforesaid shall be final and binding on us, notwithstanding any differences between the Authority and the Bidder or any dispute pending before any Court, tribunal, arbitrator or any other authority.
14. The Bond shall be in addition to and without prejudice to any other security Bond (s) of the contractor in favour of the Railway available with the Railway. The Surety, under this Bond, shall be deemed as Principal Debtor of the Railway.

Notwithstanding anything to the contrary contained in these presents,

- a. Our liability under this Surety Bond shall not exceed **XXXX (Rupees XXXXX Only)**.

b. This Surety Bond shall be valid up to *XXXX (being the date of expiry)*;

c. Unless the bank is served a written claim or demand on or before *XXXX [date of expiry]* all rights under this Bond shall be forfeited and the Surety shall be relieved and discharged from all liabilities under this Bond irrespective of whether or not the original Surety bond is returned to the Surety.

Dated _____ the day of 2026

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.]

Annexure-A

**Technical Eligibility of the Bidder
(Only Completed/Substantially Completed Works)**

Name of Work/Project	Name of firm/Partner	Project code	% Share	Present Contract value	Contractual Amount received	Claimed Value from Technical Eligibility
1	2	3	4	5	6	7
		a				
		b				
		c				
		d				
		e				
		f				
Aggregate Claimed Technical Eligibility =						

Note: The responsibility of proving the eligibility for the work as per tender conditions lies with the bidders along with providing unambiguous documents/certificates in confirmation to eligibility criteria with bid. Only Experience given by Tenderer in Annexure-A will be evaluated for technical Eligibility. No other document will be taken cognizance.

[Seal and Signature of the Bidder]

CHAPTER - IX**SPECIAL CONDITIONS OF CONTRACT****(SAFETY PRECAUTIONS)****PRECAUTION WHILE PLYING VEHICLES ADJACENT TO RUNNING TRACK****1. General**

The Contractor shall execute all works in proximity of running lines and on running lines after duly conforming to all safety precautions as detailed in PCE Circular No.16 (Revised), Dated:16.02.2023 issued by the Office of Principal Chief Engineer/S.E.C. Railway/Bilaspur and further revisions of the circular if any. The Contractor shall not allow any road vehicle belonging to his or his suppliers etc., to ply in railway land next to the running line. If for execution of certain works viz., earthwork for parallel railway line and supply of ballast for new or existing rail line gauge conversion etc., road vehicles are necessary to be used in Railway land next to the Railway line, the Contractor shall apply to the Engineer-in-Charge for permission giving the type & No. of individual vehicles, names and License particulars of the drivers, location, duration & timings for such work/movement. The engineer in charge or his authorized representative will personally counsel, examine & certify, the road vehicle drivers, Contractor's flagmen & Supervisor and will give written permission giving names of road vehicle drivers, Contractor's flagmen and Supervisor to be deployed on the work, location, period and timing of the work. This permission will be subject to the following obligatory conditions.

- 1.1 The road vehicles will ply in between sunrise & sunset.
- 1.2 Nominated vehicles & drivers will be utilized for work in the presence of at least one flagman & one supervisor certified for such work.
- 1.3 The vehicles shall ply 6 m clear of track. If any movement/work is required to be carried out at distance less than 6 m and up to 3.5 m clear of track centre, it shall be done only in the presence of railway employee authorized by the Engineer-in-Charge. No part of the road vehicle will be allowed at less than 3.5 m from track centre. Cost of such railway employee shall be borne by the railway.
- 1.4 The Contractor shall remain fully responsible for ensuring safety & in case of any accident, shall bear cost of all damages to his equipment and also damages to Railway & its passengers.
- 1.5 The Contractor shall also be bound by the provisions of this agreement to ply the road Vehicles only with adequate margin of safety, well clear of the fixed structure profile of infringements, as stipulated in the rules made under the Indian Railways Act and to seek and be guided by the Signals and other directions of any look-out men or other personnel retained for the purpose of ensuring safety, and to ensure extra care and vigilance while turning, reversing or moving the road Vehicles Track or the siding, as the case may be. The Contractor shall employ necessary lookout men also at his own cost, irrespective of any other arrangement that Railway may make in this regard.

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

2. **PROVISION OF FENCING:** If desired by the Engineer-in-charge, the work site is to be protected by providing and maintaining fencing cost of which will be made separately as

per provision in the schedule of work. Sturdy fencing shall be provided as per CE/C/BSP's Drg. No.5808/2018 and the payment will be made separately.

1. "JOINT PROCEDURE ORDER FOR UNDERTAKING DIGGING WORK IN THE VICINITY OF UNDERGROUND SIGNALING, ELECTRICAL AND TELECOMMUNICATION CABLES"

- 3.1. Number of Engineering works in connection with third/fourth line are in progress, which require extensive digging work near the running track, in close vicinity of the working S&T cables carrying vital safety circuits as well as electrical cables feeding the power supply to cabins. ASM room, RRI Cabin, Intermediate Block Huts (IBH) etc. Similarly, S&T organisation under open line or construction units under CAO/C, are executing various Signalling and Telecom works requiring digging of earth for laying of cables or casting of foundations for the erection of signal posts etc. On certain sections digging is also required for laying of electrical cable and casting of foundation for the erection of OHE masts. Generally, these works are executed by Contractors.
- 3.2. However, while carrying out these works in the vicinity of working signalling, telecommunication and electrical cables, at times, cable cut take place due to JCB machines working along the track or during the digging work being done by Contractors carrying out the Civil Engineering Works. Similarly, such cable cuts are also resulting due to works undertaken by S&T or Electrical Contractors. Such cable faults result in the failure of vital signalling and telecommunication circuits & electrical installations.
- 3.3. Following joint procedure shall be followed by Engineering, Electrical and S&T Contractors, while carrying out any digging work near to existing signalling & telecommunication and electrical cables, so that the instances of cable cut due to execution of works, can be controlled and minimized.
- 3.4. S&T Department and Electrical department shall provide a detailed cable route plan showing exact location of cable at an interval of 200m or wherever there is change in alignment so that the same is located easily by the Engineering official/Contractor. In addition, S&T department and Electrical department shall also provide cable markers along the alignment of the cable.
- 3.5. Before taking up any digging activity on a particular work by any agency, Sr.DSTE/DSTE or Sr.DEE/DEE of the section shall be approached in writing by the concerned Engg. or S&T or Electrical officer for permitting to undertake the work. Sr.DSTE/DSTE or Sr.DEE/DEE, after ensuring that the concerned executing agencies including the Contractor have fully understood the S&T and Electrical cable route plan shall permit the work in writing within 7 days of the request by concerned department.
- 3.6. After getting the permission from S&T or Electrical department as the case may be, the relevant portion of the cable route plan shall be attached to the letter through which permission is issued to the Contractor by concerned Engg. Official for commencement of work and ensuring that the Contractors have fully understood the cable route plan and precautions to be taken to prevent damage to the underground cables. The Contractor shall be asked to study the cable plan and follow it meticulously to ensure that the safety of the cable is not endangered. Such a provision, including any penalty for default, should form part of agreement also.
- 3.7. The SE/P. Way or SE/Works shall pass on the information to the concerned SE/Sig SE/Tele about the works being taken up by the Contractors in their sections at least 3 days in advance of the day of the work. In addition Engineering control shall also be

informed by SE/P.Way or SE/Works, who in turn shall pass on the information to the test room/network operation centre TPC/Elect. Control.

- 3.8. On receiving the above information, SE/Sig or SE/Tele or shall visit the site on or before the date of taking up the work and issue permission to the Contractor to commence the work after checking that adequate precautions have been taken to avoid the damage to the cables. The permission shall be granted within 3 days of submission of such requests.
- 3.9. The name of the Contractor, his contact telephone number, the nature of the work shall be notified in the Engineering control as soon as the concerned Engineering official issue the letter authorizing commencement of work to the Contractor. Test room shall be given copies. Test room shall collect any further details from the Engineering Control and shall pass it on to S&T & Electrical officials regularly. In case the supervisors of concerned departments do not turn up on the day as advised in terms of para- 3 . 5 to 3 . 8 above, the works of Contractor should not be stopped on this account.
- 3.10. In case of works being taken up by the State Government, National Highway Authority etc., the details of the permission given i.e. the nature of the work, kilometre etc. be given to the Engineering control including the person's contact number so that the work can be done in a planned manner. The permission letter shall indicate the contact numbers of Test room/Network Operating Centre of TPC/Elect. Control.
- 3.11. Where the nature of the work taken up by the Engineering department is such that the OFC or other S&T cables or Electrical cables is to be shifted and relocated, notice of minimum one week shall be given so that the Division /Construction can plan the works properly for shifting. Such shifting works shall in addition, for security and integrity of the cables, be supervised by S&T supervisors/Electrical Supervisors.
- 3.12. The concerned SE/P.Way/SE/Works/SE/Sig/SE/Tele supervisors supervising the work of the Contractor shall ensure that the existing emergency sockets are not damaged in view of their importance in providing communication during accident/emergency.
- 3.13. In case of minor nature of works where shifting of cable is not required, in order to prevent damage to the cable, the Engineering Contractor shall take out the S&T or optical fibre cable or Electrical cable carefully from the trench and place it properly along side at a safe location before starting the earthwork under the supervision of SE/Sig or SE/Tele. The cable shall be reburied soon after completion of excavation with proper care including placement of the brick over the cable under the supervision of S&T or Electrical supervisors. However, the work will be charged to the concerned engineering works. The responsibility for ensuring availability of SE(Signal), SE as per para-3.5 to 3.9 above lies with the respective department. The Contractor will go ahead with the shifting of cables as per the program decided and he will not be held responsible for any cable cut.
- 3.14. In all the sections where major project are to be taken up/going on S&T department shall deploy their official to take preventive/corrective action at site of work. As regards Electrical Department, the official may be deputed on need basis.
- 3.15. No new OFC or quad cable shall be laid close to existing track. It shall be laid close to the Railway boundary on one side of the Railway track to the extent possible to avoid any interference with the future works. It shall be ensured in the new works of cable laying that the cable route is properly identified with electronic or concrete markers. Wherever multiple cables are laid in a trench, RFID markers may be provided for easy identification of the cable. Henceforth, wherever cable laying is planned, before undertaking the cable laying work, the cable route plan of the same shall be prepared by the Dy.CSTE/A or Dy.CEE/C and shall be got approved from the concerned Sr.

DSTE/DSTE or Sr.DEE/DEE and also from the concerned Dy.CE/C for new lines and from the concerned Sr.DEN for all other projects including GC etc., to avoid possible damages in future. Such approvals shall be granted within 15 days of the submission of the request.

- 3.16. The works of excavating the trench and laying of the cable should proceed in quick succession, leaving a minimum time between the two activities.
- 3.17. In case damage caused to OFC/Quad cable or Electrical 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:-
- Detailed cable route plan as per clause C-1 not provided by concerned department or cable is not protected as per laid down procedures.
 - The alignment of the cable does not tally with the information provided to the Contractor.
 - The cable depth is found to be less than 800 mm from normal ground level.
 - No representative of S&T department was available at site guarding the cables on the fixed pre-determined date and time.

3.18. Penalty to be imposed for damages to cable shall be as under:-

Cable damaged	Penalty per location
Only Quad cable or signaling cable	Rs 1.0 lakh
Only OFC	Rs 1.25 lakh
Both OFC and Quad	Rs 1.5 lakh
Electrical Cable	Rs 1.0 lakh

Necessary debit in this regard shall be raised on the department undertaking the work who shall in turn levy the penalty on the defaulting Contractor. S&T department shall raise the debits in case of damage to OFC or Quad or Signalling cable and Electrical department shall raise the debits in case of damage to Electrical cable.

- 3.19. Railways will not lodge FIR with RPF in case of works being executed by authorized Contractors of Railways who have been duly permitted to execute the works in accordance with this JPO. Joint note by the supervisors of the concerned department shall be prepared and the responsibility of the cable cut should be decided without involving RPF. The joint note deciding the fact whether the contractor should be penalized shall be completed in a day's time from the occurrence of cable cut. In all other cases, when the cable is cut by an agency that was not permitted to execute any work, FIR should be lodged with RPF.
- 3.20. While giving permission for taking up the works, concerned departments may note that earthwork by engineering Contractors will normally be done by machines except in a few isolated locations where the quantity of earth work is very less.
- 3.21. Railways shall make necessary correction in their future contract so that this JPO can also be enforced contractually.
- 3.22. All types of signalling & OHE bonds i.e. railbond, crossbond and structure bond shall be restored by the Contractor with a view to keep rail voltage low to ensure safety of personnel.
- 3.23. Above joint circular shall be applicable for construction as well as open line organization of Engineering, S&T and Electrical.
- 3.24. S&T cable and electrical cable route plan should be prepared by the concerned S&T and Electrical officers respectively and got approved as stipulated before undertaking

the work. The completion cable route plan should be finalized block section by block section as soon as the work is completed.

- 3.25. All cable laying works shall be executed as per laid down technical specifications, such as protection measures/protective cover, compaction of refilled material etc.

CHAPTER – X
SPECIAL CONDITIONS OF CONTRACT
(QUALITY ASSURANCE, MONITORING AND SUPERVISION)

1.1. Quality of Materials and workmanship

- 1.1.1 The Contractor shall ensure that the Construction, Materials and workmanship are in accordance with the requirements specified in this Agreement, Specifications and Standards and Good Industry Practice.
- 1.1.2 The Contractor warrants that all Materials shall be new, unused, not reconditioned and in conformity with Specification and Standards, Applicable Laws and Good Industry Practice, and that the Contractor shall not use any materials which are generally recognized as being deleterious under Good Industry Practice.

1.2 Quality control system

- 1.2.1 The Contractor shall establish a quality control mechanism to ensure compliance with the provisions of this Agreement as **Quality Assurance Plan** or **QAP**.
- 1.2.2 The Contractor shall, within 15 (fifteen) days of the issue of letter of Acceptance of this tender, submit to the Engineer its Quality Assurance Plan which shall include the following:
- (a) organization, duties and responsibilities, procedures, inspections and documentation;
 - (b) quality control mechanism including sampling and testing of Materials, test frequencies, standards, acceptance criteria, testing facilities, reporting, recording and interpretation of test results, approvals, check list for site activities, and proforma for testing and calibration in accordance with the Specifications and Standards and Good Industry Practice; and
 - (c) internal quality audit system.
- The Engineer shall convey its comments to the Contractor within a period of 21 (twenty-one) days of receipt of the QAP stating the modifications, if any, required, and the Contractor shall incorporate those in the QAP to the extent required for conforming with the provisions of this Clause 1.2.
- 1.2.3 The Contractor shall procure all documents, apparatus and instruments, fuel, consumables, water, electricity, labour, Materials, samples, and qualified personnel as are necessary for examining and testing the Project Assets, Materials and workmanship in accordance with the Quality Assurance Plan.
- 1.2.4 The cost of testing of Construction, Materials and workmanship shall be borne by the Contractor.

1.3 Methodology

The Contractor shall, at least 07 (seven) days prior to the commencement of any construction activity, submit to the Engineer for review the method statement proposed to be adopted for executing the Work, giving details of inspection checklist, quality parameters, engineers/staff/labour/equipment to be deployed, traffic management and measures for ensuring safety. The Engineer shall complete the review and convey its comments, if any, to the Contractor within a period of 10 (ten) days from the date of receipt of the proposed method statement from the Contractor. The Contractor shall revise the method statements by incorporating these comments or else will advise the Engineer reasons for not/partially including the same.

1.4 Inspection and technical audit by the Railway

The Engineer or his representative may inspect and review the progress and quality of the construction of Works and issue appropriate directions to the Contractor for taking remedial action in the event the Works are not in accordance with the provisions of this Agreement.

1.5 Inspection of construction records

The Engineer shall have the right to inspect the records of the Contractor relating to the Works.

1.6 Monthly progress reports

During the Construction Period, the Contractor shall, no later than 10 (ten) days after the close of each month, furnish to the Engineer a monthly report on the progress of Works and shall promptly give such other relevant information as may be required by the Engineer.

1.7 Inspection

1.7.1 The Engineer and Engineer's Representative shall at all times:

- (a) have full access to all parts of the Site and to all places from which natural Materials are being obtained for use in the Works; and
- during production, manufacture and construction at the Site and at the place of production, be entitled to examine, inspect, measure and test the Materials and workmanship, and to check the progress of manufacture of Materials.

1.7.2 The Contractor shall give the Engineer and his representatives access, facilities and safety equipment for carrying out their obligations under this Agreement.

1.7.3 The Engineer shall submit a monthly inspection report to the Contractor bringing out the results of inspections and the remedial action taken by the Contractor in respect of Defects or deficiencies. For the avoidance of doubt, such inspection or submission of Inspection Report by the Engineer shall not relieve or absolve the Contractor of its obligations and liabilities under this Agreement in any manner whatsoever.

1.8 Samples

The Contractor shall submit the following samples of Materials and relevant information to the Engineer for review:

1.8.1 Manufacturer's test reports and standard samples of manufactured Materials; and

1.8.2 Samples of such other Materials as the Engineer may require.

1.9 Tests

1.9.1 For determining that the Works conform to the Specifications and Standards, the Engineer shall require the Contractor to carry out or cause to be carried out tests, at such time and frequency and in such manner as specified in this Agreement, and in accordance with Good Industry Practice for quality assurance. The Contractor shall, with due diligence, carry out all the tests in accordance with the Agreement and furnish the results thereof to the Engineer. Of the total tests for each category or type to be undertaken by the Contractor under the provisions of this Agreement and Good Industry Practice, the Engineer shall (a) carry out or cause to be carried out, test checks equal to about 10% (ten per cent) of the number of the tests required to be undertaken by the Contractor; and (b) witness or participate in at least 10% (ten per cent) of the number of such tests conducted or caused to be conducted by the Contractor.

- 1.9.2 In the event that results of any tests conducted under this Clause 1.10 establish any Defects or deficiencies in the Works, the Contractor shall carry out remedial measures and furnish a report to the Engineer in this behalf. The Engineer shall require the Contractor to carry out or cause to be carried out tests to determine that such remedial measures have brought the Works into compliance with the Specifications and Standards, and the procedure shall be repeated until such Works conform to the Specifications and Standards. For the avoidance of doubt, the cost of such tests and the remedial measures in pursuance thereof shall be solely borne by the Contractor.

1.10 Rejection

- 1.10.1 If, as a result of an examination, inspection, measurement or testing, any Plant, Material, design or workmanship is found to be defective or otherwise not in accordance with the provisions of this Agreement, the Engineer may reject such Plant, Material, design or workmanship by giving notice to the Contractor, with reasons. The Contractor shall then promptly make good the Defect and ensure that the rejected item complies with the requirements of this Agreement.
- 1.10.2 If the Engineer requires the Plant, Material, design or workmanship to be retested, the tests shall be repeated on the same terms and conditions, as applicable in each case. If the rejection and retesting cause the Railway to incur any additional costs, such costs shall be recoverable by the Railway from the Contractor and may be deducted by the Railway from any money due to be paid to the Contractor.
- 1.10.3 The Contractor shall not be entitled to any extension of time on account of rectifying any Defect or retesting as specified above.
- 1.10.4 No examination, inspection, measurement or testing of any Plant, Material, design or workmanship by the Engineer or its failure to convey its observations or to examine, inspect, measure or test shall relieve the Contractor of its obligations and liabilities under this Agreement in any manner nor shall the Railway be liable for the same in any manner.

1.11 Remedial work

- 1.11.1 Notwithstanding any previous test or certification, the Engineer may instruct the Contractor to:
- (a) remove from the Site and replace any Plant or Materials which are not in accordance with the provisions of this Agreement;
 - (b) remove and re-execute any work which is not in accordance with the provisions of this Agreement and the Specification and Standards; and
 - (c) execute any work which is urgently required for the safety of the Railway Project, whether because of an accident, unforeseeable event or otherwise; provided that in case of any work which is required on account of a Force Majeure Event, the provisions of Clause 17 of Part II of GCC shall apply.
- 1.11.2 If the Contractor fails to comply with the instructions issued by the Engineer under Clause-1.12 within the time specified in the Engineer's notice or as mutually agreed, the Engineer may decide to have the work executed by another agency. The cost so incurred by the Railway for undertaking such work shall be recoverable from the Contractor and may be deducted by the Railway from any monies due to be paid to the Contractor.

1.12 Quality control records and Documents

The Contractor shall hand over to the Engineer a copy of all its quality control records and documents after completion of the work.

CHAPTER - XI
SPECIAL CONDITIONS OF CONTRACT
(SPECIFICATION FOR STEEL REINFORCEMENT)

Supply of TMT reinforcement bars should have conformity to the SCHEDULE OF TECHNICAL REQUIREMENTS for SUPPLY OF TMT REINFORCEMENT BARS to Indian Railway All reinforcement steel (TMT Bar) and structural Steel as Per IS:1786 and IS:2062 with latest amendment should be procured from the primary producers of steel i.e .

A. SAIL

B. TISCO

C. RINL

D. Any other primary Steel Producer having Integrated Steel Plant (ISP) and using iron ore as the basic raw material and having in-house iron rolling facilities, followed by production of steel through the process of DRI-EAF, BF-BOF and Corex- BOF only.

NOTE:(i) The contractor shall produce the certificate in advance before supply start issued by plant manufacturer/Plant consultant (with documentary proof of process) establishing process being used at plant is either of DRI-EAF, BF-BOF and Corex-BOF route only, for manufacturing TMT reinforcement bar using iron ore as basic raw materials.

(ii) All Reinforcement Steel (TMT Bard) shall be procured as per specifications mentioned. In BIS's document- IS 1786. Independent tests shall be conducted, where ever required, to ensure that the materials procured conforms to the specifications and cost of testing to be borne by the contractor and no extra payment will be given to the contractor. The particular type/grade/brand of reinforcement steel/bars only to be used from the manufacturing companies/ plant.

(iii) The contractor shall disclose the source from where supplies of Steel is received by him and maintain a detailed record of receipt of steel from different sources and shall keep the challan, Railway receipts, Lorry number, etc. And store balance in a register as directed by the Engineer-in-charge and produce the same to the Engineer as and when demanded. A copy of purchase document shall have to be submitted along the bill for claiming payment against these items. Railway reserves the right to inspect contractor store godown/material yard and documents pertaining to procurement of steel.

(iv) Payment towards steel will be made on the basis of actual consumption (payment of overlaps and chairs will also be made) and no wastage on any of the materials supplied and used in the work by the contractor is payable by the Railway.

(v) In case of any doubts regarding quality of Steel, the Railway may order to get is tested. Acceptance of the supplied steel shall be subject to such test results and cost of testing will has to be borne by the contractor and no extra payment will be made by the Railway.

(vi) The quantity will be calculated using standard weight per running metre or actual weight whichever is less and minimum required over laps will be provided as per IS:456 (Latest version). The quantity of chairs shall be payable as per drawing showing layout of chair locations duly approved in advance by the Engineer.

(vii) Manufacture's Test certificate for steel used should be produced and the same should conform to IS:1786.

(viii) All reinforcement used should be free from loose Mill scale, loose rust, paints and oil coating etc.

(ix) Contractor has to use galvanized wire not less than 1 mm diameter for binding of reinforcement steel. No extra payment shall be applicable for binding wire.

(x) Dy.CE(Con)/Authority Engineer is the authority to approve steel as per above specification.

CHAPTER - XII**ADDITIONAL SPECIAL CONDITIONS OF CONTRACT****SUPPLY OF CEMENT BY CONTRACTORS**

1. Contractor should procure cement from IS approved Firms or from their authorized distributors only. Proof of procurement i.e. vouchers etc. will be submitted by the contractor.
2. Empty cement bag will be the property of the contractor(s). However, an amount of Rs. 1.65 (Rupees one and paise sixty-five) per bag will be recovered from contractor's bill towards cost of empty cement bag.
3. Cement supplied should be from Ultratech, Birla, ACC, Lafarge, Ambuja, Grasim or equivalent as approved by Engineer-in-Charge.
4. Cement bags should bear the following information in legible markings. :
 - Manufacturer's name.
 - Registered Trade Mark of Manufacturer, if any.
 - Type of cement.
 - Weight of each bag in Kgs. or Number of bags / Tonne.
 - Date of manufacturing, generally marked as week of the year/year of manufacture.
5. Engineer-in-charge shall have full discretion to take the cement samples during the course of work and send sample of cement for testing at the cost of contractor and the cement batch / lots shall be rejected if not confirming to IS 4031 specifications.
6. Storage: Contractor shall provide suitable dry and water tight covered accommodation for proper storage of cement to avoid any deterioration or contamination at site within railway premises at his own cost. Cement shall be stored above the ground and shall be stacked not more than eight bags high. The site and arrangements should be got approved from Engineer-in-charge or his authorized representative.
7. The procurement of cement should be so regulated so as not to allow cement becoming more than 3 months old.
8. Any cement which has been stored at site for more than three months the contractor shall retest the cement at their cost and test certificate shall be submitted to Engineer-in-charge for his approval prior to use of the same.
9. Payment: Payment will be made on the basis of finished work after use as per the approved drawing / specification / standard consumption or actual consumption whichever is less.

CHAPTER – XIII
SPECIAL CONDITION OF CONTRACT
(SPECIFICATIONS FOR CONCRETE WORK/ BRIDGE WORK / PROTECTION WORK)

1.1. Codes & References.

- 1.1.1. Production, sampling, testing and quality control of concrete shall be governed by provisions of IRS Concrete bridge code-1997 with upto date correction slip. Acceptance criteria for concrete work shall be as given in IRS Concrete Bridge Code. For this tender IRS Concrete Bridge Code-1997 with upto date correction slip is Part & Parcel of this tender document. This code is available in the Office of the Chief Project Manager -West (Con) SEC Railway, Nagpur and may be seen or purchased. The works of this contract shall be executed as per standard specifications. For execution, quality control and testing relevant IS Codes and Railway Codes shall be followed.
- 1.1.2 For specifications on material to be used in structures 'Indian Railways Unified Standard Specification (works and materials-2021) Vol I and Vol II' with latest amendment should be referred.

1.2. General:

- 1.2.1. Prior to start of construction, the contractor shall design the mix as per IS 10262 and submit to Engineer for review, the proportions of materials, including admixtures to be used. For mix design purposes, the exposure condition for all the proposed bridges is considered as moderate. All codal provisions corresponding to moderate exposure condition would be applicable in this contract.

1.3. Cement

- 1.3.1. The cement used shall be any of the following. However the prior approval of the Engineer shall be taken for use of any of the cement.
- 43 Grade Ordinary Portland Cement conforming to IS: 8112.
 - 53 Grade Ordinary Portland Cement conforming to IS: 12269.
 - Portland slag cement conforming to IS: 455 (See Notes below).
 - Portland Pozzolana cement confirming to IS 1489,
- 1.3.2. In aggressive environment, where SO₃ and Cl ion are present in abundance, preferably ordinary Portland cement with moderate sulphate resisting properties conforming to specifications as given in Table 1 may be used.
- 1.3.3. NOTE:
- iv) Mixing of 50% blast furnace slag with OPC cement at site shall not normally be permitted. However, in exceptional cases for bridges requiring higher levels of durability using blended cement which is not available from manufacturers blending at site may be permitted subject to ensuring dedicated facilities and complete mechanized process control to achieve specified quality with the special permission of Chief Project Manager -West (Con) SEC Railway, Nagpur /Chief Bridge Engineer”.
 - v) Portland Pozzolana cement shall not be used for PSC works. When Portland Pozzolana cement is used in plain and reinforced concrete, it is to be ensured that proper damp curing of concrete at least for 14 days and supporting form work shall not be removed till concrete attains at least 75% of the design strength.
 - vi) The sulphate resisting cement conforming to IS: 12330 shall be used only in such conditions where the concrete is exposed to the risk of excessive sulphate attack e.g. concrete in contact with soil or ground water containing excessive amount of sulphate. It shall not be used

under such conditions where concrete is exposed to risk of excessive chlorides and sulphate attack both.

- vii) The rate of development of strength is slow in case of blended cement i.e. Portland Pozzolana cement and Portland slag cement, as compared to ordinary Portland cement. This aspect should be taken care while planning to use blended cement. Accordingly stage of prestressing, period of removal of formwork and period of curing etc. should be suitably increased.
- viii) Compatibility of chemical admixtures and super plasticizers with Portland Pozzolana cement and Portland blast furnace slag cement shall be ensured by trials before use.
- ix) Some other properties of concrete such as modulus of elasticity, tensile strength, creep and shrinkage are not likely to be significantly different. For design purposes, it will be sufficiently accurate to take the same value as those used for concrete made with OPC.

Table 1: Specification for Ordinary Portland Cement (With Moderate Sulphate Resisting Properties)

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

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

1.4. Prestressing Steel

- 1.4.1. The prestressing steel shall be 12.7mm dia class-II uncoated stress relieved low relaxation seven-ply strand conforming to IS:14268-1995.
- 1.4.2. All prestressing steel shall be free from splits, harmful scratches, surface flaws, rough, jagged and imperfect edges and other defects likely to impair its use in Prestressed Concrete.

1.5. Coarse Aggregates

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

- 1.5.2. For reinforced cement concrete works, the maximum size of the coarse aggregate can be in the limits of 4.75 to 40 mm **but in no case should be greater than one quarter of the minimum thickness of the member**, provided that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and to fill the corners of the form work.
- 1.5.3. The preferred nominal size of aggregate is 20mm for reinforced cement concrete works. Larger sizes up to 31.5mm may be permitted in special cases where there is no restriction to flow of concrete in a section. If smaller sizes are necessary for any element, 10mm and 12.5mm may be used.
- 1.5.4. For plain cement concrete works, preferred nominal sizes shall be 20 and 40 mm. larger sizes may be permitted only in special cases, subject to supplemental specifications and precautions.
- 1.5.5. For prestressed concrete works, the nominal maximum size of aggregate shall usually be restricted to 10mm less than the minimum clear distance between individual cables or individual untensioned steel reinforcement or 10mm less than the minimum clear distance between individual cables or individual untensioned steel reinforcement or 10mm less than the minimum cover to untensioned steel reinforcement whichever is smaller. A nominal size of 20mm coarse aggregate shall generally be considered satisfactory for prestressed concrete works. Primary or Secondary stone crusher should be employed for getting proper size and grading of coarse aggregates.

1.6. Sand/Fine Aggregates

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

1.7. Water

- 1.7.1. Water used for mixing and curing shall be clean and free from injurious amounts of oils, acids, alkalis, salts, sugar, organic materials or other substances that may be deleterious to concrete or steel. Potable water is generally considered satisfactory for mixing concrete. As a guide, the following concentrations represent the maximum permissible values.
- 1.7.2. To neutralise 200 ml sample of water, using phenolphthalein as an indicator, it should not require more than 2 ml on 0.1 normal NaOH.
- 1.7.3. To neutralise 200 ml sample of water using methyl orange as an indicator, it should not require more than 10 ml of 0.1 normal HCL.
- 1.7.4. The permissible limits for solids shall be as follows:

Item	Permissible limits (Maximum)
Organic	200 mg/lit
Inorganic	3000 mg/lit
Sulphates (SO ₄)	500 mg/lit
Chlorides (Cl)	2000 mg/lit (for PCC) or 1000 mg/lit (for RCC)
Suspended matter	2000 mg/lit

- 1.7.5. In case of structures of length 30 m and below, the permissible limit of chlorides may be 1000 mg/lit.
- 1.7.6. All samples of water (including potable water) shall be tested and suitable measures taken where necessary.
- 1.7.7. The PH value shall generally be not less than 6. Whenever necessary tests should be done as per IS: 3025. Mixing and curing with seawater shall not be permitted.

2. Sampling, Strength, Tests and Acceptance Criteria: Shall be done as per clause 8.7 of IRS Code of Practice for Plain, Reinforced & Pre-stressed Concrete for General Bridge Construction (Concrete Bridge Code-Reprint 2014).

Minimum frequency of samples of concrete and criteria for acceptance shall be as per IS: 456.

3. Testing of Concrete

- (i) The rate for concrete works shall be deemed to include all charge for testing of aggregates and the concrete as required to be in accordance with specification including the cost of labour, material, equipment, moulds, transport, curing etc. for this purpose the contractor shall set up a testing laboratory at his work site at the location to be decided by the Engineer. He/they shall also make adequate arrangements for curing of test cubes, so prepared as per the direction of the Engineer. The contractor shall prepare at his own cost standard cubes of concrete according to the directions of the Engineer-in-charge both for (1) preliminary test and (2) the works test. All such tests shall be carried out by the contractor in the present of the engineer or his representative and a proper record duly signed by the contractor or his/their representative and Engineer or his representative shall be maintained by the contractor as per the direction of the Engineer.
- (ii) The contractor shall provide without any extra charge all materials, tools, labour and assistance of every kind which Engineer may demand from him for any test and examination, other than special or independent test, which he shall require to make on the contractor's premises and the contractors shall bear and pay all costs attendants thereon. If the contractor fails to comply with the condition as aforesaid, the Engineer shall at his own judgment be entitled to remove for test and examination of any of the material to any premises other than Contractor's and in all such cases, the contractor shall bear the of transportation and/ or carrying out such test elsewhere. A certificate in writing of the Engineer that the contractor has failed to provide facilities and the means for the tests and the examination, shall be final.
- (iii) The contractor shall also provide and deliver for tests, free of charge at such places other than his premises as the engineer may specify, such materials or cubes as he may require.
- (iv) The engineer, at his discretion may decide to perform some of the test on aggregate or concrete at his own laboratory or any other agency he may consider necessary. In all such cases, the contractor shall provide and deliver for tests for such materials or concrete cubes duly cured, free of charge at the premises as may be specified by the Engineer. Any further cost incurred for such tests, shall be recovered from the contractor's bills.
- (v) The contractor shall set up a field laboratory as per the details given in this tender document.
- (vi) Calibration of compression testing machine should be done at specified intervals (Not more than 6 months) as per the direction of the Engineer-in-charge in approved laboratory/IIT/any University.
- (vii) Contractor should quote the rate considering the cost of above equipment and cost of calibration charges. The rate for the above testing and equipments have been already included in the respective items of works, for which separate payment will not be made.
- (viii) Immediately after receipt of formal acceptance letter, the Tenderer/Contractor has to

arrange the sample in bags of specified quantity of fine, coarse aggregate and cement (Details such as name of quarry from which coarse aggregate and fine aggregate procured, cement brand name etc, should be furnished to railway

4. Workability of Concrete

- 4.1. The concrete mix proportions chosen should be such that the concrete is of adequate workability for the placing conditions of the concrete and can be properly compacted with the means available.
- 4.2. Suggested ranges of workability of concrete for some placing conditions are given in Clause 5.3.1 of IRS Code of Practice for Plain, Reinforced & Prestressed Concrete for general bridge construction.

5. Durability

- 5.1. The durability of concrete depends on its resistance to deterioration and the environment in which it is placed. The resistance of concrete to weathering, chemical attack, abrasion, frost and fire depends largely upon its quality and constituents materials. Susceptibility to corrosion of the steel is governed by the cover provided and the permeability of concrete. The cube crushing strength alone is not a reliable guide to the quality and durability of concrete; it must also have adequate cement content and a low water-cement ratio. The general environment to which the concrete will be exposed during its working life is classified and will be governed by Indian Railway Code of Practice for Plain, Reinforced and Prestressed concrete for General Bridge construction.

5.2. Permeability

- 5.2.1. One of the main characteristics influencing the durability of any concrete is its permeability. Therefore, tests for permeability shall be carried out for concrete bridges as recommended in clause 5.2.2 with strong dense aggregates, a suitably low permeability is achieved by having a sufficiently low water cement ratio, by ensuring as through compaction of the concrete as possible and by ensuring sufficient hydration of cement through proper curing methods. Therefore, for given aggregates, the cement content should be sufficient to provide adequate workability with a low water-cement ratio so that concrete can be completely compacted by vibration. The depth of penetration of moisture shall not exceed 25 mm.

5.2.2. Permeability test:

- i. Permeability test shall be mandatory for all RCC/PCC bridges under severe, very severe and extreme environment.
 - ii. Under mild and moderate environment, permeability test is desirable to the extent possible.
 - iii. Permeability test is required for RCC/PCC structural element only.
 - iv. All tests required for permeability of concrete to be done from outside in any approved laboratory with contractor's cost only. No extra payment will be given by the Railway.
- 5.2.3. Maximum Water-Cement Ratio: The limits for maximum water cement ratio for design mix shall be based on environmental conditions as defined in Clause 5.1 or clause 5.4.1 of IRS Code For Plain, Reinforced & Prestressed Concrete for General Bridge Construction (Concrete Bridge Code-Reprint 2014).

The limits for maximum water-cement ratio for different environments shall be governed by the Indian railway Code of Practice for Plain, Reinforced and Prestressed Concrete for General bridge construction.

- 5.2.4. Cementitious material content: Depending upon the environment to which the structure is likely to be exposed during its service life, minimum cementitious material content and Maximum cementitious material content in concrete shall be governed by the Indian railway Code of Practice for Plain, Reinforced and Prestressed Concrete for General bridge construction -1997.

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

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

5.2.6. Coating for concrete (As per IRS Concrete Bridge Code):

In order to provide adequate resistance against corrosion of embedded material in RCC structures, concrete shall be provided with suitable coating depending upon the environmental conditions. The recommended coating is as under:

Aggressive Environment (Severe & Extreme)		Non aggressive environment (Moderate)
Super structure of bridges	Substructure of bridges (in affected part only)	All structures
Epoxy – Phenolic IPN – coating CECRI Integrated four coat System	Coal tar epoxy coating	No coating is necessary.

In this area no coating is required, however in case of requirement of coating, the payment for the same will be made separately.

5.3. Concrete Mix Proportions.

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

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

5.3.3. By designing the concrete mix; such concrete shall be called 'Design mix concrete'; or

5.3.4. By adopting nominal concrete mix; such concrete shall be called 'Nominal mix concrete'

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

5.4. Design Mix Concrete:

5.4.1. The mix shall be designed to produce the grade or concrete having the required workability, durability and a characteristic strength. The procedure given in IS: 10262 may be followed for mix design.

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

5.5. Mix Design

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

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

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

5.6. Design Mix proposals:

- 5.6.1. Based upon the successful preliminary crushing and workability tests, the Contractor shall submit design mix proposals to the engineer, who will have the right to reject any trial mix not deemed satisfactory. Selection of the trial mix to the complete satisfaction of the Engineer shall be the ultimate responsibility of the contractor.
- 5.6.2. Except where it can be shown to the satisfaction of the Engineer that supply of properly graded aggregate of uniform quality can be maintained till the completion of work, grading of aggregate should be controlled by obtaining the coarse aggregate in different sizes and blending them in the right proportions as required. Different sizes, however, shall be stocked in separate stock Wells, Required quantity of materials shall be stock-Well several hours, preferably a day, before use. Grading of coarse and fine aggregate shall be checked as frequently as possible, frequency for a given job being determined by the engineer to ensure that the suppliers are maintaining uniform grading as approved for samples used in the preliminary tests.
- 5.6.3. In proportioning concrete, the quantity of both cement and aggregate shall be determined by weight. Where the weight of cement is determined by accepting the maker's weight per bag, a reasonable number of bags shall be weighed separately to check the net weight. Where cement is weighed from bulk stocks at site and not by bags, it shall be weighed separately from the aggregates. Water shall either be measured by volume in calibrated tanks or weighed. All measuring equipment shall be maintained in a clean and serviceable condition. Their accuracy shall be periodically checked.
- 5.6.4. It is most important to keep the specified water cement ratio constant and at its correct value. To this end, moisture content in both fine and coarse aggregates shall be determined as frequently as possible, frequency for a given job being determined by the Engineer according to the weather conditions. The amount of mixing water shall then be adjusted to compensate for variations in the moisture content. For the aggregates, IS; 2386 (Part III) shall be referred to. Suitable adjustments shall also be made in the weights of aggregates to allow for the variation in weight of aggregates due to variation in their moisture content.

5.7. Mixing concrete

- 5.7.1. Batching and mixing of the concrete shall be done with weigh batching system as per the design mix.

5.8. Proportioning of materials

- 5.8.1. In case weekly quantity of concrete to be done is more than 200 CUM or daily concreting is more than 40 CUM, or bulk structures are to be cast, proportioning of materials shall be done on the batching plant by weight, each type of material being weighed separately. Water shall be measured by volume. High capacity mixer like RM-800 or equivalent are to be used as batching plants.
- 5.8.2. The capacity of batching and mixing plant shall be at least 25 percent higher than the capacity for transportation and laying of concrete.
- 5.8.3. All drums that have been out of use for more than 30 minutes shall be thoroughly cleaned before any fresh concrete is mixed in them.

5.9.1. Transporting, placing and compaction of concrete.

- 5.9.1. Tremie shall be used in concreting of piles, high piers/ abutments will have combination of chutes and hoists for transportation of concrete. If there is specific schedule item,

specifying use of concrete pump, then the same shall be deployed for transportation of concrete.

- 5.9.2. The Engineer shall approve the method of transporting and placing concrete. Concrete shall be so transported and placed that no contamination, segregation or loss of its constituent materials takes place. All formwork cleaned and made free from standing water, dust, snow or ice immediately before placing of concrete.
- 5.9.3. No concrete shall be placed in any part of the structure until the approval of the Engineer has been obtained.
- 5.9.4. If concreting is not started within 24 hours of the approval being given, it shall have to be obtained again from the Engineer. Concreting then shall proceed continuously over the area between construction joints. Fresh concrete shall not be placed against concrete that has been in position for more than 30 minutes unless a proper construction joints is formed.

5.10. Concreting under Water

- 5.10.1. When it is necessary to deposit concrete under water, the methods, equipment, materials and proportions of the mix to be used shall be got approved from the Engineer before any work is started.
- 5.10.2. Concrete shall not be placed in water having temperature below 5°C. The temperature of the concrete, when deposited, shall be not less than 16°C & not more than 40°C.
- 5.10.3. The material shall be so proportioned as to produce a concrete having a slump of not less than 150 mm, and not more than 180 mm. The slump shall be tested as per IS: 516.
- 5.10.4. Cofferdams or forms shall be sufficiently tight to ensure still water conditions, if practicable, and in any case to reduce the flow of water to less than 3 meters per minute through the space into which concrete is to be deposited. Cofferdams or forms in still water shall be sufficiently tight to prevent loss of mortar through the joints in the walls. Pumping shall not be done while concrete is being placed, or until 24 hours thereafter.
- 5.10.5. All under water concreting should be carried out by tremie method only, with tremie of appropriate diameter. The number and spacing of the tremie should be worked out to ensure proper concreting. The tremie concreting when started should be continued without interruption for the full height of the member being concreted. The concrete production and placement equipment should be sufficient to enable the underwater concrete to be completed uninterrupted within the stipulated time. Necessary stand-by equipment should be available for emergency situation.
- 5.10.6. The top section of the tremie shall be a hopper large enough to hold one full batch of the mix or the entire contents of the transporting bucket if any. The tremie pipe shall not be less than 200 mm in diameter, and shall be large enough to allow a free flow of concrete and strong enough to withstand the external pressure of the water in which it is suspended, even if a partial vacuum develops inside the pipe. Preferably, flanged steel pipe of adequate strength for the job shall be used. A separate lifting device shall be provided for each tremie pipe with its hopper at the upper end. Unless the lower end of the pipe is equipped with an approved automatic check valve, the upper end of the pipe shall be plugged with a wadding of gunny sacking or other approved material before delivering the concrete to the tremie pipe through the hopper, so that when the concrete is forced down from the hopper to the pipe it will force the plug (and along with it any water in the pipe) down the pipe and out of the bottom end, thus establishing a continuous stream of concrete. It will be necessary to raise slowly the tremie in order to allow in uniform flow of concrete, but it shall not be emptied so that water enters above the concrete in the pipe. At all times after the placing of concrete is started and until all the required quantity has been placed, the lower end of the tremie pipe shall be kept below the surface of the plastic concrete. This will cause the

concrete to build up from below instead of flowing out over the surface, and thus avoid formation of layers of laitance. If the charge in the tremie is lost while depositing, the tremie shall be raised above the concrete surface, and unless sealed by a check valve it shall be replugged at the top end, as at the beginning, before refilling for depositing further concrete.

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

5.11. Protection and Water curing

- 5.11.1. Curing is the process for preventing the loss of moisture from the concrete. The prevention of moisture loss from the concrete is particularly important if the water-cement ratio is low.
- 5.11.2. Curing and protection shall start immediately after the compaction of the concrete to protect it from
- 5.11.3. Premature drying out, particularly by solar radiation and wind.
- 5.11.4. High internal thermal gradients.
- 5.11.5. Leaching out by rain and flowing water.
- 5.11.6. Rapid cooling during the first few days after placing.
- 5.11.7. Low temperature or frost.
- 5.11.8. Vibration and impact, which may disrupt the concrete and interfere with its bond to the reinforcement.
- 5.11.9. Where members are of considerable size and length, with high cement content, accelerated curing methods are to be applied, as approved in detail by the Engineer.
- 5.11.10. Exposed surfaces of concrete shall be kept continuously in a damp or wet condition by ponding or by covering with a layer of sacks, canvas, hessian, or similar materials and shall be kept constantly wet for a period of not less than fourteen days from the date of placing of concrete.
- 5.11.11. Special attention should be paid to curing of concrete in order to ensure maximum durability and to minimize cracking.
- 5.11.12. Seawater shall not be used for curing. Seawater shall not come into contact with concrete members unless it has attained the desired strength.
- 5.11.13. Masonry work over the foundation concrete may be started after 48 hours of its laying but the curing of concrete shall be continued for a minimum period of 14 days.
- 5.11.14. Wherever possible, use of water sprinklers or perforated pipes should be encouraged for curing of concrete. Such arrangements must be maintained for a minimum period of 14 days after concreting.
- 5.11.15. Approved concrete curing compounds should be preferred where water curing cannot be done reliably.

5.12. Working in Extreme Weather

- 5.12.1. Where concrete is to be deposited at or near freezing temperatures, precautions shall be taken to ensure that at the time of placing it has a temperature of not less than 5° C and that the temperature of the concrete shall be maintained above 4° C until it has thoroughly hardened. When necessary, concrete ingredients shall be heated before mixing. Cement shall however not be heated other than by the heat transmitted to it from other ingredients of the concrete. In general, heating the mixing water along to about 66° C may suffice for this purpose. Dependence shall not be placed on salt or other chemicals for the prevention of freezing. Calcium chloride up to one and a half per cent by weight of the cement can be used to accelerate the rate of hardening provided it does not accelerate corrosion. Use of calcium chloride in excess of this percentage is considered harmful. No frozen material or materials

containing ice shall be used. All concrete damaged by frost shall be removed. It is recommended that concrete exposed to freezing weather shall have entrained air and the water content of the mix shall not exceed 30 litres per 50 Kg of cement.

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

6. Storage, testing and acceptance of

Materials General

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

7. Cement

- 7.1. Cement shall be transported, handled and stored on the site in such a manner as to avoid deterioration or contamination. Cement shall be stored above the ground level in perfectly dry and watertight sheds and shall be stacked not more than eight bags high. Wherever bulk storage containers are used their capacity should be sufficient to cater to the requirement at site and should be cleaned at least once every 3 to 4 months.
- 7.2. Each consignment shall be stored separately so that it may be readily identified and inspected and cement shall be used in the sequence in which it is delivered at site. Any consignment or part of a consignment of cement that has deteriorated in any way, during storage, shall not be used in the works and shall be removed from the site by the contractor without any extra cost to Railways.

8. Bending of Reinforcement

- 8.1. Reinforcing steel shall conform accurately to the dimensions given in the Bar Bending Schedules shown on relevant drawings.
- 8.2. Bars shall be bent cold to the specified shape and dimensions or as directed the Engineer using a proper bar bender, operated by hand or power to attain proper radii of bends.
- 8.3. Bars shall not be bent or strengthened in a manner that will injure the material.
- 8.4. Bars bent during transport or handling shall be straightened before being used on work, they shall not be heated to facilitate bending.
- 8.5. Unless otherwise specified the type of hook to be provided at the end of each bar shall be indicated in the bar bending schedule. The hook shall be suitably encased to prevent any splitting of concrete.

9. Placing of

reinforcement General

- 9.1. All reinforcement shall be free from rust, loose mill scale or coats of oil, paints etc. and chloride contamination, which may destroy bond. This may be ensured either by using reinforcement fresh from the factories or thoroughly cleaning all reinforcement to remove all the rust using any effective method such as sand blasting.
- 9.2. The reinforcement cage should generally be fabricated in the yard at ground level and then shifted and placed in position. The reinforcement shall be provided strictly in accordance with the drawings and shall be assembled in position only when the structure is otherwise ready for placing of concrete. Prolonged time gap between the assembling of reinforcements and

placing of concrete that may result in rust formation of the surface shall not be permitted.

- 9.3. Reinforcement bars shall be placed accurately in position as shown in the drawings. The bars, crossing one another shall be tied together at every intersection with galvanized wire of not less than 1 mm in dia and conforming to IS: 280 to make the skeleton of the steel work rigid so that the reinforcement does not get displaced during the deposition of concrete, or any other operation of the work.
- 9.4. The bars shall be kept in position by the following paragraphs maintaining cover.
- 9.5. Cover blocks of specified thickness should be cast in advance with same design mix of structure for ensuring specified cover to all RCC and PSC works for which separate payment will not be made as the rate of all RCC and PSC works are inclusive of this element.
- 9.6. In case of dowels for columns and walls, the vertical reinforcement shall be kept in position by means of timer templates with slots accurately cut in them; or with cover blocks tied to the reinforcement. Timber templates shall be removed after the concrete has progressed up to a level just below them
- 9.7. Spacer bars shall separate layers or reinforcements at approximately 1000 mm intervals. The minimum diameter of spacer bars shall be 12 mm or equal to maximum size of main reinforcement or maximum size of coarse aggregate whichever is greater.
- 9.8. Necessary stays, blocks, metal chairs spacers, metal hangers, supporting wires etc., or other subsidiary reinforcement shall be provided to fix the reinforcements firmly in its correct position.

10 Precautions:

- 10.1. Main reinforcement shall not be allowed to sag between supports.
- 10.2. Projecting reinforcement
- 10.3. Reinforcements projecting from surface of newly placed concrete shall be supported in such a way that there is no sag or risk or damage to the newly placed concrete. In severe environment, such projecting reinforcements that are likely to remain exposed for a long time shall be protected by cement grout/anti-corrosive treatment. In case of cement grout the same shall be thoroughly cleaned and wire brushed before depositing fresh concrete.

11. Admixtures

- 11.1. Use of admixtures and super plasticizers for concrete shall be done in conformity of mix design to improve workability, quality and reliability.
- 11.2. The plasticizer/retarder/admixture shall conform to IS: 6925 & IS 9103. They should be chloride free and low in sulphate content. The contractor at his cost shall test each lot of admixture. The use of admixture shall be made as per the manufacturer's guidelines. Prior approval of engineer is necessary for its uses.

12. Formwork:

- 12.1. **Description:** Formwork shall include all temporary or permanent forms required for forming the concrete in the shape, dimension and surface finish as shown on the drawing or as directed by the Engineer, together with all props, staging, centering, scaffolding and temporary construction required for their support.
- 12.2 **Materials:** For major bridges only steel shuttering is to be used, for building works and minor bridges 12mm thick marine ply wood or equivalent type shuttering can also be allowed. All materials shall comply with the drawings/ instructions of the Engineer. Materials and components used for formwork shall be examined for damage or excessive deterioration before use and shall be used only if found suitable after necessary repairs. In case of marine ply wood formwork, the inspection shall not only cover physical damages but also signs of attack by decay, rot or insect attack or development of splits. In case of

steel shuttering, the metal used for forms shall be of 3.15 to 4mm thickness that the forms remain true to shape. In case 2mm plates are used the same shall be stiffened by flats of 50mm x 6mm and angles of 50mm x 50mm x 6mm. All bolts should be countersunk. The use of approved internal steel ties or steel or plastic spacers shall be permitted. **Structural steel tubes used as supports for forms shall have a minimum wall thickness of 2mm.**

12.3 Workmanship:

- (i) The formwork shall be robust and strong and the **joints shall be leak proof.**
- (ii) **Bally should not be used either as staging or as support for fixing of formworks. Only tubular shafts of adequate diameter with proper coupling system should be used for fixing of formworks as well as for staging. Staging must have cross bracing and diagonal bracing in both directions.**
- (iii) If proprietary system of formwork is used, detailed information shall be furnished to the Engineer for approval.
- (iv) The contractor shall be entirely responsible for the adequacy and safety for formwork notwithstanding any approval or review by the Engineer of his drawing and design.
- (v) **The number of joints in the formwork shall be kept to a minimum by using large size panels. The design shall provide for proper 'soldiers' to facilitate alignment. All joints shall be leak proof and must be properly sealed. Use of PVC JOINT sealing tapes, foam rubber or PVC T- section is essential to prevent leakage of grout.**
- (vi) As far as practicable, clamps shall be used to hold the forms together. Where use of nails is unavoidable, minimum number of nails shall be used and these shall be left projecting so that they can be withdrawn easily. Use of double headed nails shall be preferred.
- (vii) Unless otherwise specified, or directed, chamfers or fillets of sizes 25mm x 25mm shall be provided at all angles of the formwork to avoid sharp corners. The chamfers, bevelled edges and moulding shall be made in the formwork itself. Opening for fixtures and other fittings shall be provided in the shuttering as directed by the Engineer.
- (viii) If centering trusses or launching trusses or floating cranes are adopted for erection of superstructure, the joints of the erection system, whether welded, riveted or bolted, should be thoroughly checked periodically. Also, various members of the erection system should be periodically examined for proper alignment and unintended deformation before proceeding with the concreting. They shall also be periodically checked for any deterioration in quality due to steel corrosion.
- (ix) For distribution of load and load transfer to the ground through staging, an appropriately designed base plate must be provided which shall rest on firm sub-stratum. Water used for curing should not be allowed to stagnate near the base plates supporting the staging and should be properly drained
- (x) The formwork shall be made so as to produce a finished concrete true to shape, line levels, plumb and dimensions as shown on the drawing, subject to the following tolerance, unless otherwise specified in these documents or drawings or as directed by the Engineer

a)	Sectional dimension	± 5mm or 2% of dimension whichever is less
b)	Plumb	± 1 in 1000 of height
c)	Levels	± 3 mm before any deflection has taken place.

- (xi) Tolerance given above are specified for local aberration in the finished concrete surface and structure taken as a whole or for the setting and alignment of formwork, which should be as accurate as possible to the entire satisfaction of the Engineer.
- (Xii) Where metal forms are used, all bolts and rivets shall be countersunk and well ground to provide a smooth, plane surface.

- (xiii) Forms shall be made sufficiently rigid by the use of ties and bracings to prevent any displacement or sagging between supports. They shall be strong enough to withstand all pressure, ramming and vibration during and after placing the concrete. Skew jacks or hard wood wedges, where required, shall be provided to make up any settlement in the formwork either before or during the placing of concrete.
- (xiv) The formwork shall be coated with an approved release agent that will efficiently prevent sticking and will not stain the concrete surface. Lubricating (machine oils) shall be prohibited for use as coating.

12.4 Form surface & finish:

- (i) 20mm x 5mm wide rubber flats should be placed between the shutters for proper joining to arrest leakage of cement slurry during concreting and compaction. Before laying the concrete all the gaps of shutters are to be packed with jute/ cotton waste and should be applied with grease and cement slurry to arrest leakage of cement-water through joints and other holes. Synthetic adhesive packing tape should be used for covering the joints in ply wood / iron shuttering for slabs after packing the joint with jute. Cost for the above should be included while quoting the rate by Contractor.
- (ii) The Contractor shall submit shuttering drawings and details of pattern and the method of forming joints in the exposed (form-finish) concrete to the Engineer for his approval and all changes and modification by the former and final approval thereof obtained, from the Engineer.
- (iii) The repetitive usage's of the same formwork to cast form finished exposed concrete shall be as decided by the Engineer and in no case the formwork not guaranteed to produce the required form finish to the satisfaction of the Engineer shall be used.

12.5 Precautions:

- i. Provision shall be made for safe access to and about the formwork at the levels as required.
- ii. Close watch shall be maintained to check for settlement of formwork during concreting. Any settlement of formwork during concreting shall be promptly rectified.
- iii. Water used for curing should not be allowed to stagnate near the base plates supporting the staging and should be properly drained.

12.6 Preparation of formwork before concreting:

The inside surfaces of forms shall, except in the case of permanent form work or where otherwise agreed to by the Engineer, be coated with a release agent supplied by approved manufacturer or of an approved material to prevent adhesion of concrete to the formwork. The release agent shall be applied strictly in accordance with the manufacturer's instructions and shall not be allowed to come into contact with any reinforcement or prestressing tendons and anchorages. Different release agents shall not be used in formwork of exposed concrete.

Before reuse of forms, the following action shall be taken:

- (a) The contact surface of the forms shall be cleaned carefully and dried before applying a release agent.
- (b) It should be ensured that the release agent is appropriate to the surface to be coated. The same type and make of release agent shall be used throughout on similar formwork materials and different types should not be mixed.
- (c) The form surface shall be evenly and thinly coated with release agent. The vertical surface shall be treated before the horizontal surface and any excess wiped out.
- (d) The release agent shall not come in contact with reinforcement or the hardened concrete.

12.7 Removal of formwork:

- (i) The scheme for removal of formwork (i.e., de-shuttering and De-centering), shall be planned in advance and furnished to the Engineer for scrutiny and approval. No formwork or any part thereof shall be removed without prior approval of the Engineer.

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

Where there are re-entrant angles in the concrete sections, the formwork shall be removed at these sections as soon as possible after the concrete has set, in order to avoid cracking due to shrinkage of concrete.

- (ii) The following guidelines for OPC may be followed to determine the time of removal of formwork:

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

For other than OPC, the removal of formwork shall be done as per direction of Engineer in charge.

12.8 Finishing:

- (i) Immediately after removal of forms, exposed bars or bolts, if any, shall be cut inside the concrete member to a depth of at least 50mm below the surface of the concrete and the resulting holes filled with cement mortar of dry pack consistency.

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

The finished surface of concrete after removal of formwork should be such that no touching up is required. All fines caused by form joints, if any, shall be ground using electric surface grinder.

Immediately on removal of form, the concrete work shall be examined by the Engineer before any defects are made good.

- (a) The work that has sagged or contains honey combing to an extent detrimental to structural safety or of architectural appearance shall be rejected.

- (b) Surface defect of a minor nature may be accepted. On acceptance of such work by the engineer, the same shall be rectified as directed by the Engineer.

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

13. Temporary Structures

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

14. Setting out of Bridge

- 14.1. Set out for the bridge would be given by the contractor based upon reference points that would be established by them. Detailed Scheme of set out, establishment of reference points etc would however be submitted to Engineer for their approval.
- 14.2. Permanent pillars would be established which should facilitate easy checking of alignment/centre point/Level at each stage of work.
- 14.3. Maintaining correct line and level of all the Bridge would be responsibility of contractor not withstanding alignment/centreline/level is checked by Engineer at regular intervals.
- 14.4. Contractor should make available all necessary facilities namely instruments, labour etc to Engineer/his representative to enable them check of alignment/Center point/Level at every stage.
15. The necessary field registers will be supplied by the contractor free of cost which shall be maintained for this work by Railway. Contractor/authorised representative has to sign with his remarks if any in each register as a token of acceptance of details/instructions entered by Engineer or Railway representative (DY.CE/ XEN/ AXEN/SSE/ JE(Con)).

(a) **Site order book**- For recording the instructions issued to the contractor with replies on opposite side. Site Order Books are being maintained for giving the instructions 'as and when required' in writing by the Railway officials/authorities to the contractor's authorized engineer/supervisors at the site related with the execution of works/rectification of the works etc., duly to be replied by the contractor on opposite side of it and being maintained according to the contract/GCC provisions. Site Order Book is being/to be remains under the custody of concern railway supervisor only.

Contractor's engineer/representative should give his remarks in the Site Order Book on the day in which Railway Officials is giving the instructions in it.

Site Order Book is being remains in the custody of concern railway supervisor only and contractor's representative should take note & sign in the same date/time when railway authorities are giving instructions in it. Each Site Order Book is having its own sanctity & no separate/duplicate copy is to be/being maintained for keeping with agency.

- (b) **Daily progress, labour & machinery register** – For recording the daily progress of each work executed on every day, details of labour engaged (skilled/unskilled) and machinery mobilised on each and every day along with description of works and approximate quantity of work done and condition of weather.
- (c) **Cement consumption register** – For recording the details of receipts, consumption towards the work, and balance of cement in store godown on every day for different works along with clear description of work and approximate quantity of work done for different mix proportions etc.
- (d) **Reinforcement register** – For recording the reinforcement consumed in RCC/PSC and other works.
- (e) **Quality control register** – For recording the details of field test conducted on concrete cubes, and aggregate etc., are to be recorded in the register. Field tests are (a) checking the compressive strength of concrete cubes for 7 days & 28 days, (b) sieve analysis for fine and coarse aggregate (c) silt content in sand, (d) determination of moisture content in sand for calculating the actual quantity of sand to be used in design mix at site, (e) slump test (f) compaction factor test, (g) concrete permeability test, (h) specific gravity tests and other tests if any.

(f). For PSC Girders:

- (i) **Stressing Register** : For recording the elongation of strands and load etc.
- (ii) **Load testing Register:** For recording the details of loads applied, and deflections noticed under particular load etc.
 - a) In addition to the above, any new register (s) if required, the same will have to be maintained as per the direction of the Engineer-in-charge.
 - b) The pages of each and every register should be machine numbered and top initialled on the first page of the register by the Engineer-in-charge /field officer. Entries in the each page should be signed jointly by authorized representative of Engineer in Charge of work and contractor/his authorized representative.

16. Ready Mixed Concrete

- 16.1. Ready mixed concrete may be used subject to prior review of the Engineer. It shall conform to the specifications of concrete as specified in IS:4926.
- 16.2. The quality of admixtures like water reducing agent, retarders, superplasticizers-cum retarders etc should meet the requirement of the material specification as given in IRUSS (works and materials- 2021) Vol I and Vol II (with latest amendment) and its suitability should be tested as per IS: 9103 at the time of finalizing the design.

CHAPTER – XIV
SPECIAL CONDITION OF CONTRACT

(SPECIFICATION AND GUIDELINES FOR PILE FOUNDATION)

01. The piles shall be bored cast-in-situ RCC pile of mix M-35 or richer mix.
02. The execution of pile foundation shall conform to IS-2911 (Part-I/ Section 2) 1979 with latest amendments. The piles can be of 1300mm/ 1200mm/ 1000mm dia and shall be built to carry the heaviest load specified.
03. The specifications for safe allowable load test, total settlement and net settlement would be as per IS-2911-1979 with latest amendments.
04. The Piles shall have to be founded on hard rock with minimum anchorage of 2500mm or as required based on design or as decided by Engineer-in-Charge.
05. Providing MS Liner:

The contractor shall fabricate MS liner from their own 6mm/8mm thick plate to suit the diameter of the pile and provide MS Liner for the length as directed by the Engineer-in-Charge.

06. When the bore has reached its final depth, it shall be free from any foreign matter before placing of the reinforcement and concrete filling for the pile is started. The reinforcement for the piles shall be carefully placed in position and concreting then started.
07. Use of drilling mud (bentonite) in stabilizing the sides of the boreholes is required, wherever considered necessary by the Engineer. The consistency of bentonite suspension shall be as per IS:2911 (Part-I/Section-2) 1979 with latest amendments. The reinforcement for the piles shall be carefully placed in position and concreting then started.
08. Removal of obstruction, if any, met with during pile driving or boring shall also be done by the contractor. No extra payment will be made for the work.
09. Payment will be made only for actual length/depth of pile bored and concreted. No Extra payment will be made for excess consumption of Cement due to caving etc., or any account.
9. The minimum cement content shall be 400 Kg/cum of concrete. Under water concreting shall be done as per Para 13.8 of IS 456-1978 with latest amendments. Concrete is to be placed in the pile only by Tremie method ensuring that tip of the tremie is at least 1000mm below the top of concrete at any time. The top of concrete in a pile shall be brought 500mm above the cut off level to permit removal of all laitance and weak concrete before capping and to ensure good concrete at the cut off level of providing over flow concrete or scum concrete beyond cut off level will also be inclusive of rate. The length of over flow will be decided by the Engineer-in-Charge. No extra payment will be made for peeling the top of concrete of the piles with the liner and for liner and for inter lacing the reinforcement of the piles into the capping slab.
10. The control of alignment of piles should be as per Para 7.1 of IS: 2911 (Part-I/ Section-2) 1979 with latest amendments.
11. Level marks shall be put accurately on each pile immediately after it is installed. If any pile shows subsequently a tendency to heave up due to installation of other piles later or due to any other reason, the same shall be reinstalled firmly without heaving tendency in a manner suitable to the contractor and as approved by the Engineer-in-Charge without any extra cost.

12. If any pile during driving or boring has deviated from the vertically or if the safe allowable load of the pile is not obtainable as per design all these facts shall be reported promptly to the Engineer-in-Charge during the execution of work with suggestion from the contractor regarding adequate corrective measures. If the deviation from the verticality is more than the tolerance specified or due to defective construction or due to any other reasons, the contractor shall pull out the rejected piles and re-install the piles with proper workmanship and materials to the satisfaction of the Engineer-in-Charge without any extra cost. The Engineer-in-Charge may allow the rejected piles to be left in their places and additional piles may be installed to take up the safe working load of the rejected piles without any extra cost, if he considers it feasible and correct. If any such charges involve additional expenditure are to increased size of pile cap etc., the same will have to be born by the contractor including the extra quantity of cement and steel used in such charges.
13. In the finishing of pile heads, the clearance of the reinforcement in the pile cap and the keying of the pile head into the pile cap shall be as given in IS: 2911 (Part-I/Section-2) 1979 with latest amendments.
14. The length of pile will be taken from the cut off level i.e., bottom of the pile cap to the bottom of the pile for payment purposes. This will be rounded off to the nearest 0.10 Meter.
15. Rate for piling shall include making working platform/ islands/ cofferdam etc., and its removal on completion of work.
16. LOAD TESTING FOR PILES:
 - 17.1 The Contractor, shall, where required to do so by the Railway, carry out vertical load testing on piles as per procedure laid down in IS code of Practice of Design and Construction of pile foundation-Part-IV Load Test on Piles IS: 2911– 1985 with latest amendments.
 - 17.2 Payment for the pile testing shall be done only when the test is found to be satisfactory. For test results which are found unsatisfactory or which are not completed due to any reason whatsoever, no payment shall be made. Additional tests required by the Railway shall be carried out at the same quoted rates.
 - 17.3 The test shall be considered satisfactory if the safe load from the vertical load test with settlement not exceeding 12mm works out to be not less than one and a half times the working load of the pile and the behavior of the pile or pile group during the period of testing do not disclose any defects.
 - 17.4 If the pile or the pile group does not satisfy the above conditions for accepting the same is satisfactory the corrective measures shall be carried out as directed by the Engineer-in-Charge. These corrective measures may include provision of additional provision of additional piles. If in the opening of the Engineer-in-Charge it is necessary to reject the pile and provide entirely additional piles as corrective measures, the Contractor shall carryout the same. If the Engineer-in-Charge considers it necessary to extract any rejected piles, the same shall be extracted and fresh pile re-installed in the place. The additional expenditure incurred by the Contractor for such corrective measures shall be borne by the contractor himself.
 - 17.5 The rates for tests, include arranging of necessary Kentledge, R. S. Joists, sand bags, etc., required for loading the platform for successful testing of the pile or group of piles and removing the same from the site of work after the test is completed and clearing the site to the satisfaction of the Engineer-in-Charge and no extra payment shall be made on this account.

CHAPTER-XV
SPECIAL CONDITION OF CONTRACT
(EARTHWORK)

Earthwork to be executed according to the RDSO guideline RDSO/2020/GE:IRS-0004 “Comprehensive guidelines and specifications for Railway formation” and also any revised guidelines issued by Railway Board from time to time.

1. Soil Exploration for formation design:

1.1 As formation design will primarily depend upon the type of soil being used in construction, it is essential the soil exploration is done properly for soil classification and assessment of bearing capacity as laid down in RDSO Guidelines GE:G-1, para-3.0& as per the RDSO guideline RDSO/2020/GE:IRS-0004. The results of soil exploration shall be reviewed and finally approved as this will be the basis of further design.

1.2 Following initial activities were required to be done by the contractor-

- (i). Geo-technical investigation/testing of Natural ground/sub-soil and submission of their report.
- (ii). Submission of sample & Geo-technical testing of proposed embankment fill soil and submission of their report.
- (iii). Sub-soil testing along the alignment, for buildings & for bridge locations etc. as per the guidelines/provisions.
- (iv). Submission of sample of fill soil & testing of such sample and testing of sub-soil sample for formation design.
- (v). Recording of initial ground levels for joint signing of cross-sections before commencement of earthwork.
- (vi). Finalization of longitudinal levels, cross-levels & L-section as per the proposed final level and finalization of cross-sections before start of earthwork.

1.3 The soil classification shall be done as per IS:1498. To formulate the thickness of formation layers, various soil groups (as per letter no.RS/G/108/Heavy Axle Load, dated:19.10.2015) have been combined together to simplify the classification based on %age fines, in Table below.

Table Description of soil quality class			
Soil Group	Soil Sub Group	Description w.r.t. %age Fines (size < 75 micron)	Equivalent soil group as per IS classification
A	-	Soil containing fines <12%	GW, SW, GW-GM, SW-SM
B	B1	Soil containing fines <12%	GP, SP, GW-GC, GP-GM, GP-GC, SP-SM, SP-SC, SW-SC
	B2	Soil containing fines from 12% to 50%	GM, GC, SM, SC, GM-GC, SM-SC
C	-	Soil containing fines >50%	CL, ML, CL-ML, CI, MI

1.4 The soil classification shall be done as per RDSO guideline RDSO/2020/GE:IRS-0004 “Comprehensive guidelines and specifications for Railway formation”.

Table Description of soil quality class	
Description w.r.t. %age Fines (size < 75 micron)	Soil Quality Class,
Soil containing fines > 50%	SQ1
Soil containing fines from 12% to 50%	SQ2
Soil containing fines < 12%	SQ3

2. Requirement of Blanket Layer:

2.1 The provision of blanket layer shall not be needed when formation/ earth fill embankment have:

- Rocky beds except those, which are very susceptible to weathering e.g. rocks consisting of shale's and other soft rocks, which become muddy after coming into contact with water.
- Soil GW, SW, GW-GM, SW-SM type.
- Soils conforming to specification given in para 4 below.

The provision of separate Blanket layer shall not be necessary when Coarse granular, well graded ($C_u > 7$, C_c between 1 and 3) soil/quarry dust/crushed stones material of 300 mm thickness is laid as top layer.

2.2 For other conditions, the system of layered construction of embankment consisting of prepared subgrade shall normally be followed. The prepared sub-grade should normally consist of good quality soils with fines less than 12% (A or B1).

2.3 Thickness of Prepared subgrade and Blanket Layer (as per letter no.RS/G/108/Heavy Axle Load, dated:19.10.2015):

Embankment Fill/Soil Group	Prepared Subgrade		Thickness of Blanket Layer (mm)
	Type of Soil group	Thickness (mm)	
A	Not Required	NIL	NIL
B(B1/B2)	A	500	NIL
	B1 (Fines < 12 %)	350	150
C	A	500	NIL
	B1 (Fines < 12 %)	500	150

The level of compaction of various layers of formation shall be ensured as defined in guidelines issued by RDSO.

- In case good quality soils with fines less than 12% (A or B1), are not available for preparation of subgrade economically, soils having fines between 12% to 50% (B2) can be used over embankment fill of soil group-C. In such cases, the thickness of blanket layer over prepared subgrade of 500 mm thickness shall be kept as 250mm. The thickness of blanket layer can be reduced to 150mm by use of Geotextile in consultation with RDSO.
- In case, the prepared subgrade is not considered on economic consideration and use of other types of soil not covered by above clauses is required, Railways may approach RDSO for getting guidance on deciding blanket thickness depth.
- Use of Geosynthetics (Geo textile/Geo grids) shall be considered at places where it is economical to use it in combination with blanket as it reduces the requirement of thickness of blanket. Use and selection of Geosynthetics should be done in consultation with RDSO.

2.4 The Railway Formation may be constructed with Single Layer System or Two Layer System as per RDSO guideline RDSO/2020/GE:IRS-0004 "Comprehensive guidelines and specifications for Railway formation", based on availability of local soils/materials and on economic

considerations. The thickness of the prepared sub-grade and blanket layer has been rationalized based on UIC-719R calculation for ballast cushion of 350 mm. The specifications and thickness of Blanket layer, Prepared subgrade, Subgrade (Top Layer & Lower layer) and Sub-Soil are tabulated for Single layer system and Two-layer system for 25T.

For 25 T Axle Load

Sl. No.	Soil type Category in Sub-grade	Prepared Sub-grade		Recommended Blanket Thickness (mm)	Remark
		Soil Type	Thickness (mm)		
1.	SQ1	SQ1*	--	550	Single layer
2.	SQ1	SQ2	500	400	Two Layer
3.	SQ1	SQ3	500	300	Two Layer
4.	SQ2	SQ2*	--	400	Single layer
5.	SQ2	SQ3	350	300	Two Layer
6.	SQ3	SQ3*	--	300	Single layer

* Subgrade soil is continued upto blanket layer.

2.5 Selection of top layers for design of formation as well as for blanket material as given in above paras and further deviations from these provisions can be finally decided on techno-economic considerations by CAO (Con.) after recording the reasons.

3. Specification of Blanket Material:

3.1. The material for blanket layer over prepared sub-grade should be well graded granular material. The following specifications shall be ensured at the time of laying.

(i) $C_u > 7$ and C_c between 1 and 3.

(ii) Fines (passing 75 microns) 3% to 10%.

(iii) Minimum required Soaked CBR value 25 of the blanket material compacted at 100% of MDD.

3.2 These values can generally be obtained by following the gradation as given in GE:G-0014.

3.3 **Specification and Thickness of Formation Layers for 25T axle load: Single layer system as per RDSO guideline RDSO/2020/GE:IRS-0004 "Comprehensive guidelines and specifications for Railway formation".**

Layers	Specification	Thickness
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<u>Blanket</u>	i) $C_u > 7$ and C_c between 1 and 3. ii) Fines (passing 75 microns): 3% to 10% iii) Minimum soaked CBR value ≥ 25 , (Soil compacted at 100% of MDD * in Lab) iv) Los Angeles Abrasion value $< 40\%$ v) Field Compaction : Min. 100% of MDD * in field trial vi) Minimum $E_{v2} = 100 \text{ MPa}$ vii) Size gradation – within specified range or should lie more or less within enveloping curves. viii) Filter criteria (***) should be satisfied with sub-grade layer as given below: Criteria-1: $D_{15}(\text{blanket}) < 5 \times D_{85}(\text{sub-grade})$ Criteria-2: $D_{15}(\text{blanket}) > 4 \times D_{15}(\text{sub-grade})$ Criteria-3: $D_{50}(\text{blanket}) < 25 \times D_{50}(\text{sub-grade})$	30cm over SQ3 sub-grade 40cm over SQ2 sub-grade 55cm over SQ1 sub-grade
<u>Sub-grade</u> Top Layer	SQ1/SQ2/SQ3 soil SQ1 soils (To be used only with dispensation of PCE/CAO) i) For SQ2/SQ3 soil, $\text{CBR} \geq 6$ (soil compacted at 98% of MDD *) ii) For SQ1 soil, $\text{CBR} \geq 4$ soil compacted at 98% of MDD *	100cm
<u>Lower layer (fill)</u>	iii) Field Compaction : Min. 98% of MDD * iv) Minimum $E_{v2} = 45 \text{ MPa}$ (for SQ1) 60 MPa (for SQ2/SQ3) SQ1/SQ2/SQ3 soil (+) (a) $\text{CBR} \geq 3$ (soil compacted at 97% of MDD *) (b) Field Compaction : Min. 97% of MDD *	As per Embankment height
<u>Ground Soil/Sub-soil Strata</u>	i) Undrained cohesion of soil (C_u) $\geq 25 \text{ KPa}$ (only for soils having particles finer than 75 micron exceeding 12%) ii) E_{v2} (determined from PLT) $\geq 50 \text{ MPa}$ iii) N (determined from SPT) ≥ 5 Ground Improvement is required, if any of the above parameters not complied with	--

* MDD mentioned in the above table.

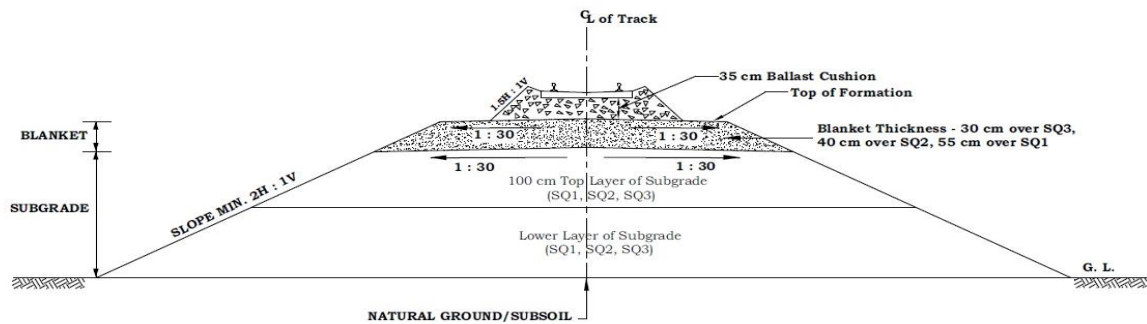
(a) For determination of CBR - MDD achieved in Lab

(b) For field compaction - MDD achieved in field compaction trials which should not be less than 98% of MDD in lab.

** E_{v2} is Modulus of deformation. E_{v2} testing at field is mandatory.

*** With the application of Non-woven Geotextile as a separator layer below the blanket, filter criteria will not be required or mandatory.

+ No dispensation of PCE/CAO required for use of SQ1 soil in Lower layer (fill) of Subgrade.



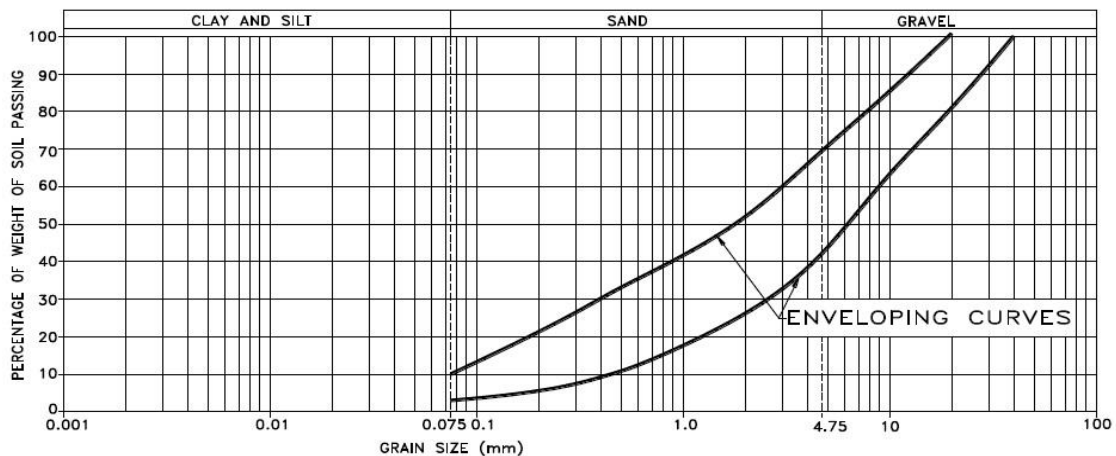
Track Formation for 25 T Axle Load (Single layer system)

3.4 Specification and Thickness of Formation Layers for 25T axle load: Two layer system as per RDSO guideline RDSO/2020/GE:IRS-0004 “Comprehensive guidelines and specifications for Railway formation”.

Layers	Specification	Thickness
Blanket	i) $C_u > 7$ and C_c between 1 and 3. ii) Fines (passing 75 microns): 3% to 10% iii) Los Angeles Abrasion value $< 40\%$ iv) Minimum soaked CBR value ≥ 25 , (Soil compacted at 100% of MDD * in Lab) v) Field compaction: 100% of MDD * in field trial vi) Minimum $E_{v2}^{**} = 100 \text{ MPa}$ vii) Size gradation - within specified range or should lie more or less within enveloping curves. viii) Filter criteria (***) Optional should be satisfied With prepared sub-grade layer as given below: Criteria-1: $D_{15}(\text{blanket}) < 5 \times D_{85}(\text{prepared sub-grade})$ Criteria-2: $D_{15}(\text{blanket}) > 4 \times D_{15}(\text{prepared sub-grade})$ Criteria-3: $D_{50}(\text{blanket}) < 25 \times D_{50}(\text{prepared sub-grade})$	30 cm over SQ3 Prepared Sub-grade 40 cm over SQ2 Prepared Sub-grade
Prepared Subgrade	SQ2/SQ3 i) $\text{CBR} \geq 8$ (soil compacted upto 98% of MDD *) ii) Plasticity Index ≤ 12 iii) Field Compaction : Min. 98% of MDD * iv) Minimum $E_{v2} = 60 \text{ MPa}$	50 cm over SQ1 fill 35 cm over SQ2 fill

3.5 Gradation Percentage of Blanket Material(as per RDSO guideline RDSO/2020/GE:IRS-0004 “Comprehensive guidelines and specifications for Railway formation”):

SL	IS Sieve Size	Percent Passing (by weight)
1.	40mm	100
2.	20mm	80 -100
3.	10mm	63-85
4.	4.75mm	42-68
5.	2 mm	27-52
6.	600micron	13-35
7.	425micron	10-32
8.	212micron	6-22
9.	75micron	3-10



Enveloping Curves for Blanket Material

- 3.6** When the subgrade/prepared subgrade is of SQ1 or SQ2 category soil, a suitable non-woven geo-textile layer may be used as “separator layer” on the top of subgrade to prevent upward migration of the fines from subgrade/prepared subgrade causing contamination of blanket layer on top of it and also to prevent penetration of coarse particles of layer on top of subgrade into soft/fine grained particles of sub-grade below.
- 3.7** Design of formation, including adoption of single layer or two layer system, and use of SQ1 soil (in top layer of subgrade) as given in above paras shall be decided by PCE/CAO (Con) on the basis of soil investigation. In case of the projects being executed by PSUs, the powers of PCE/CAO shall be exercised at appropriate level of authority as nominated by CMD/MD of the PSU.
- 3.8** In case of cutting also, blanketing shall be provided as required & as specified above, based on the type of soil just below the blanket.

4.Quantity payable under this item shall be arrived at by cross sectional area of standard

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finished profile. In case of Mechanically compacted bank 5% of the gross quantity shall be deducted to arrive at payable quantity. And in case manual compaction is done then 10% of the gross quantity shall be deducted to arrive at payable quantity.

5. Following stipulations shall further apply for earthwork.

- (i) Organic clay, organic silt, peat, chalks, dispersive soils, poorly graded gravel and sand with uniformity co-efficient less than 2, shall not be used in embankment. Clay and silt having WL more than 50%(CH & MH) are prohibited in top 3 m of embankment. Cutting in these types of soils, shale's and soft rocks which become muddy after coming in contact with water, should be avoided. If this is not possible, special investigation and measures will be necessary according to final decision by Engineer in Charge. The minimum dry density of the soil shall not be less than 1.70 gm/cc. In case soil having minimum dry density of 1.70 gm/cc is not locally available, then with permission of tender accepting authority soil having minimum dry density of 1.65gm/cc can may be allowed with condition that the rate reduction of 10% will be done.
- (ii) Water content as desired, and densities should be specified as obtained in the field trials as per I.S. 10379 –1982. For guidance during field trials to determine the thickness of layers, dry density to achieve and optimum moisture content, Laboratory test for heavy compaction as per I.S.2720 (Pt. VIII)-1983 should be carried out for obtaining these.
- (iii) The soil proposed to be brought from out-side Railway land will have to be initially tested either at railway lab or some other reputed lab and further testing may be done at the Contractor's site laboratory established prior to commencement of work. Frequency of conducting such tests should be at the discretion of the Authority's Engineer.
- (iv) Only approved quality of earth after test and certification is to be used. Such test should invariably be conducted as and when quarry/ colour& texture of soil changes.
- (v) The embankment should be progressed in layers and completed as per the standard profiles including dressing of slopes to final shapes.
- (vi) Quantity payable under this item shall be arrived at by cross sectional area of standard finished profile. In case of Mechanically compacted bank 5% of the gross quantity shall be deducted to arrive at payable quantity. And in case manual compaction is done then 10% of the gross quantity shall be deducted to arrive at payable quantity.

6. The rate quoted in the schedule include picking up and setting out alignments, drawing of cross sections based on levels recorded by Railway's representative in presence of Contractor on Railway level book, all bushes clearance, crossing one or more Railway lines, making service dog bells and reference pillars bailing out water or pumping out water with Contractor's pump, removal of slush where encountered, dressing of spoil heaps, bank and cuttings to final dimensions, carting out the cutting spoils, benching side slopes of existing bank etc. as directed by the Engineer etc.

The classification of the soil met with in cuttings shall be determined by the Engineer and rates shall be paid based on the type of soil classified, i.e. all classifications of soils, rock not required blasting and rock requiring blasting.

1. If soil from cutting is of good quality it can be used in embankment. Cutting spoils not used for formation of bank shall be led to form a spoil bank or filling in low-lying areas at site nominated by the Engineer or his representative within the section.
2. Rate for earthwork in cutting shall also include proper stacking of moorum, boulders and other useful materials met with during excavation at places as directed by the Authority's Engineer at site.

3. Mechanical Compaction of Earthwork and Blanketing Material.

- i) After site clearance all pockets and depressions left in the soil, if any, shall be made good and compacted. The entire area shall be rolled and compacted with suitable roller before the first layer of earth is spread and the Contractor shall obtain clearance from the Engineer in writing before spreading the first layer of the earth.
- ii) Earth work shall be done in layers not exceeding 300 mm thick in the loose state and compacted with suitable rollers to obtain the density specified as per IS: 10379-1982. The number of passes of the rollers and the optimum thickness of earth layer shall be fixed after carrying out field trials with roller proposed to be used, from time to time and from location, to location the main criteria being to obtain maximum density achievable uniformly.
- iii) An additional width of 500 mm will be provided and rolled on cess side or either side wherever the track center is more, which shall be removed after compaction of the core and slop dressed after achieving full height of the embankment so that compaction is achieved to the desired value till the edge of formation width. The extra width of 500 mm is to be provided confining pressure to enable compaction of soil. No payment of this extra width shall be made.
- iv) Smooth wheel self-propelled vibratory roller of three wheels of operating weight exceeding 10 T and 22.6 T Dynamic force in high amplitude having 30 (THIRTY) Hz vibrating frequency shall have to be used for compaction. Each layer shall continue to be rolled until no further compaction results. The layers will be free from ruts.
- v) Cohesion less soils shall be compacted to get a minimum density Index (relative density) of 70 percent as obtained in accordance with IS: 2720 (Part –XIV) 1983. All other types of soil when compacted shall attain at least 98% of the maximum dry-density as determined using heavy compaction in accordance with IS 2720(Pt. VIII- 1983) followed by field trials as Per IS: 10379-1982.
- vi) The density of each layer of compacted soil shall be ascertained by taking adequate number of soil samples collected mostly on both sides of the centre line at intervals of 10 meter or so, with a view taken at random using Sand replacement (as per 2720 Pt.XXVIII-1974) or core cutter method (as per IS: 2720Pt. XXIX 1975). The number of tests will of course depend on the width of the formation.
- vii) Where the moisture content of the earth in any layer is above OMC, it shall be left for drying for a suitable period to bring down the moisture content very near to OMC, before rolling is commenced. If the soil is dry, water shall be sprinkled either in the borrow pit or over the spread layer, as convenient, in order to obtain a workable moisture content before rolling is commenced. Where the natural moisture contents of borrow soil is high, compaction on higher moisture contents can be allowed by the permission of the Engineer.
- viii) Each layer shall be compacted to the specified density over its entire width commencing from the two sides before another layer is started. After completion of compaction of each layer, the nature of soil used, moisture content, densities, type of rollers used and compaction, achieved should be recorded under signature of the Authority's Engineer or his representative and Contractor's representative before commencing work on next layers.
- ix) While compacting it shall be ensured that there is a minimum overlap of 200 mm between each run of the roller.
- x) Care should be taken during the compaction operation to slope the surface of the bank to facilitate the shedding and to minimize the absorption of rainwater, particular attention being given the prevention of pounding.

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- xi) The quality of work shall be determined by considering the mean density of the samples in each layer. The mean dry density shall be equal to or exceed the minimum, specified density. In no individual case shall the density be less than the minimum value specified by more than 2% otherwise further rolling should be done at the appropriate location.
- xii) The Contractor shall be allowed to lay further layer of soil, only after the compaction of a particular layer has been found satisfactory and certified to be so by the Engineer's representative in writing.
- xiii) The top of the formation shall be finished to cross slope of 1 in 30 from one end to other towards cess/drain in multiple lines and from center of formation to both sides in single line with tolerance of 0.5%. The finished top level of soil formation should be within +/- 25 mm. The finished top of blanket layer shall be permitted from design level by +25mm.
- xiv) In parts of embankment, in accessible to the specified rolling equipment, e.g. edges and side slopes around and in contact with culverts, abutments or in proximity to structures, where it will not be possible to operate rolling equipment, compaction shall be accomplished by and tamping with hand or mechanical tampers of approved type. Roller shall not be permitted to operate within 1500mm of masonry/concrete structure and all fill within this distance shall be hand tamped. All materials to be hand tamped shall be spread in layers not over 100mm thick. The moisture content at the time of tamping shall be such as to produce a degree of compaction equal to that specified for rolled fill. Final rolling of the top layer of the fill shall be completed with a self-propelled smooth wheel power driven roller or multiple pneumatic type wheels roller or hand tamped to the required profile.
- xv) The filling over arches and pipe culverts shall be made up simultaneously from both sides.
- xvi) In back filling, above or against or in filling over masonry or other structures, the materials, shall be deposited not more than 100mm thick, sloping away from the structure with each layer carefully tamped. Only the selected materials shall be used for this purpose. Highly cohesive, wet, impervious materials shall not be employed.
- xvii) Adequate arrangements for control of compaction must be ensured during the construction so that the required degree of density is obtained in each layer of earthwork.
- xviii) All works including the surfaces of the fill shall be finished to smooth and compact profile in conformity with plans and the Contractor must not leave any depressions or irregularities that will hold water or prevent drainage. Slopes shall be finished by hand shoveling. The inside slopes of embankment shall be neatly dressed to line as the placing of the fill progress.
- xix) In making earthwork in embankment or due to movement of compaction equipment, if there is natural subsidence of sinking of the natural ground under the embankment due to any reason, the Contractor shall make up the deficiency in the quantity of earthwork due to natural sinking at his own cost.
- xx) The Contractor shall purchase the soil testing equipment at his own cost and as per the list given below and keep it ready at site before work commences.
- (a) Rapid determination of moisture content kit, liquid limit, plastic limit, Density & OMC.
 - (b) Balance to weight up to 1 gm accuracy
 - (c) Hand balance to weigh up to 0.1 gm accuracy.
 - (d) Weights ranging from 3 Kg to 0.1 gm
 - (e) Core cutters bearing I.S.I mark.
 - (f) Porcelain dishes 100mm dia.
 - (g) Steel scale
 - (h) Grafting tool
 - (i) Spatula
 - (j) Spirit as required
 - (k) Rammer (standard) bearing IS1 mark.

(l) Kit for testing of soils by sand replacement method.

The number of above equipment to be arranged by the Contractor will be decided by the Engineer depending upon the actual site conditions and the rate at which the work progressed. The decision of the Engineer shall be final and binding on the Contractor in this regard.

4. The work may have to be carried out very close and over the running railway lines and electrical traction wires and the Contractors shall make all measures and precautions to protect the railway lines and structures, Contractor's labours, public properties at his own cost. Necessary barriers made by ropes and flags signals etc. at work site will have to be provided by the Contractors.

5. Quality Assurance of Earthwork.

- 11.1 Quality check on earthwork- Quality of execution of formation earthwork shall be controlled through exercise of checks on the borrow material, blanket material, compaction process, drainage system, longitudinal and cross sectional profiles of the embankment.

11.2 Frequency of Quality Assurance Tests- (As per the extant guidelines for the earthwork following for execution):-

CBR test for selection of blanketing material and other tests required for ensuring conformation of the materials for formation (blanket, subgrade, embankment fill) as per specifications e.g. size gradation, Cu, Cc, OMC/MDD etc. shall be conducted at the following frequency:

- Embankment fill: One set of tests for every 5000 cum and at every change of soil strata.
- Prepared subgrade: One set of tests for every 2000 Cum
- Blanket material: one set of tests for every 500 cum.
- Compacted earth/Blanket layers: At least one density check for every 200 Sqm for each blanket layer and top one meter of sub-grade and at least one density check for every 500 sqm for other than the blanket and one meter of sub-grade.

6. Payment for earthwork/blanketing:

- 12.1 12%(Twelve percentage) deduction will be made for the quantities of earth work executed (5% for each side slope & 2% for top level of formation) at the "On account" bill stage.

These quantities will be released progressively as per the following percentage as and when the following enabling works are completed.

12.2 Embankment:

- Dressing of side slopes including turfing/pitching = 10% (5% for each side slope)
- Dressing of top level of formation = 2%.

12.3 Excavation

- Dressing of side slopes including turfing/pitching = 10% (5% for each side slope).
- Dressing of the formation after construction of side drains inside the cuttings = 2%

Note:- Above conditions are for guidelines and not exhaustive. Work will be executed as per the latest or extant specifications/guidelines issued by RDSO and as directed by Engineer-in-charge which will be binding to the contractor.

CHAPTER - XVI

ADDITIONAL SPECIAL CONDITION OF CONTRACT

1 INTENT OF PLAN, SPECIFICATION AND CONTRACT DOCUMENT:

The work to be carried out under this contract shall, except as otherwise provided in these conditions, include all labour, materials, construction plant, equipment and transport which may be required in preparation of and for the full and entire execution and successful completion of the works. The description given in the schedule of item of works shall, unless otherwise stated, be hold to include carriage and cartage, carrying in, hoisting, setting, fitting and fixing in position and all other labour necessary in and for the full and entire execution successful completion of the works as aforesaid, in accordance with good practice and recognized principles and any urgent and temporary works fully contingent upon the works.

2. NATURE AND SCOPE OF THE WORK

2.1 “As per tender schedule and as per current and relevant specification, drawings and as directed by the Engineer-in-charge at site”.

2.2 The principal item of works to be executed under this contract are: -

- (i) Transportation of all fabricated steelwork and accessories from the construction store to the bridge site. The quoted rate shall include carriage by road, all handling at bridge site, insurance against loss or damage in transit, if any, stacking at site, etc. In case of transportation of longer member from store to site of work requiring special trailer/dummy truck, contractor must take the full responsibility of transporting them as over dimensioned consignment as warranted in road transport and to take into the account of the cost of such transport in the rates to be quoted.

NOTE:-

1. Enclosed Schedule for item of works and Drawings listed specifies the scope of work.
2. Railway reserves the right to add/ delete any of the items of work including any variation in quantities.

3. MODIFICATION OF DRAWINGS:

Railway reserves the right to alter/ modify the drawing/ design to suit the site conditions. If due to the changes in drawing/ design there is any increase or decrease in quantities in the items of the schedule, payment shall be made only for the actual quantities executed at the accepted rates. Such circumstances shall in no way effect or vitiate the contract or alter the character thereof or entitle the contractor to damages or compensation therefore.

4. RATES

- 4.1 The rates quoted by the contractors shall be the cost of complete work including the cost of all labour and materials including transport, loading unloading as well as sheds, construction plants, shuttering and scaffoldings and temporary works or whatever arrangements required for the successful and satisfactory completion of the work. All sheds, construction plants, shuttering and scaffoldings and temporary works and arrangements put in by the contractor shall remain the property of the contractor on satisfactory completion of the work and no separate payment shall be made to the contractor for such works.
- 4.2 The contractor shall be entirely responsible for ensuring safety of his labour, vehicles, construction plants and equipment while working. No extra payment shall be allowed to the contractor for the safety precautions to be observed during the execution of the work. The cost of such precautions shall be deemed to be included in the quoted rates of the schedule of item of works.
- 4.3 Transportation of all fabricated steelwork and accessories from construction store to the bridge site as directed by the Engineer shall be on contractor's account. The quoted rate shall include all handling at construction store and at bridge site including the cost of insurance against loss or damage in transit, if any, stacking at site etc.
- 4.4 The contractor at his own cost shall repair/rectify all minor damages which might have occurred on the

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fabricated steel components during its/their transportation from store to the bridge site or due to contractor's handling.

- 4.5 It shall be clearly noted that rates quoted shall include all wastages and wash away due to any causes whatsoever. The quoted rates shall also include the cost that may be necessary for stacking the materials at site of work.

5 MATERIALS

- 5.1 The contractor at his own expenses, provide all materials required for the work. The contractor shall maintain a minimum stock at least seven days consumption of all materials required for the work and which are to be supplied by him.
- 5.2 All materials required for incorporation in the final work to be supplied by the contractor shall be in conformity with the specifications laid down in the drawing specified in the tender and the contractor shall furnish proof/ test certificate in support of this to the satisfaction of the Engineer/ authorized inspecting agency.

6 TAXES

- 6.1 The rates quoted shall include all taxes, direct or indirect, leviable under the contract by State or local Bodies. Act or Rules, Excise duty/GST, Octroi, Tolls, Royalty, Monopoly, Seigniorages, Cess and similar imposts that may be prevailing at the time of submitting the tender in respect of land, structures and all materials supplied in the performance of this contract. Enhancement of any of the above taxes/duties during the period of execution of this contract shall be borne by the contractor.
- 6.2 Sales Tax as legally leviable as per the extant notification of State Government will be deducted from the contractor's bill and the amount so recovered will be deposited in State Govt. Treasury.

7 PLEA OF CUSTOM

The plea of 'Custom' prevailing will not on any account be permitted as an excuse for infringement of any of the conditions of contract or specifications.

8 VITIATION OF CONTRACT

Any inadvertent omissions of any kind in the information, specifications, drawings or schedule of quantities shall not vitiate the contract.

9 PROGRAMME AND COMPLETION PERIOD

- 9.1 The work shall be completed within the period mentioned in the schedule of items and works from the date of issue of the letter of acceptance.
- 9.2 Within 7 days of the acceptance of the tender and before the work is commenced; the contractor shall have to submit a detailed network of the major item of works by Critical Path Method for approval of the Engineer. Besides, the contractor shall also submit detailed scheme for fabrication and inspection proposed to be adopted by the contractor well in advance, before the physical commencement of fabrication of girders for approval of the Chief Project Manager -West (Con) SEC Railway, Nagpur. The fabricated girder parts will be brought to the site by the contractor for erection progressively.
- 9.3 The programme shall clearly provide for and indicate the time required for the preliminaries before starting the work and shall indicate dates of commencement and completion of the various sections of the work. The programme shall be supported by details of plants & equipment and labour and other resources that the contractor purposes to deploy to achieve the progress.
- 9.4 The agreement on or approval of the programme by the Engineer shall not relieve the contractor of any of his responsibilities to complete the whole of the works of the works by the prescribed time.
- 9.5 If the work does not commence within the specified date of starting, or if at any subsequent time, the rate of progress falls below the specified programme as indicated above, the Railway Administration (Construction Organisation) will have the power to determine the end of the contract at any stage without incurring any liability on the part of the Railway Administration for any sort of compensation

for the money invested by the contractor(s), or the loss incurred by him/ them due to such termination of the contract. In all cases of incomplete work, either by termination of contract by the Railway Administration under consideration stated above or due to failure on the part of the contractor(s) to complete the work within the stipulated date of completion of the agreement, the Railway shall be entitled to:

- (i) To forfeit the whole or such portion of the security deposit as it may consider.
- (ii) To recover from the contractor(s) the cost of carrying out the work in excess of the sum which would have been payable accounting to the certificate of the Engineer, to the contractor(s) if the work had been carried out by the contractor(s) under the terms of the contract, such certificates being final and binding upon the contractor(s) provide however, that such recovery shall be made only when the cost incurred in excess is more than the security deposit proposed to be forfeited and shall be limited to the amount by which the cost incurred exceeds the security deposit proposed to be forfeited. The amount thus to be forfeited or recovered may be deposited from the money then due or which at any time thereafter become due to the contractor(s) by the Railway under this or any other contract or otherwise.

10 PROGRESS OF WORK:

- 10.1 The contractor shall submit to the Engineer a fortnightly report giving progress of works including mobilization of his construction plant, machinery, manpower, raw materials etc.
- 10.2 It shall be ensured that the works are carried out according to the aforesaid agreed programme and no changes are made except with the prior approval or at the instance of the Engineer. The contractor shall immediately inform the Engineer, whenever there is, or is likely to be any change in his work schedule.
- 10.3 The contractor shall participate in periodical meetings with the Engineer to review the progress of the work. In case of a slippage in the time schedule due to contractor's inability to perform as per agreed programme, the contractor shall take such action as may be necessary to bring back his work to schedule without additional cost to the Railway, either by employing over time operations, increasing the number of shifts, capacity of construction plants, or as directed by the Engineer.

11.0 EXECUTION OF WORK

11.1 INSPECTION OF THE SITE

- 11.1.1 The tenderer shall in their own interest, examine the drawings conditions of contract and the specifications of work. They shall also in spite the site and satisfy themselves on their own as to the hydrological, climatic and physical conditions prevailing at site, the nature, extent and practicability of the works, all existing and required roads and other means of communications and accesses to the sites. They shall themselves obtain all necessary information as to risk, contingencies and other circumstances, which may affect or influence their tender. No extra charges consequent on any insufficient appreciation or otherwise shall be entertained.
- 11.1.2 It shall be deemed that the contractor has inspected the sites in all respect as explained in clauses before quoting his rates and has satisfied himself about the nature and type of work including ancillary works necessary for the satisfactory fulfillment of the contract.
- 11.1.3 Should there be any discrepancy in or any doubt or obscurity as to the meaning of any of the tender documents or as to anything to be done or not to be done by the tenderer or as to the instructions to be observed by him, he must set forth in writing such discrepancies, doubts or obscurities and submit the same to the Chief Administrative Officer (Construction), for elucidation as soon as possible but not later than 21 days before the last date fixed for receipt of the tenders.

12 SUPERVISION AND APPROVAL BY ENGINEER

- 12.1 All works embracing more than one process shall be subject to examination and approval by the Engineer at each stage thereof and the contractor shall give due notice to the Engineer or his authorized representatives in writing when each stage is ready. In default of such notice, the Engineer shall be entitled to appraise the quality and the extent thereof, even at a later stage at the risk and cost of the contractor.

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- 12.2 The Engineer or any of his concerned departmental officials shall be entitled at any time to inspect and examine any materials intended to be used in or on the works, either at workshop or at any other place/ places where such materials are lying and the contractor shall give also facilities as may be required for such inspection and examination.

13 EXAMINATION OF WORK BEFORE PAINTING

- 13.1 No work shall be painted without the approval of the Engineer or his authorized representative and the contractor shall afford full opportunity for examination of any work, which is about to be painted. The contractor shall give at least 7 days notice to the Engineer or his representative whenever any such work is ready for examination and the Engineer or his authorized representative without unreasonable delay, unless he considers it unnecessary and advise the contractor accordingly, attend for the purpose of examination.
- 13.2 The Railway official concerned with the contract shall have powers at any time to inspect and examine any part of the works and the contractor shall give all such facilities as may be required for such inspection and examination.
- 13.3 Transport facility to and from the nearest Railway station convenient to inspecting staff and rest house accommodation for the purpose of inspection of fabricated components should be provided free of cost to the inspecting official by the contractor.

14 STORAGE OF INFLAMMABLE MATERIALS

Large quantity of fuel will be required by the contractor for the execution of the work. The contractor shall at his own expenses obtain license or licenses as may be required for storing and using such inflammable materials and locate, procure and maintain suitable storage tanks, if required, in accordance with the requirements of the appropriate Govt. Rules in Force. The contractor shall exercise proper care while using such inflammable materials so as not to endanger life and property and shall solely be responsible for any and all damages resulting from the storage and shall indemnify the Railway and its officers and employees against any claim or liability arising out of any accident or violation of any Laws, Rules and Order.

15 TOOLS AND PLANTS

- 15.1 The Railway shall not at any time be liable for the loss or injury to any of the said construction plant, temporary works or materials save as otherwise provided in these documents.
- 15.2 In respect of any construction plant, which the contractor shall have imported for the purpose of the works, The Railway may assist the contractor when required any necessary Govt. consent to the re-export of such construction plant by the contractor upon the removal thereof as aforesaid. The Railway will, however, not be responsible for either delay or denial of Govt.'s approval and no claim whatsoever shall be entertained on this account.
- 15.3 The contractor shall make his own arrangements for all construction tools, plants and equipment including spare parts, fuel and consumable stores and all labour required to ensure efficient and methodical execution of the work. The quoted rate shall be inclusive of all charges on such items.

16 REPRESENTATION ON WORKS

Contractor's supervision:- The contractor may either supervise the execution of the works himself, if he is a qualified Engineer, or shall appoint a qualified and experienced Engineer to be approved by the Railway to act as his agent, if the contractor fails to appoint a suitable agent as directed by the Railway Engineer, the latter shall have full power to suspend the execution of works, until such date a suitable agent is appointed and the contractor shall be held responsible for the delay so caused to this works.

17.0 REMOVAL OF DEFECTIVE WORKS

If, in the opinion of the Engineer, any of the works had been executed with improper materials or defective workmanship, the contractor when required by the Engineer shall re- executed the same and substitute proper material and workmanship tools with at his own cost and in case of default of the

contractor in doing so within a week. The Engineer shall have full power to employ other person to execute the work and the cost thereof shall have to be borne by the contractor.

18.0 INTERFERENCE WITH TRAFFIC

The contractor shall use every reasonable means to prevent any of the highways or bridges communicating with or on the routes to the site from being damaged or injured by any traffic of the contractor or any of his sub- contractors and in particular shall select routes, choose and use vehicles and restrict and distribute loads so that any such extra ordinary traffic as will inevitably arise from the moving of the construction plants and materials from and to the site shall be limited as far as reasonably possible so that no damage or injury may be occasioned to such highways and bridge.

19.0 SPECIAL SPECIFICATION:

19.1 GENERAL.

- 19.1.1 The entire work is to be carried out as per relevant Railways/RDSO drawing. These specifications shall apply to all such works as are required to be executed under the contract or otherwise directed by the Engineer. In every case the work shall be carried out to the satisfaction of the Engineering and conform to the location, lines, grades and cross sections shown on then drawings or as indicated by the Engineer. The quality of work and materials shall comply with requirements set forth in the referred drawings. Where the drawings and specifications described a portion of the work in only general items, and not in complete details, it shall be understood that only the best general practice is to prevail, materials and workmanship of the best quality are to be employed and the instructions of the Engineer are to be fully complied with and shall be binding on the contractor.
- 19.1.2 In the event of any provision not being covered by IRS specifications and SEC. Railway Specifications reference may be made to relevant IS, BS & ASTM specifications in that order. Wherever these are silent, the design and construction shall conform to sound Engineering practice and in case of any dispute arising out of the interpretation of above, decision of the Engineer shall be final and binding on the Contractor.
- 19.1.3 Whenever a reference is made to any of the Standard Specification and Code of practices under Clause it shall be taken as a reference to the latest version/revision of the same and shall include all the ERRATA/Corrections made in the same made from time to time. In case of any contradiction between provision in the special specifications laid down here and in the specifications and codes which have been referred to the former shall prevail and that in all cases the decisions of the Engineer shall be final and binding on the contractor. All measurement and computations unless otherwise indicated, shall be carried nearest to the following limits.
- i) Length and breadth - 0.01 m.
 - ii) Height, depth or thickness or structural members etc - 0.005 m.
 - iii) Area - 0.01 Sq. metre
 - iv) Cubic contents. - 0.01 Cubic metre
 - v) Weight - 0.001 MT.

In recording dimensions of work the sequence of length, width and height or depth or thickness shall be followed.

19.2 CODES & SPECIFICATIONS.

The materials as well as execution of works shall be to the following specifications and codes of practice (Latest Version of the Specification/Codes to be used).

1. Indian Railway Standard Codes and Specifications.

- (i) IRS welded Bridge Code (1972).
- (ii) IRS Steel Bridge Code (1962).
- (iii) RS B-I Fabrication and erection of steel bridge girders.
- (iv) IRS M-28 Specifications for electrodes.

- (v) IRS M-19 Specification for wire flux Combination for SAW

II. Indian standard Codes and Specifications.

- (i) IS: 226-1975 Specifications for structural steel (Standard quality)
- (ii) IS: 2062-1984 Specification for weld able structural steel.
- (iii) IS: 813-1961 Scheme of symbols for welding.
- (iv) IS: 9595-1980 Manual for metal are welding.
- (v) IS: 4353-1967 Submerged are welding.
- (vi) IS: 817-1966 Code of practice for training and testing of metal are welders.
- (vii) IS: 818-1968 Code of practice for safety and health requirements in electric and gas welding operations.
- (viii) IS: 1181-1967 Qualifying tests for metal are welders.
- (ix) IS: 102-1962 specifications for ready mixed paints red lead.
- (x) IS: 123-1962 Specifications for ready mixed paints red oxide.
- (xi) IS: 2339 Specifications for paint aluminium.

20 INSPECTION AND PROGRESS REPORTS:

- 20.1 The progress of execution of all works shall be subject to periodic review by the Railway Administration. The contractor shall provide all facilities to then Railway's representative to make periodical detailed assessment of the progress of the works. Such information and progress reports as may be called for by the Railway and at such intervals as specified shall also be made available.
- 20.2 The tenderer should provide suitable conveyance during the inspection for officials going to the work site for inspection and returning back. No extra payment shall be made for such arrangement.

21.0 PARTS IN CONTACT:

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

22.0 PAINTING RIVETS/HSFG BOLTS ETC.:

All rivets, bolts, nuts washers will have to be thoroughly cleaned and dipped in boiled linseed oil to be arranged by the contractor at his own costs before dispatch. No extra payment will be made on their account.

23.0 DEFECTIVE RIVETS/ HSFG Bolts:

All loose and burnt rivets and rivets with cracked badly formed eccentric of deficient heads and HSFG Bolts not tightened properly shall be cut out. Rivets and HSFG Bolts shall also be cut out when required for the examination of the work. The actual method of cutting outs shall be approved by the Engineer or the inspecting agency. Recouping & caulking shall in no circumstances be resorted to.

24.0 TEST CERTIFICATES:

- i) All materials used for the works should pass tests or analysis prescribed by the specifications mentioned above or such other recommended specifications as the railway shall have authorized as equivalent there to or in the absence of such authorized specifications such tests and analysis as Railway shall specify.
- ii) For raw materials like electrodes, rivets, HSFG Bolts, paints etc. the contractor shall furnish copies of test certificates from the manufactures. If any testing of materials is required by the Railway in respect of any other items this shall be arranged for by the railway at its cost.
- iii) Any approval given by the Railway in consequence of such tests or analysis shall in no way limit or interfere with the absolute right of the Railway to reject the whole or portion of such materials supplied, which in the judgment of the Railway do not comply with the conditions of the contract. The decision of the Railway in this regard shall be final and conclusive for all purposes.

25.0 METHOD OF MEASUREMENTS:

For purpose of payment, quoted rates apply to the weights of steel works calculated from final working drawings based on theoretical weights given in the producer's hand books and using minimum square

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overall dimensions, no deductions being made for skew cuts, holes or notches. Each gusset shall be on the dimensions of the smallest inclosing rectangle.

26.0 RIVETS AND RIVETING (If applicable), HSFG Bolts, etc :

- 26.1** The dimensions on the drawings refer to the diameter of the rivets holes and their finished rivets. Rivets shall completely fill the holes and shall be machine driven wherever, possible by means of pressure or percussion riveters of approved design. The rivets shall be made to relevant IS: specification. The rivet holes shall be 1.5 mm (1/16 inch) greater than the diameter of the rivet bars used. The clearance i.e. the difference in dia metre between the rivet measured under head before being heated and rivet holes shall not be less than 0.7 mm (1/32 inch). The shanks shall be made of a length sufficient to fill the holes thoroughly and to form the head.
- 26.2** The rivets shall be at the proper heat and in no case shall the tip be hotter than the head. Rivets less than 10 mm (3/8 inch) diameter may be driven cold. Flattened rivet heads may be used in certain places where clearance requires them.
- 26.3** Gauges for rivet dimensions and contours shall be provided by the contractor for the use of the inspecting officer.
- 26.4** Before riveting is commenced, on works shall be properly bolted up so that the section riveted are in close contact throughout. Driven rivets when struck sharply on the head, with 110 grams riveting test hammers shall be free from movement and vibration.
- 26.5** Drifts may be used for drawing light members into position but their use on heavy members should be restricted to securing them in their correct position. In no case shall drifting be allowed to such an extent that holes are destroyed. Drift steel shall be in accordance with relevant IS specification.
- 26.6** **HSFG bolts** shall be used in place of rivets to assemble the girder/girders as per instruction of site engineer in charge.

The quality, size and procedure for HSFG bolts shall be adopted as per BS-111 (revision 7 or latest version/correction) issued by RDSO-Lucknow or latest version available and/or any other guide lines issued by railway in this regard.

27.0 Painting contact surfaces before riveting/ bolting:

- 27.1** All parts shall be thoroughly cleaned and dried before they are painted and when so specified all mill scale shall also be removed before painting.
- 27.2** All steel work before riveting/ bolting shall have the parts which will be in contact painted, immediately before assembling on each surface with a heavy coat of red and pure raw linseed oil freshly ground and the surface brought into close contact while still wet.

28.0 CONDITION REGARDING USE OF CONTRACTOR'S VEHICLES & EQUIPMENTS:

The vehicles and equipments available with the contractor can be draft by the Railway Administration in case of accidents/natural calamities involving human lives. For the payment purpose, this item may be operated treating as a Non-Schedule (N.S.), or as mentioned in special conditions, as decided by Engineer in charge.

29.0 Contractor shall not be permitted to add any fresh claims or items of disputes after submission of final claims as stipulated above.

30.0 PAINTS:

30.1 SOURCE & QUALITY

iPaint and other accessories including those for metallising work will be supplied by the contractor.

Paints manufactured by the firms approved by the Engineer shall be used.

iiThe contractor shall furnish to the Engineer, the date of manufacture of paint as certified by the manufacturers with the necessary container marking and test certificate for paint confirming to relevant

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IS code. In addition to this, he shall also submit the necessary vouchers in respect of paint purchased by him.

- iii The Engineer reserves the right to get the paint tested at contractor's expenses as considered necessary by the Engineer. If the test results do not confirm to relevant IS specifications fully, then the lot of paint shall be rejected and got removed from the contractor(s) storage. If the paint has already been applied it shall be removed.
- iv In addition to above, the following tests are required to be carried out in the field.
- v• WEIGHT PER LITRE. • CONSISTENCY TEST. • SCRATCH TEST. • FLEXIBILITY AND ADHESIVE TEST
- vi The Engineer reserves the right to reject the lot of paint even on the basis of field results.

30.2 PAINTING –GENERAL INSTRUCTIONS

- i Painting shall not be commenced till the surface preparation has been approved by the Engineer or his representative or Inspecting Officer.
- ii Sealed containers of paint of approved brand shall be used. The paint drums must be rolled, turned upside down and shaken before opening. The paint must be stirred well before use. Over stirring which results in invisible air bubbles etc. shall be avoided.
- iii Where brush painting is accepted, the paint must be applied by means of flat brushes not more than 75 mm in width having soft flexible bristles confirming to IS:384.
- iv Round and oval brushes of approved quality confirming to IS:487 may also be used as per the instructions of the Engineer or his representative or Inspecting Officer
- v All new brushes should be soaked in raw linseed oil confirming to IS:77 for at least 24 hours before use.\
- vi A little blue paint shall be added, in the first coat of aluminium paint to distinguish it from second coat. For paints of other colours for final and finishing two coats, suitable pigment shall be used as per instruction of the Engineer, to distinguish the first coat from the second coat
- vii The date of painting shall be marked with paint on the member. G.R.

30.3 CARE DURING PAINTING

Paint should be mixed in small quantities sufficient to be consumed within one hour in the case of red lead paint. The applied coat of paint shall be uniform and free from brush marks, sack marks, blemishes, scratching, non-uniform thickness, holes, log marks, fuel staining, cracking, scaling and other defects. Paint shall be applied only on dry and clean surface free from moisture or dust (including scrapping dust). Paint should be used within the prescribed shelf life from the date of manufacture. Each coat of paint shall be left dry till it sufficiently hardens before the subsequent coat is applied. Each coat of paint shall be inspected by the Engineer or Inspecting Officer and certified as satisfactory before applying subsequent coat

31. CONDITIONS FOR PAINTING OF STEEL WORKS IN GIRDER BRIDGES.

- 31.1. Staging and scaffolding should be provided by contractor with his own labour & material for at least for 1½ spans preferably 02 spans and should not be removed until the final coat is applied, inspected and passed.
- 31.2. The rates are inclusive of supply at contractor's cost of all brushes of approved pattern and the tools, and equipment for mixing applying the paints as required for proper execution of the work.
- 31.3. The rates are inclusive of thorough cleaning of steel works as specified in specifications in 1.1 and 1.2. of specification for painting.
- 31.4. The surface to be painted should be free from oil, dust, grease, smoke rust mill scale, old deteriorated paint and foreign matter.
- 31.5. Cleaning can be done by sand blowers/air compressors as may be obtained by the contractor at his own

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cost, duly approved by the Engineer-in-charge or his representative sand blowing is done the paint should be applied within 3 to 5 hours of the scrapping of the surface.

- 31.6. No chemical and/or burning by any process should be used for cleaning or for removal of old paint in the steel works.
- 31.7. For “B” type scraping; Electrically driven emery discs to be used obtaining power from the contractor’s arrangement wherever required as per the direction of Railway site Engineer.
- 31.8. The cleaned surface must be got approved by the Railway Administration before application of primary coat of paint by Engineer –in-charge or his representative.
- 31.9. The paint drums must be well rolled and shaken, made up side down for some times, before opening and the paint must be thoroughly stirred in the drum before it is applied to work.
- 31.10. Paint manufactured by the reputed firm shall be used. Supply of paint should be taken from approved manufacturer like I). Shalimar II). Berger III). Asian Paints IV). Johnson & Nicholson V). Goodlass & Nerolac only.
- 31.11. Paint for both prime and finishing coats may preferably procured from the same firm for achieving better results.
- 31.12. The paint to be used shall confirm to ISI specifications given below :-
(a) Zinc chromate ready mixed to IS No. 104 of 1962.
(b) Zinc chromate ready oxide ready mixed to IS specification No.2074 of 1962 of latest revision.
(c) Aluminium paint IS No.2339.
- 31.13. In addition to the information on the levels /making on the contractors, the contractor should furnish the railway with the date of manufacture of the paint as certified by the manufacturer. The contractors should also produce the vouchers in respect of the paint purchased by them.
- 31.14. The contractor shall be fully responsible for the proper storage arrangement of the paints in the godown to be constructed by him at the site of work. All facilities will be afforded by the contractor for checking his stores by the Engineer or his representative of any other inspecting officer as and when required. Paint drum once brought inside the contractor’s godown/shed shall not be removed without the specific approval of the Engineer or his representative.
- 31.15. After the paint used up the empty paint drum shall be destroyed in presence of Railways representative.
- 31.16. Where painting would be done by the use of contractor’s own paint the spreading capacity of the paint be specified.
- 31.17. Random representative samples shall be taken as prescribed in the IS-101 from each lot of paint brought by the contractor and shall be of tested at the contractor’s expenses at the chief chemist and metallurgist, S.E. Railway, Kharagur or the National Test House Alipore, Kolkatta or NIT/Nagpur or any NABL labortary as per direction of Engineer-in-charge as found appropriate by the Railway. If the test results do not conform to the relevant IS specifications the whole lot/lots of paint shall be rejected and got removed from the site by the contractors paint from the rejected lot if, if already applied, shall be removed and the girders steel structure repainted by the contractors at his cost.
- 31.18. In addition to the test conducted as per the special condition No 18 the BRI shall conduct the following field test at the site before using the paint Aluminium of two tests per batch shall be conducted at random.
i) Weight per liter.
ii) Consistency test by ford cup viscometer No-4.
iii) Stretch hardness test (hand operated)
iv) Flexibility and adhesion test with 0.25 mm rod.
- 31.19. The final acceptability of the supplied paint shall however be governed by the results of the test conducted by the Chief Chemist & Metallurgist/KGP or by the National Test House, Alipore, Kolkatta NIT/ Nagpur or any NABL laboratory as per direction of Engineer-in-charge even if the result of the field tests stipulated in special condition No.18 are satisfactory other hand the Railway reserves the

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right to reject a lot of paint in the basis of the results of the field test stipulated in special condition No.18 only without taking recourse of any other testing.

- 31.20. Where delay in applying the primary coat on the prepared surface is unavoidable the clear surface should be given a coat of approved quality of linseed oil to IS-77 to protect the surface against corrosion until the priming coat could be given. The steel surface should be cleaned thoroughly before applying the priming coat.
- 31.21. **Maintenance of field Records:**
Field — cum-site order books shall invariably be maintained by the Engineer's representative bridge-wise. These should be offered to the inspecting officers for their perusal and remarks.
- 31.22. The field —cum —site order book shall contain the following information: Section, km, Bridge No., span details, type of girder (including, CE's drawing No)
- i) Contractor's name and details of agreement.
 - ii) Details of paint brought by the contractor lot wise, (i.e. name of manufacturer, date of manufacturer, date of expiry, batch No., reference to specifications, reference to manufacturer's test certificates.
 - iii) Date of commencement and satisfactory completion of :
 - a) Surface preparation.
 - b) Painting of first primer coat.
 - c) Painting of second primer coat.
 - d) Painting of first finish coat.
 - e) Painting of second finish coat.
 - iv) Result of the test conducted by the BRI in the field on the paint, as per special condition No-18.17 & 18.18.
 - v) Record of consumption of paint vis-à-vis actual area covered Span wise.
 - vi) Details of the checks conducted in the paint godown/shed of the contractor.
 - vii) Labour strength employed by the contractor.
 - viii) Any other important and special instructions given to the contractor.
- 31.23. Each entry in the field —cum-site order book shall be signed by the Engineer's representative and the contractor (or his authorized representative) in token of acceptance.

31 24. SPECIFICATIONS FOR PAINTING

31 24.1. Surface preparation shall not be carried out in the following conditions:-

- A. In rainy season.
- B. In extremely wind /misty/dust blowing conditions.
- C. In night.
- D. In winter before 8 AM
- E. In summer between 11 and 15 Hrs. (11.00 AM. To 3.00PM) on areas, which are likely to be exposed to direct sunlight.

31 24.2 No chemical shall be used for surface preparation.

31.25. PAINTING:

SHELF LIFE OF PAINTS:

1. Paint zinc chromate to IS 104-12 months.
2. Paint red mixed zinc chromate to IS 2074-12 months
3. Paint red oxide to IS 123-12 months.
4. Paint aluminum to IS 2339-12 months.

- 31.25.1 Each coat of paint shall be left dry till sufficiently hardens before the subsequent coat is applied. Each coat of paint shall be inspected by BRI/AEN and certified as satisfactory before applying subsequent

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31.25.2. The time lag between the successive operation shall under no circumstances exceed those specified below:

1. Between surface preparation to classification 'A' and first primary coat - 24 hours.
2. Between surface preparations to classification 'B' and first primary coat - 48 hours.
3. Between the primer coat and finishing coat - 7 days
4. Between the first finishing coat - 7 days.

31.25.3 The thickness of the dry film shall not be less than the thickness specified below. If the thickness is found to be less than that specified additional coat of paint has to be applied to bring it to the required thickness. The thickness shall be measured by an digital type electronic elecometer of an approved type. The contractor shall arrange the digital type electronic electrometer for measurement of paint thickness during the inspection of Railway's representative. After getting the minimum thickness of dry film of paints mentioned in Annexure, payment will be made for the passed painted area only.

32.26 Description of paint Dry film thickness

1st Primer coat zinc chromc IS -104 - 1989 **20 Microns**

2nd Primer coat Red Oxied/ Zinc chromc IS – 2074 – 1992 **20 Microns**

1st Finishing coat of Aluminium IS – 2339 **15 Microns**

2nd Finishing coat of Aluminium IS – 2339 **15 Microns**

31.27 Area covered (Approx) per Litre Paint.

Zinc Chrome – IS-104 -1989 - 9.29 Sqm.

Red Oxide Zinc Chrome – IS-2074 – 1992 - 14.60 Sqm. Aluminium – IS – 2339 – 1963 - 15.94 Sqm.

CHAPTER-XVII
SPECIAL CONDITIONS OF CONTRACT
(Flash Butt Welding)

- 1.0 This work mainly envisages flash butt welding of all type of rails/ rail panels (upto 20 rail panels) [260R/60 kg/52 Kg, 72/90 UTS, New /SH/ in service] in situ / in cress using own Rail cum Road bound, Mobile Flash Butt Welding Plants in the entire jurisdiction of SEC Railway.
- 1.1 Welding process and methodology will be governed by the latest edition of "Manual for Flash Butt Welding of rails " including latest corrections slips, issued by ROSO, Ministry of Railways, hereinafter referred to as the Manual.
- 1.2 The welds shall be finished to final profile by controlled grinding as approved by the Engineer. The finished weld alignment shall be as per specified tolerance in Manual. Rail head profile grinding to produce the finished alignment shall not extend more than 300 mm (three hundred) on either side of the weld.
- 1.3 All welds shall be indelibly marked with an individual number as prescribed in the Manual. This weld number shall be painted on the rail web. The number, once painted in the rails, shall be maintained until taking over of the work.
- 1.4 All surfaces of welds shall be ground Flash. Any defects or irregularities in welds which, in the opinion of the Engineer cannot be rectified by grinding shall be rejected.
- 1.5 All defective joints shall be cut out from a suitable distance on either side of weld and re welded in the presence of Railway official. No payment will be made for making cuts & re-welding for replacement of defective welds.
- 1.6 All welds are to be tested as per provisions / instructions in the Manual. Ultrasonic Testing of the welds is to be done as per latest edition of 'Manual For Ultrasonic Testing of Rails and Welds' including latest corrections slips. Scope also includes preparation & testing of test welds as per the manual.
- 1.7 Normally, 20 rail panels will be offered for welding after insertion into track & fixed to sleepers with prescribed fittings. Scope of the work will also include opening of fittings, fixing of rollers, handling of rail panel for desired alignment & gap before welding and fixing the panel back to the sleepers with the necessary fittings. If requested by contractor, 20 rail panels lying on cress may also be allowed for welding but, nothing extra will be paid for handling of the panels in this case.
- 1.8 Free rails/2 rail Panel/3 rail Panel will be offered for welding either lying inside the track or after insertion into track. In case the rails / rail panels are already inserted in track, scope of the work will also include opening of fittings, handling of rails / rail panels for desired alignment & gap before welding and fixing the rail/rail panel back to the sleepers with the necessary fittings.
- 1.9 Scope: The quantity taken in this tender is approximate quantity required for welding of rails in Main Line and Yards for the Projects/works likely to be commissioned during next 3 years over SEC Railway. Separate items have been taken for welding in 20 rail panel and for remaining other locations having free rail /2 rails/3 rails panels. It is not necessary to give the scope from one end to other in a continuous stretch. Contractor may require shifting of the MFBW plant from one project to other & at different work locations of a project, as per availability of rails & priority of welding. Contractor may also require to deploy more than one mobile FB welding plant as per priority in commissioning and availability of rails in different projects over SECR. Shifting charges, if ordered in writing will be paid as per terms of Railways in relevant schedule.

1.10 Time Schedule: Total completion period of 36 months has been kept for this tender so as to ensure availability of running contract during the coming 36 months, so that execution of flash butt welding can be done as and when required for commissioning of projects in stretches. In order to ensure commission of targeted stretches of various projects over SECR, following conditions and sub schedules are incorporated and made part of this contract.

- (t) Whenever a stretch/ stretches of adequate length is ready for welding (including 20 rails panels and other locations of free rails 2 RP, 3RP etc.) having minimum scope of about 200 joints, the contractor will be informed in writing for deployment of Mobile Flash Butt Welding Plant (MFBWP).

The contractor is required to depute MFBWP along with all required resources within 15 days from the date of issue of letter, failing which a penalty of Rs 5000/- per day shall be levied after expiry of 15 days time till date of actual deployment of plant.

- (n) If requirement exists and the contractor is advised in writing, the contractor is bound to depute one MFBWP @ 200 joints or part thereof and max three MFBWPs along with all required resources at a time. More than three plants can also be deployed with mutual consent.
- (m) Contractor is also required to depute MFBWP even if available scope at a location is less than 200 joints, but in that case condition No (i) above related with penalty will not be applicable.

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DEFINITIONS:

- 2.1 Following special conditions shall apply to this contract. Where they differ from the General conditions, the special conditions shall override the General conditions.
- 2.2 The term "work" means all the work specified or set forth and required in and by the said specifications, drawings and "Schedule of Quantities", hereto annexed or to be implied there from or incidental thereto or to be hereafter specified or required in such explanatory instructions and drawings (being in conformity with the said original specification(s), drawings, and "Schedule of Quantities" and also in such additional instructions and drawings not being in conformity as aforesaid, shall from time to time, during the progress of the work hereby contracted for as are supplied by the purchaser.
- 2.3 The term "Test" shall mean such test or tests as prescribed by the specifications(s) to be made by the Railway Administration, or his nominee during inspection.

3.0 RATES FOR ITEMS OF WORK:

Tenderer/swill quote his/their rates after full inspection of site and site conditions made known to him/them.

- 3.2 The rates quoted by the tenderer/s shall be deemed to include work necessary for setting out of works in the different phases as ordered by the Engineer's representative.

4.0 GENERAL:

- 4.1 Work to be executed by a robust and sturdy mobile self-propelled Flash Butt Welding plant (Rail cum Road bound) (hereafter called the MFBWP) and necessary attachments/engagements, which should be suitable for aligning, pulling & welding of rails

panels / rails and shearing upset welding metal to produce long welded rails and capable of substantially high output under different situations, as laid down in the specifications.

- 4.2 The MFBWP shall be kept ready to Commence the work within 15 (Fifteen) days from the date of issue of acceptance letter.
- 4.3 If required, Contractor may have to deploy more than one Mobile Flush Butt Welding Plant, to meet the targets.
- 4.4 The contractor will specifically note that in case any accident takes place due to the carelessness of the tenderer/s then the Railway administration may terminate the present contract and Railway reserve the right to recover the cost of damages due to such accident from the rescinded contractor.
- 4.5 The contractor shall execute the work at site with full caution. Contractor shall remove the track P-Way fittings if required, during welding of joints and re-fixing the same in track and re-space the track sleeper in running/newly laid track, if flash butt welded joints falls on the sleeper for which nothing extra shall be paid. Any loss of P-way fittings shall be recovered from the contractor as per rates prescribed in Para 15 (ii) below.

5.0 DIMENSIONAL AND OPERATING REQUIREMENTS.

- 5.1 The profile of the complete system longitudinally and in cross section during transfer in train formation or self-propelled or during working, shall be within the latest Indian Railways Standard BG schedule of Dimensions, corrected up-to-date.
- 5.2 Adequate clearance shall be allowed so that no component infringes the minimum clearance of 102 mm (One Hundred and Two) from rail level while travelling.
- 5.3 MFBWP shall be capable of continuous operation during the varying atmospheric and climatic conditions occurring throughout the year.
- 5.4 Fuel tank capacity/ consumable storage capacity shall be adequate for travelling of long distances/ working as the case may be.
- 5.5 It shall be capable of working without requiring power block in electrified section **25 KVA** current is used for traction through an overhead wire at **5.5mm** above rail level. On bridges and tunnels, the height is restricted to **4.8m**.
- 5.6 It shall not infringe the adjoining track in yard or double/multiple lines and it shall be possible to permit trains at full speed with 4.72 m minimum spacing of track.
- 5.7 The provisions of the Motor Vehicles Act -1988 shall be complied with while moving on road. It shall be the responsibility of the manufacturer to obtain the technical certification of roadworthiness of the vehicle from the authorized agencies in India, prior to the registration of the vehicle.

5.8 Flash Butt Welding Plant:

The important characteristics of the Flash butt welding plant shall be as under:

- (i) The Flash butt welding machine shall be mobile type capable of doing in-situ welds.
- (ii) The welding clamps of rails shall provide contact area along the entire web of rail and shall be fitted with spring-loaded balls for optimum alignment of rails ends.

- (iii) The welding head shall be equipped with an integrated shearing device for shearing of the weld seam automatically, immediately after the welding process has been finished.
- (iv) The arrangement shall be capable of handling/ pulling of rail Panels upto 260 metre length.
- (v) The clamping jaw construction should be such that sleeper around the rail joint should not hinder the welding process under opened out fastening condition.
- (vi) During welding process, rail ends shall be adjusted to a pre-design over-lift to avoid dip at weld. The bidder of the machine for this purpose shall give the design over lift values for respective rails. A positive confirmation for the over lift should also be possible.
- (vii) A recorder system shall be provided for the simultaneous recording of butting pressure, upset and magnitude current and duration of welding. Printout of the record shall be submitted by the contractor along with the bill. Graphical records and data showing the instantaneous current, butting forces, time cycle and other relevant welding parameter shall also be submitted in soft copy.

6.0 PLACEMENT OF RAILS:

The contractor shall ensure that the handling of rails or welded rail panels shall be such that the sleepers suffer no damage. Rails or welded rail panels shall not be dropped into place.

If rail are being welded away from the exact location of their use, the welded rail panels will be stacked on levelled and well drained platform suitably supported in head on position, till their transportation of the site of their use. The welded rail panels should not have contact with soil.

7.0 OPERATIONS:

The contractor shall employ qualified and experienced personnel to weld the rails and shall carry out regular test with his own machine, plants and inspections to ensure that the welds comply with the specifications detailed herein. The contractor shall qualify his welding team and welding process by undertaking the qualification tests by ROSO / Butt Welding Organization of Zonal Railways or any other authorized agency competent to do so, as approved by the Engineer. If one member of the team is replaced, the team shall not lose its qualified status. However, if more than one member of the team is replaced the entire team shall be required to re-qualify.

8.0 PREPARATION OF RAILS TO BE WELDED:

- 8.1 Ends of all rail Panels / free-rails to be welded, shall be examined prior to welding. Rails not meeting with the rail end geometry as per Manual shall be straightened as approved by Engineer without causing any damage or indentation to the rails. Any rail which cannot be straightened to within the prescribed tolerances shall be cut back to a sufficient distance to get the required alignment. All straightening or cutting shall be done prior to welding. The rails shall be cut clean and square by means of rail saws or abrasive cutting disks. Gas torch cutting of rails is prohibited. The payment for cutting of the rails shall be made separately in the relevant item of schedule.

- 8.2 Before welding, end faces and both sides (electrode contact location) of the web of the rails shall be thoroughly cleaned of loose scales, rust, paint, etc. by mechanized brushing. Oil and grease, if present, shall be removed by Carbon Tetrachloride or Benzene. If any internal defects such as piping are noticed during cleaning, the rail shall not be welded.
- 8.3 The rail ends shall be cleaned up to a length as prescribed by the welding machine manufacturer before placing them on rollers. The gap between the rail ends to be welded shall be according to the supplier's specification.
- 8.4 Contractor to ensure that geometrical standards of the rail ends to be welded & cleaning / preparation of ends is as per Manual for Flash Butt Welding of Rails, with latest edition/ correction slips.
- 8.5 The rail ends shall be perfectly aligned in both horizontal and vertical planes. To compensate for lowering of joints due to thermal contraction, the two ends to be welded shall be raised by appropriate amount as specified by the bidder or as gained by the experience of the welding team.

9.0 TESTING OF WELD:

It shall be the responsibility of the plant in-charge and the quality control supervisors to device adequate stage inspections before final acceptance tests are conducted. Causes for failure either of weld or in heat affected zone at any stage in production shall be investigated and corrective action taken before regular welding is continued. Acceptance test has to be performed as per Manual for Flash Butt Welding of Rails, with latest edition/ correction slips. Results of all the test shall be maintained in register by the plant in- charge assisted by quality control supervisor.

10.0 TESTS FOR EVERY JOINT:

All welds be subjected to Visual inspection & dimensional check as per "Manual for Flash Butt Welding of rails" and Ultrasonic test (USFD) as prescribed in 'Manual For Ultrasonic Testing of Rails and Welds'. If any other test is subsequently added to the Manual, same will also have to be done without any extra cost.

10.1 Visual inspection:

After finish grinding, all welds shall be visually inspected for possible cracks, lack of fusion and other surface defects like notching, damage in heat affected zone etc. Welds with visible defects shall be rejected.

This test will be arranged by Railway before releasing 60% payment (Stage-I).

10.2 Dimensional check:

All welds shall be inspected for compliance of geometrical standards as prescribed in the **Manual**. Welds not meeting these standards, if rectifiable by grinding can be re-grinded, failing which they shall be rejected. Results shall be maintained as per standard proforma. Test will be arranged by tenderer and results put up to Railway in prescribed proforma for **claiming 20% payment (Stage-II)**. Railway will randomly check 20% of the welds before releasing stage-II payment, if any discrepancies is found between measurements recorded by Railway & tenderer, 100% welds will be checked by Railway for releasing stage-II payment.

10.3 Ultrasonic test (USFD):

All welds shall be subjected to ultrasonic testing as per 'Manual for Ultrasonic testing of rails & welds' and its latest correction slip, for detecting presence of internal defects in the

weld. Welds having defects shall be rejected. Results shall be maintained as per standard proforma. This test will be arranged by the tenderer with his own USFD machine, competent USFD operator, labour, materials and consumable etc. and results put up to Railway in prescribed Proforma for claiming 15% payment (Stage-III). Tenderer will arrange random check of 20% of the welds in the presence of Railway Officials before releasing stage-III payment. If any discrepancies are found between USFD results recorded in the random check, 100% welds will be checked by tenderer in the presence of Railway officials for releasing stage-III payment. Defective joint shall be distinctly marked and removed all such defective weld joint .

- 11.0 TESTS ON SAMPLE JOINTS: Presently, Manual specifies Hardness test, Transverse Test & MACRO Examination on Sample test joints. If any other test is subsequently added to the Manual, same will also have to be done without any extra cost.

Sample test joints shall be made on pieces of rails of similar section and conforming to the same specifications as the rails being welded. The length of each piece shall not be less than 750mm. Rails for making the test piece will be provided by Railways free of cost. Tests shall be carried out on sample test joints at a frequency prescribed in Manual. These tests shall also be carried out whenever there is a change in type of rail being welded. In case a sample joint does not comply with the requirements of the test, two more samples will be made and tested. If, both the sample joints meet the requirement of the test, welding may continue. In case of failure of any of the retest joints, ROSO would be consulted for investigation and fixing revised welding parameters.

These test will be arranged by the tenderer at the nearest Railways Flash butt welding plants/GMT lab or BIS recognised / NABL accredited lab. Necessary charges for testing sample joints in outside lab will be borne by the tenderer. The results of this test will be furnished by the tenderer to the railway in prescribed proforma for releasing 05% payment (stage-IV).

No payment will be made for welds executed by tenderer for making sample test joints. Rails test pieces after testing shall be deposited back to railways.

- 11.1 Hardness Test:

Brinell hardness test shall be conducted on the test weld sample before conducting transverse load test. The hardness value in HAZ shall not vary from the hardness of the parent rail by more than ± 20 HB. Results shall be maintained as per standard proforma.

- 11.2 Transverse Test:

The finished test weld sample, not less than 1.5 m long with the weld at centre shall be subjected to transverse load test in a transverse testing machine as prescribed in Manual. The test joints shall qualify the parameters prescribed in Manual, without showing any signs of cracking or failure. The results shall be maintained as per standard proforma.

- 11.3 MACRO Examination:

Test joint out of welded joints shall be subjected to macro examination as per Manual. 150 mm length of rail with weld at centre shall be cut and the sample shall be sectioned in vertical longitudinal direction through the weld. One of the sections shall be etched with 5- 10% Nitric acid and also subjected magna flux test to ensure freedom from cracks, lack of fusion or oxide inclusion. Extent of heat affected zone shall be maintained as per proforma in the Manual.

12.0 QUALITY CONTROL:

Contractor has to arrange approval of RDSO for the 'Quality Assurance Programme' for the MFBWP plant deployed in compliance to the provisions of the Manual. Contractor will also be responsible for maintaining the records of welding as prescribed in Manual. The proposed proforma for the maintenance of weld & various tests records shall be submitted by the contractor for approval.

13.0 TRANSPORTATION AND IMPORTATION OF MFBWP:

- 13.1 Transportation of the MFBWP shall be the responsibility of the contractor including customs and other clearances, taxes payable and all other related formalities and charges which may be required for the import and export of the MFBWP and also other equipment, spares, consumable, etc. which may be required during the contract.
- 13.2 Contractor shall bear the cost of transfer of the MFBWP or any of its part, when transported in train formation on Indian Railway network for any reason on contractor's account like repairs, maintenance schedules, etc.

14.0 TERMS OF PAYMENTS:

The rates for welding shall be valid irrespective of welding being conducted during day times, nights, Saturdays, Sundays, holidays, etc.

14.1 Payment Schedule will be as under-

- (i) 60% payment (Stage-I) shall be made after welds are cleared through visual inspection.
- (ii) 20% payment (Stage-II) shall be made after the welds are finished to specified dimensions after grinding and marking as per specifications.
- (iii) 15% payment (Stage-III) will be made after successful USFD testing of the joints.
- (iv) Balance 5% payment (Stage-IV) will be made after painting, numbering, testing of sample joints and completion of work as per special conditions .

14.2 No payment will be made for welds executed by tenderer for making sample test joints.

14.3 Shifting charge of MFBWP, if ordered in writing & required by road, will be paid by Railways for the shortest road distance, under the relevant item of schedule.

14.4 It should be specifically noted by the tenderers that no separate loading, unloading and leading charges for materials (which are supplied by the Railway) shall be paid for by the Railways and the rates quoted by the tenderer/s shall be inclusive of all these charges.

15.0 MATERIAL SUPPLIED BY THE RAILWAY:

- (i) The railway materials such as rails etc. will be supplied at nominated depot/ Go-down of sectional Engineer, SEC Railway as per availability. The contractor will make his/their own arrangement to carry the materials to the site of work and return the surplus materials at his/their own cost to the Senior Section Engineer (Construction) at the places of stores.
- (ii) If any extra quantity of any other Railway material over standard scale have been issued to the contractor due to wastage, bad workmanship or any other reason or in the opinion of in-charge the Railway material have not been accounted for by the contractor/s satisfactorily or have not been used on bonafied Railway works allotted to the

contractor/s, the cost of such railway material will be recovered from the contractor/s @ 1.5 times the cost of procurement plus freight @ 7%.

- (iii) The tenderer shall be responsible to see that the materials, if any, supplied by the Railway are utilized for the sole purpose for which they have been issued to him failing it, he is liable to be dealt with according to the law for any misuse of these commodities by himself, his agents or workmen etc.

16.0 Defective joints and test welds:

The Railway shall only pay for one joint even in case it becomes necessary to make two joints for eliminating defective/ failed weld.

No payment shall be made for the defective / failed joint in case the number of defective / failed welded joints exceed 1% of the total number of joints, penalty as mentioned in para below shall be recovered from the contractor:-

No recovery on account of the cost of the work will be made from the contractor in case of joints failed during the execution of work in respect of joints marked defective by USFD or other causes up to a limit of 1% of joints welded. For the failure beyond this limit a recovery shall be made from the contractor's bill @ Rs. 1500/- per joint for supervision done by the Railway and for loss of Rail in addition to re-welding of joints by contractor.

No payment will be paid for sample welds for the purpose of testing and towards the cost of testing whose cost is to be borne by the contractor. But the rails required for such tests shall be given free of cost.

NS/2: Cut in the Rail:

- 17.1** The item includes cutting of all types of rails including cutting of 60kg/52kg new/SH single rails/ short welded panels/ long welded panels with abrasive rail cutting machine with contractor's own labour, T&P and consumables. Cut shall be square & within specified tolerance in both vertical and horizontal directions. Cut, which is out of square, will not be paid.
- 17.2** The item also includes sorting of rails and spreading thereof at the required location with all lift and lead.
- 17.3** The cutting of rail shall be done as per direction of Engineer-in-charge or his representative. The contractor shall maintain a complete record of the total number of cuts done on each day and get it certified from the SSE/P.way on day to day basis. Unnecessary cutting of rails will not be permitted. For each avoidable/ undesired cut, recovery at the rate of double the rate payable for the cut shall be made.
- 17.4** Cut section / scrap shall be deposited to SSE/P.way/C in respective station yard/ adjoining station yard as directed by Engineer-in-charge or his representative.

CHAPTER – XVIII
SPECIAL CONDITION OF CONTRACT
(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 enclosed below.

	BG, MG & NG (planned/sanctioned for conversion)	NG & MG (other than those conversion) planned
Aggregate	30% Max.*	35% Max.
Abrasion value		

Aggregate	20% Max.*	30% Max.
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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.
- The 'Water Absorption' tested as per IS 2386 Pt.III-1963 following the procedure enclosed below 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.

2.3 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 |

* For machine crushed ballast only.

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 (As per correction slip No.:-04)

2.3.4.1 Sieve Analysis of Ballast

The test sieves used for sieve analysis shall conform to the specifications given in

Signature of tenderer(s)/Contractor(s)

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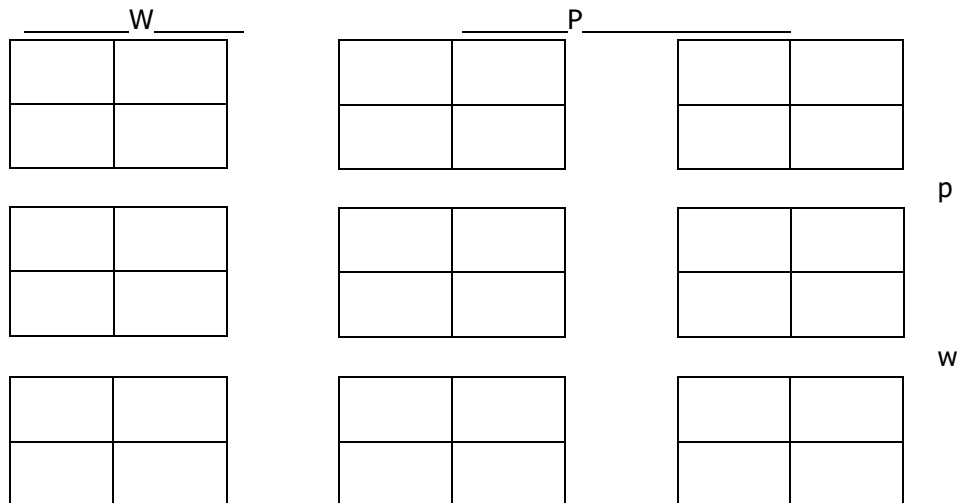
For Chief Project Manager West(Con)/Nagpur

Annexure –SPL.

- 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 though 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.

ANNEXURE-SPL**SPECIFICATION OF TEST SIEVES USED FOR SIEVE ANALYSIS OF BALLAST**

- The test sieves shall be perforated plate sieve type with square holes/apertures, mounted on a frame. The test sieve are designated by the Nominal size of holes/apertures.
- MATERIAL OF PERFORATED PLATE** :The perforated plate for test sieve shall Be manufactured from brass sheet or steel sheet or stainless steel sheet or
- Galvanized steel sheet.
- PLATE THICKNESS**: The thickness of plate used for making test sieve and the tolerance permitted for this shall be as following.
For 65mm square mesh sieve – 3mm(plus 1.0mm minus 0.5mm)
For 40mm square mesh sieve – 2mm (plus minus 0.5mm)
For 20mm square mesh sieve – 2mm (plus minus 0.5mm)
- ARRANGEMENT OF HOLES/APERTURES**: the square holes/apertures of size “W” in the perforated plate shall be arranged at pitch “p” as per the sketch
 Given below:

**5.0 SIEVE OPENING SIZE PITCH OF POENING AND TOLERANCES:**

The nominal size of individual hole/aperture at mid- section (W), the pitch of

holes/apertures (P) and permissible tolerance for them shall be as under:

Signature of tenderer(s)/Contractor(s)

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For Chief Project Manager West(Con)/Nagpur

TEST SIEVE OF SQUARE MESH SIZE	W		P	
	NOMINAL SIZE	TOLERANCE	DISTANCE	TOLERANCE
65 MM	65 MM	(±) 1.5 MM	80 MM	(+) 12.0 MM (-) 8.0 MM
40 MM	40 MM	(±) 1.5 MM	50 MM	(+) 7.5 MM (-) 5.0 MM
20 MM	20 MM	(±) 1.0 MM	25 MM	(+) 4.0 MM (-) 2.5 MM

6.0 SIEVE FRAME: the frame of test sieves shall be manufactured from Hardwood or steel sheet or brass sheet. The internal size of the frame (i.e. clear size of perforated plate mounted on frame) shall not be less than 100cm in length, 70cm in breadth and 10cm in Height on sides.

7.0 MARKING ON TEST SIEVE: A label shall be fixed to the frame of each sieve, legibly marked with following:

- (i) Nominal Aperture size,
- (ii) Material of perforated plate,
- (iii) Maker's Name or trademark, and
- (iv) Material of sieve frame,
- (v) An Identification Number for the sieve.

3. CONDITIONS FOR SUBMISSION OF TENDER

- 3.1** The tenderer shall 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 the Railway.

4. METHOD OF MEASUREMENT

4.1 Stack Measurement

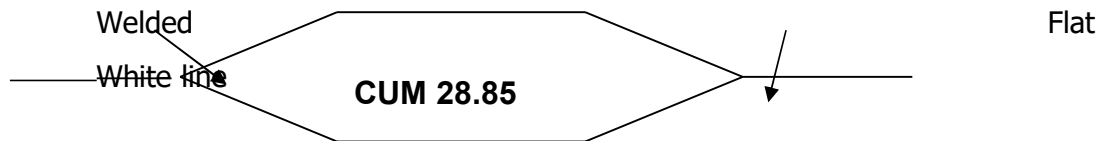
Stacking shall be done on a neat, plain and firm ground with good drainage. The height of stack shall not be less than 1m except in hilly areas where it may be 0.5m. The height shall not be more than 2.0m. Top width of stack shall not be less than 1.0m. Top of stack shall be kept parallel to the ground 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 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 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 , loaded , transported , 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.

5.2 Sampling Frequency

In order to ensure supply of uniform quality of ballast, the norms shall be followers 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 test shall be carried out as follow:

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 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 the prescribed specifications at any stage, further supplies shall be suspended till suitable corrective action is taken and supplies ensured as per specification.

The above test 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 Railway's own laboratory at Bilaspur or at other laboratory as decided by Engineer-in- Charge. These tests, subsequent to award of contract, shall be done at Railway's cost. However, transportation of sample to the designated laboratory has to be done by the contractor at his own 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 the width of each stack shall be kept in such a way that every part of the stack is accessible to the JCB of 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 of either 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 of 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 of 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 center 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 "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 in 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 and 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 "Specification for Track Ballast (IRS-GE-1, June-2016), 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 locations 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 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.

Aggregate Abrasion Value
(Based on IS:2386 Part IV-1963)

1. Apparatus
 - 1.1 The abrasion test for track ballast shall be carried out using Los-Angeles Machine.
 - 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:

$$\text{Aggregate Abrasion Value} = \frac{A-B}{A} \times 100$$

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.

Water Absorption
(Based on IS: 2386 Part III-1963)

1. Apparatus
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 $24 \pm \frac{1}{2}$ 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
Water Absorption = $\{(A-B)/ B\} \times 100$
 - 4.1 Two such tests shall be made and individual and mean results shall be reported.

UNDERTAKING

I hereby give an undertaking that ballast supply at all times shall conform to specifications for track ballast as specified by Railway

Signature of tenderer(s)

Address.

CHAPTER XIX

Additional Special Condition of Contract

SPECIFICATION FOR LINKING OF TRACK.

- 1.1. Unless otherwise specified, the rates shall be for the finished work and shall be inclusive of all materials, labour, tools, machinery & plants, taxes, water & electricity charges, supervision & overhead charges, crossing of existing tracks and temporary and enabling arrangements required to be made for completing the work.
- 1.2. Materials will be issued contractor or his nominated representative on voucher. The materials thus issued, are to be accounted for by the contractor and he shall be held responsible for any shortage or breakage till the track is taken over by the Inspector
- 1.3. Drilling holes to the rails to suit with the holes of fish plates or any where also wherever required will be paid for under the relevant item of the schedule provided in the tender.
- 2.0. DISMANTLING OF TRACK**
 - 2.1. The joint inventory of the existing material in track to be dismantled shall be taken prior to commencement of the dismantling of track by the authorized representative of Engineer –in- Charge and contractor and handed over to the contractor before dismantling for accountal of P.Way material involved. The released materials shall be transported to nominated P.Way store depot as directed by Engineer –in-Charge at site and shall be handed over to Nominated store depot in properly stacked manner.
 - 2.2. It shall be the responsibility of the contractor to safeguard the released materials till they are finally handed over to the Railway's representative. The cost of any damage or loss of the material while it is in the custody of the contractor shall be borne by him and will be recovered from the running bills of the contractor. The cost shall be decided by the Engineer –in-Charge as per the prevailing rules and same will be final and binding in the contractor.
 - 2.3. While dismantling, the contractor shall take all the precautions in order to avoid any damage / development of unsafe conditions for adjacent running lines, communication system or any other Railway property. In case any damage occurs due to negligent working of the contractor, he shall have to bear the cost of such damage as assessed by Engineer -in- Charge.
 - 2.4. The released material shall be stacked separately type wise and classification wise (serviceable/unserviceable) in countable manner at the locations indicated by the authorized representative of Engineer –in-Charge.
- 3.0 Linking**
 - 3.1 Concrete sleepers should be unloaded with great care. Use of rubber tyres and any other similar arrangements are to be used for preventing shock loading.
 - 3.2 Grooves of the rubber pad should be placed along the length of the rail.
 - 3.3 Driving of the ERC (after greasing with approved graphite grease to prevent rust & binding with inserts) should be in such a way that ends of central leg and the heel are flush with the two edges insert.
 - 3.4 Hammer of desired weight (1.9 to 2 Kg.) should be used for driving ERCs.
 - 3.5 Before undertaking actual linking, line & level pegs should be fixed as indicated below:
 - i) Level pegs at the beginning, end and at every 10 m. internals for vertical curves & 30m. on either side of bridge approach.
 - ii) Centre line pegs at every 30m. intervals on straight and 10m.interval on curve.
 - iii) Centre line pegs at the following locations should be concreted for future reference:-
 - a) The beginning & end of transitions.
 - b) Every 30m. on curves.
 - c) Approaches of bridges & level crossing.
 - d) Every half Km. on straights.
 - 3.6. The rail shall first be straightened for removal of kink with the help of Hydraulic Jim crow of adequate capacity.

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- 3.7. The rails shall be connected by means of a pair of fish plates using in the first instance only 2 fish bolts and nuts one in each rail. Before fishing the rail ends, the fishing edges of the fish plates the rail ends and fish bolts shall be lubricated with grease, graphite and oil of approved quality & grade as directed by the Inspector at site of work. Correct expansion gaps as directed by the Inspector shall be ensured between ends of rails by inserting liners.
- 3.8. Paint marks shall be made on the rails with paint as directed by the Engineer to indicate the spacing of sleepers to be adopted on curves mark on the outer rails to ensure radial spacing while transferring it by 'T' square on the other rail.
- 3.9. The linked track shall be aligned correctly to the line pegs. Hammering of the sleepers out of square should be avoided.
- 4.0 Ballasting and Initial Packing**
 - 4.1 Ballast should be first spread over the formation as per required thickness approved by Engineer in charge & rolled by using a road roller to ensure uniform & compact ballast cushion under the sleepers.
 - 4.2 Full ballast sections and profile as prescribed for different types of tracks, i.e., SR/SWR/LWR is to be provided as per the provisions of IRPWM & LWR manual including the provisions regarding extra shoulder width on curves.
 - 4.3. Initial packing should be of such standard so as to make track fit for 20 KMPH.
 - 4.4. The ballast should be spread over the linked track covering it completely to a uniform height and width as directed by the Engineer or his authorized representative.
 - 4.5. Lift the track correctly as directed by the Engineer or his authorized representative.
 - 4.6. Pack the ballast under the sleepers. In the case of the CST-9 sleepers the ballast shall be worked into the bowles on either side of the heap of the plate and packed in from outside until the bowls are full and hard packed and no more ballast can be packed in.
 - 4.7 Correct the alignment of rails square the sleepers, adjust gauge as directed by the Inspector. Check cross levels and lift and repack wherever necessary.
- 5.0 FINAL ADJUSTMENT AND PACKING**
 - 5.1. "Pick Up" slacks after running of test trains which may consist of ballast trains rolling by Diesel/Electric Powers after each packing. The 1st/2nd/3rd packing is considered to be completed once the slacks picking up is completed and certified by the Engineer-in-charge, after each packing. The back packing work is normally required to be completed within 2 (two) months after linking of the track and initial packing thereof.
 - 5.2. Test the track with loaded dip-lorry as directed by the Inspector and lift the track and pack wherever sags have formed.
 - 5.3. Any sleepers which have shifted from correct spacing or gone out of square shall be moved back and squared after loosening the fastenings. The fastenings shall be tightened again after squaring. No hammering of sleepers to be done.
 - 5.4. The track shall be slewed to correct alignment by sighting along the rail head of the base rail. It should be ensured that track does not get lifted in the process of slewing.
 - 5.5. Alignment on curves & transitions is to be checked and minor adjustment are to be made.
 - 5.6. Alignment kinks and gauge kinks to be rectified to avoid permanent set.
 - 5.7. Track is to be attended after rolling of the engine & departmental trains to avoid permanent set.
 - 5.8. Lubrication of gauge track is to be done.
 - 5.9. All steps of through packing given in IRPWM shall how to be followed.
- 6.0 SPECIFICATION FOR FINISHED WORK.**
 - 6.1. **Ballast Section.**
The ballast section should be uniform in height, width and side slopes and brought to standard section as directed by the Inspector with the quantity of ballast made available No ballast shall be left on the cess side slopes of bank or near toe of bank.

6.2 The track geometry will be recorded in floating condition after running of train & the track parameters should be within the following tolerances: -

Sl.No	Track parameter	Item	Laying standard
1.	Gauge	Sleeper to sleeper variation	2 mm.
2.	Expansion gap	Over average gap worked out by recording 20 successive gaps	± 2 mm.
3.	Joints	Low joints not permitted High joints not more than.. Squareness of joints on straight	± 2 mm. ± 10 mm.
4.	Spacing of sleepers	With respect to theoretical spacing	± 20 mm.
5.	Cross level	To be recorded on every 4 th sleeper	± 3 mm.
6.	Alignment	On straight on 10M. Chord. On curves of Radius more than 600 M. on 20M. Chord. Variation over theoretical versines: On curves of Radius less than 600 M. on 20M. Chord. Variation over theoretical versines:	± 2 mm. 5 mm. 10 mm.
7.	Longitudinal level	Variation in longitudinal level with reference to approved longitudinal sections.	50mm.

7.0 HANDLING INSTRUCTIONS FOR 90- UTS AND HEAD HARDENED RAILS.

7.1.	The 90 UTS head hardened and 110 UTS rails are comparatively brittle having less fracture toughness as compared to 72 UTS (MM) Rails. Therefore, such rails require special care in handling.
7.2	<u>Following procedure should be followed for handling the rails:</u>
	(i) Keep rails horizontal and straight while lifting/moving
	(ii) Stack rails of same length on firm level base of well drained platform preferably of concrete.
	(iii) Stack subsequent layers on uniformly placed spacers in vertical alignment with base support.
	(iv) Keep rail ends in vertical alignment.
	(v) Place rails of shorter length in upper layers.
	(vi) Protection of rail surface. Surface notches of even less than 0.75 mm in depth are liable to cause rail fracture in service.
	(vii) Flame cutting when found essential after preheating minimum of 10 cm. of rail length on either side of the cut to about 250-350 degree Centigrade (by uniform movement of heating torch.
	(viii) Rails should be protected from contact with injurious substances.
	(ix) The over hang beyond the outer lifting point should not be greater than one half the distance between lifting points. Recommended locations of lifting points for various rail lengths are as under:-

Rails length Metres	No. of Lifting points	Distance between points	Max. rail end over hang(m)
12-13	2	6-6.5	3-3.25
26	4	6.5	3.25
35	6	6.5	3.25
130	20	6.5	3.25
260	40	6.5	3.25

Lifting beams fitted with slings of uniform length should be used to ensure that rails remain horizontal & straight.

Prevention of metallurgical damage. These rails are thermally very sensitive and are likely to develop metallurgical defects. If exposed to localized heating which produce very hard brittle and cracked metallurgical structures which may lead to sudden failures, therefore flame cutting is prohibited on these rails. If unavoidable, a minimum length of 100mm. Either side of cut should be pre heated to 250-300°C. by uniform movement of heating torch before start of cutting operation.

*	While carrying out heating & welding operations on 90 UTS rails it should be ensured that after heating 90 UTS rails above 700° C, rails are slowly cooled to 550 to 560° C.
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- 7.3. Barely visible straightness deviation of 0.75 mm over 1.5 metre span renders rail unacceptable and require careful handling and stacking..

Following activities should be avoided.

- (a) Heavy static loading
- (b) Sudden Impact or dynamic loading
- (c) Localized point or line contact loading in stacking
- (d) Excessive end drop and flange over laps while lifting/moving
- (e) Cross over stacking of rails of alternative layers at right angle as far as possible
- (f) Heating flame cutting on or adjacent to rails.
- (g) Contact with electric arcs and molten metals splashes i.e. from loose cables or adjacent welding operations .
- (h) Contact with injurious substances which produce high corrosion of steel i.e. acids, alkalis, salts etc.
- (i) Single point slinging.
- (j) Excessive overlay while lifting/moving.
- (k) Round link chain slings for security.
- (l) Surface notches caused by impact abrasion.
- (m) Heating, flame cutting on or adjacent to rails.
- (n) Contact with injurious substances which broad use high cohesion of steel
- (o) Standing under suspended loads.

8.0 USE OF SMALL MACHINES FOR LINKING OF TRACK

- 8.1. The contractor shall use following small track machines during execution of above work as per the requirement. In case the contractor fails to provide the following machines, penalty will be levied to the contractors at the following rates as mentioned below:

	Name of equipment/machineries	Penalty per machine per month or part thereof.
i)	Abrasive Rail cutter (02 Nos)	Rs 10,000/-
ii)	Rail drilling machine (02 Nos)	Rs 5,000/-
iii)	Rail cutting machine (Saw type) (02 Nos)	Rs 5,000/-
iv)	Hydraulic Rail Bender (Jim Crow) Heavy duty (60 T) (02 Nos)	Rs 3,500/-
v)	Double Action Weld Trimmer (02 Nos)	Rs 15,000/-
vi)	Rail Profile Weld Grinder (02 Nos)	Rs 5,000/-
vii)	Rail Tensor (Mechanical) Or Hydraulic (Non infringing type) (02 Nos)	Rs 25,000/-
viii)	Hydraulic Track Jack (02 Nos)	Rs 2,500/-
ix)	Attachment with Rail Dolley for transportation of concrete sleepers (BG) (06 Nos)	Rs 500/-
x)	2.5 tonne vibratory roller to roll the bottom layer of ballast before linking of track (01 Nos)	Rs 50,000/-
xi)	Off track tamping machine (02 Sets)	Rs 35,000/- per set
xii)	Modified rail mounted dumper for ballasting.	Rs 20,000/-
xiii)	Rollers as required for pulling of rails and distressing.	

- 8.2. The contractor shall bring all the required small track machines indicated above at the beginning of the work. The contractor should start the work only after satisfaction of Engineer-in-charge or his authorized representative that the equipments have been brought to site.
- 8.3. It will be the responsibility of contractor to maintain all the small track machines and keep them in working condition during execution of the work. Delay in procurement of spare parts due to any reason whatsoever may be, shall not be taken as an excuse for not using above small track machines.

9. SPREADING OF CESS BALLAST

- 9.1. The centerline, ballast toe lines shall be marked by the contractor with line as per the directives of Engineer –in-Charge or his authorized representative

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- 9.2. in a width of 4720/4870 mm. Initial spreading of the ballast shall be for a loose thickness of **225/250** mm or upto the pre-determined marks on reference posts, so that after rolling at least **200mm** thick ballast bed is available for P.Way linking.
- 9.3. Ballast shall spread uniformly ensuring that no muck from the ballast tracks comes to the track. While picking up the ballast from bottom layer of stacks, proper care shall be taken not to lift the ballast along with earth, dust etc. the same shall be carried out at contractors cost and for which no extra payment shall be made. While picking up the ballast from the stacks, no ballast shall be left to waste at the stacking ground and on the slopes of banks or in cuttings.
- 9.4. The balance quantity of the ballast shall be spread after P.Way linking in stages in order to achieve the required cushion and ballast profile.
- 9.5. Once measured ballast stacks are handed over to the contractor, he shall be responsible for the safe custody of the same and putting in the track as directed by Engineer –in- Charge.

10.0. DESTRESSING OF LWR

- 10.1. Destressing of LWR /CWR shall be done as per the procedure prescribed in LWR Manual using Hydraulic rail tensors.
- 10.2. For making the closer rail to be put behind the SEJ abrasive rail cutting machine shall be used
- 10.3. The joints in LWR shall be welded immediately after distressing

11.0 NI WORKING:

11.1 The works to be executed during NI shall be enlisted in detail and informed to the contractor in advance. The details shall include requirement of labour, materials tools and equipment. The following shall be necessarily arranged by the contractor during the NI period.

- (i) Oxyacetylene cutting equipment with torches and spare gas cylinders.
- (ii) Road crane / Hydra for transporting of materials.
- (iii) Whistles.
- (iv) Arrangement of lighting etc.

Necessary penalty @ Rs 500/- per man-day shall be recovered for non mobilization of adequate labour.

12.0 WELDING OF RAILS

12.1 The welding is to be carried out as per “Manual for fusion Welding of Rails by the Alumino Thermic Process (Revised 2022)” in strict technical supervision of competent authority having a valid competency certificate for the particular category of welding technique issued by DG(M&C) RDSO/Lucknow for firms and by Thermit portion plat of Northern Railway, Lucknow for Zonal Railways. The work of welding of rail joint shall be carried either on cess/track with free of traffic condition or under traffic as per the directions of Engineer-in-charge.

12.2 Contractor shall arrange approved welding portions, prefabricated moulds, consumables, equipments and actual execution of welding from the firms approved by RDSO for manufacturing of the portions and execution of the welding.

12.3 The contractor shall be responsible for removal of all kinks and twists in the rails, particularly within 1.8m from either end. Once the rails to be welded have been aligned, leveled, cleaned and provided with the specified amount of gap, it shall be the responsibilities of the contractor to weld the joint and to guarantee its satisfactory performance vide para no. 12.6 below.

12.4 **Maximum percentage of defective welds during initial weld testing should not exceed 2%. In addition to free replacement of defective weld, a penalty of Rs.10,000/- be also imposed for each defective weld beyond 2%. The defective percentage be calculated for a group of 500 welds or part thereof. For upgraded A.T. welding techniques approved in terms of Part E of IRS T-19-2021, Maximum percentage of defective welds during initial weld testing should not exceed 0.4%. In addition to free replacement of defective weld, a penalty of Rs.10,000/- be also imposed for each defective weld beyond 0.4%. The defective percentage be calculated for a group of 500 welds or part thereof.**

12.5 The contractor shall not carry out any welding work between sun-set to sun-rise. He should make his own arrangements to protect the work against wind and weather in the course of execution. No welding work shall be done during heavy rains. Work during light rain may done in accordance with

the local instructions. However the contractor shall keep ready all protective arrangements such as trolley umbrella, non-woven thick polyethylene tarpaulin etc. at his own cost.

12.6 A finished joint will be accepted as good on considerations of dimensional accuracy, if it satisfied the following tolerances:

- (i) Finishing top table : +or-0.2mm when measured with a 10cm straightedge.
- (ii) Head finishing : +or -0.3mm when measured with a 10cm straightedge. (on both sides)
- (iii) Vertical Alignment : +or-0.5mm when measured with a 1cm straightedge.
- (iv) Lateral Alignment : +or-0.5mm when measured with a 1cm straightedge.

The aforesaid tolerances are only applicable in case of new rails but in case of existing rails where there is depression of more than 1 mm measured with 1meter long straight edge placed centrally on the rail head before welding the tolerances would be decided at site between contractor and Railway Engineer.

12.7 In case of in-situ welding the rail fastening for the least 5 sleepers on either side of the proposed weld shall be loosened.

13 Laying of LWR

13.1 LWR should be laid as per the LWR plan approved and as per the instructions contained in LWR manual.

13.2 Before laying SEJs, they should be completely oiled and greased.

14 Greasing Rails, ERC & M.S. Liners.

14.1 No ERC & M.S. Liners is to be but into the track without greasing. ERC & M.S. Liners are to be greased as per the procedure laid down in IRPWM & as per the instruction of Engineer-in-charge.

14.2 Grease graphited used for ERC clips and liner shall be as per IS:408, Grade 'O'.

CHAPTER XX**RATE SHEET**

Name of the work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

Sl. No	Description	Departmental Value	Rate to be quoted In Fig & Words
1	Execution of All Works As Detailed In Schedule ‘1’ (EARTH WORK)	Rs. 23,96,042.25	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
2	Execution of All Works As Detailed In Schedule-2 (Protection Work and Construction of Drain)	Rs. 19,14,038.40	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
3	Execution of All Works As Detailed In Schedule-3 (Supply of Cement)	Rs. 8,11,528.40	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
4	Execution of All Works As Detailed In Schedule-4 (Supply of Steel Reinforcement)	Rs. 10,55,700.00	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
5	Execution of All Works As Detailed In Schedule-5 (SECR USSOR 2021)	Rs. 15,22,360.00	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
6	Execution of All Works As Detailed In Schedule-6 (Works under CPWD-DSR 2021 for Platform Work, etc.)	Rs. 64,01,256.35	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
7	Execution of All Works As Detailed In Schedule-7 (Works under USSOR 2021 P.way works.)	Rs. 63,603.00	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
8	Execution of All Works As Detailed In Schedule-8 (Works under USSOR 2021 Turnouts and Renewals etc.)	Rs. 5,25,579.16	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
9	Execution of All Works As Detailed In Schedule-9 (Works under USSOR 2021 Dismantling works at Construction Sites etc.)	Rs. 5,69,143.15	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
10	Execution of All Works As Detailed In Schedule-10 (Works under USSOR 2021 Maintenance Activities etc.)	Rs. 29,45,265.60	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
11	Execution of All Works As Detailed In Schedule-11 (Works under USSOR 2021 Heavy Track Machines etc.)	Rs. 9,75,909.02	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
12	Execution of All Works As Detailed In Schedule-12 (Works under USSOR 2021 Miscellaneous Items etc.)	Rs. 38,09,184.00	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.

13	Execution of All Works As Detailed In Schedule-13 (Works under USSOR 2021 Welding etc.)	Rs. 6,43,994.00	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
14	Execution of All Works As Detailed In Schedule-14 (Works under USSOR 2021 Deep Screening and Ballast Related Activities (Ballast Supply) etc.)	Rs. 58,59,925.00	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
15	Execution of All Works As Detailed In Schedule-15 (Works under USSOR 2021 Handling of Materials etc.)	Rs. 1,10,78,846.30	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
16	Execution of All Works As Detailed In Schedule-16 (Works under USSOR 2021 Supply of P.Way Materials etc.)	Rs. 4,93,976.51	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
17	Execution of All Works As Detailed In Schedule-17 (Works under N S etc.)	Rs. 1,36,70,723.71	_____ % (_____ percent) Above/Below/At Par rates against each item covered under Schedule of work.
Total		Rs. 5,47,37,074.85	

Note:

- (1) The scope of work mentioned in **Chapter-V - "Scope of work"** of these tender conditions may be seen. The tenderer/contractor shall make himself familiar with site conditions, constraints, targets of works, etc., before quoting his rates. The quantities indicated in the Schedule of rates are approximate. The Railway's reserve the right to alter the same as per requirements and site conditions for successful completion of the work.
- (2) Rates indicated for all the Non-SOR/Non-USSOR items are including all elements of cost such as all lead, lift, ascent, descent, crossing of rivers/railway track/nallahs, handling, re-handling, royalty and all taxes. The rates are included of all taxes, royalty, men, material and machines, as a complete job and nothing extra to the rate quoted by the tenderer in the above proforma, will be paid.
- (3) Unless other wise specified in the Schedule of items the rate quoted by the tenderer(s) includes:-
 - (i) All labour, tools, plant equipment, machinery, materials, etc.
 - (ii) All lead, lift, ascent, descent, jungle clearance and making approach roads etc.
 - (iii) Loading, unloading, handling, re-handling, and transportation of Railway materials from Railway depot to site of work and vice-a-versa.
 - (iv) All royalty, octroi and other necessary taxes on material and products.
 - (v) Clear and suitable water required for the work.
 - (vi) De-watering and bailing out of water during the work.
- (4) The material supplied by the Contractor must confirm to concerned IS and IRS Code. The rate includes testing of materials as per the Codes
- (5) In case of any difference in rates/units of USSOR Items in the schedule and as mentioned in the published book of USSOR-2021, the rate/unit as mentioned in the published book of USSOR-2021 will be taken as correct.
- (6) For Detailed specification refer special conditions of contract under various chapter of this tender document and SECR USSOR-2021 specifications. Also, for detailed description of the USSOR items, SEC Railway Unified Standard Schedule of Rates (Works and Materials) 2021 shall be referred.
- (7) It may please be noted that Maharashtra State Govt has changed/increased royalty charges of various mineral materials vide gazette notification No. Goukhani 10/0220/C.R.39/Kh-2 dated 04.06.2021 and these shall be considered to be included in the rate quoted by the tenderer. 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. Royalty is not payable for cutting in Railway land and therefore, rates of cutting do not include any component towards royalty charges.

However, in case of any subsequent increase/decrease in these rates of royalties with respect to above reference rate of royalty during execution, the same will be adjusted (paid extra or recovered) from accepted rates to arrive at net payable rates for various items such as earth work in embankment, blanketing & ballast. For other works, no such adjustment shall be made and rates as quoted shall include effect of such increased royalty. The increased amount in this regard 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. Similarly in case of decrease in the rate of royalties of above said items or it's waiver, payment of royalties will be regulated by such reduced rate/will be recovered from contractor's dues. 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 work executed by the contractor after the Government Resolution for revision of rates of royalty has come into effect.

The reimbursement/recoveries as per the revised rate of royalties shall be effective only for the original completion period/extended completion period of the work under clause 17-A (i), (ii) or (iii) of GCC. However, the extra payment due to increased royalty shall not be payable for extended periods under clause 17-B of GCC, whereas decrease in the rate of royalty or it's waiver, will be recovered from the contractor's dues for such extended periods under clause 17(B) of GCC.

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “1”- (EARTH WORK)

S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
		Earthwork in filling in embankment, guide bunds, around buried type abutments, bridge gaps, trolley refuges, platforms etc. with contractor's own earth conforming to Soil Quality Class SQ1/SQ2/SQ3, after preparation of foundations as applicable, benching in existing banks wherever required, spreading in layers with motor grader, bringing the moisture content to OMC, mechanical compaction to specified density and dressing of bank to final profile as per RDSO Specifications: RDSO/2020/GE: IRS-0004 with latest correction slips. Note: 1) Foundation preparation, Benching including additional earthwork on account of this, wherever required,				
		shall be paid extra under relevant schedule item for benching. 2) Payment for Earthwork under this item shall be made based on the cross section measurements calculated (i) with original ground profile of existing bank based on initial ground levels before doing benching and (ii) final profile of the bank worked out with final levels as per prevailing guidelines.				
1	011032	Using Soil Class SQ2	cum	500	350.03	175015.00
		Earthwork in cutting in formation, trolley refuges, side drains, level crossing approaches, platforms, catch water drains, diversion of nallah & finishing to required dimension and slopes to obtain a neat appearance to standard profile inclusive of all labour, materials, plant & machinery, leading all cut spoils either to make spoil dumps or for filling in embankment with leads within 2 km on either side of edge of the cutting(s) including all lifts, ascent, descent, loading, unloading, bailing & pumping out water, if required, clearance of site and all other works incidental thereto for completing the work as per RDSO Specification No. RDSO/2020/GE: IRS-0004 with latest updated correction slips and to the satisfaction of the Engineer-in-Charge. Note: (i) All usable earth arising from cut spoils shall be led into bank formation and Unusable spoils shall be dumped / stacked away from toe of embankment. (ii) All hard rock /and boulders not fit for filling will be				

		stacked by the contractor and will be property of the Railways. (iii) Cut trees shall be property of Railways and to be deposited in the railway godown unless specified otherwise in the Conditions of Contract.				
2	012011	In all conditions and classifications of soil except rock	cum	1000	101.89	101890.00
3	012012	Soft rock not requiring blasting	cum	250	238.12	59530.00
4	012014	In hard rock with hammer / chisel / pavement breaker etc. where blasting is not permitted due to special circumstances and if specifically ordered in writing including drilling and all incidental works thereto.	cum	25	912.29	22807.25
5	012015	Extra for leading of Cut spoil every one km beyond original lead of 2 km over item nos. 012011 to 012014	cum	4500	5.24	23580.00
6	012040	Manufacturing of blanketing material by wet mixing of naturally available suitable soil including additional blending with naturally available or manufactured material as required to achieve specified gradation, in designed proportion in Pug mill or wet mix plant to have uniform gradation including all incidental transportation, laying over finished formation in uniform layer(s) with motor grader, compaction with suitable vibratory roller to specified density and finishing to correct profile, complete as per RDSO Specification No. RDSO/2020/GE: IRS-0004 with latest correction slips.	cum	1600	827.35	1323760.00
		Provision of barricading with contractor's bamboos / ballies vertical post of 100mm dia. planted at every 2m interval, projecting at least 1.5m above ground level and driven firmly (minimum 0.5m) inside ground and including painting verticals & horizontals with red luminous paints / strips at alternative bay on barricade. Barricades shall be maintained through out the execution of the work and shall be removed in workman like manner on				
		completion of the work only after instruction of Engineer in-Charge. Note: (1) 60% payment shall be made on provision of barricading at work-site and balance 40% payment after removal of barricades. (2) The released bamboos / ballies shall be the property of the Contractor.				
7	013051	With 3 horizontal bamboo / balli members of minimum 50mm dia. spaced equally	RM	3000	133.61	400830.00
8	013052	Joining with strong nylon rope in one cross and one horizontal pattern of minimum 5mm dia.	RM	3000	96.21	288630.00
					Total	2396042.25

General Notes: The work is to be executed as per Latest / updated edition of “Guidelines for Earthwork in

Railway Projects” issued by RDSO, Lucknow and special conditions of contract and the rates of these items includes following:

(i) Removing and leading of cut spoil from earthwork in cutting for filling in embankment with all leads as specified in items of the schedule and spreading the same. Excess earth after using in block section limit to be dumped in low lying area with all lead and lifts or in case low lying land is not available then to be used to make spoil dumps beyond 10 meter from cutting edge as per instructions of engineer in-charge or his representative. Rate of spreading & watering is included in rate and no extra shall be paid for spreading & watering.

(ii) Bailing & pumping out water if required.

(iii) Demarcation and setting out of profile, site clearance, removing of shrubs, roots of vegetations growth, heavy grass.

(iii) Cut trees shall be property of Railways and to be deposited in the railway/Forest godown as directed by Engineer in Charge unless specified otherwise in the Special conditions of contract.

(iii) Variation in amount of item no. 2 and 7 of this schedule shall be considered as a whole

Explanatory note for items:

Item 2 (Earth work in cutting in RRB but blasting is prohibited): In this project blasting is generally not permitted and this item will be operated

Item No.1 (Earth work in filling) : Not less than SQ2 group soil is permitted under this item (i.e. SQ2, SQ3 type of soil are only permitted under this item). Detailed specifications/Soil group type are given in the Tender document. In case contractor is not able to procure SQ2 type soil, in such circumstances, the Engineer can accept SQ1 – soil group. However, in such case there shall be a reduction of 20% on the payable rate of this item.

For mechanical compaction, contractor has to deploy Sheep Foot Roller/Vibratory Roller as decided by the Engineer in Charge. Slope of embankment after dressing shall be compacted with vibratory slope compactor.

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “2”- (PROTECTION WORK AND CONSTRUCTION OF DRAIN)

Item - 2		Items Under Schedule-2				
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
		Earthwork in excavation by mechanical means (Hydraulic Excavator)/Manual Means for foundations and floors of the bridges, retaining walls etc. including setting out, dressing of sides, ramming of bottom, getting out the excavated material, back filling in layers with approved material and consolidation of the layers by ramming and watering etc. including all lift, disposal of surplus soil up to a lead of 300m, all types of shoring and strutting with all labour and material complete as per drawing and technical specification as directed by Engineer in charge. Note: This item will be used for excavation work in connection with other miscellaneous works also like side drains, foundation for OHE masts and other miscellaneous structures in connection with Gauge Conversion, Doubling, New lines.				
1	022011	All kinds of soils	cum	180	195.01	35101.80
2	022014	Hard rock (blasting prohibited)	cum	20	1127.98	22559.60
		Providing and laying in position Plain cement concrete of specified Nominal Mix for miscellaneous works like side drains, foundation for OHE masts and other miscellaneous structures excluding the cost of Cement, cantering and shuttering - All work up to plinth level :				
3	022031	1:1½:3 (1 Cement: 1½ coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size)	cum	200	2785.70	557140.00
4	022060	Providing and laying Plain Cement Concrete 1:3:6 with graded stone aggregate of 40mm nominal size, in foundation and floors, retaining walls of bridges including mechanical mixing, vibrating, pumping and bailing out water where ever required with all materials and labour complete but excluding the cost of cement and shuttering as per drawings and technical specifications as directed by Engineer.	cum	45	2917.50	131287.50
		Cantering and shuttering including strutting, propping etc. and removal of form for :				

5	025031	All types of bridge sub- structures, e.g. pier, abutment, wing wall, retaining wall, RCC box type foundations, Abutment cap, Pier Cap, Inspection Platform & Pedestal over Pier cap, Fender wall, Diaphragm wall etc. up to 5m above ground level	Sqm	1500	663.57	995355.00
6	051030	Supplying of stone boulders weighing not less than 35 kg each at specified bridge locations.	cum	150	1150.63	172594.50
					Total	1914038.40

Explanatory note for items:

Item No 1 (a) and (b)(Earth work in foundation): (i) Payment will be made only for finished dimension as per drawings. Payment will be made @ 85% of the quantity of work done after excavation and balance 15% after back filling/removing the excess earth work

Note: - Use of admixtures and super plasticizers for concrete shall be done in conformity of mix design to improve workability, quality and reliability. The plasticizer/retarder/admixture shall conform to IS 9103-1999. In case plasticizer is not used then deduction will be made under item no. 025011 of USSOR 2021

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “3”- (SUPPLY OF CEMENT)

Item - 3	Items Under Schedule-3					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
		Supply and using Cement at Worksite				
1	025071	Ordinary Portland Cement 43 grade approved brands/makes	MT	80	8182.12	654569.60
2	025073	Pozzolana Portland Cement approved brands/makes	MT	20	7847.94	158920.79
					Total	813490.39

Note:

i) Contractor should procure cement from IS approved Firms or from their authorized distributors only. Proof of procurement i.e. vouchers etc. will be submitted by the contractor.

ii) Empty cement bag will be the property of the contractor(s). However, an amount of Rs. 1.65 (Rupees one and paise sixty five) per bag will be recovered from contractor's bill towards cost of empty cement bag.

iii) Payment towards cement will be made on the basis of actual consumption according to design mix and for nominal mix it should be the actual consumption or according to S.E.C. Railway USSOR-2021 whichever is less and no wastage on any of the materials supplied and used in the work by the contractor including cement is payable by the Railway. The contractor shall make his own arrangements for storing cement.

iv) The manufacture's test certificate containing the batch, date of manufacturing etc. must be submitted by the Contractors at the time of supply.

v) Test Certificate for Cement used should be produced which should conform to IS : 1489 for PPC, IS 455: 1989 for PSC, IS 8112:1989 for OPC 43 & IS 12269 : 1987 for OPC 53 grade as the case may be.

vi) If, Portland slag cement (PSC) is used in place of PPC, no extra payment will be paid.

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “4”- (SUPPLY OF STEEL REINFORCEMENT)

Item - 4		Items Under Schedule-4				
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
		Supply of steel reinforcement of approved brands/makes for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete.				
1	025082	Thermo-Mechanically Treated bars of grade Fe- 500D or more of approved brands/makes.	Kg	10000	105.57	1055700.00
					Total	1055700.00

1. Stage payment for supply of steel: No stage payment/advance payment on the supply of steel reinforcement at site shall be permitted. Payment as per accepted rate shall be released only after the material is actually consumed in the work.

2. Procurement of steel to be done following Special Conditions under Chapter XI.

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “5”- (Works under SECR USSOR-2021)

Item - 5	Items Under Schedule-5					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	022070	Providing and fixing Weep Holes in Abutments, Wing walls and Return walls etc., of new bridges with 110mm dia UPVC pipe Type A ISI marked with all contractor's men, material, transportation, all taxes as per specifications and as directed by Engineer-in- Charge.	Metre	200	280.91	56182.00
		Providing & laying non pressure NP-4 Class RCC pipe with collars, jointing with 1:2 cement and ordinary sand mortar including testing of joints, but excluding earthwork with all labour and material as a complete job. Cement for mortar will be paid separately.(Pipes of 600mm dia and above will be laid using crane/hydra).				
2	052233	600mm dia.	Metre	50	2799.28	139964.00
3	052235	1000mm dia.	Metre	50	6163.73	308186.50
4	052240	Supplying, spreading and filling coarse sand (no cohesive materials to be used) of approved quality	cum	250	2072.11	518027.50
		including watering and ramming in foundation, behind the abutment, wing wall, retaining wall in layers not exceeding 150mm thick including its compaction as per direction of Engineer-in- charge. The rate includes all lead, lift, ascent, descent, crossing of Railway line etc. complete with contractor's labour, materials, tools and plant.				
5		Lumpsum amount		1	500000	500000.00
					Total	1522360.00

Note:

- (i) Scope of work under USSOR – 2021 of SEC Railway are approximate and any items under above mentioned Chapters required for above work will be operated at the discretion of concerned Engineer-in-charge. In case of any typographical mistake in Unit/Basic rates in the Schedules, the rates and units mentioned in the USSOR–2021 of SEC Railway will be considered as correct.
- (ii) The items of various section/chapter of USSOR – 2021 mentioned above are for guidance of tenderers. Any item of any section/chapter of USSOR – 2021

can be executed as per site condition and the contractor has to execute it at the same rate as applicable for that particular section/chapter in which that item exist. The contractor will not have any claim over it.

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “6”- (WORKS UNDER CPWD-DSR 2021 FOR PLATFORM WORK, ETC.)

(All items covered under DSR-2021 for PLATFORM WORK and other works on DSR-2021).

Item - 6	Items Under Schedule-06					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
	2.0	EARTH WORK				
	2.8	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed, within a lead of 50 m.				
1	2.8.1	All kinds of soil.	cum	360	286.85	103266.00
2	2.27	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete.	cum	420	2161.20	907704.00
	4.0	CONCRETE WORK				
	4.1S	CEMENT CONCRETE (CAST IN SITU)				
	4.1	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :				
3	4.1.2	1:1.5:3 (1 Cement: 1.5 coarse sand (zone-III) derived from natural sources : 3 graded stone aggregate	cum	125	7783.65	972956.25
		20 mm nominal size derived from natural sources)				
4	4.1.5	1:3:6 (1 Cement : 3 coarse sand (zone-III) derived from natural sources : 6 graded stone aggregate 20 mm nominal size derived from natural sources)	cum	210	6833.40	1435014.00
	4.5S	CEMENT CONCRETE PRECAST				
	4.5	Providing and fixing up to floor five level precast cement concrete string or lacing courses, copings, bed plates, anchor blocks, plain window sills, shelves, louvers, steps, stair cases, etc., including hoisting and setting in position with cement mortar 1:3 (1 Cement : 3 coarse sand), cost of required Centering complete.				

5	4.5.1	1:1.5:3 (1 cement : 1.5 coarse sand(zone-III) derived from natural sources: 3 graded stone aggregate 20mm nominal size derived from natural sources)	cum	10	9277.75	92777.50
	4.7	Providing and fixing up to floor five level precast cement concrete solid block, including hoisting and setting in position with cement mortar 1:3 (1 cement : 3 coarse sand), cost of required centering, shuttering complete :				
6	4.7.1	1:1.5:3 (1 Cement: 1.5 coarse sand(zone-III) derived from natural sources : 3 graded stone aggregate 20 mm nominal size derived from natural sources).	cum	41	15762.45	652565.43
	5.9S	FORM WORK				
	5.9	Centering and shuttering including strutting, propping etc. and removal of form for				
7	5.9.1	Foundations, footings, bases of columns, etc. for mass concrete	Sqm	450	307.95	138577.50
	5.22S	STEEL REINFORCEMENT				
	5.22	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.				
8	5.22.6	Thermo-Mechanically Treated bars of grade Fe- 500D or more.	Kg	2820	89.65	252813.00
	11.0	FLOORING				
	11.16S	TILE FLOORING				
	11.20	Chequerred precast cement concrete tiles 22 mm thick in footpath & courtyard, jointed with neat cement slurry mixed with pigment to match the shade of tiles, including rubbing and cleaning etc. complete, on 20 mm thick bed of cement mortar 1:4 (1 cement: 4 coarse sand).				
9	11.20.1	Light shade pigment using white cement	Sqm	306	1233.05	377313.30
	11.26S	KOTA STONE FLOORING				
	11.26	Kota stone slab flooring over 20 mm (average) thick base laid over and jointed with grey cement slurry mixed with pigment to match the shade of the slab, including rubbing and polishing complete with base of cement mortar 1 : 4 (1 cement : 4 coarse sand) :				
10	11.26.1	25 mm thick	Sqm	750	1706.60	1279950.00
	12.43	Providing and fixing unplasticised - PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S. screws of				

		required length, including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete.				
11	12.43.2	110 mm	Each	100	309.50	30950.00
	15.0	DISMANTLING AND DEMOLISHING				
	15.2	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge.				
12	15.2.1	Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	cum	50	2007.10	100355.00
	15.3	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in- charge.	cum	50	2928.10	146405.00
	16.3	Supplying and stacking at site.				
13	16.3.10	Moorum	cum	450	888.30	399735.00
14		Lumpsum amount		1	500000	500000.00
					Total	7390381.98
					Escl.(%)	-13.31%
			Schedule Total Value			6401256.35

Note: a) Mode of payment and special condition.

- i) 55% payment shall be made for the materials brought to site for use in works against Indemnity bonds.**
- ii) 20% payment shall become payable for the quantity of the materials fabricated as per approved drawing.**
- iii) 15% payment shall become payable on the quantity of materials erected.**
- iv) The balance 10% is admissible only after final painting and completion of works in all respects.**
- v) If painting is not required to be done to the Railway fabricated material, Rs. 1/- plus tender premium accepted per Kg will be deducted.**

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “7”- (WORKS UNDER USSOR 2021 P.WAY WORKS.)

Item No.	Description of Item	Unit	Qty	Rate (₹)	Amount (₹)
063110	Lubrication of gauge face of rail on curves, cross overs, points & crossings, turn-in curves and at locations as required with contractor's grease graphite grade "O" IS 408 and as directed.	RM	6000	4.31	25860.00
063130	Scattered renewal or replacement of missing / worn-out fittings with Railway's fittings for track/Points & Crossings sleepers including leading to required location for the work and the released fittings shall be collected and neatly stacked, as directed by the Engineer In charge. Note: New fittings shall be supplied from and released material shall be deposited at, nearest P.Way Stores.				
063131	GRSP	Each	500	19.90	9950.00
063132	ERCs	Each	1000	6.64	6640.00
063133	Metal/GFN Liners	Each	500	4.43	2215.00
064050	Gas cutting of rail of various sections with contractor's tools & plants, as directed by engineer in-charge :				
064052	Rail section of 52Kg and above	Each	200	94.69	18938.00
				Total	63603.00

Explanatory notes for items:

Above item includes following activities :

(i) Linking of new B.G. P.Way Track with 52 Kg/60 Kg Service Rails with PSC sleeper and fittings and Elastic fastenings of any sleeper density in straight, curve and on bridges to correct alignment and longitudinal level including providing super elevation in curves with, rails and sleepers transported by the contractor under relevant schedule and made available on top of the cutting or bottom of the bank away from track including crossing of running railway lines, transportation and distribution of small P.Way fittings from PWI's store depot at Bilaspur to works site, including fixing of all fittings/fastenings, removal of kinks in rails by hydraulic Jim crows, initial packing as directed by the Engineer –in- Charge and lifting of track not more than 50 mm at a time in stages to bring the correct longitudinal profiles and cross levels within tolerance as specified by Engineer-in- Charge for making track fit for introduction of tamping machines/ballast trains including dressing of ballast profile, all lifts, descents, ascents, rise, fall, etc. Complete. Contractor should provide hydraulic Jim crow fit for straightening 60 Kg/52 Kg. Rails before commencing the work and provide Dip lorry/Rail dollies without any extra cost.

The activities and rate against this item also includes:-

- a) Oiling and greasing of fish bolt holes, fish plates etc. complete with contractor's oil and grease of approved quality.
- b) All lead and lifts. No additional lead, lift will be paid.
- c) Providing initial packing to concrete sleeper track involving opening of ballast, squaring sleepers, slewing track to correct alignment, gauging, tightening of fittings, track to required cross levels, packing the sleepers and boxing of ballast to standard ballast profile as per P.Way manual as directed by Engineer-in-Charge.
- d) Pairing of rails and lifting of track into stages including packing required for proper longitudinal levels and for providing adequate ballast cushion as directed by Engineer-in- Charge or his representative.

- e) Transportation of all P.Way fittings from anywhere in the yard to work site including distribution and return of excess fittings to nearest PWI(Con) store shall have to be done by contractors, cost of which is included in the above rate.
- f) Safety items, e.g., banner flag, hand flags, H.S. lamps, speed indicator boards, caution board etc. shall be provided by contractor for execution of work and is included in the rate.
- g) One round of through packing will be done after linking, lifting, initial packing to bring the track in prescribed tolerance(s) as per IRPWM.
- (ii) Laying of broad gauge 60 Kg/52 Kg Points & crossings 1 in 8.5 and/or 1 in 12 during traffic block or without traffic block, including intermediate portion of track (with PSC layout to railway's specification). The rate includes giving pre-curvature to stock and tongue rail with hydraulic Jim crow if required, fixing slide chairs, bearing plates, check blocks, heel blocks etc. fixing up of railway's gauge and crossing tie plates, fixing of one set of points and crossings with straight or curved switches, stretcher bars, switch anchors, any other safety fittings including fixing of junction fish-plates and points and crossings fittings as required as ordered by the Engineer-in-Charge. The rate includes all lead, all lifts of P.Way materials consisting of rails, crossings, switches, PSC sleepers, turn out keys and all sorts of fittings etc transported by the contractor under relevant schedule of this contract and brought to the location from any where within the yard limits, crossing Railway lines etc. complete as required.
- (iii)(a) Spreading of stone ballast on track and Points & Crossing from the quantity supplied and made available on the formation/or toe of bank or top of cutting within Railway land/out side land, on the formation in bank and cuttings as directed by the Engineer-in-Charge with all lead, lift, descent, loading, unloading including loading/unloading in & from hopper, crossing one or more running Railway lines if required, with ballast profile as per IRPWM with latest correction slip etc. complete.
- (iv) Rolling of spreaded stone ballast with contractor's power driven roller of capacity 3 tones or above (as directed by Engineer in charge) with minimum three passes or as directed by the Engineer-in-Charge.
- (v) Greasing of all four pandrol clips and eye of MCI insert on the PSC sleeper with contractor's approved quality graphite grease as per IS 408 Gr '0' including removing and re-fixing of pandrol clips etc. complete.
- (vi) Greasing of all four MS Liners on the PSC sleeper with contractor's approved quality graphite grease as per IS 408 Gr '0' including removing and re-fixing of liners etc. complete.
- (vii) Greasing of gauge faces of both rails with contractor's approved quality graphite grease as per IS 480 Gr "0" etc. complete.
- (viii) Painting plain letters of size and style as directed by the engineer in charge or his authorised representative with contractor's paint, men and materials including painting two or more coats for surface preparation. (ix) De stressing of LWR/CWR panels of varying length laid on 60 Kg./52 Kg. Rails on PSC sleepers etc. complete.
- The de-stressing operation is to be done between rail temperature (T_m & T_m+50C). The following operations are to be carried out during de- stressing of LWR/CWR panels.
- (x) De stressing of LWR/CWR panels of varying length laid on 60 Kg./52 Kg. Rails on PSC sleepers etc. complete. The de-stressing operation is to be done between rail temperature (T_m & T_m+50C).
- The following operations are to be carried out during de- stressing of LWR/CWR panels.
- a) During de-stressing operation the closure rails attached to SEJs are to be disconnected and SEJ is to be adjusted to mean position.

- b) The sleeper fastenings on both the rails are to be removed, starting from SEJ to the center of LWR/CWR including LC, bridge etc. if any.
- c) Rails are to be lifted and placed on the rollers to permit free expansion of the rails and are to be struck with wooden mallets.
- d) When the rails are de-stressed, the rollers are to be removed and the fastenings are to be tightened starting from centre of LWR to SEJs. This shall be done within the rail temperature of T_m to $T_m + 50C$.
- e) Adequate gaps to be kept in the closure rails to permit welding of the joints.
- f) Welding of the closure rails will complete the process of de-stressing.
- g) After de-stressing, the disturbed sleepers are to be spaced and squared properly.
- h) Slacks formed are to be picked up and boxing of entire length of LWR is to be done including compaction of shoulders and crib ballast.

Note: (i) No separate lead /lift/descent will be paid from the ballast stacks to the place of spreading of ballast.

(ii) No separate payment shall be made for loading of ballast into hopper and unloading from hopper.

NOTES FOR TRANSPORTATION

Explanatory Notes:

(i) The lead for transportation of material from the Depot/location from where materials are to be transported to work site shall be calculated as under:-

(a) For materials to be transported in the section: From depot to the centre of the section.

(ii) No separate lead/lift/descent shall be payable for carrying of materials from the stacking point to the place of laying of track.

CONDITIONS :

1 Loading into trucks/trailers of PSC sleepers at the loading points are not required to be carried out by the

contractors; loading of sleepers into trucks/trailers will be done by the concrete sleeper plants, however, no deduction will be made on this account from the USSOR Rates.

2 Payment to the contractor will be made as per the standard weight of the materials.

SPECIAL CONDITIONS OF CONTRACT (Transportation)

1. The contractor shall have to transport all the materials from originating station to the destination through the shortest possible route. The actual lead shall be decided by the Assistant Engineer in the field basing on the actual measurement/ authentic record wherever available. In case any detour is made for any reason no extra payment will be made.

2. The contractor shall make his own arrangement for safe custody of materials issued to him at the originating station for transporting to the work site. The contractor shall maintain proper ledger for accountal of materials issued to him in a manner as desired by the Engineer in charge.

3. The contractor has to transport the materials upto the location as decided by the Engineer in charge. This may mean using different type of vehicles for transportation suiting the site requirement, loading/unloading etc.

4. The material may have to be transported from one place to another by crossing interstate borders and any toll tax/ octroi/ sales tax and any other tax levied by Government from time to time has to be borne by the contractor and no extra payment will be made to contractor for this.

5. The contractor shall submit an Indemnity Bond in the prescribed form and indemnify the Railway from any loss or damage to the Railway materials issued for transportation.

6 The work involves working in the vicinity of Running Railway track. The contractor shall take all safety and precautionary measures while working in such conditions as directed by the Engineer in charge. The contractor shall also take all safety measures for his labour while handling and transporting the materials.

7. Payment to the contractor will be made as per the standard weight of the material.

8. The contractor should prepare road by minor cuttings and filling if necessary to approach the locations of unloading.

Note for Welding Items:

	i) Rail gap	25+ 1mm		
	ii) Pre-heating time.	6 minutes.		
	iii) Tapping time	15 Sec. to 26 Sec. using single shot crucible fitted with Auto tapping		
	iv) Type of mould	Three piece Prefabricated manually pressed (Zircon washed)		
	v) Heating technique & device.	Compressed Air – Petrol preheating from centre top with burner (Air pr. : 0.2 Kg/Cm ² – 0.3 Kg/Cm ²)		
	vi) Welding technique.	SKV process, Centre top pouring.		
	vii) Mould waiting time	5.0 – 6.0 minutes.		
	viii) Chipping device	Double cutter weld trimmer, 15 Sec. to 40 Sec.		
	ix) Weight of portion	13.0 Kg. + 0.25%		
	x) Weld metal dimensions:	Web	Foot	Bottom
	a) Width	40.6 – 42.5 mm.	40.5 – 43.2 mm.	46.0 – 48.8 mm.
	b) Thickness	5.0 - 6.7 mm.	5.3 – 7.0 mm.	6.2 – 8.3 mm.
	I) The rate is inclusive of all taxes and other charges leviable by the Central/State Government.			
	II) No extra lead, lift, or any other charges will be paid to the Contractors.			
	III) Engineer in Charge will decide the numbers of tanks to be operated as per requirement.			
	IV) The Contractors shall make their own arrangements at their cost to transport the materials required for work such as portions, welding equipment, mould boxes etc., to the site of work.			
	V) All gang tools required should be arranged by the Contractors.			
	VI) Finishing of weld joints has to be done to the following tolerances: -			
	i) Finishing top table + 0.4 mm when measured with 10 Cm. Straight edge.			
	ii) Lateral Alignment :+ 0.3 mm when measured with 10 Cm. Straight edge.			
	iii) Vertical Alignment: 1 mm when measured with 1 Meter Straight edge.			
	iv) Lateral Alignment: + 0.5 mm when measured with 1 Meter Straight edge.			
	iv) Lateral Alignment: + 0.5 mm when measured with 1 Meter Straight edge.			
	v) The Contractors shall paint welding collar and write after completion of work on the Rail floor (outside) the no. of joint and the date of welding in the form No. DD/NY/YY/TTC with Contractors paint with all labour without any extra payment.			
	vi) Work shall not be done during rains, if required, proper protection will be done.			
	vii) Specifications as laid down in RDSO's manual for welding of rails joints by SKV process shall be followed.			
	viii) The rates includes shifting the joint sleepers upto 30 cm on either side, providing suitable gaps of about 24mm to 26mm by pulling back of rails including removing, fastening, chipping the excess materials if required, bringing the shifted joint sleepers to the specific packing and backing them to the required specifications as directed including adjustment of the required gaps for welding, aligning, leveling etc complete including filling / grinding after filling and supplying of kerosene and HSD oil etc for weld trimmer and profile grinder in required quantity. It also includes wire brushing of welded area to remove dust, loose rust, mild scales etc. and apply anti-corrosive paint on 10cm on either side of the weld with contractors material complete.			
	ix) All the welded joints shall be ultrasonically tested by the Railway in terms of clause 18.2 of IRS T-19-1994 as per the procedure given at Annexure-1 of Indian standard specification T-19-1994.			
	x) All the joints, which are found to be defective, shall be cut and re-welded by the firm using their portion, equipment, labour and consumable, free of cost. Where one defective 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.
	Mode of payment: Payment shall be admissible for only welded joints passing through visual inspection, dimensional check and USFD test. However payment for 70% of joints welded shall be released after passing through visual inspection and dimensional check after filing and grinding and 10% after wire twisting, painting and numbering of welded joint and balance 20% joints, payment shall be released after passing through USFD test.
	Any joint not conforming to any one of the above stipulations shall be cut and re-welded by the contractor at his own cost.

Note for Supply Items:

- 1) The contractor shall have to transport all the materials from originating station to the destination through the shortest possible route. The actual lead shall be decided by the Assistant Engineer in the field basing on the actual measurement/ authentic record wherever available. In case any detour is made for any reason no extra payment will be made.
- 2) The contractor shall make his own arrangement for safe custody of materials issued to him at the originating station for transporting to the work site. The contractor shall maintain proper ledger for accountal of materials issued to him in a manner as desired by the Engineer in charge.
- 3) The contractor has to transport the materials upto the location as decided by the Engineer in charge. This may mean using different type of vehicles for transportation suiting the site requirement, loading/ unloading etc.
- 4) The material may have to be transported from one place to another by crossing interstate borders and any toll tax/octroi/ sales tax and any other tax levied by Government from time to time has to be borne by the contractor and no extra payment will be made to contractor for this.
- 5) The contractor shall submit an Indemnity Bond in the prescribed form and indemnify the Railway from any loss or damage to the Railway materials issued for transportation.
- 6) The work involves working in the vicinity of Running Railway track. The contractor shall take all safety and precautionary measures while working in such conditions as directed by the Engineer in charge. The contractor shall also take all safety measures for his labour while handling and transporting the materials.
- 7) Payment to the contractor will be made as per the standard weight of the material.
- 8) The contractor should prepare road by minor cuttings and filling if necessary to approach the locations of unloading.

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “8”- (WORKS UNDER USSOR 2021 TURNOUTS AND RENEWALS ETC.)

Item No.	Description of Item	Unit	Qty	Rate	Amount (₹)
071000	Dismantling Works				
071010	Under Traffic Block: Dismantling of existing BG turnouts, diamond crossings and derailing switches with all types of rails and sleeper layout, removing rails, switches, crossings, sleepers & fastenings, leveling of ballast to correct profile & stacking all the released materials, sleepers, fastenings, rails, switches & crossings including segregating & stacking at specified locations in a neat and countable manner, within the lead of 250m & all lift, clear of infringements, crossing of track, if any complete, as directed. Note: 1. This item shall be operated only when existing turnout is replaced either with new turnout in case of TTR or with plain track when existing turnout is no more required at that location. 2. Rail cutting will be paid extra under relevant item. 3. Laying of new turnout or plain track on prepared ballast bed, as required, shall be paid separately under relevant item.				
071011	1 in 8½ Turnout (Under Traffic Block)	Set	8	29975.49	239803.92
071012	1 in 12 Turnout (Under Traffic Block)	Set	5	34352.42	171762.10
071015	Diamond Crossing (Under Traffic Block)	Set	2	46051.21	92102.42
071026	Derailing Switch (Under conditions not requiring Traffic Block).	Set	4	5477.68	21910.72
				Total	525579.16

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “9”- (WORKS UNDER USSOR 2021 DISMANTLING WORKS AT CONSTRUCTION SITES ETC.)

Item. No.	Description of Item	Unit	Qty	Rate (₹)	Amount (₹)
121000	Dismantling Works				
121010	Dismantling of existing LWR/SWR track of any structure, removing rails, sleepers, fish plates, cutting of rails, segregation and stacking of released Rails, Sleepers and fitting at nominated location in countable manner within a free lead of 500m, levelling of ballast to correct profile for laying new track over it, all as per direction of Engineer-in-Charge.	TRM	1000	169.09	169090.00
122000	Shifting & Pairing Works				
122010	Shifting & pairing of rails / panels unloaded alongside existing running track to adjoining formation of a new line including crossing of one track, duly lifting & pushing rail / panel without damaging it and taking all necessary precautions, so as not to infringe the running track, as directed by Engineer in-charge. Note: The rail barricading, if disturbed during working, should be restored to its original condition by the agency including re-fixing & concreting as required.				
122012	Rail length up to 13m - Under Conditions not requiring Traffic Block	RM	2800	15.58	43624.00
122015	For rails/panels of more than 40m length - Under Traffic	RM	2000	41.48	82960.00
123000	Laying & Linking Works				
123010	Providing Centre Line / Rail Level, reference Pegs on formation at an interval of 30 metres on one side or at centre of proposed / existing track, as directed by engineer in-charge for linking of new track / CTR / Deep Screening / Lifting / Lowering works, duly embedding in formation including marking with contractor's paint. Note: (1) Rails/tie bar of suitable size bar shall be supplied by the Railways from nearest Stores Depot. In case of hard wood peg, the hard wood will be supplied by the contractor. (2) Excavation and concrete work, if required, will be paid separately.				
123013	With contractor's hard wood pegs of 50 mm dia and 60 cm long	Each	30	125.72	3771.60
123090	Shifting / Slewing the existing or newly assembled track of any rail section with any type of sleepers and any density under line block to correct locations & alignment and attending to one round kutchha packing to run safely at 20KMPH speed with all contractors tools and consumables complete and as directed by Engineer in-charge.				
123091	Maximum Shifting / Slewing up to 1 metre	TRM	500	199.03	99515.00
123092	Maximum Shifting / Slewing for more than 1 metre & up to 2 metres	TRM	100	238.89	23889.00

124030	<p>Providing Caution Watchman at a location where caution order is imposed and ensuring to be on continuous vigil and exhibit necessary hand signals to the trains for their passage over caution spot.</p> <p>Note:</p> <p>1) Prescribed protection equipment shall be supplied by Railways and the same shall be returned after work is over.</p> <p>2) If Contractor fails to post watchman at any time during one day, penalty at double the accepted rates will be levied and</p> <p>3) The watchman nominated by the contractor will be screened for suitability as per Railway norms.</p>				
124031	For one shift (12 Hrs)	Each	120	1184.74	142168.80
124040	<p>Preparation of completion drawings of yard in AutoCAD, showing all the details, such as circulating area, approach road, platform shelter, platform, FOB etc., showing relevant particulars to appropriate scale as per IR's Engineering Code on approved quality, transparent media as per details supplied by Railways, including submission of check print for proof checking, duly incorporating the suggested corrections and modifications and supplying the final plot on approved quality & transparent media with six copies of ammonia prints complete and soft copy, as directed by Engineer in-charge</p> <p>Note:</p> <p>(i) Drawings shall be prepared by using latest drawing making softwares AutoCAD, Work station etc. and printing shall be done on high end latest plotters.</p> <p>(ii) Stage Payment - (a) For check print - 40% (b) For Paper tracing - 40% (c) For Ammonia print & soft copy - 20%.</p>				
124041	Completion drawing of yard at junction station	Each	1	4124.75	4124.75
				Total	569143.15

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “10”- (WORKS UNDER USSOR 2021 MAINTENANCE ACTIVITIES ETC.)

Item No.	Description of Item	Unit	Qty.	Rate (₹)	Amount
131060	Packing of isolated loose PSC sleepers on plain track below the bottom of the sleepers and surrounding through out its length duly opening two galas on either side of the renewed sleepers and packing the sleeper to bring the track to normal speed including gauging, aligning, squaring of sleepers and sectioning of ballast to the required profile with all contractor's labour, tools and plant etc. including all lead and lift and crossing of tracks where ever necessary complete and as directed by the Engineer-in-charge.	Sleeper	200	77.88	15576.00
131070	Slack picking of joint sleepers and 3 approach sleepers on either sides giving required lift to make up general track level, packing and profiling as directed.	Each	200	543.20	108640.00
136010	Fixing Joggled Fish Plates with bolt / clamp (supplied by Railway from nearest SSE Store) in running track conditions at welds on rail, as directed by engineer in-charge (drilling of holes in rail, if required, shall be paid separately).				
136011	With 2 bolts	Set	400	106.20	42480.00
136042	One Gang comprising of 20 physically fit labours plus 1 Mate. Note: In case, contractor provides less no. of Labour/Mate, payment will be deducted for each such labour @ 10% of the accepted item rate.	Gang Day	180	14809.63	2665733.40
136060	Replacing existing glued joint rail with cut rails or with glued joint rail or insertion of glued joint by cutting existing track under traffic condition by cutting rails, refixing with all rail sleeper fastenings and providing required gaps for carrying out welding as an alternative to drilling holes or joining rails with fish plates duly drilling holes as required including stacking of released material and as directed by engineer in-charge. Note: (1) Drilling holes & rail cutting will be paid separately. (2) Transportation of materials to the site of work from supply points, if more than 250m, shall be paid separately.	Each	30	1745.84	52375.20
136072	With Contractor's hard wood block.	Each	20	3023.05	60461.00
				Total	2945265.60

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “11”- (WORKS UNDER USSOR 2021 HEAVY TRACK MACHINES ETC.)

Item No.	Description of Item	Unit	Qty	Rate (₹)	Amount (₹)
151000	PQRS Related Works				
153000	T-28 Machine Related Works				
153010	Dismantling of existing Turnout by removing switches, rails, crossings, check rails, sleepers and all fixtures and stacking all released materials, removing ballast and muck by excavating up to required depth, preparation of formation bed, laying of pre assembled Turnout by Railway's T-28 machine, linking of track with all fittings, filling up of ballast duly screened, packing, adjusting, opening & housing of switch, testing operation of switch assembly and attending track parameters, so as to make track fit for 20 kmph speed including disposing off muck to indicated places up to free lead after the block working etc. complete. Note: Rate includes making necessary preparation for T-28 machine movement like preparation of approaches, transportation and laying of wooden sleepers/blocks, etc.				
153011	1 in 8½ Turnout	Each	9	51072.02	459648.18
153012	1 in 12 Turnout	Each	4	58789.78	235159.12
155000	CSM, Duomatic and 3X Sleeper Tamping Machines				
155010	Carrying out pre-tamping, during tamping and post-tamping work for tamping track with all types of rails, sleepers & sleeper density by various Track Tamping machines, like CSM,DUO/3X Machines which include : (1) Re-adjustment of ballast, heaping-up of ballast, filling-up of cavities in tamping zone by picking ballast from stacks / shoulders / crib of adjoining track up to lead of 50 m to ensure effective packing; (2) Clearing of ballast on sleepers to make them visible to operator, (3) Clearing of ballast over rail foot to facilitate holding of rail by rollers of TTRM; (4) Digging, screening and replenishment of ballast at mud pumping / rounded ballast in sleeper crib location; (5) Tightening of loose fittings immediately before & after tamping; (6) Replacement of broken / missing fittings supplied by Railway; (7) Correcting displaced sleepers to position along with squaring; (8) Re-setting of worked-out / fallen fittings;				
	(9) Removing and re-fixing joggled fish plates & wooden blocks, wherever necessary; (10) Manual consolidation of ballast in crib / shoulders; (11) Removing and re-fixing of traction bonds during the block in electrified sections (12) Dressing of ballast Note: 1. Tamping blocks are not identical & it may be given at any time either during day or night. 2. Stages of payment a) 30% of the rate will be paid on				

	completion of pre tamping attention, b) Balance 70% of the rate will be paid on completion of post tamping. 3. Recovery at the rate of twice the above applicable rate will be effected in case contractor fails to carry out pre/during/post operation. 4.Payment shall be made only once in irrespective of numbers of TTRM packing round and after restoration of normal speed and restoration of complete ballast profile.				
155012	For night time block working	TRM	2000	20.49	40980.00
157000	Miscellaneous				
157010	Carrying out various miscellaneous works, for proper upkeep of crew rest van / rest room as directed by machine in-charge of Track Machines by providing a team of 2 labours for 12 hours shift, broadly mentioned hereunder: (1) Bringing water from nearby source and cleaning machine with water jet or any suitable means; (2) Fuelling machine duly bringing diesel / hydraulic oil from the stacked drums; (3) Bringing water to staff rest van or staff rest room, cleaning rest van / rest room, cooking food for Track Machine staff or bringing food from outside (cost of food shall be borne by the staff concerned).; (4) Guarding & watching machines, spare parts, oils, grease etc. during day and night time at all locations, wherever necessary, as instructed by the machine in-charge; (5) In case, contractor provides less no. of Labour/Mate, payment will be deducted for each such person @ 75% of the accepted item rate.	Shift	60	1335.26	80115.60
157030	Providing lighting arrangements with halogen lamps on and around machine during machine working in night time blocks, with contractor's generator, consumables, all necessary electrical fittings, operators etc. Note: 1. Lighting arrangement is to be provided as per advance planning of Night Blocks and written communication. 2. In case lighting arrangement is made available but not used due to non-availability of block, payment @ 60% of the item rate shall be made.				
157031	BCM/FRM/UNIMAT (7.5 KVA generator and 12x500 W)	Night	24	4830.68	115936.32
157032	CSM / DUO / 3X with or without DGS (7.5 KVA generator and 8x500 W)	Night	10	4406.98	44069.80
				Total	975909.02

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “12”- (WORKS UNDER USSOR 2021 MISCELLANEOUS ITEMS ETC.)

Item No.	Description of Item	Unit	Qty	Rate (₹)	Amount (₹)
211210	Arranging labour as and when required by the Engineer in charge, for various works under SSE/P.Way, with contractor's T&P, equipments, hand signal flags, etc. as per specifications, special conditions and detailed scope of work as furnished in the tender and as directed by the Engineer in charge. Note: Item shall be operated with prior approval of concerned Sr. DEN / DEN in charge.	Day	1200	674.32	809184.00
	Lumpsum Provision of USSOR-2021 for Items Not covered above		1.00	3000000	3000000.00
				Total	3809184.00

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “13”- (WORKS UNDER USSOR 2021 WELDING ETC.)

Item No.	Description of Item	Unit	Qty	Rate (₹)	Amount (₹)
091000	Supply of Alumino Thermic Welding Portions				
091010	Manufacturing and Supply of Alumino thermic welding portions of 52Kg/60 Kg/60EI-R260 as approved by RDSO for welding of rails 52Kg/60Kg/60EI-R260 kg for 25mm gap by the process of AT welding along with complete accessories confirming to the specification laid down in Indian Railway Standard specification No.IRST-19-2020 up to date correction slips with Single shot crucible fitted with Automatic Tapping Thimble, 3 pieces pre fabricated mould (Zircon washed) manually pressed using compressed air petrol/LPG pre heating for execution of welding of rail joint as directed by the engineer in charge at site. Note: 1. The accessories along with welding portion shall be supplied as per Annexure-I of the IRUSSOR - 2021. 2. Rate is inclusive of transportation of above to SSE/P.Way stores.				
091013	For 60Kg/60EI- R260 rails	Each	50	2,879.88	143994.00
	Any thing in chapter-09 of USSOR-2021 not covered above Lumpsum.		1	500000	500000.00
				Total	643994.00

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “14”- (WORKS UNDER USSOR 2021 DEEP SCREENING AND BALLAST RELATED ACTIVITIES (BALLAST SUPPLY) ETC.)

Item No.	Description of Item	Unit	Qty	Rate (₹)	Amount (₹)
000001	Manufacturing, supply and stacking of machine crushed Track Ballast conforming to RDSO Specification (IRS-GE-1) with latest correction slips at Railway depot or nominated location.	Cum	2500	1943.97	4859925.00
	Any Activity on USSOR-2021 Chapter-09 except Ballast supply		1	1000000.00	1000000.00
				Total	₹ 58,59,925.00

Note:

- (i.) Contractor shall have to submit ballast sample in advance wherever and whenever there is any change in quarries or in quality of stone.
(ii.) Spreading of ballast will be allowed after minimum 07 days of stack measurement. All lead and lifts. No additional lead, lift will be paid.
(iii.) The special provisions mentioned under relevant Chapter shall be applicable.

Stage payment for item No 1 above:

- a) After supply of ballast on completed formation and/or either along the toe of the bank or along the edge of cutting or yard: 70% of accepted rates. b) After spreading of ballast on formation and track : 30% of accepted rates.

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “15”- (WORKS UNDER USSOR 2021 HANDLING OF MATERIALS ETC.)

Item No.	Description of Item	Unit	Rate (₹)	Qty	Amount (₹)
171000	Rails				
171010	Loading of rails of any section and length up to 13 metres in Wagons / Truck / trailer including lead up to 50 metres and lift up to 5 metres.				
171014	In Wagon where mechanical handling is possible and traffic block is not required or in Truck/trailer.	MT	128.09	150	19213.50
171020	Loading of tongue rail, stock rail, switch assembly and crossings of any section and length, SEJ, Glued joint etc. with / without P.Way fittings and fastenings, in Wagon / Truck / trailer including lead up to 250 metre and lift up to 5 metre.				
171024	In Wagon where mechanical handling is possible and traffic block is not required or in Truck/trailer.	MT	125.77	80	10061.60
171030	Loading, leading and unloading of 52Kg / 60Kg rail up to 13 metre length by Railway's Rail Dolly / Dip Lorry to the nominated location under traffic with line protection in case road carriage is not possible with different lead with a lift up to 5 metre during block period.				
171031	For lead up to 500 metre.	MT	369.58	230	85003.40
171034	Extra to Item no. 171031 and 171032 with contractor's Rail Dolly / Dip Lorry	MT	22.44	230	5161.20
171053	From Wagon where mechanical handling is possible and traffic block is not required or in Truck / trailer.	MT	94.45	150	14167.50
172010	Loading of 52kg / 60kg PSC normal line and special sleepers up to 2.75 metre length in Depot / Station / Mid-section between stations in a neat manner to departmental material train (DMT) or contractor's / Railway's Truck/Trailer with crane or any other means including crossing of one track with free lead up to 250 metre and lift up to 5 metre, if required with contractor's labour, tools & plants, machinery, consumables etc. Note: In case of any damage to sleeper during loading, penalty @ 50% of the all inclusive cost of sleeper shall be levied.				
172014	In Wagon where mechanical handling is possible and traffic block is not required or in Truck / trailer	MT	100.32	3000	300960.00
172020	Loading of 52kg / 60kg PSC line and special sleepers beyond 2.75 metre length including existing fittings and fastenings in Depot / Station / Mid-section between stations in a neat manner to departmental material train (DMT) or contractor's / Railway's Truck/trailer with crane or any other means including crossing of one track with free lead up to 250 metre and lift up to 5 metre, if required with contractor's labour, tools & plants, machinery, consumables etc. Note: In case of any				

	damage to sleeper during loading, penalty @				
172024	In Wagon/Truck / trailer where mechanical handling is possible and traffic block is not required.	MT	125.33	400	50132.00
172030	Loading, leading and unloading of PSC Sleepers of 52Kg / 60Kg by Railway's Rail Dolly/ Dip Lorry to the nominated location under traffic in case road carriage is not possible for different leads and lift up to 5 metres.				
172031	For lead up to 500 metres	MT	287.71		0.00
172032	For lead beyond 500 metre and up to 1 Km	MT	425.97	2500	1064925.00
172033	Extra to Items no. 172032 for lead beyond 1 Km for every subsequent Km or part thereof and up to 10 Km	MT	44.17	6000	265020.00
172034	Extra to Item no. 172031 and 172032 with contractor's Rail Dolly/Dip Lorry.	MT	24.45	2500	61125.00
172040	Loading, leading and unloading of all types of P.Way fittings and all other miscellaneous material except Rails, sleepers, switches, crossings, SEJs and Glued Joints by road vehicles for different leads. Note: Lead shall be the shortest motorable road length between the points of loading and unloading.				0.00
172047	Lead beyond 100 Km and up to 150 Km	MT	919.67	50	45983.50
172048	Extra for every Km per MT beyond 150 Km over item no. 172047	MT Km	3.08	8500	26180.00
172050	Transportation of Rails, sleepers, switches, crossings, SEJs and Glued Joints by road vehicles for different leads. Note: 1. Lead shall be the shortest motorable road length between the points of loading and unloading. 2. Loading and unloading shall be paid extra under relevant items.				
172057	Lead beyond 100 Km and up to 150 Km	MT	809.51	3530	2857570.30
172058	Extra for every Km per MT beyond 150 Km over item no. 172057	MT Km	3.08	600100	1848308.00
172060	Unloading of 52kg / 60kg PSC line and special sleepers up to 2.75 metre length in Depot / Station / Mid-section between stations in neat manner for Railway usage from departmental material train (DMT) or contractor's / Railway's Truck/Trailer with crane or any other means including crossing of one track and lead up to 250 metre & lift up to 5 metre with contractor's labour, tools & plants, machinery, consumables etc. Note: In case of any damage to sleeper during loading, penalty @ 50% of the all inclusive cost of sleeper shall be levied.				
172063	From Truck / Trailer	MT	91.72	3000	275160.00
172070	Unloading of 52kg / 60kg PSC special sleepers beyond 2.75 metre length in Depot / Station / Mid-section between stations in neat manner for Railway usage from departmental material train (DMT) or contractor's / Railway's Truck/Trailer with crane or any other means including crossing of one track and lead up to 50 metre & lift up to 5 metre with contractor's labour, tools & plants, machinery, consumables etc.				0.00
172073	From Truck / Trailer	MT	96.54	400	38616.00
172080	Spreading of New / SH , normal or wider base PSC				

	sleepers from stack along track on either side for different leads with all lifts by any means.				
172081	For a lead up to 500m	Each	66.65	1200	79980.00
173013	From Truck / Trailer	MT	130.69	80	10455.20
173030	Collection, segregation and stacking of various scattered P.Way materials at nominated stacking location with serviceable and un- serviceable ones separately within a lead up to 500 metre and lift up to 5 metre including crossing of track(s) wherever necessary as directed by Engineer-in-Charge.				
173031	Rails, switches, crossings, SEJ, Glued Joints, Check Rails etc.	MT	372.67	20	7453.40
173032	All type of PSC sleepers	MT	406.38	10	4063.80
173033	P.Way fittings of all types and other similar loose items	MT	371.58	20	7431.60
173040	Stacking of glued joints in single layer for electrical testing, in such a manner that glued joints - (a) shall not touch ground, (b) shall not touch one another, (c) shall not touch any rail or any metallic body, (d) shall not be water-logged from any side and (e) end post shall not rest on supports of glued joint	Each	62.51	30	1875.30
	Lumpsum Provision of USSOR-2010 for Items Not covered above				2000000.00
	Lumpsum Provision of USSOR-2021 Ch-17 for Items Not covered above				2000000.00
				Total	11078846.30

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “16”- (WORKS UNDER USSOR 2021 SUPPLY OF P.WAY MATERIALS ETC.)

Item No.	Description of Item	Unit	Rate (₹)	Qty	Amount (₹)
202000	L-Xing Indicator Boards, Engineering Indicators, Curve Boards etc :				
202021	Caution Indicator Board of size 1400mmx400mm with back support frame fixed to vertical post of MS angle of size 50mmx50mmx6mm of 3650 mm long	Each	6311.96	18	113615.28
202022	Speed Indicator Board of equilateral triangular shape having each side of 1000mm with back support frame fixed to vertical post of MS angle of size 50mmx50mmx6mm of 3650 mm long	Each	5430.23	18	97744.14
202024	Termination Indicator Board of Circular shape having diameter of	Each	7632.45	6	45794.70
202030	Manufacturing, supplying and fixing Curve Indicator / Point Indicator / SEJ Boards to be provided at various locations on formation, made out of MS sheet 2mm thick of size 450mm x 300mm duly fixed with MS frame of 25mm x 25mm x 3mm angle welded to 50mm x 50mm x 3mm MS angle, 1000mm long post split and bent 100mm at bottom end with all lead & lift as per specification and including painting of details with enamel paint, as directed by Engineer in-charge (Earthwork & concreting will be paid separately)	Each	1063.26	26	27644.76
211020	Erection or removal of temporary Engineering Indicator Board or any other board at specified locations without causing infringement to track etc. complete and as directed.				
211021	For erection	Each	246.11	24	5906.64
211022	For removal	Each	199.62	24	4790.88
211060	Supply and fixing in position pre-cast cement concrete Fouling Mark as per approved drawing at station yard, duly painting the top surface and slopes with white enamel paint in two coats and inscribed letters with black of Fouling Mark, complete in all respects with all labour,	Each	461.75	2	923.50
211070	Providing and erecting water proof Gypsy Tent of size 3m x 3m for a specific period of time and removal of the same after completion of work or as directed by Engineer in-charge.	Day	643.95	50	32197.50
211080	Providing furniture temporarily at site work in good condition at different locations as per direction of Engineer In-charge and removing the same after completion of work.				
211081	Office Table of size 1.2m x 0.9m per day	Each	69.87	50	3493.50
211082	Office Chairs with cushioned seat, back and arms per day	Each	35.61	500	17805.00
211130	Providing and fixing Trolley Refuge of size 3.0m x3.0m on cess, placing with released unserviceable PSC sleepers and keeping them at all four sides of refuge and also placing as matting inside the refuge by keeping them in upside down position with a minimum of 14 sleepers including levelling with earth, excavation, all lead and lift, crossing of tracks, leading the sleepers with in a free lead and lift, handling etc.,	Each	3909.79	9	35188.11

	with all contractor's men material complete and as directed by the Engineer-in-charge. Note: Earth-work will to be paid separately under relevant item.				
211200	Hiring of machinery for minor miscellaneous works for short duration including operator/driver, fuel, lubricants and consumable. The contractor shall arrange all statutory permits as required by rules and regulations prevailing in the area of work. Payment shall be made for actual working hours at site.				
211201	JCB Backhoe Loaders 3DX Plus or similar with minimum 1.10 cum bucket capacity	Hour	779.48	50	38974.00
211202	Hydra or similar tyre mounted Pick-n-Carry crane of 12T capacity for misc. works of handling of material	Hour	1066.22	50	53311.00
211203	Tractor with Trolley for local transportation or other misc. works.	Hour	253.29	50	12664.50
211220	Supplying and filling 50 kg size empty cement polythene bags with Rly. Ballast/moorum/earth/Sand/quarry dust etc. placing the filled bags on the high banks /bridge approaches/nominated place etc. dumping and spreading at the nominated locations to profile under block period with all contractor's labour, tools, plants, loading, unloading, filling, spreading including all lead/lift etc. complete and as directed by the Engineer in charge at site including crossing of track where necessary.	Each	13.46	200	2692.00
211230	Supply, filling and stacking of sand bags layer by layer filled with Railway Sand/railway quarry dust in Contractor's empty polythene cement bags of 50 kg bags with all contractors labour, tools, plants, lead, lift etc., including stitching the same with machine using polythene thread complete as directed by Engineer-in charge at site.	Each	12.31	100	1231.00
				Total	493976.51

Name of work:- “Elimination of Diamond Crossings and making through the DN main outer joint line in Gondia Yard to enhance the speed of main lines in Gondia yard in Nagpur division of SECR.”

SCHEDULE “17”- (WORKS UNDER N S ETC.)

Item No.	Description of Item	Unit	Rate (₹)	Qty	Amount (₹)
1	Linking of new BG P.Way Track with 60 Kg/52Kg Rails with PSC sleeper and fittings and Elastic fastenings.				
(a)	In Main line with 1660 nos. per Km Sleeper density.	Per Track Metre	969.07	3295	₹ 31,93,085.65
(b)	In Loop Line with 1540 nos per Km Sleeper Density	Per Track Metre	942.88	100	₹ 94,288.00
2	Construction of buffer end as per CE's Drg. No. 23772 with Rly's Rail of 90R/52 Kg with 1:3:6 concrete the rate includes cutting of rails of required length, bending of rails as per the drawing, transportation of rails from Rly, store depot to site, fixing of sleepers, fish plates, nuts and bolts, cleats, white wash and painting of wooden sleepers, excavation of foundation to the required depth etc complete. (Sleepers will be supplied by Railway)	Each	118221.00	2	₹ 2,36,442.00
3	Providing of 5 KVA Diesel A.C. Generator for night working.	Per Set Per Night	3321.21	50	₹ 1,66,060.50
4	Running cost of generator with Contractor's fuel, lubricants and all consumable and maintenance of generators. The contractor is to employ the generator operator and helpers, the rate includes the same and nothing extra will be paid on this account.	Per Set Per Hour	147.12	1800	₹ 2,64,816.00
5	Providing and fixing of 500 W Halogen light including wiring and fixing of lights at appropriate height without infringing the track.	Each light Per Night	147.12	1200	₹ 1,76,544.00
6	Complete Track Renewal with sleeper density of 1660 Nos/Km using railways Wider base sleeper and 60kg rails and fittings and fastening with or without traffic block Including manual deep screening.	Per Tkm	2465635.04	1.5	₹ 36,98,452.56
7	Cutting of 60kg/52kg Rails with abrasive rail cutter				
a)	On Block	Each	602.36	1000	₹ 6,02,360.00
b)	Without Block	Each	256.78	1000	₹ 2,56,780.00
8	Drilling of Holes in 60kg Rails Including Chamfering of Holes as per specification and as directed by Engineer in Charge	Each	113.74	3000	₹ 3,41,220.00
9	NS- Welding of Rail joints 60 Kg. Single Rails/ 3 rail panel/10 rail panel/20 rail panel in situ on cess with SKV process with Contractor's portion approved by	Each	9281.35	500	4640675.00

	RDSO (to be supplied by authenticated certificate) dry, three piece pre-fabricated moulds manually pressed (Zircon washed) using single shot crucible fitted with Auto tamping thimble, developed by any RDSO approved firm, petrol, welders, (possessing competency certificate issued by RDSO) skilled luter, welder, moulder, cutter, chipper, aligner, striker/hammer man, semi skilled staff, unskilled labour with contractor's tools and plants, and all consumable materials including petrol, including all leads, lifts, carrying of materials to the site of work etc all complete.				
				Total NS	₹ 1,36,70,723.71

Note:

(i) Scope of work under USSOR – 2021 of SEC Railway are approximate and any items under above mentioned Chapters required for above work will be operated at the discretion of concerned Engineer-in-charge. In case of any typographical mistake in Unit/Basic rates in the Schedules, the rates and units mentioned in the USSOR– 2021 of SEC Railway will be considered as correct.

(ii) The items of various section/chapter of USSOR – 2021 mentioned above are for guidance of tenderers. Any item of any section/chapter of USSOR – 2021 can be executed as per site condition and the contractor has to execute it at the same rate as applicable for that particular section/chapter in which that item exist. The contractor will not have any claim over it.

END OF TENDER DOCUMENTS