

RAILTEL CORPORATION OF INDIA LIMITED
(A Govt. of India Undertaking)

**Expression of Interest for Selection of Partner from Empanelled Business Associate for
Western Railway, Tender No- SnT_C_BRC_138_2024-25**

For

“Request for Proposal (RFP)

For

**Design, Supply, Installation, Programming, Testing and Commissioning of New
Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with
BPAC proving with Axle Counter, along with Supply, Installation, Testing and
Commissioning of various Indoor and Outdoor Signaling System in Jambusar and
Samni Section in connection with provision of Gauge Conversion work under
Dy. CSTE Construction Vadodara Division, Gujarat (Western Railway)”**

EOI No: RCIL/WR/MUMBAI/Mktg/25-26/07 Dt: 21st May 2025

रेलटेल
RAILTEL

EOI NOTICE
RailTel Corporation of India Ltd,
Western Railway Microwave Complex, Senapati Bapat Marg,
Mahalaxmi, Mumbai – 400013

EOI Notice No: RCIL/WR/MUMBAI/Mktg/25-26/07 Dt: 21st May 2025

RailTel Corporation of India Ltd., (here after referred to as “RailTel”) invites EOIs from RailTel’s Empanelled Partners for the selection of suitable partner for western railway tender for Design, Supply, Installation, Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPAC proving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling System in Jambusar and Samni Section in connection with provision of Gauge Conversion work under Dy.CSTE Construction Vadodara Division, Gujarat **as per Western Railway Tender No. SnT_C_BRC_138_2024-25 dated 01/05/2025 and any other addendums/ corrigendum’s/ documents contained within and related to the same.**

The details are asunder:

1	Last date for submission of Technical Packet against EOIs by bidders	23th May 2025 17:00 hrs
2	Opening of Technical Bid of EOIs	23th May 2025 17:30 hrs
4	EOI fees inclusive tax (Non-refundable)	Rs. 10,000/- (Inclusive of 18% GST)
5	EMD for Pre-Bid Arrangement	Rs. 9,36,600/-

The EMD should be in the favor of RailTel Corporation of India Limited payable at Mumbai through online bank transfer only. Partner needs to share the online payment transfer details like UTR No, date of payment.

RailTel Bank Details: Union Bank of India, Account No. 317801010036605, IFSC Code - UBIN0531782.

Eligible Business Associates are required to direct all communications related to this Invitation for EOI document, through the following Nominated Point of Contact persons:

1. Level 1

Contact Name: Mr. Saish Sankhe

Designation: Deputy Manager/ Marketing

E-Mail Address: saish.sankhe@railtelindia.com

Mobile No: +91- 8999292981

2. Level 2

Contact Name: Sh. Mangesh Dahiware

Designation: Senior Manager/ Marketing

E-Mail Address: Mangeshd@railtelindia.com

Mobile No: +91- 9730094171

Note:

1. Empanelled partners are required to submit soft copy of technical & price packet through an e-mail at eoI.wr@railtelindia.com duly signed by Authorized Signatories with Company seal and stamp.
2. The EOI response is invited from eligible **Empanelled Partners of RailTel only. The Empanelled partner has to submit its valid empanelment Letter of Intent along with his Bid.**
3. All the document must be submitted with **proper indexing** and **page no.**
4. This is an **exclusive pre-RFP partnership arrangement with empanelled business associate of RailTel for participating in the end customer RFP.** Selected partner's authorized signatory has to give an undertaking they will not submit directly or indirectly their bids and techno-commercial solution/association with any other organization once selected in this EOI for pre-bid teaming arrangement (before and after submission of bid to end customer organization by RailTel). This undertaking has to be given with this EOI Response.
5. Partner has to submit their response as an individual organization only. No consortium is allowed. The Bidder has to be an empanelled partner of RailTel.
6. **Transfer and Sub-letting.** The Business Associate has no right to give, bargain, sell, assign or sublet or otherwise dispose of the Contractor any part thereof, as well as to give or to let a third party take benefit or advantage of the present Contract or any part thereof.
7. All Bidders to sign and stamp RailTel's EOI and its corrigendum's implying acceptance of all terms and conditions as mentioned and submit the same along with their Bids.
8. Any changes made by RailTel's end customer in Tender No. SnT_C_BRC_138_2024-25 of 2025-26 up to the last date of submission of the said tender by RailTel will be unquestionably & without any objection accommodated by the Bidders in their Technical & Price offer submitted against this EoI. Changes include all the technical, financial, format changes and any other changes as applicable and deemed applicable by RailTel.

1. As Introduction about RailTel

RailTel Corporation of India Limited (RailTel), an ISO-9001:2000 organization is a Mini Ratna Government of India undertaking under the Ministry of Railways. The Corporation was formed in Sept 2000 with the objectives to create nationwide Broadband Telecom and Multimedia Network in all parts of the country, to modernize Train Control Operation and Safety System of Indian Railways and to contribute to realization of goals and objective of national telecom policy 1999. RailTel is a wholly owned subsidiary of Indian Railways.

RailTel has approximately 60000 kms of OFC along the protected Railway tracks. The transport network is built on high capacity DWDM and an IP/ MPLS network over it to support mission critical communication requirements of Indian Railways and other customers. RailTel has Tier-III Data Center in Gurgaon and Secunderabad hosting / collocating critical applications. RailTel is also providing Telepresence as a Service (TPaaS), where a High-Definition Video Conference facility bundled with required BW is provided as a Service.

For ensuring efficient administration across India, country has been divided into four regions namely, Eastern, Northern, Southern & Western each headed by Executive Director and Headquartered at Kolkata, New Delhi, Secunderabad & Mumbai respectively. These regions are further divided into territories for efficient working. RailTel has territorial offices at Guwahati, & Bhubaneswar in East, Chandigarh, Jaipur, Lucknow in North, Chennai & Bangalore in South, Bhopal, and Pune & Ahmedabad in West. Various other territorial offices across the country are proposed to be created shortly.

RailTel's business service lines can be categorized into three heads namely B2G/B2B (Business to Government and Business to Business) and B2C (Business to customers):

Licenses & Service portfolio:

Presently, RailTel holds Infrastructure Provider -1, National Long-Distance Operator, International Long-Distance Operator and Internet Service Provider (Class-A) licenses under which the following services are being offered to various customers:



a) Carrier Services

- National Long Distance: Carriage of Inter & Intra -circle Voice Traffic across India

using state of the art NGN based network through its Interconnection with all leading Telecom Operators

- Lease Line Services: Available for granularities from E1 to multiple of Gigabit bandwidth & above
- Dark Fiber/Lambda: Leasing to MSOs/Telco's along secured Right of Way of Railway tracks
- Co-location Services: Leasing of Space and 1000+ Towers for collocation of MSC/BSC/BTS of Telco's

b) Enterprise Services

- Managed Lease Line Services: Available for granularities from E1, DS-3, STM-1 & above
- MPLS VPN: Layer-2 & Layer-3 VPN available for granularities from 2 Mbps & above
- Dedicated Internet Bandwidth: Experience the "Always ON" internet connectivity at your fingertips in granularities 2 Mbps to several Gbps

c) DATA CENTER

- Infrastructure as a service (IaaS), Hosting as Services, Security operation Centre as a Service (SOCaaS): RailTel has MeitY empaneled two Tier-III data centres in Gurgaon & Secunderabad. Presently RailTel is hosting critical applications of Indian Railways, Central & State government/ PSUs applications. RailTel will facilitate Government's applications
- Hosting services including smooth transition to secured state owned RailTel's Data Centers and Disaster Recovery Centres. RailTel also offers SOC as a Service 'SOCaaS'. In addition, RailTel offers VPN client services so that employees can seamlessly access government's intranet, applications securely from anywhere without compromising security.

d) National Long Distance:

Carriage of Inter & Intra -circle Voice Traffic across India using state of the art NGN based network through its Interconnection with all leading Telecom Operators

- Lease Line Services: Available for granularities from E1 to multiple of Gigabit bandwidth & above
- Dark Fiber/Lambda: Leasing to MSOs/Telco's along secured Right of Way of Railway tracks
- Co-location Services: Leasing of Space and 1000+ Towers for collocation of MSC/BSC/BTS of Telco's

e) High-Definition Video Conference:

RailTel has unique service model of providing high -definition video conference bundled with Video Conference equipment, bandwidth and FMS services to provide end to end

seamless services on OPEX model connecting HQ with other critical offices. RailTel also offers application-based video conference solution for employees to be productive specially during this pandemic situation.

f) Retail Services – RailWire

RailWire: Triple Play Broadband Services for the Masses. RailTel has unique model of delivering broadband services, wherein local entrepreneurs are engaged in delivering & maintaining broadband services and up to 66% of the total revenues earned are shared to these local entrepreneurs in the state, generating jobs and revitalizing local economies. On date RailTel is serving approx. 4,68,000 subscribers on PAN Indian basis. RailTel can provide broadband service across– Government PSU or any organization's officers colonies and residences.

2. Project Background and Objective of EOI

RailTel intends to participate in RFP floated by end Customer organization for Design, Supply, Installation, Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPAC proving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling System in Jambusar and Samni Section in connection with provision of Gauge Conversion work under Dy.CSTE Construction Vadodara Division, Gujarat as per Western Railway Tender No. SnT_C_BRC_138_2024-25 dated 01/05/2025

RailTel invites EOIs from RailTel's Empanelled Partners for the selection of suitable partner for participating in above mentioned work for the agreed scope work. The empanelled partner is expected to have excellent execution capability and good understanding customer local environment.

3. Scope of Work

The scope of work will be as mentioned in the end Customer Organization Tender for Design, Supply, Installation, Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPAC proving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling System in Jambusar and Samni Section in connection with provision of Gauge Conversion work under Dy.CSTE Construction Vadodara Division, Gujarat as per Western Railway Tender No. SnT_C_BRC_138_2024-25 dated 01/05/2025 with latest amendment/ Corrigendum/ Clarifications uploaded upto the last date of submission of the aforesaid tender.

The broad scope of work is mentioned in end customer **Tender No. SnT_C_BRC_138_2024-25** along with its latest amendments and clarifications.

In case of any discrepancy or ambiguity in any clause / specification pertaining to scope of work area, the tender/RFP and corrigendum/addendum released by end customer organization shall supersede and will be considered sacrosanct. (All associated clarifications, response to queries, revisions, addendum, and corrigendum, associated prime service agreement PSA/MSA/SLA also included.)

Business associate can participate as a sole bidder only. No consortium is permitted. Bidder must be RailTel's empanelled partner and will be responsible for all the conditions mentioned in this and the end customer RFP.

Special Note: RailTel may retain some portion of the work mentioned in the end organization RFP, where RailTel has competence so that overall proposal becomes most winnable proposal.

4. Response to EOI guidelines

4.1 Language of Proposals

The proposal and all correspondence and documents shall be written in English in soft copy through an email.

4.2 RailTel's Right to Accept/Reject responses

RailTel reserves the right to accept or reject any response and annul the bidding process or even reject all responses at any time prior to selecting the partner, without thereby incurring any liability to the affected bidder or Business Associate or without any obligation to inform the affected bidder or bidders about the grounds for RailTel's action.

4.3 EOI response Document

The bidder is expected to examine all instructions, forms, terms and conditions and technical specifications in the bidding documents. Submission of bids, not substantially responsive to the bidding document in every aspect will be at the bidder's risk and may result in rejection of its bid without any further reference to the bidder.

All pages of the documents shall be signed by the bidder including the closing page in token of his having studied the EOI document and should be submitted along with the bid.

4.4 Period of Validity of bids and Bid Currency

Bids shall remain valid for a period of 180 days from the date of Bid submission issued by the end Customer organization for which bid is going to be submitted.

4.5 Bid Earnest Money (EMD)

4.5.1 The Business Associate shall furnish a sum as given in EOI Notice via online transfer from any scheduled bank in India in favour of "RailTel Corporation of India Limited" along with the offer. This will be called as EOI/Token EMD.

4.5.2 Offers not accompanied with valid Token Earnest Money Deposit shall be summarily rejected.

4.5.3 In case if offer is selected for bidding, the partner has to furnish Earnest Money Deposit (for balance amount as mentioned in the customer's Bid or as per

RailTel policy as applicable) for the bid to RailTel in the form of Online Transfer/BG/combination of both. The selected Business Associate shall have to submit EMD before submission of bid to end customer as applicable.

4.5.4 Return of EMD for unsuccessful Business Associates: EOI EMD of the unsuccessful Business Associate shall be returned without interest after completion of EOI process.

4.5.5 Return of EMD for successful Business Associate: EOI-EMD & Earnest Money Deposit (balance proportionate EMD) and Integrity Pact BG of the successful bidder will be discharged / returned as promptly as possible after the receipt of RailTel's EMD/BG from the end Customer and or on receipt of Security Deposit Performance Bank Guarantee as applicable (clause no. 4.6) from Business Associate whichever is later.

4.5.6 Forfeiture of EOI EMD or EOI EMD & balance EMD (balance proportionate EMD) and or Penal action as per EMD Declaration:

4.5.6.1 The EOI EMD will be forfeited if the Balance EMD is not paid before RailTel's bid submission in end customers Tender

4.5.6.2 The EOI EMD & Balance EMD may be forfeited and or penal action shall be initiated if a Business Associate withdraws his offer or modifies the terms and conditions of the offer during validity period.

4.5.6.3 In case of non-submission of SD/PBG (as per clause no. 4.6) lead to forfeiture of EOI EMD, EMD (balance proportionate EMD) if applicable and Integrity Pact and or suitable action as prescribed in the EMD Declaration shall be initiated as applicable.

4.5.6.4 Having participated with another party/directly/through consortium apart from RailTel in RailTel's end customer Tender

4.6 Security Deposit / Performance Bank Guarantee (PBG)

4.6.1 In case the bid is successful, the PBG of requisite amount proportionate to the agreed scope of the work will have to be submitted to RailTel.

4.6.2 As per work share arrangements agreed between RailTel and Business Associate the PBG will be proportionately decided and submitted by the selected Business Associate.

4.7 Last date & time for Submission of EOI response

EOI response must be submitted to RailTel at the email address specified in the preamble not later than the specified date and time mentioned in the preamble.

4.8 Modification and/or Withdrawal of EOI response

EOI response once submitted will be treated, as final and no modification will be permitted except with the consent of the RailTel.

No Business Associate shall be allowed to withdraw the response after the last date and time for submission.

The successful Business Associate will not be allowed to withdraw or back out from the response commitments. In case of withdrawal or back out by the successful business associate, the Earnest Money Deposit shall be forfeited, and all interests/claims of such

Business Associate shall be deemed as foreclosed.

4.9 Details of Financial bid for the above referred tender

Business Associate meeting eligibility criteria and lowest price will be selected for exclusive pre-bid arrangement for optimizing technical and commercial solution so that most winnable solution is submitted to end customer.

In case if there are Two or more Business Associate meeting eligibility criteria and quoting same price, then negotiation will be conducted within these Sole partner in the second stage for the given scope of the work and Sole bidder with overall lowest (L1) offer will be selected for exclusive pre bid arrangement for optimizing technical and commercial solution.

The final bid for the tender will be prepared jointly with the selected Business Associate so that the optimal bid can be put with a good chance of winning the Tender.

Also it may be noted that RailTel may choose multiple BAs for final bidding depending upon the lowest offer received so that a winning bid can be put forth.

The BA's will have to encompass RailTel margin over all components of the Price in end customer Tender/RFP.

Any Changes in the end customer Tender after the last date of submission of RailTel EoI shall be unquestionably & without any objection accommodated by the BA/BAs in their Technical & Price offer submitted against this EoI.

4.10 Clarification of EOI Response

To assist in the examination, evaluation and comparison of bids the purchaser may, at its discretion, ask the Business Associate for clarification. The response should be in writing and no change in the price or substance of the EOI response shall be sought, offered or permitted.

4.11 Period of Association/Validity of Agreement

RailTel will enter into a pre-bid agreement with selected bidder with detailed Terms and conditions.



5. Eligibility Criteria for Bidding Business Partner of RailTel

S No	Particulars	Criteria for Tender Package
		(Mandatory Compliance & Document Submission)
A)	Financial Conditions	
i)	The bidder should be registered under Companies Act, 1956 or Companies Act 2013 or as amended and should have at least 7 years of operations in India as on bid submission date.	<ol style="list-style-type: none"> 1. Certificate of Incorporation 2. GST Registration 3. PAN Card
ii)	Average annual turnover of bidder should have at least 24 Crore INR during last 3 Financial Years (FY2023-24, FY2022-23, FY2021-22)	Copy of the audited Balance Sheet and Profit & Loss Statement of the company and/or Certificate from the Chartered Accountant clearly stating the average annual turnover during last 3 Financial Years (FY2023-24, FY2022-23, FY2021-22) Only audited financial statements will be considered for evaluation purposes
iii)	The bidder should also have a positive net worth as of March 31 st & be profitable in each of the last 3 financial years (FY2023-24, FY2022-23, FY2021-22)	Audited balance sheet, profit & loss statement and Positive Net Worth & Profitability Certificate issued by the CA for the last three financial years (FY23-24, 22-23, 21-22). Certificate should contain UDIN no. issued by ICAI.
B)	Technical Conditions	
iv)	<p>The participant must have successfully completed at least one work similar to work proposed in the tender in last 07 (Seven) years, ending last day of month previous to the one in which tender is invited, costing not less than 35% value of work mentioned in this EOI.</p> <p>One similar work each costing not less than the amount equal to 35% of the advertised value of this EOI. Similar work means: "Any Signaling or Telecom related work"</p>	<p>Work order and Completion Certificate of the mentioned work.</p> <p>(In case of partial completion of work, a CA certificate will be required stating the amount received from the on-going project)</p>
v)	Certifications: 1) ISO 9001:2015	Copies of Certificates (priority will be given to higher level of certifications)

6. Bidder's Profile

The bidder shall provide the information in the below table:

S. No.	ITEM	Details
1.	Full name of bidder's firm	
2.	Full address, telephone numbers, fax numbers, and email address of the primary office of the organization / main / head / corporate office	
3.	Name, designation and full address of the Chief Executive Officer/Director of the bidder's organization as a whole, including contact numbers and emailAddress	
4.	Full address, telephone and fax numbers, and email addresses of the office of the organization dealing with this tender	
5.	Name, designation and full address of the person dealing with the tender to whom all reference shall be made regarding the tender enquiry. His/her telephone, mobile, Fax and email address	
6.	Bank Details (Bank Branch Name, IFSC Code, Account number)	
7.	PAN, GST, TAN Registration numbers	

7. Evaluation Criteria

7.1 The Business Associates are first evaluated on the basis of the Eligibility Criteria as per clause 5 above.

7.2 The Business Associate qualifying the Eligibility criteria will be selected for exclusive pre-bid arrangement for optimizing technical and commercial solution so that most winnable solution is submitted to end customer.

7.3 In case if there are two or more Sole Bidders meeting eligibility criteria then the price bids will be sought from these Sole Bidder in the second stage for the given scope of the work and Sole Bidder with overall lowest (L1) offer will be selected for exclusive pre-bid arrangement for optimizing technical and commercial solution.

7.4 RailTel reserves the right to accept or reject the response against this EOI, without assigning any reasons. The decision of RailTel is final and binding on the participants. The RailTel evaluation committee will determine whether the proposal/ information is complete in all respects and the decision of the evaluation committee shall be final. RailTel may at its discretion assign lead factor to the Business associate as per RailTel policy for shortlisting partner against this EOI.

7.6 All General requirements mentioned in the Technical Specifications are required to be complied. The solution proposed should be robust and scalable.

8. Withdrawal of Bids

A Bidder wishing to withdraw its bid shall notify to RailTel by e-mail prior to the deadline prescribed for bid submission. The notice of withdrawal shall be addressed to RailTel at the address named in the Bid Data Sheet, and bear the Contract name, the <Title> and < Bid No.>, and the words “Bid Withdrawal Notice.” Bid withdrawal notices received after the bid submission deadline will be ignored, and the submitted bid will be deemed to be a valid submitted bid.

No bid can be withdrawn in the interval between the bid submission deadline and the expiration of the bid validity period specified in the Bid Data Sheet. Withdrawal of a bid during this interval may result in the forfeiture of the Bidder’s EMD.

9 Evaluation Process

The evaluation process of the bid proposed to be adopted by RailTel is indicated in this section. The purpose of this section is to provide the Bidder an idea of the evaluation process that RailTel may adopt.

RailTel shall appoint a Bid Evaluation Committee (BEC) to scrutinize and evaluate the technical and commercial bids received. The BEC will examine the Bids to determine whether they are complete, responsive and whether the bid format conforms to the bid requirements. RailTel may waive any informality or non-conformity in a bid which does not constitute a material deviation according to RailTel.

The bid prices should not be mention in any part of the bid other than the Commercial Bid. Any attempt by a bidder to influence the bid evaluation process may result in the rejection of Bid and forfeiture of EMD.

10 Performance Bank Guarantee

The Bidder shall at his own expense, deposit with RailTel, an unconditional and irrevocable Performance Bank Guarantee (PBG) from nationalized banks or scheduled banks excluding Co-operative banks as per the format given in this bid, payable on demand, for the due performance and fulfilment of the contract by the Bidder.

This Performance Bank Guarantee will be submitted within 25 days of the notification of award of the contract/ Letter of Acceptance (LOA) issuance whichever is earlier. If PBG is not submitted within this time frame a delayed PBG penalty will be attracted. Post 25 days and up to 50 days from date of notification of award of the contract/ Letter of Acceptance (LOA) issuance a penalty at 15% per annum interest of LOA amount will be levied as delayed PBG penalty and this penalty will be deducted from the Invoices & EMD of the Bidder. After these 50 days if PBG is not submitted then it will be assumed that the Bidder is not interested in submitting PBG and the Amount of PBG along with the delayed PBG penalty calculated will be retained from Invoices & EMD of the Bidder. Non-submission of PBG can also lead to cancellation of contract and the decision with respect to whether, to retain the PBG Amount and penalty from Invoices & EMD or cancellation of contract, will be at the sole discretion of RailTel. In the event of cancellation of contract EMD will be forfeited. If PBG is retained from Invoices & EMD then the PBG Amount only and not the penalty attracted will be paid to the Bidder in such a case post

the contract period plus three months (expected PBG validity date) are over after deducting any applicable deductions (e.g.: Poor service, etc).

This Performance Bank Guarantee will be for an amount equivalent to a particular percentage of the total contract value or as specified in RailTel's end customers tender. All charges whatsoever such as premium, commission, stamp duties etc. with respect to the Performance Bank Guarantee shall be borne by the Bidder. The Performance Bank Guarantee format can be found in this document.

The Performance Bank Guarantee may be discharged/ returned by RailTel upon being satisfied that there has been due performance of the obligations of the Bidder under the contract. However, no interest shall be payable on the Performance Bank Guarantee.

In the event of the Bidder being unable to service the contract for whatever reason, RailTel would invoke the PBG. Notwithstanding and without prejudice to any rights whatsoever of RailTel under the Contract in the matter, the proceeds of the PBG shall be payable to RailTel as compensation for any loss resulting from the Bidder's failure to complete its obligations under the Contract. RailTel shall notify the Bidder in writing of the exercise of its right to receive such compensation within 30 days, indicating the contractual obligation(s) for which the Bidder is in default.

The 30 days' notice period shall be considered as the 'Cure Period' to facilitate the Implementation Agency to cure the breach. The PBG shall be invoked only if the breach is solely attributable to the bidder and the bidder fails to rectify the breach within the 'Cure Period'.

RailTel shall also be entitled to make recoveries from the Bidder's bills, performance bank guarantee, or from any other amount due to the Bidder, the equivalent value of any payment made to the Bidder due to inadvertence, error, collusion, misconstruction or misstatement.

11 Rights to Terminate the Process

RailTel may terminate the bid process at any time and without assigning any reason. RailTel makes no commitments, express or implied, that this process will result in a business transaction with anyone.

This bid document does not constitute an offer by RailTel. The Bidder's participation in this process may result in RailTel selecting the Bidder to engage in further discussions and negotiations towards execution of a contract. The commencement of such negotiations does not, however, signify a commitment by RailTel to execute a contract or to continue negotiations. RailTel may terminate negotiations at any time without assigning any reason.

12. Payment terms

- 12.1 RailTel shall make payment to selected Business Associate after receiving payment from Customer for the agreed scope of work. In case of any penalty or deduction made by customer for the portion of work to be done by BA, same shall be passed on to Business Associate.

12.2 All payments by RailTel to the Partner will be made after the receipt of payment by RailTel from end customer organization and upon submission of correct Tax Invoices as per statutory norms.

12.3 The Payments received from end customer will be disbursed Scope wise to the selected BA.

12.4 Payments to selected BAs will be in Arrears only

13 SLA/Penalty/LD

The selected bidder will be required to adhere to the SLA/Penalty/LD matrix as defined in the end Customer organization tender for his scope of work and the SLA/Penalty/LD breach penalty will be applicable proportionately on the selected bidder, as specified in the end Customer organization Tender. The SLA/Penalty/LD scoring and penalty deduction mechanism for in-scope of work area shall be followed as specified in the Tender. All associated clarifications, responses to queries, revisions, addendum and corrigendum, associated Prime Services Agreement (PSA)/ MSA/ SLA also included. Any deduction by Customer from RailTel payments on account of SLA/Penalty/LD breach which is attributable to Partner and will be passed on to the Partner proportionately based on its scope of work.

14 Duration of the Contract Period

The contract shall remain in force for a minimum period of 1 year from the Commercial Operation Date (COD) which will be back to back as per end customer tender. The effective date will be the day when the Condition Precedents are met. After 1 year, RailTel may extend the agreement as per its end customers' requirements and performance.

Note:

- 1. Depending on RailTel's business strategy RailTel may choose to work with Partner who is most likely to support in submitting a winning bid**
- 2. All Documents and requirements like EMD, Tender Fees, PBG, Contract Agreement to be shared/executed Back to Back as per the end customer RFP/Tender with Tender No. SnT_C_BRC_138_2024-25. In case of any discrepancy or ambiguity in any clause /specification pertaining to scope of work area, the RFP released by end customer organization shall supersede and will be considered sacrosanct. (All associated clarifications, response to queries, revisions, addendum and corrigendum, associated prime service agreement (PSA)/ MSA/ SLA also included.)**
- 3. All clauses such as cost involved, payment term, validity, lock in period, etc will be back to back as per customer tender**
- 4. All required MAFs and other OEM related documents along with end customer consortium partner related documents like Integrity pact, Manpower CVs, etc which are mandatory in RailTel's end customer tender is to be arranged by Selected Bidders before RailTel's submission of Bid in end customer tender.**

Annexure 1: COVERING LETTER

(To be submitted by sole Bidder on Letter head)

EoI Reference No: _____ Date: _____

To
RailTel Corporation of India Ltd
Western Railway Microwave Complex
Senapati Bapat Marg, Mahalaxmi, Mumbai – 400013

Dear Sir,

SUB: Participation in the EoI process

Having examined the Invitation for EoI document bearing the reference number _____ Dt. _____ released by your esteemed organization, we, undersigned, hereby acknowledge the receipt of the same and offer to participate in conformity with the said Invitation for EoI document.

If our application is accepted, we undertake to abide by all the terms and conditions mentioned in the said Invitation for EoI document.

We hereby declare that all the information and supporting documents furnished as a part of our response to the said Invitation for EoI document, are true to the best of our knowledge. We understand that in case any discrepancy is found in the information submitted by us, our EoI is liable to be rejected.

We hereby Submit EMD amount of Rs. _____ issued vide _____ from Bank _____.

Authorized Signatory Name:

Designation:

Contact No:

E-Mail Address:

Signature:

Seal of the Organization:

रेलटेल
RAILTEL

Annexure 2: Self-Certificate & Undertaking
(To be submitted by sole Bidder on Letter Head)

EOI Reference No: _____ Date: _____

To
RailTel Corporation of India Ltd
Western Railway Microwave Complex
Senapati Bapat Marg, Mahalaxmi, Mumbai – 400013

Dear Sir,

Sub: Self Certificate for Tender, Technical, Commercial & other compliances

1. Having examined the Technical specifications mentioned in this EOI & end customer tender, we hereby confirm that we meet all specification.
2. We agree to abide by all the technical, commercial & financial conditions of the end customer RFP for which EOI is submitted (except pricing, termination & risk purchase rights of the RailTel). We understand and agree that RailTel shall release the payment to selected sole partner/lead partner after the receipt of corresponding payment from end customer by RailTel. Further we understand that in case selected sole bidder fails to execute assigned portion of work, then the same shall be executed by RailTel through third party or departmentally at the risk and cost of selected sole partner bidder.
3. We agree to abide by all the technical, commercial & financial conditions of the end customer's RFP for the agreed scope of work for which this EOI is submitted.
4. We hereby agree to comply with all OEM technical & financial documentation including MAF, Technical certificates/others as per end-to-end requirement mentioned in the end customer's RFP. We are hereby enclosing the arrangement of OEMs against each of the BOQ item quoted as mentioned end customer's RFP. We also undertake to submit MAF and other documents required in the end Customer organization tender in favour of RailTel against the proposed products.
5. We hereby certify that any services, equipment and materials to be supplied are produced in eligible source country complying with OM/F. No. 6/18/2019 dated 23rd July 2020 issued by DoE, MoF.
6. We hereby undertake to work with RailTel as per end customer's RFP terms and conditions. We confirm to submit all the supporting documents constituting/ in compliance with the Criteria as required in the end customer's RFP terms and conditions like technical certificates, OEM compliance documents.
7. We understand and agree that RailTel is intending to select a sole bidder who is willing to accept all terms & conditions of end customer organization's RFP for the agreed scope of work. RailTel will strategies to retain scope of work where RailTel has competence.

8. We hereby agree to submit that in case of being selected by RailTel as sole bidder for the proposed project (for which EOI is submitted), we will submit all the forms, appendix, relevant documents etc. to RailTel that is required and desired by end Customer well before the bid submission date by end customer and as and when required.
9. We hereby undertake to sign Pre-Bid Agreement, Pre-Contract Integrity Pact and Non-Disclosure Agreement with RailTel on a non-judicial stamp paper of Rs. 500/- in the prescribed Format.
10. We undertake that we will not submit directly or indirectly out bids and techno-commercial solution/association with any other organization once selected in this EOI for pre-bid teaming arrangement (before and after submission of bid to end customer organization by RailTel)

Authorized Signatory Name:

Designation:

Signature:

Seal of the Organization:



Annexure 3: Undertaking for not being Blacklisted/Debarred
(To be submitted by sole bidder on Letter Head)

EoI Reference No: _____ Date: _____

To
RailTel Corporation of India Ltd
Western Railway Microwave Complex
Senapati Bapat Marg, Mahalaxmi, Mumbai – 400013

Dear Sir,

Subject: Undertaking for not being Blacklisted/Debarred

We, <Company Name>, having its registered office at <Address> hereby declares that that the Company has not been blacklisted/debarred by any Governmental/ Non-Governmental organization in India for past 3 Years as on bid submission date.

Authorized Signatory Name:

Designation:

Signature:

Seal of the Organization:

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Annexure 4: Format of Affidavit

FORMAT FOR AFFIDAVIT TO BE UPLOADED BY SOLE PARTNER ALONGWITH THE EOI DOCUMENTS

(To be executed in presence of Public notary on non-judicial stamp paper of the value of Rs. 500/-. The paper has to be in the name of the BA) **

I..... (Name and designation) * appointed as the attorney/authorized signatory of the BA (including its constituents),

M/s _____ (hereinafter called the BA) for the purpose of the EOI documents for the work of _____ as per the EOI No. _____ Dt. _____ of (RailTel Corporation of India Ltd), do hereby solemnly affirm and state on the behalf of the BA including its constituents as under:

1. I/we the BA (s), am/are signing this document after carefully reading the contents.
2. I/we the BA(s) also accept all the conditions of the EOI and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the EOI documents from RailTel website www.railtelindia.com. I/we have verified the content of the document from the website and there is no addition, no deletion or no alternation to be content of the EOI document. In case of any discrepancy noticed at any stage i.e. evaluation of EOI, execution of work or final payment of the contract, the master copy available with the RailTel 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 EOI 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 undersigned that if the certificates regarding eligibility criteria submitted by us are found to be forged/false or incorrect at any time during process for evaluation of EOI, it shall lead to forfeiture of the EOI EMD besides banning of business for five years on entire RailTel. Further, I/we (insert name of the BA) * and all my/our constituents understand that my/our constituents understand that my/our offer shall be summarily rejected.
8. I/we also understand that if the certificates 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 EMD/SD and Performance guarantee besides any other action provided in the contract including banning of business for five years on entire RailTel.

DEPONENT
SEAL AND SIGNATURE OF THE BA

VERIFICATION

I/We above named EOI do hereby solemnly affirm and verify that the contents of my/our above affidavit are true and correct. Nothing has been concealed and no part of it is false.

DEPONENT

SEAL AND SIGNATURE OF THE ADVOCATE

Place:

Dated:

****The contents in Italics are only for guidance purpose. Details as appropriate are to be filled in suitably by BA. Attestation before Magistrate/ Notary Public.**

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Annexure 5: Draft Non-Disclosure Agreement

(To be submitted on a Rs. 500 Stamp Paper)

This Non-Disclosure Agreement (“Non-Disc”) is made and entered into _____ day of _____ month _____ year (effective date) by and between _____ (“Department”) and _____ (“Company”). Whereas, Department and Company have entered into an Agreement (“Agreement”) _____ effective _____ for _____ and

Whereas, each party desires to disclose to the other party certain information in oral or written form which is proprietary and confidential to the disclosing party, (“CONFIDENTIAL INFORMATION”).

NOW, THEREFORE, in consideration of the foregoing and the covenants and agreements contained herein, the parties agree as follows:

1. Definitions. As used herein:

- a. The term “Confidential Information” shall include, without limitation, all information and materials, furnished by either Party to the other in connection with citizen/users/persons/customers data, products and/or services, including information transmitted in writing, orally, visually, (e.g. video terminal display) or on magnetic or optical media, and including all proprietary information, customer and prospect lists, trade secrets, trade names or proposed trade names, methods and procedures of operation, commercial or marketing plans, licensed document know-how, ideas, concepts, designs, drawings, flow charts, diagrams, quality manuals, checklists, guidelines, processes, formulae, source code materials, specifications, programs, software packages, codes and other intellectual property relating to the disclosing party’s data, computer database, products and/or services. Results of any tests, sample surveys, analytics, data mining exercises or usages etc. carried out by the receiving party in connection with the Department’s information including citizen/users/persons/customers personal or sensitive personal information as defined under any law for the time being in force shall also be considered Confidential Information.
- b. The term, “Department” shall include the officers, employees, agents, consultants, contractors and representatives of Department.
- c. The term, “Company” shall include the directors, officers, employees, agents, consultants, contractors and representatives of Company, including its applicable affiliates and subsidiary companies.

2. Protection of Confidential Information: With respect to any Confidential Information disclosed to it or to which it has access, Company affirms that it shall:

- a. Use the Confidential Information as necessary only in connection with Project and in accordance with the terms and conditions contained herein;

- b. Maintain the Confidential Information in strict confidence and take all reasonable steps to enforce the confidentiality obligations imposed hereunder, but in no event take less care with the Confidential Information than the parties take to protect the confidentiality of its own proprietary and confidential information and that of its clients;
 - c. Not to make or retain copy of any commercial or marketing plans, citizen/users/persons/customers database, Bids developed by or originating from Department or any of the prospective clients of Department except as necessary, under prior written intimation from Department, in connection with the Project, and ensure that any such copy is immediately returned to Department even without express demand from Department to do so;
 - d. Not disclose or in any way assist or permit the disclosure of any Confidential Information to any other person or entity without the express written consent of the other party; and
 - e. Return to the other party, or destroy, at Department's discretion, any and all Confidential Information disclosed in a printed form or other permanent record, or in any other tangible form (including without limitation, all copies, notes, extracts, analyses, studies, summaries, records and reproductions thereof) immediately upon the earlier to occur of (i) expiration or termination of either party's engagement in the Project, or
(ii) the request of the other party therefore.
 - f. Not to discuss with any member of public, media, press, any or any other person about the nature of arrangement entered between Department and Company or the nature of services to be provided by the Company to the Department.
- 3. Onus.** Company shall have the burden of proving that any disclosure or use inconsistent with the terms and conditions hereof falls within any of the foregoing exceptions.
- 4. Exceptions.** These restrictions as enumerated in section 1 of this Agreement shall not apply to any Confidential Information:
- a. Which is independently developed by Company or lawfully received from another source free of restriction and without breach of this Agreement; or
 - b. After it has become generally available to the public without breach of this Agreement by Company; or
 - c. Which at the time of disclosure to Company was known to such party free of restriction and evidenced by documentation in such party's possession; or
 - d. Which Department agrees in writing is free of such restrictions.
 - e. Which is received from a third party not subject to the obligation of confidentiality with respect to such Information;

- 5. Remedies.** Company acknowledges that
- (a) any actual or threatened disclosure or use of the Confidential Information by Company would be a breach of this agreement and may cause immediate and irreparable harm to Department;
 - (b) Company affirms that damages from such disclosure or use by it may be impossible to measure accurately; and
 - (c) injury sustained by Department may be impossible to calculate and remedy fully.
- Therefore, Company acknowledges that in the event of such a breach, Department shall be entitled to specific performance by Company of Company's obligations contained in this Agreement. In addition, Company shall indemnify Department of the actual and liquidated damages which may be demanded by Department. Moreover, Department shall be entitled to recover all costs (including reasonable attorneys' fees) which it or they may incur in connection with defending its interests and enforcement of legal rights arising due to a breach of this agreement by Company.
- 6. Need to Know.** Company shall restrict disclosure of such Confidential Information to its employees and/or consultants with a need to know (and advise such employees of the obligations assumed herein), shall use the Confidential Information only for the purposes set forth in the Agreement, and shall not disclose such Confidential Information to any affiliates, subsidiaries, associates and/or third party without prior written approval of the disclosing party.
- 7. Intellectual Property Rights Protection.** No license to a party, under any trademark, patent, copyright, design right, mask work protection right, or any other intellectual property right is either granted or implied by the conveying of Confidential Information to such party.
- 8. No Conflict.** The parties represent and warrant that the performance of its obligations hereunder does not and shall not conflict with any other agreement or obligation of the respective parties to which they are a party or by which the respective parties are bound.
- 9. Authority.** The parties represent and warrant that they have all necessary authority and power to enter into this Agreement and perform their obligations hereunder.
- 10. Dispute Resolution.** If any difference or dispute arises between the Department and the Company in connection with the validity, interpretation, implementation or alleged breach of any provision of this Agreement, any such dispute shall be referred appropriately to RailTel/ stakeholders/ partners/ patrons
- a. The arbitration proceedings shall be conducted in accordance with the (Indian) Arbitration and Conciliation Act, 1996 and amendments thereof.
 - b. The place of arbitration shall be Mumbai.
 - c. The arbitrator's award shall be substantiated in writing and binding on the parties.
 - d. The proceedings of arbitration shall be conducted in English language.
 - e. The arbitration proceedings shall be completed within a period of 180 days from the date of reference of the dispute to arbitration.
- 11. Governing Law.** This Agreement shall be interpreted in accordance with and governed by

the substantive and procedural laws of India and the parties hereby consent to the exclusive jurisdiction of Courts and/or Forums situated at Mumbai, India only.

- 12. Entire Agreement.** This Agreement constitutes the entire understanding and agreement of the parties, and supersedes all previous or contemporaneous agreement or communications, both oral and written, representations and under standings among the parties with respect to the subject matter hereof.
- 13. Amendments.** No amendment, modification and/or discharge of this Agreement shall be valid or binding on the parties unless made in writing and signed on behalf of each of the parties by their respective duly authorized officers or representatives.
- 14. Binding Agreement.** This Agreement shall be binding upon and inure to the benefit of the parties hereto and their respective successors and permitted assigns.
- 15. Severability.** It is the intent of the parties that in case any one or more of the provisions contained in this Agreement shall be held to be invalid or unenforceable in any respect, such provision shall be modified to the extent necessary to render it, as modified, valid and enforceable under applicable laws, and such invalidity or unenforceability shall not affect the other provisions of this Agreement.
- 16. Waiver.** If either party should waive any breach of any provision of this Agreement, it shall not thereby be deemed to have waived any preceding or succeeding breach of the same or any other provision hereof.
- 17. Survival.** Both parties agree that all of their obligations undertaken herein with respect to Confidential Information received pursuant to this Agreement shall survive till perpetuity even after any expiration or termination of this Agreement.
- 18. Non-solicitation.** During the term of this Agreement and thereafter for a further period of two (2) years Company shall not solicit or attempt to solicit Department's employees and/or consultants, for the purpose of hiring/contract or to proceed to conduct operations/business similar to Department with any employee and/or consultant of the Department who has knowledge of the Confidential Information, without the prior written consent of Department. This section will survive irrespective of the fact whether there exists a commercial relationship between Company and Department.
- 19. Term.** Subject to aforesaid section 17, this Agreement shall remain valid up to ____years from the "effective date".

IN WITNESS HEREOF, and intending to be legally bound, the parties have executed this Agreement to make it effective from the date and year first written above.

For Department

Name:

Title:

WITNESSES:

1. _____

2. _____

For Company

Name:

Title:

WITNESSES:

1. _____

2. _____

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RAILTEL

Annexure 6: Integrity Pact

(To be executed on Rs. 500/- Stamp Paper)

EoI Number: _____ Dated: _____

This Integrity Pact is made at on this _____ Day of _____ 2022

BETWEEN

RailTel Corporation of India Ltd (a Govt of India Enterprise under Ministry of Railways) having its registered office at Plate-A, 6th Floor, Office Block Tower-2, East Kidwai Nagar, New Delhi-110023 and Regional Office at Western Railway Microwave Complex, Senapati Bapat Marg, Mahalaxmi, Mumbai – 400013, hereinafter referred to as “The Principal”, which expression shall unless repugnant to the meaning or contract thereof include its successors and permitted assigns AND

<Bidder Name> having its registered office at <Bidders Registered and Branch Address (if any)> hereinafter referred to as “The Bidder/ Contractor/ Concessionaire/ Consultant” and which expression shall unless repugnant to be meaning or context thereof include its successors and permitted assigns.

Preamble

Whereas, the Principal intends to award, under laid down organizational procedure’s contract/s for ‘ _____ ,

The Principal values full compliance with all relevant laws of the land, rules of land, regulations, economic use of resources and of fairness/ transparency in its relations with its Bidder(s) and for Contractor(s)/Concessionaire(s)/Consultant(s).

And whereas to meet the purpose aforesaid, both the parties have agreed to enter into this Integrity Pact (hereafter referred to as Integrity Pact) the terms and conditions of which shall also be read as integral part and parcel of the Tender documents and contract between the parties. Now, therefore, in consideration of mutual covenants stipulated in this pact, the parties hereby agree as follows and this pact witnessed as under: -

Article – 1: Commitments of the Principal

1. The Principal commits itself to take all measures necessary to prevent corruption and to observe the following principle: -
 - a. No employee of the Principal, personally or through family members, will in connection with the Tender for, or the execution of a contract, demand take a

promise for or accept for self or third person any material or immaterial benefit which the person is not legally entitled to.

- b. The Principal will, during the tender process treat all Bidder(s) with equity and reason. The Principal will in particular, before and during the tender process, provide to all Bidder(s) the same information and will not provide to any Bidder(s) confidential/ additional information through which the Bidder(s) could obtain an advantage in relation to the tender process or the contract execution.
 - c. The Principal will exclude all known prejudiced persons from the process.
2. If the Principal obtains information on the conduct of any of its employees which is a criminal offence under the IPC/PC Act or any other Statutory Acts or if there be a substantive suspicion in this regard, the Principal will inform the Chief Vigilance Officer and in addition can initiate disciplinary actions as per its internal laid down Rules/ Regulations.

Article – 2: Commitments of the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)

The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) commit himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the tender process and during the contract execution.

- a. The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principals employees involved in the tender process or the execution of the contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the tender process or during the execution of the contract.
- b. The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not enter with other Bidders into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to introduce cartelization in the bidding process.
- c. The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not commit any offence under the relevant IPC / PC. Act and other Statutory Acts; further the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not use improperly for purposes of completion or personal gain, or pass on to others, any information or document provided by the Principal as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.
- d. The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of foreign origin shall disclose the name and address of the Agents/ representatives in India. If any similarly the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) of Indian

Nationality shall furnish the name and address of the foreign principle, if any. Further details as mentioned in the 'Guidelines on Indian Agents of Foreign Suppliers' shall be disclosed by the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s). Further, all the payments made to the Indian Agent /Representative have to be Indian Rupees only.

- e. The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will, when presenting his bid, disclose any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the contract. He shall also disclose the details of services agreed upon for such payments.
- f. The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not instigate third persons to commit offences outlined above or be an accessory to such offences.
- g. The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) will not bring any outside influence through any Govt. bodies/quarters directly or indirectly on the bidding process in furtherance of his bid.
- h. The Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) who have signed a Integrity pact shall not approach the court while representing the matter to IEMs and shall wait for their decision in the matter.

Article – 3: Disqualification from tender process and exclusion from future contracts

1. If the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) before award or during execution has committed a transgression through a violation of any provision of Article-2, above or in any other form such as to put his reliability or credibility in question, the Principal is entitled to disqualify the Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s) from the tender process.
2. If the Bidder/Contractor/Concessionaire/Consultant has committed a transgression through a violation of Article-2 such as to put his reliability or credibility into question, the Principal shall be entitled to exclude including blacklist and put on holiday the Bidder/Contractor/Concessionaire/Consultant for any future tenders/contract award process. The imposition and duration of the exclusion will be determined by the severity of the transgression. The severity will be determined by the Principal taking into consideration the full facts and circumstances of each case particularly taking into account the number of transgressions, the position of the transgressors within the company hierarchy of the Bidder/Contractor/Concessionaire/Consultant and the amount of the damage. The exclusion will be imposed for a maximum of 1 year.
3. A transgression is considered to have occurred if the Principal after due consideration of the available evidence concludes that “On the basis of facts available there are no material doubts”.

4. The Bidder/ Contractor/Concessionaire/Consultant will its free consent and without any influence agrees and undertakes to respect and uphold the Principal's absolute rights to resort to and impose such exclusion and further accepts and undertakes not to challenge or question such exclusion on any ground, including the lack of any hearing before the decision to resort to such exclusion is taken. This undertaking is given freely and after obtaining independent legal advice.
5. The decision of the Principal to the effect that a breach of the provisions of this Integrity Pact has been committed by the Bidder/ Contractor/Concessionaire/Consultant shall be final and binding on the Bidder/ Contractor/Concessionaire/Consultant, however, the Bidder/ Contractor/ Concessionaire/ Consultant can approach IEM(s) appointed for the purpose of this Pact.
6. On occurrence of any sanctions/ disqualification etc. arising out from violation of integrity pact, Bidder/ Contractor/Concessionaire/Consultant shall not be entitled for any compensation on this account.
7. Subject to full satisfaction of the Principal, the exclusion of the Bidder/Contractor/Concessionaire/Consultant could be revoked by the Principal if the Bidder/ Contractor/Concessionaire/Consultant can prove that he has restored/recouped the damage caused by him and has installed a suitable corruption prevention system in his organization.

Article – 4: Compensation for Damages

1. If the Principal has disqualified the Bidder(s) from the tender process prior to the award according to Article-3, the Principal shall be entitled to forfeit the Earnest Money Deposit/ Bid Security or demand and recover the damages equivalent to Earnest Money Deposit/ Bid Security apart from any other legal right that may have accrued to the Principal.
2. In addition to above, the Principal shall be entitled to take recourse to the relevant provisions of the contract related to Termination of Contract due to Contractor/Concessionaire/Consultant's Default. In such case, the Principal shall be entitled to forfeit the Performance Bank Guarantee of the Contractor/ Concessionaire/ Consultant and/or demand and recover liquidated and all damages as per the provisions of the contract/Concession agreement against Termination.

Article – 5: Previous Transgression

1. The Bidder declares that no previous transgression occurred in the last 3 years immediately before signing of this integrity pact with any other Company in any country conforming to the anticorruption/Transparency International (TI) approach or with any other Public Sector Enterprise/Undertaking in India or any Government Department in India that could justify his exclusion from the Tender process.

2. If the Bidder makes incorrect statement on this subject, he can be disqualified from the tender process or action for his exclusion can be taken as mentioned under Article-3 above for transgression of Article-2 and shall be liable for compensation for damages as per Article-4 above.

Article – 6: Equal treatment of all Bidders/ Contractors/ Concessionaires/ Consultants/ Subcontractors

1. The Bidder(s)/Contractor(s)/Concessionaire(s)/Consultant(s) undertake(s) to demand from all sub-contractors a commitment in conformity with this integrity Pact, and to submit it to the Principal before contract signing.
2. The Principal will enter into agreements with identical conditions as this one with all Bidders/Contractors/Concessionaire/Consultant and Subcontractors.
3. The Principal will disqualify from the Tender process all Bidders who do not sign this Pact violate its provisions.

Article – 7: Criminal charges against violating Bidder(s)/ Contractor(s)/ Concessionaire(s)/ Consultant(s)/ Sub-contractor(s)

If the Principal obtains knowledge of conduct of a Bidder/ Contractor/ Concessionaire/ Consultant or Subcontractor, or of an employee or a representative or an associate of a Bidder/ Contractor/ Concessionaire/ Consultant or Subcontractor, which constitutes corruption, or if the Principal has substantive suspicion in this regard, the Principal will inform the same to the Chief Vigilance Officer.

Article – 8: Independent External Monitor (IEM)

1. The Principal appoints competent and credible Independent External Monitor for this Pact after approval from Central Vigilance Commission. The task of the Monitor is to review independently and objectively, whether and to what extent the parties comply with the obligations under this agreement.
2. The Monitor is not subject to instructions by the representatives of the parties and performs his functions neutrally and independently. He reports to the CMD, RailTel.
3. The Bidder/Contractor/Concessionaire/Consultant accepts that the Monitor has the right to access without restriction to all Project documentation of the Principal including that provided by the Bidder/ Contractor/ Concessionaire/ Consultant. The Bidder/ Contractor/ Concessionaire/ Consultant will also grant the Monitor, upon his request and demonstration of a valid interest, unrestricted and unconditional access to his Project documentation. The same is applicable to Subcontractors.
4. The Monitor is under contractual obligation to treat the information and documents of the Bidder(s)/Contractor(s)/Subcontractors(s) with confidentiality. The Monitor has also signed on 'Non-disclosure of Confidential Information' and of 'Absence of Conflict of

Interest'. In case of any conflict of interest arising at a later date, the IEM shall inform CMD, RailTel and recuse himself/herself from that case.

5. The Principal will provide to the Monitor sufficient information about all meetings among the parties related to the Project provided such meetings could have an impact on the contractual relations between the Principal and the Bidder/Contractor/Concessionaire/Consultant. The parties offer to the Monitor the option to participate in such meetings.
6. As soon as the Monitor notices, or believes to notice any transgression as given in Article- 2, he may request the Management of the Principal to take corrective action, or to take relevant action. The monitor can in this regard submit non-*binding recommendations. Beyond this, the Monitor has no right to demand from the parties that they act in a specific manner, refrain from action or tolerate action.
7. The Monitor will submit a written report to the CMD, RailTel within 8-10 weeks from the date of reference or intimation to him by the Principal and, should the occasion arise, submit proposals for correcting problematic situations.
8. If the Monitor has reported to the CMD, RailTel, a substantiated suspicion of an offence under relevant IPC/PC Act or any other Statutory Acts, and the CMD, RailTel has not, within the reasonable time taken visible action to proceed against such offence or reported it the Chief Vigilance Officer, the Monitor may also transmit this information directly to the Central Vigilance Commissioner.
9. The word 'Monitor' would include both singular and plural.

Article – 9: Pact Duration

This Pact begins when both parties have legally signed it. It expires for the Contractor/Consultant 12 months after his Defect Liability Period is over or 12 months after his last payment under the contract whichever is later and for all other unsuccessful Bidders, 6 months after this Contract has been awarded (In case of BOT projects). It expires for the concessionaire 24 months after his concession period is over and for all other unsuccessful Bidders 6 months after this Contract has been awarded. Any violation of the same would entail disqualification of the bidder and exclusion from future dealings.

If any claim is made/lodged during this time, the same shall be binding and continue to be valid despite the lapse of this pact as specified above, unless it is discharged determined by CMD of RailTel.

Article – 10: Other Provisions

1. This pact is subject to Indian Law, Place of performance and jurisdiction is the Registered Office of the Principal, i.e. New Delhi.
2. Changes and supplements as well as termination notices need to be made in writing.
3. If the Bidder/Contractor/Concessionaire/Consultant is a partnership or a Joint Venture partner, this pact must be signed by all partners or members.

4. Should one or several provisions of this agreement turn out to be invalid, the reminder of this agreement remains valid, in this case, the parties will strive to come to an agreement to their original intentions.
5. Issue like warranty / Guarantee etc. shall be outside the purview of IEMs.
6. In the event of any contradiction between the Integrity Pact and its Annexure, the clause in Integrity Pact shall prevail.
7. Any dispute/differences arising between the parties with regard to term of this Pact, any action taken by the Principal in accordance with this Pact or interpretation thereof shall not be subject to any Arbitration.
8. The actions stipulated in the integrity Pact are without prejudice to any other legal action that may follow in accordance with the provisions of the extant law in force relating to any civil or criminal proceedings.

In witness whereof, the parties have signed and executed this pact at the place and date first done mentioned in the presence of following witnesses: -

(For & On behalf of the (Principal)

(For & On behalf of Bidder/Contractor/
Concessionaire/Consultant)

Place:

Date:

Witness 1:

Witness 2:

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Annexure 7: Complete EoI Examination & Nil Deviation Certificate

(To be submitted by Bidder)

To
RailTel Corporation of India Ltd
Western Railway Microwave Complex
Senapati Bapat Marg, Near Railway Sports Ground
Mahalaxmi, Mumbai – 400013

Sub: Complete EoI Examination & Nil Deviation Certificate

Ref: EoI Number: _____ **Dated:** _____

Dear Sir,

We <Bidder Name> having completely examined the referred EoI, its corrigendum and any other documents/its addendums/corrigendum referred in this EoI, conclude that we have understood the Terms & Conditions of the EoI and its subsequent addendums & corrigendum (if any) and any other documents/its addendums/corrigendum referred in this EoI. We declare that we have sought all clarifications for the same from RailTel or its end customer for anything contained in this EoI & any other documents/its addendums/ corrigendum referred in this EoI and have been satisfied with the clarifications to the fullest extent and there are no terms, clauses, conditions, etc which are ambiguous.

We also declare that there is no deviation from adhering to anything that is contained in this EoI and any other documents/its addendums/corrigendum referred in this EoI and that any deviation later raised by us shall lead to forfeiture of the Bid/Contract at complete discretion of RailTel.

Signature of Authorized Signatory (with official seal)

Name :
Designation :
Address :
Telephone and Fax :
E-mail address :

Annexure 8: Back to Back Compliance Certificate

(To be submitted by Bidder)

To
RailTel Corporation of India Ltd
Western Railway Microwave Complex
Senapati Bapat Marg, Near Railway Sports Ground
Mahalaxmi, Mumbai – 400013

Sub: Complete back to back Compliance Certificate

Ref: 1) EoI Number: _____ Dated: _____

2) Tender Reference No- SnT_C_BRC_138_2024-25 dated 01/05/2025
and all of its addendums/ corrigendum's & published documents

Dear Sir,

Considering reference 1 & 2 we would like to declare that we have read and understood the EoI, its corrigendum and any other documents/its addendums/corrigendum referred in this EoI thoroughly. We would like to give you our back to back compliance for all the tender terms and conditions, clauses, timelines, deliverables and anything explicitly mentioned in the EoI, its corrigendum and any other documents/its addendums/corrigendum referred in this EoI.

Signature of Authorized Signatory (with official seal)

Name :

Designation :

Address :

Telephone and Fax :

E-mail address :

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Annexure 9: Performance Bank Guarantee Format

(For a sum of percentage of the value of the contract as per RailTel's end customer RFP/tender)
(Stamp Duty to be confirmed by RailTel in co-ordination with RailTel's Legal Department)
(Final Draft to be confirmed by RailTel Legal before BG issuance)

To
RailTel Corporation of India Ltd
Western Railway Microwave Complex
Senapati Bapat Marg, Mahalaxmi
Mumbai – 400013

WHEREAS:

_____ name and address of Applicant] (hereinafter called “the Applicant”) and RailTel (the “Authority”) have entered into an agreement (the “Agreement”) for Design, Supply, Installation, Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPAC proving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling System in Jambusar and Samni Section in connection with provision of Gauge Conversion work under Dy.CSTE Construction Vadodara Division, Gujarat (Western Railway), subject to and in accordance with the provisions of the Agreement.

(A) The Agreement requires the Applicant to furnish a Performance Security for due and faithful performance of its obligations, under and in accordance with the Agreement, during the {Implementation Period/ Defects Liability Period and Maintenance Period} (as defined in the Agreement) in a sum of Rs ***** Cr.

(B) We, Through our branch at(The “Bank”) have agreed to furnish this bank guarantee (hereinafter called the “Guarantee”) by way of Performance Security. NOW, THEREFORE, the Bank hereby, unconditionally and irrevocably, guarantees and affirms as follows:

1. The Bank hereby unconditionally and irrevocably guarantees the due and faithful performance of the Applicant obligations during the {Implementation period /Defects Liability Period and maintenance period} under and in accordance with the Agreement, and agrees and undertakes to pay to the Authority, upon its mere first written demand, and without any demur, reservation, recourse, contest or protest, and without any reference to the Applicant, such sum or sums up to an aggregate sum of the Guarantee Amount as the Authority shall claim, without the Authority being required to prove or to show grounds or reasons for its demand and/or for the sum specified therein.

2. A letter from the Authority, under the hand of an officer not below the rank of General Manager in RailTel that the Applicant has committed default in the due and faithful performance of all or any of its obligations under and in accordance with the Agreement shall be conclusive, final and binding on the Bank. The Bank further agrees that the Authority shall be the sole judge as to whether the Applicant is in default in due and faithful performance of its obligations during and under the Agreement and its decision that the Applicant is in default shall be final and binding on the Bank, notwithstanding any difference between the Authority and the Applicant, or any dispute between them pending before any court, tribunal, arbitrators or any other Authority or body, or by the discharge of the Applicant for any reason whatsoever.
3. In order to give effect to this Guarantee, the Authority shall be entitled to act as if the Bank were the principal debtor and any change in the constitution of the Applicant and/or the Bank, whether by their absorption with any other body or corporation or otherwise, shall not in any way or manner affect the liability or obligation of the Bank under this Guarantee.
4. It shall not be necessary, and the Bank hereby waives any necessity, for the Authority to proceed against the Applicant before presenting to the Bank its demand under this Guarantee.
5. The Authority shall have the liberty, without affecting in any manner the liability of the Bank under this Guarantee, to vary at any time, the terms and conditions of the Agreement or to extend the time or period for the compliance with, fulfilment and/or performance of all or any of the obligations of the Applicant contained in the Agreement or to postpone for any time, and from time to time, any of the rights and powers exercisable by the Authority against the Applicant, and either to enforce or forbear from enforcing any of the terms and conditions contained in the Agreement and/or the securities available to the Authority, and the Bank shall not be released from its liability and obligation under these presents by any exercise by the Authority of the liberty with reference to the matters aforesaid or by reason of time being given to the Applicant or any other forbearance, indulgence, act or omission on the part of the Authority or of any other matter or thing whatsoever which under any law relating to sureties and guarantors would but for this provision have the effect of releasing the Bank from its liability and obligation under this Guarantee and the Bank hereby waives all of its rights under any such law.
6. This Guarantee is in addition to and not in substitution of any other guarantee or security now or which may hereafter be held by the Authority in respect of or relating to the Agreement or for the fulfilment, compliance and/or performance of all or any of the obligations of the Applicant under the Agreement.
7. Notwithstanding anything contained hereinbefore, the liability of the Bank under this Guarantee is restricted to the guaranteed amount and this Guarantee will remain in force for the period specified in paragraph 8 below and unless a demand or claim in writing is made by the Authority on the Bank under this Guarantee all rights of the Authority under this Guarantee shall be forfeited and the Bank shall be relieved from its liabilities hereunder.

8. The Guarantee shall cease to be in force and effect on ****\$ unless a demand or claim under this Guarantee is made in writing before expiry of the Guarantee, the Bank shall be discharged from its liabilities hereunder.
9. The Bank undertakes not to revoke this Guarantee during its currency, except with the previous express consent of the Authority in writing and declares and warrants that it has the power to issue this Guarantee and the undersigned has full powers to do so on behalf of the Bank.
10. Any notice by way of request, demand or otherwise hereunder may be sent by post addressed to the Bank at its above referred branch, which shall be deemed to have been duly authorized to receive such notice and to effect payment thereof forthwith, and if sent by post it shall be deemed to have been given at the time when it ought to have been delivered in due course of post and in proving such notice, when given by post, it shall be sufficient to prove that the envelope containing the notice was posted and a certificate signed by an officer of the Authority that the envelope was so posted shall be conclusive.
11. This Guarantee shall come into force with immediate effect and shall remain in force and effect for up to the date specified in paragraph 8 above or until it is released earlier by the Authority pursuant to the provisions of the Agreement.

Signed and sealed this day of 20..... at SIGNED, SEALED AND DELIVERED For and on behalf of the Bank by:
(Signature) (Name) (Designation) (Code Number) (Address)

NOTES:

- a. The bank guarantee should contain the name, designation and code number of the officer(s) signing the guarantee.
- b. The address, telephone number and other details of the head office of the Bank as well as of issuing branch should be mentioned on the covering letter of issuing branch

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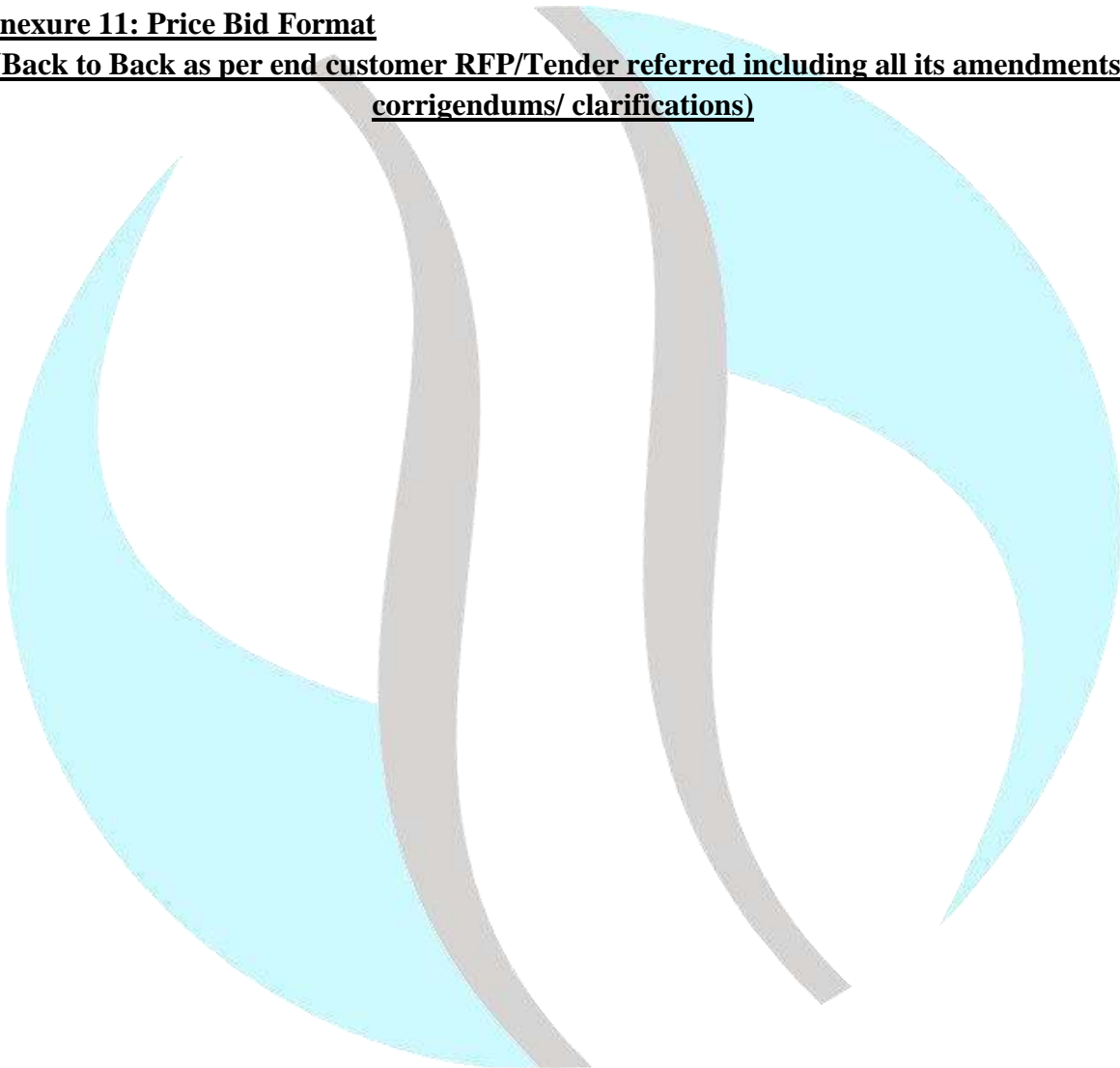
Annexure 10: Agreement Draft Format

(As per Tender No. SnT_C_BRC_138_2024-25 dated 01/05/2025 and any if its addendums/ corrigendum's/ clarifications issued by the Tender floating authority. The agreement will be signed with selected Bidder on Back to Back basis and will be binding upon the parties)



Annexure 11: Price Bid Format

**(Back to Back as per end customer RFP/Tender referred including all its amendments/
corrigendums/ clarifications)**



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Annexure 12: BoQ

(Back to Back as per Schedule of end customer RFP/Tender referred including all its amendments/ corrigendums/ clarifications)

S.No.	Item Code	Item Qty	Qty Unit	Unit Rate	Basic Value	Escl.(%)	Amount	Bidding Unit
Schedule () A-Supply of Items							82558896.63	Above/ Below/Par
1	A	467.00	Per Functional Vital Bit	83238.19	38872234.73	AT Par	38872234.73	
Description:- "Design, manufacture and supply of Hot Standby Architecture Electronic Interlocking (EI) system i.e. Distributed or Centralized as per requirement of zonal railway, complete as per RDSO specification and as per attached technical requirement & tentative approved Signalling Plans & Diagrams. This include Central Processing Equipment, Interface Equipment, All Interfacing Relays suitable for EI, In-built event Logger, interconnecting cables and Jumper wires, Required power supply converters for EI equipments, Housing for EI equipments & relay racks, fuses, screw less disconnecting type terminals, fixture mounting arrangements, Industrial grade maintenance Terminals (32" LED or higher size with UPS minimum 1 hr back up with Printer) and other necessary accessories to make the EI system functional as per approved signalling plan. All items shall be supplied as per, per functional bit/station for functioning of EI. Negative variation in functional bit not permitted and for positive variation card wise/Modules etc. breakup should furnish by tenderer. Technical Requirement- (1) No of Bits Each station. (2) Architecture-Minimum 2 out of 2 (3) Non vital I/O- can be used only for accessories where SIL-4 condition required. (4) Station less than 200 routes- RDSO/SPN/192/2019 Ver.2.0 with latest amendment. 5.Station greater than 200 routes - RDSO/SPN/203/2011 Ver1 or latest. Supply of 10% Essential spares of the EI equipments subject to minimum one of each type mainly consisting of processor, cards/ module, interface relay, DC-DC Convertors, Moxa switch, OFC Connectors, etc. Item wise detailed break up with unit and quantity to be provided in separate annexure. (The quantity involves 10% spare). Note - Rate does not include cost of VDUs and Embedded PC. Dual operator Industrial Grade VDU panel and Embedded PC will be taken separately. SAMNI (293), JAMBUSAR (174) "								
Please see Item Breakup for details.					433185.00	AT Par	433185.00	

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2	Description:- "Supply, Installation and Commissioning of EI VDU (Visual Display Unit, 4 K with all suitable accessories Compatible to EI Interlocking in Safe Mode 24x7 at controlling station. The item must comply minimum following specification- (a) Screen Size (Diagonal):- As below (b) Resolution :- 4K (c) Viewing angle degree:- 178x178 degree (d) Brightness :- 500 Nits (e) contrast ratio 4000:1 (f) Backlit :- Direct LED (g) Jack Interface:- HDMI -3 no. 1.2 DP, DVI USB 2.0 -2 no. CI Slot RF In AV In Component In (RCA5 Type) Digital Audio Out RGB In (D-sub 15pin)-PC PC Audio Input RS232C (D-Sub 9pin) RJ45 Stereo mini jack; (h) Optical Out :- Available Note- Screen size will be decided as per instruction of engineer incharge."						
	A	2.00	Numbers	272862.00	545724.00	AT Par	545724.00
3	Description:- "Supply and Installation of Modular power supply arrangement for VDU and industrial PC (Embedded PC) with input and output redundancy arrangement and Hot pluggable Modules as per RDSO specification. Make - Gallant or similar. One set consists of- (1) Input O- ring diode module with potential free -1 No contacts (PFC) for two 110 V DC sources from IPS and single 110 VDC bus Qty 1 No. (2) Isolated Inverters (Master / slave) - Input-110 V DC Output: 120 V AC/220V A500VA - 02 Nos.(3) Isolated DC-DC converters- Input : 110 v DC Output : 24 V DC/ 10A,Qty -10No.s (4) 3 U SS rack with back panel mother board /front panel power connectors inverter auto change over switch and all required over switch and all required protection circuits (3U height for main rack 132.5mm +/-10% & 1U height for mounting 44.5mm +/- 10%) Qty - 1 No.Make- Gallant or similar."						
	A	2.00	Set	147350.87	294701.74	AT Par	294701.74
4	Description:- Portable workstation for Data input & configuration with necessary software/ programs / Accessories, simulation and functional testing, diagnostics, and troubleshooting and commissioning of EI system. A suitable table and chair of a reputed make shall be supplied by the contractor. Note: The specification of the portable workstation shall be as per the Technical specification given in Annexure or higher version as approved by Engineer In-Charge. All the required software should be uploaded Licensed CD should be given along with the software. (Name of the reputed firm and technical specification shall be written in tender documents.)						
	A	2.00	Set	130201.33	260402.66	AT Par	260402.66
5	Description:- Instruments and Tool Kits required for Trouble Shooting and repair of hardware and software for the EI system should be supplied for stations as per schedule item 1 above. This includes tools required for EI maintenance sorts of crimping, insertion, removal. General purpose tools like screwdrivers, spanners, PCB extractor, temp. Controlled soldering iron, wire cutter, nose pliers, etc. Measuring instruments with carrying case/ holders/ cabinet for technicians/ J.E. for testing, Maintenance and repair at the site). Each set comprises the following - (1) Crimping tool for all types of special cable assembly used in EI system. (2) Insertion tool for all types of special cable assembly used in EI system. (3) Removal tool for all types of special cable assembly used in EI system. (4) Digital multimeter (Fluke 111 or better) (5) Steel cabinet/ Almira, Size: 1980mm height, 915 mm width and 485 mm depth (Godrej Make/Jalaram) of good quality to store tools, spare cards and documents.(6) Clamp Earth Tester. (7)Clamp Current Meter.						
	A	2.00	Numbers	966052.64	1932105.28	AT Par	1932105.28
6	Description:- Pyrotech Workspace make New Modular Control Desk size 4102x2576 mm for provision of 02 Nos. Monitors made in "XLAT" system. (1) Table Top - The material of the working surface shall be made of thermally treated Aluminum-Trihydrate and acrylic resin material supported on minimum 25 mm thick MDF base. (2) Structure- Powder Coated Aluminum Sturdy Structure and extreme side Aesthetic Legs. The structure shall be rigid enough to withstand BIFMA X5.5: 2014 (Latest Edition). (3) Monitor Arm - UL certified monitor arm assembly shall have auto lock, push & remove feature for quick release of VESA mounts and modular arm extensions for ease in maintenance and fixing of monitor by one technician within 30 seconds without using any tools. (4) Shutters & Side Legs - Front and back shutters shall be of 18 mm Laminated MDF Board with premium finish Side leg.						
	A	2.00	Job	133269.46	266538.92	AT Par	266538.92
7	Description:- Earthing of EI equipment, relay racks and Power equipment etc. to be done along with the supply of all requisite materials. Earthing shall be in the form of Ring Earth conforming to RDSO specification No. RDSO/SPN/197/2008 (with a min. of 6 maintenance free earth electrodes) & RDSO Drawing issued under Railway Board letter No. 2010/Sig./SGF/EI (Ansaldo) Dated 22.06.11, made using copper rings with earth resistance less than 1 ohm. The earthing shall be maintenance free & earth enhancement compound should be used. The ring earth shall be connected to copper flat of size 25x3 mm in the relay room and IPS room. This copper flat shall be fixed on the wall to the entire breadth of the Relay room and IPS room as an earth bus bar and all earth connections shall be taken from it. A, B, C, & D class protection shall be provided for all EI equipment. Note - This will also cover the earthing & necessary protection of EI equipment as per details given in the scope of work of Special Condition of Contract and other requirement given in Chapter of tender document & Pre- commissioning check list of EI system.						
	A	8.00	Man-Days	1133.48	9067.84	AT Par	9067.84
8	Description:- Training of Officers for installation, Commissioning, Testing, and Repairs & Trouble shooting of the EI system. (Hard copies of training material/ course modules to be given to each participant).						
	A	20.00	Man-Days	1219.30	24386.00	AT Par	24386.00

	Description:- Training of Technician/ Jr. Engineer for installation, Commissioning, Testing, Repairs & Troubleshooting alteration, design of EI system, as per details given in Special Condition of Contract. (Hard copies of training manuals/ course module to be given to each participant).					
	Please see Item Breakup for details.		1260625.00	AT Par	1260625.00	
10	Description:- "Data logger system for Railway S&T installation As per spec. IRS: S-99 2006 (Amdt-3) or latest. Central Monitoring Unit (Hardware Configuration as per Annexure) with UPS minimum 06 hrs battery backup and required Software tools. This also includes the supply of one no composite computer & printer table (Godrej workstation table) for keeping the Processor module and one no Godrej make operator chair model PCH7001."					
	A	2.00	Set	52451.40	104902.80	AT Par 104902.80
11	Description:- Failure Analysis & Fault Diagnostic software for data logger of 1024 digital inputs /4096 digital inputs.					
	A	2.00	Numbers	287336.91	574673.82	AT Par 574673.82
12	Description:- Failure Analysis System or Central Monitoring Unit with Printer. As per technical specification IRS: S-992006 (Amdt-3) or latest. The specification of Failure Analysis System should be got approved from the Engineer in charge before supply. The Specification of Failure Analysis System shall be as per technical specification given in contract Agreement or higher version as approved by Engineer In-Charge. (Technical specification shall be provided in tender documents.)					
	A	2.00	Numbers	33329.05	66658.10	AT Par 66658.10
13	Description:- 750 VA Off line UPS with battery backup 3 Hours for Failure Analysis System of reputed make as per Engineer in-charge.					
	A	17.00	Numbers	8199.23	139386.91	AT Par 139386.91
14	Description:- Main Signal Post Tubular 140 mm Dia, 4.6 Mtr Length as per IRS: S-6/81 or Latest & RDSO Drg. No. SA-24625 (Advance).					
	A	17.00	Numbers	10895.41	185221.97	AT Par 185221.97
15	Description:- Main Signal Post Tubular 140 mm Dia, 5.6 Mtr Length as per IRS: S-6/81 or Latest & RDSO Drg. No. SA-24625 (Advance).					
	Please see Item Breakup for details.			131475.28	AT Par	131475.28
16	Description:- Supply Color Light Signal Accessories.					
	A	34.00	Numbers	7441.30	253004.20	AT Par 253004.20
17	Description:- Main LED Signal lighting unit working on 110v ac as per RDSO specn. No. RDSO/SPN/199/2010 rev.1.1 retrofit table in existing CLS housing (sa23002, s23024/m) Red Aspect.					
	A	17.00	Numbers	8496.65	144443.05	AT Par 144443.05
18	Description:- Main LED Signal lighting unit working on 110 v ac as per RDSO Specn. No. RDSO/SPN/199/2010 rev.1.1 retrofit table in existing CLS housing (sa23002, s23024/m) GREEN Aspect.					
	A	40.00	Numbers	7441.30	297652.00	AT Par 297652.00
19	Description:- Main LED signal lighting unit working on 110 v ac as per RDSO Specn. No. RDSO/SPN/199/2010 rev.1.1 retrofit table in existing CLS housing (sa23002, s23024/m) Yellow Aspect.					
	A	6.00	Numbers	4932.78	29596.68	AT Par 29596.68
20	Description:- Main LED Signal lighting unit 110 v ac for calling on signal in Railway signaling as per RDSO/SPN/153/2011 (rev. 4.1) or latest					
	A	60.00	Numbers	4935.39	296123.40	AT Par 296123.40
21	Description:- Main LED Signal lighting unit 110 v ac for Shunt Signal in railway signaling as per RDSO/SPN/153/2011 (Rev. 4.1) or latest.					
	A	17.00	Numbers	4439.28	75467.76	AT Par 75467.76
22	Description:- Offset brackets for Main Signal, made of tubular steel, outer diameter 140 mm, thickness of pipe 4.5 mm, horizontal length of pipe 545 mm & vertical length of pipe 324 mm with fixing arrangement on Main Signal post as per Drawing No SW/554/G/R.					
	A	19.00	Numbers	28577.72	542976.68	AT Par 542976.68
23	Description:- Non Metallic (FRP) color light signal housing multi-unit type for railway signaling suitable for RE area TWO Aspects. Complete without lenses, lamps and signal transformer as per RDSO DRG. No. SA 23001/A/M Adv. Alt- S and as per SPEC. No. RDSO/SPN/194/2006 (Vol. 1.0) or latest and FRP material as per RDSO SPEC. No. RDSO / SPN / 151/ 1997 or latest.					
	A	15.00	Numbers	29823.91	447358.65	AT Par 447358.65
24	Description:- "Non Metallic (FRP) color light signal housing multi-unit type for railway signaling suitable for RE area THREE Aspects. Complete without lenses, lamps and signal transformer as per RDSO DRG. No. SA 23001/A/M Adv. Alt- S and as per SPEC. No. RDSO/SPN/194/2006 (Vol.1.0) or latest and FRP material as per RDSO SPEC. No. RDSO/SPN/151/1997 or latest."					
	A	2.00	Numbers	33303.86	66607.72	AT Par 66607.72
25						

			Description:- Non Metallic (FRP) color light signal housing multi-unit type for railway signalling suitable for RE area FOUR Aspects. Complete without lenses, lamps and signal transformer as per RDSO Drg.No. SA 23001/A/M Adv. Alt- Sand as per SPEC. No. RDSO/SPN/194/2006 (Vol.1.0) or latest and FRP material as per RDSO SPEC. No. RDSO/SPN/151/1997 or latest.				
26	A	8.00	Numbers	21050.52	168404.16	AT Par	168404.16
			Description:- Non Metallic (FRP) junction route indicator unit 1 ways as per Drg. No. RDSO SA 23403 suitable for LED Signal Lighting Unit & as IRS: S-66/84 amndt-1 or latest.				
27	A	2.00	Numbers	35164.69	70329.38	AT Par	70329.38
			Description:- Non Metallic (FRP) junction route indicator unit 3 ways as per Drg. No. RDSO SA 23403 suitable for LED Signal Lighting Unit & as IRS: S-66/84 amndt-1 or latest.				
28	A	7.00	Numbers	21442.84	150099.88	AT Par	150099.88
			Description:- Non Metallic (FRP) junction route indicator unit 4 way as per Drg. No. RDSO SA 23401 suitable for LED Signal Lighting Unit & as IRS: S-66/84 amndt-1 or latest.				
29	A	6.00	Numbers	2669.43	16016.58	AT Par	16016.58
			Description:- Calling ON Signal Unit with Brackets & Fixing accessories. Calling On Signal Unit shall conform to RDSO Drg no 24351(Adv.) Alt1 suitable to LED Signal Lighting Unit.				
30	A	8.00	Numbers	4530.07	36240.56	AT Par	36240.56
			Description:- "Position Light Shunt Signal Unit Complete with Post (made of GI Pipe of 80 mm Diameter Medium Class IS Spec. No. IS: 1239 Pt. 1/1990) Base, Hood, and Cover, etc. as per Drg. No. SA-23840, Signal Number Plate, suitable for LED Signal Lighting Unit. (Supply of LED Unit is not covered in this item)."				
31	A	18.00	Numbers	3359.74	60475.32	AT Par	60475.32
			Description:- Position Light Shunt Signal Unit Complete, with offset bracket, hood, Cover etc. as per Drg. No. SA-23840 suitable for LED Signal Lighting Unit. (Supply of LED Unit is not covered in this item).				
32	A	40.00	Set	1280.82	51232.80	AT Par	51232.80
			Description:- "Fabrication and fixing of 'A' Marker (Drg No. CSTE/6180), 'AG' Marker (Drg No. CSTE/6181), 'P' Marker (Drg No. CSTE/6182), Arrow Marker (Drg No. CSTE/6183), 'G' Marker (Drg No. CSTE/6184), 'C' Marker (Drg No. CSTE/6185). Marker disk on signals as per standard practice All material required for this work shall be supplied by Contractor."				
33	A	30.00	Numbers	120528.49	3615854.70	AT Par	3615854.70
			Description:- "Electric Point Machine ,Non Trailable, Internal Locking, 220 Mm Throw With IP 67 Motor, Minimum AC Immunity 400Vac With Tools And Complete Accessories Including Complete Ground Connection And All Insulation, Crank Handle And Along With Clamp Point Lock 60Kg, TWS As Per Drg.No. RDSO/S/11000 As Per Rdso Spn. Irs:- 24/2002 With Amd.01 Or Latest. IRS Type."				
34			Please see Item Breakup for details.	376001.92	AT Par	376001.92	
			Description:- Supply of DC Track Circuit Accessories as follows -				
35	A	10.00	Numbers	282.46	2824.60	AT Par	2824.60
			Description:- Hydrometer, Exide make or similar for measuring the specific gravity of Battery Graded acid with mounting stand in location Boxes.				
36	A	2.00	Set	125614.33	251228.66	AT Par	251228.66
			Description:- Standard Tool kits, Test and Measuring instruments required for installation, testing, commissioning & maintenance of HASSDAC. Kit will includes all tools & measuring instruments as per ANNEXURE (Annexure shall be attached with CA).				
37	A	2.00	Set	144043.40	288086.80	AT Par	288086.80
			Description:- "Supply of Tools Kit for Digital Axle Counter (Multi section/Single section). (MSDAC comply to the RDSO spec. No. RDSO/SPN/176/2013/Ver.3 or latest and manufacturer's specification and SSDAC comply to the RDSO/SPN/177/2012,Ver.3 or latest respectively). The tool kit shall be minimum equipped with the following equipments- (i) All mechanical tools shall be of reputed make like Taparia/Bosch etc. (ii) Digital multimeter true RMS type of make Fluke 189 or similar reputed make with probe set - 1 No. (iii) Adjustable torque wrenches 25-135 N/mtr with 13 mm and 19 mm inserts- 1 set (iv) Set of spanners screw drivers and soldering iron - 1 set (v) Dummy wheel - 1 No. (vi) Marking jig - 1 No. (vii) Adapter card - 1 No. (viii) Extended wired socket to interface with diag No. stic plug - 1 No. (viii) Selector switch on panel base - 1 No. (ix) DAC EC card puller etc."				
38	A	100.00	Numbers	5525.31	552531.00	AT Par	552531.00
			Description:- Relay, AC Immune, Plug-in-type, style "QNA1K" ACI DC Neutral line, 24V D C 1000 Ohms 6F.6B contacts, front contacts metal to carbon and back contacts metal to carbon. Complete with plug board, retaining clip and connectors conforming to IRS: S34, IRS: S23, BR5931A. As per RDSO Specification No. STS/E/Relays/UEA (PI) Dt.30/05/97. Annexure II. The interlocking pin code CODEKY.				
39	A	50.00	Numbers	4878.90	243945.00	AT Par	243945.00
			Description:- Miniature, Plug in Type, M to C,DC Neutral ,Track relay, ACI, Style QTA2, 9 Ohm, 2F-1B contact, Code - FGKX Spec : BRS :939-A & 966 (Appx-F2) & IRS : S-23, S- 23,S-34 & 60.				
	A	20.00	Numbers	5393.68	107873.60	AT Par	107873.60

40	Description:- Miniature, Plug in type, M to C, AC immunized, DC biased Track Relay. 2F-2B contacts, style QBAT-9 ohms. Code ABEJX Spec:- RDSO/SPN/84 Ver. 2 : IRS - S@ 45*44@IRS-S-23, IRS-S@ 45<45@ 78.					
	A	2.00	Numbers	5242.00	10484.00	AT Par 10484.00
41	Description:- Relay fail safe electronic time delay device mounted on Q series relay base and cover with fixed timing of 60/120 second conforming to IRS:S:61/2000(ver.1.0) (Amdt. 3) or Latest,IRS:S:34 and IRS:S:23 (as applicable). The Interlocking code for this unit shall be AFGKY.					
	A	30.00	Numbers	9743.97	292319.10	AT Par 292319.10
42	Description:- Key Lock Relay working on 24V DC, AC immunize with different ward combinations (Three ward plates to be supplied with each relay). Key ward shall be specified by engineer incharge as per requirement.					
	A	1.00	Numbers	1536.49	1536.49	AT Par 1536.49
43	Description:- "Supply and fixing of CH/KLCR boxes appropriate size in field / in location boxes / in SM office / at LC gate as per site condition. It should be made of Hylam /wooden (teak wood) of high quality as per requirement. Item includes supply of any minor bracket nuts, bolts and hole drilling MS angle, MS plate etc. It also includes fixing of KLCR relays in the boxes. Prior approval to be taken from Engg. In charge before supply of box."					
	A	2.00	Numbers	3089.90	6179.80	AT Par 6179.80
44	Description:- Supply of self supported aluminum flat step ladder (conforming to ISI) 5 ft. height. Ladder should be self- supported and it should be made up of rust proof Aluminum of Min 16 SWG. No plastic hinges/Step support should be used.					
	A	2.00	Numbers	58030.77	116061.54	AT Par 116061.54
45	Description:- Supply of Smart Cabinet/Rack for Housing of Various S&T equipments like KLCR, Reset Box, IPS Indication Panel, CA VA Unit for FACS, SP AU for Point Reversal, Crank Handle, Quad Cable Earth Sensing Unit along with Fixing of KLCR (KLCR will be provided by Railway) as per instruction of Site Engineer, Make RITTAL, SANTEL, VERO , PRESIDENT, APC Schneider or similar reputed make.					
	A	14.00	Numbers	24008.12	336113.68	AT Par 336113.68
46	Description:- Cable termination racks as per Drg. no. CSTE 5004, 5005, 5006 complete along with fitting arrangements and also with arrangement for fixing four 8-way terminal strips/ Screw less terminals on each row having 16 such rows. Supply of 8 way terminal strips/ Screw less terminals not covered under this item. Cable termination rack shall be Powder Coated.					
	A	2.00	Numbers	11252.46	22504.92	AT Par 22504.92
47	Description:- "Supply & installation of Test board (LED, Pin tool type) for relay Room as per as per Drg.No RST/C/105 A & B."					
	A	4.00	Numbers	151574.89	606299.56	AT Par 606299.56
48	Description:- Earth Leakage Detector as per RDSO/SPN/256/2002 or latest with latest amendments. The basic detector unit shall comprise of 8 channels, for use on signaling circuits of 110V AC/DC and/or 60V/24V/12V DC as ordered by purchaser. If the detector is required for less number of channels, dummy plates shall be provided. For additional requirement add on /expendable cabinet may be used. The voltage specified shall be provided with + 25% and - 10% tolerance.					
	A	700.00	Numbers	129.41	90587.00	AT Par 90587.00
49	Description:- Cartridge fuse block made of PBT as per RDSO Drg No SA-23748 Alt 4 & Spec No IRS S 75/2006 with the latest amendment. The fuse block shall be suitable for round- head type voltage fuses. This also includes the supply of equivalent n o o f N D type Fuses o f 2 A capacity a s per specification IRS S-78/92.					
	A	200.00	Numbers	10.42	2084.00	AT Par 2084.00
50	Description:- PPTC fuse 12V/24V/110v AC GP 16-400 (2A) for TF/TR circuit, make- Raychem, Epcos, Siemens.					
	A	600.00	Numbers	57.21	34326.00	AT Par 34326.00
51	Description:- Round head type non deteriorating type low voltage cartridge fuse a s per Spec No IRS/S/78/92 with latest amendments 2A/4A/6A capacity.					
	A	4.00	Each Module	51953.78	207815.12	AT Par 207815.12
52	Description:- Fuse auto changeover system for use i n Railway Signaling System as per RDSO/SPN/209/2012 rev.1 with latest amendments. One Automatic changeover Unit comprises 24 nos. of external Non-Deteriorating Type or 'G' type fuses from 4 Amp to 10 Amp capacities which are in signaling circuits. The system shall have 6 cards with a monitoring arrangement of 4 fuses in one card.					
	A	24.00	Each Module	29743.63	713847.12	AT Par 713847.12
53	Description:- "Fuse auto changeover system for use i n Railway Signaling System as per RDSO/SPN/209/2012 rev.1 with latest amendments. One Automatic changeover Unit comprises 32 nos. of external Non-Deteriorating Type or 'G' type fuses from 0.6 Amp to 4 Amp capacities which are in signaling circuits. The system shall have 8 cards with a monitoring arrangement of 4 fuses in one card."					

	Please see Item Breakup for details.			476025.00	AT Par	476025.00
54	Description:- Disconnect Terminal Block, Screw less type, as per RDSO Spec. No.RDSO/SPN/189/2004, With the latest amendments.					
	A	200.00	Numbers	270.84	54168.00	AT Par 54168.00
55	Description:- Supply of 4 connection points single potential through screw less terminal block for 6 Sq.mm - 35 Sq.mm , 4 connection points 284-621/624 or superior, suitable for power cable connection.					
	A	8.00	Numbers	6814.05	54512.40	AT Par 54512.40
56	Description:- Fire Extinguisher CO2 type (capacity 5 kg).					
	A	24.00	Numbers	120.12	2882.88	AT Par 2882.88
57	Description:- SMC Booklets of each station register for SMC register. (1 Register to be read as 1 Number).					
	A	300.00	Numbers	196.79	59037.00	AT Par 59037.00
58	Description:- Pad locks Godrej make, Hardened NavTal 7 lever, 65mm Dia with common key or similar product having same feature & technical data.					
	A	300.00	Numbers	2798.99	839697.00	AT Par 839697.00
59	Description:- Earth Electrode as per Drg. No. CSTE / 6091.					
	A	160.00	Set	10403.08	1664492.80	AT Par 1664492.80
60	Description:- Maintenance Free Earth Electrode of length 3m, including supply of 3 bags of Earth enhancement material for earthing (10KGs /bag) for each electrode & other accessories as per Drg. No. SDO / RDSO/ E&B/001 and RDSO Spec No. RDSO / SPN/197/2008.					
	A	8500.00	Numbers	75.00	637500.00	AT Par 637500.00
61	Description:- ARA Terminal blocks with links made of PBT Spec No.s/75/2006 (Rev - 2) with latest amendments and RDSO Drg.No.SA-23741A Alt.4.					
	A	4.00	Numbers	17036.67	68146.68	AT Par 68146.68
62	Description:- Steel Plain Almirah with 4 adjustable slaves Size: 1980 mm height, 915 mm width and 485 mm depth. Make: Godrej Storewel Plain Large or Similar of reputed brand will be specified by Engineer in-charge.					
	A	4.00	Numbers	2655.97	10623.88	AT Par 10623.88
63	Description:- Office Chair makes Godrej CH-7B or similar of reputed brand will be specified by Engineer in-charge.					
	A	4.00	Numbers	8188.30	32753.20	AT Par 32753.20
64	Description:- Office Revolving Chair Godrej Make Model No.9u02r Bravo Or Similar of reputed brand will be specified by Engineer in-charge.					
	A	4.00	Numbers	16052.54	64210.16	AT Par 64210.16
65	Description:- Office table with laminated top with three drawers on left hand side and one locker on the right hand side. Olive brown with duplicate keys. Make: Godrej Model T-9 or Similar of reputed brand will be specified by Engineer in-charge.					
	A	100.00	Numbers	15611.07	1561107.00	AT Par 1561107.00
66	Description:- Apparatus Case Single NE Rly Type as per Drg. No. W. Rly/SW/47/68 Alt-A, fitted with two no.s of E Type lock (ward No will be specified by Engineer-in Charge) as per RDSO Drg. No. SA 3376/3473 and Key to Drg. No. 3377.Note- This item includes the supply & fixing of 2 No.s E Type Lock fitted on both doors, along with two Keys.					
	A	60.00	Numbers	9893.99	593639.40	AT Par 593639.40
67	Description:- Apparatus Case half NE Rly Type as per Drg. No. W. Rly/SW/47/68 Alt-A fitted two no.s E Type lock of (ward No will be specified by Engineer-in Charge) as per RDSO Drg. No. SA 3376/3473 and Key to Drg. No. 3377. Note: This item includes the supply & fixing of 2 No.s E Type Lock fitted on both doors, along with two Keys.					
	A	1.00	Kilometre	174705.11	174705.11	AT Par 174705.11
68	Description:- PVC insulated Railway Signalling multi-core Indoor Cable 60 core x 0.6mm Dia conforming to IRS:76/89 (Amd 3) or latest.					
	A	2.00	Kilometre	183153.70	366307.40	AT Par 366307.40
69	Description:- PPVC insulated Railway Signaling multi-core Indoor Cable 1mm x 24 mm x 1 mm Dia conforming to IRS:76/89(Amd3) or latest.					
	A	1.00	Kilometre	92180.73	92180.73	AT Par 92180.73
70	Description:- PVC insulated Railway Signaling multi-core Indoor Cable 1 mm x 40 mm x 0.6mm Dia conforming to IRS:76/89(Amd3) or latest.					
	A	2.00	Kilometre	5548.54	11097.08	AT Par 11097.08
71	Description:- Single core multi-strand wire 0.5 sq.mm. (16 conductor each dia. 0.2mm), as per IRS 76/89 (Amd3) or latest.					
	A	2.00	Kilometre	33366.21	66732.42	AT Par 66732.42

72	Description:- Flexible cable (Power wire), multi-strand copper conductors cross-section 1x6 Sq.mm.(85 conductors each diameter 0.30 +/- 0.01) as per IS 694/1990 with insulation thickness of 0.80 mm nominal conductor resistance 3.30 ohms/km and test parameters are as per IRS(S)76/89 or latest.						
	A	1.00	Kilometre	136063.55	136063.55	AT Par	136063.55
73	Description:- Flexible cable (Power wire), multi-strand copper conductors cross section (1x16Sq.mm).101 Conductors each diameter 0.45 +/- 0.01 as per IS 694/2010 with insulation thickness of 1.2mm nominal conductor resistance 1.127 Ohms/Km and test parameters as per IRS(S) 76/89 or latest.						
	A	1.00	Kilometre	132505.12	132505.12	AT Par	132505.12
74	Description:- Flexible cable (Power wire), multi-strand copper conductor's cross section 25 Sq. mm (0.4x196) as per specn. IS 694/2010 with latest amendment, and test parameters as per IRS(S) 76/89.						
	A	5000.00	Numbers	2178.12	10890600.00	AT Par	10890600.00
75	Description:- Supply Polyolefin cable channel of size width 240/340 mm, height 155/230 internal/external, length 1meter produced of polyolefin with fire protection class K-1 in accordance with DIN 53438 Part-II for laying signaling/telecom cables, channel attachable to each other with male-female swallow tail connectors and having a suitable detachable cover, as per RDSO STS/E/cable laying Precise Vol-IV and as per technical specifications.						
	A	600.00	Numbers	1912.20	1147320.00	AT Par	1147320.00
76	Description:- "Double Walled Corrugated (DWC) HDPE Pipe with associated collars etc. as per RDSO Specification No. RDSO/SPN/204/2011 or latest anti-rodent & anti-oxidant and non-flame propagating type in 6 meters straight length and of size 120 mm outer dia & 103.5 mm inner dia. One of the following coupling arrangements should also be supplied with each pipe as per the site requirement. (1) Suitable snap fit coupler with rubber 'O' Ring (2) Spacers (3) Tees (4) Bend, (5) End-cap (The total quantity of above items is equal to no. of pipes supplied.) DWC pipe shall be marked at every 1 mtr length in such a way that manufacturer's name, vender name and year of manufacture can be easily identified. Color -Bright Orange; Min Weight = 4kg. Test Check by Consignee & Sample check by JAG officer."						
	A	200.00	Running Metre	1170.28	234056.00	AT Par	234056.00
77	Description:- Medium Class G.I. Pipes to IS: 1239 (Pt.)-2004 or latest; 100 mm dia. (int. Dia) 3.65 mm thick or above with coupling. G.I. pipes shall have ISI mark on it and contractor should submit manufacturer's test certificate of G.I. pipes.						
	A	1.00	Set	469571.95	469571.95	AT Par	469571.95
78	Description:- Electrically Operated Lifting Barrier complete set suitable for 110V DC/24V DC supply with hand generator back up & motorized boom locking arrangements as per RDSO Spec. SPN/208/2012 with the latest amendment. One set consisting of 02 No.s of Barriers of length 09.76 Mtr. along with Spares & tool kit mentioned in RDSO Spec. SPN/208/2012 clause 10.1 & 10.2.						
	A	1.00	Set	144275.33	144275.33	AT Par	144275.33
79	Description:- MS Sliding type mechanical Boom barrier assembly 11 to 12 Meter Long, movement drive mechanism, resetting & supporting stand suitable for Mechanical/ Electrical level crossing gate as an emergency arrangement as per Drg.						
	A	2.00	Set	8475.45	16950.90	AT Par	16950.90
80	Description:- Dual tone bell/buzzer with flasher arrangement 25W horn,(Make of any ISI approved firm) working voltage as per circuit design.						
	A	2.00	Set	1665.03	3330.06	AT Par	3330.06
81	Description:- Road warning Flasher kit for LC gate as per circuit design.						
	A	2.00	Numbers	1442868.80	2885737.60	AT Par	2885737.60
82	Description:- "SMPS based Integrated Power Supply System for Station with MSDAC as per RDSO/SPN/165/2012 version -3 or latest and Drg No. CSTE/6155/ 4 of 7. This includes transportation, installation and Commissioning of Integrated Power Supply System. NOTE : Item to be supply after Engineer Incharge approval."						
	Please see Item Breakup for details.				973893.36	AT Par	973893.36
83	Description:- "Microcontroller based programmable static switching module (Auto changeover) of Reliance Electricals Make or similar, with an at a glance LCD display suitable for break-less switching between two DC supplies as per attached technical specifications."						
	A	2.00	Numbers	13356.84	26713.68	AT Par	26713.68
84	Description:- Supply of Digital Earth Resistance tester three terminal type with LED display, 1999 count, KOICO model 5600 or any reputed make approved by engineer in-charge.						
	A	2.00	Numbers	8240.40	16480.80	AT Par	16480.80
85	Description:- Supply of Digital Insulation Tester 100V/250V/500V range of Model Rish Insu 20 Make-RISHABH or MECO or similar.						
	A	2.00	Numbers	18194.34	36388.68	AT Par	36388.68

86	Description:- Digital low current clamp meter to measure current leaks (parasitic draw down to 1 mA) and electric loads from 1mA to 100 Amp AC/DC, Voltages from 0 to 600V AC/DC, small jaw size to measure current in signalling circuit, 4 digit display. Make -Fluke, GTC/KEW, Scope or superior with better specification as mentioned with all accessories like test lead, batteries and carrying case, sample may be got approved from consignee before supply.							
	A	2.00	Numbers	44774.52	89549.04	AT Par	89549.04	
87	Description:- Digital Multimeter of Fluke 287 Industrial, True RMS with temperature, Analog bar graph, Digital display, Backlight, 1000V AC/DC, measure up to 10A, 20A for up to 30 seconds or Superior.							
	A	2.00	Numbers	12853.59	25707.18	AT Par	25707.18	
88	Description:- Professional AC/DC clamp meter 3 ¼ digit, true RMS measurement, For Measurement of DC/AC currents up to 1000A, Voltage up to 600V, resistance up to 40 M, and frequency up to 1 MHz with a set of leads & carrying case. Model - DCM39A or equivalent/ higher. Make- Motwane /Stanley /Fluke/ Megger.							
	A	2.00	Set	35317.28	70634.56	AT Par	70634.56	
	Description:- Supply of Standard Tools set.							
90	A	2.00	Numbers	4515.84	9031.68	AT Par	9031.68	
	Description:- Road Measuring Cycle, made of Aluminum with 05 digit counter, foldable with the bag.							
	A	2.00	Numbers	578945.76	1157891.52	AT Par	1157891.52	
91	Description:- Supply of Cable Fault locator as per specification attached. Make- Tempo/Stanley Communication Model Sidekick Plus Kit Standard (1155-5001) or equivalent.							
	A	10.00	Numbers	72605.40	726054.00	AT Par	726054.00	
92	Description:- Supply of Microcontroller based Quad Cable Conductor's Earth Resistance Sensing Unit, for 24 nos. conductors with metering facility for one conductor at a time							
	A	2000.00	Metre	285.05	570100.00	AT Par	570100.00	
93	Description:- Supply of SPLIT DWC pipe conforming to RDSO/SPN/204/2011 Ver. 1.1 or latest RDSO specification, Non metallic, corrugated, multiwalled, normal duty, pliable, without protection against chemical attack and Non flame propagating in 2 meter length of size 200 mm outer dia & 175 mm inner dia. (Permitted tolerance in dia = +/-2mm) (TWO half round pipe constitute one split pipe)							
	A	400.00	Numbers	701.00	280400.00	AT Par	280400.00	
94	Description:- "High density polyethylene pipes (HDPE) of 110 mm/125 mm outer Dia, 10 mm wall thickness, along with one coupler for every 6 Mtr. As per spec. No. IS 4984:2016 with latest amendments and material grade - PE 80."							
S.No.	Item Code	Item Qty	Qty Unit	Unit Rate	Basic Value	Escl.(%)	Amount	Bidding Unit
Schedule () B-Execution of Items							35486975.11	Above/ Below/Par
	Please see Item Breakup for details.				2003826.00	AT Par	2003826.00	
1	Description:- "Installation, wiring, programming, testing and commissioning of EI equipment supplied as per supply item in schedule 'A' including transportation from Consignee's depot to site. The works and materials for installation, wiring, testing and commissioning, grouting, cutting of floors, walls, refilling of the same, re-plastering, required CC/ masonry works, fixing/ placing/ laying of insulated ladders/ casing-capping/ cable trays/ RCC/GI pipes / Cables, termination of cables with lugs/ connectors, painting, / lettering are to be provided/ done by the contractor for the equipments supplied vide item of Schedule "A" of this contract. This also covers the networking of built in EI Data loggers of all the stations to monitor the system to any other places where desired by Engineer-in-charge. Note: Installation shall be comply with RDSO Technical Advisory Note No STE/E/TAN/3012 dtd. 28.08.2014 or latest. Installation, wiring, programming, testing and commissioning of Operator VDU in Hot stand-by with Redundancy. Any Equipments/cards/Modules required for Hot stand-by with Redundancy shall be supplied & installed by the Contractor. This also include supply of one no Godrej make operator chair model PCH7001 or better , one no. of composite computer & printer table (Godrej work station table or better) for keeping MT , one no Godrej make operator chair model PCH7001 or better. Termination of indoor/ PijF cables in relay room on relays, tag blocks, CT racks as per approved wiring diagram including alterations/ modifications as required at site. Soldering to be done at all required termination. Dressing/ lacing of wiring shall be done neatly with help of dressing thread / plastic self-lock strip of suitable size. The tools/ equipments/ materials/ simulation boards required for testing shall be supplied / fabricated by contractor. This included replacement of modules/ cards/ LEDs/ equipments going defective during testing. Necessary power supply boards with required capacity plugs, sockets, surge & lightning protection boxes shall be supplied and installed by the contractor. 230V supply shall be arranged by Railways. In case supplies are required to be extended, from Power room / relay room then same shall be extended by the contractor with his own materials such as 1X16 sq. mm wires, cables, lugs,RCC/GI pipes, insulated ladders etc. After ST/LT testing, Factory Acceptance Tests (FAT) & Square Sheet testing system should be fault free while submitting to Railways, otherwise suitable necessary action can be taken by Engineer-in-charge."							
	Please see Item Breakup for details.				81804.80	AT Par	81804.80	

2	Description:- Design of SIP and submission of copy (three copy) for approval.					
3	Please see Item Breakup for details.	39486.00	AT Par	39486.00		
	Description:- Design of ST/LT/TOC/Square sheet/RCC (Three copy) for approval.					
	Please see Item Breakup for details.	296152.00	AT Par	296152.00		
4	Description:- Design of Circuit Diagrams consisting Wiring/ Logic diagram, contact analysis, fuse detail, Input/output bit chart, VDU diagram, Interface etc. submission of Three paper copies for approval.					
	Please see Item Breakup for details.	10858.00	AT Par	10858.00		
5	Description:- "Design of Miscellaneous diagram consist of Floor Plan of Relay Room , Battery Room, Power Equipment Room, Data logger room, Power Supply Diagrams along with power supply calculation, Earthing Diagram, Power panel diagram, IPS wiring diagram , Auto change over diagram , Block circuit wiring diagram, Digital Axle counter wiring diagram and all other relevant drawings (Three copy) for approval."					
6	B	2.00	Set	9873.00	19746.00	AT Par 19746.00
	Description:- Design of Cable Route Plan submission of Three paper copies for approval.					
	Please see Item Breakup for details.	1636.00	AT Par	1636.00		
7	Description:- Supply of Completion SIP in Original tracing along with Auto CAD copy in Pen Drive and Six set copies after approval.					
	Please see Item Breakup for details.	1580.00	AT Par	1580.00		
8	Description:- Supply of completions ST/LT/TOC in original tracing along with AutoCAD copies in Pen Drive and six set copies after approval.					
	Please see Item Breakup for details.	59230.00	AT Par	59230.00		
9	Description:- Supply of Circuit Diagrams consisting wiring/Logic diagram, contact analysis, fuse detail, Input/output bit chart, VDU diagram, Interface in Auto CAD in Pen Drive and Six set of Copies after approval.					
	Please see Item Breakup for details.	5922.00	AT Par	5922.00		
10	Description:- "Supply of diagrams consist of Floor Plan of Relay Room, Battery Room, Power Equipment Room, Data logger room, Power Supply Diagrams along with power supply calculation, Earthing Diagram, Power panel diagram, IPS wiring diagram, Auto change over diagram, Block circuit wiring diagram, Digital Axle counter wiring diagram and all other relevant drawing in original tracing along with AutoCAD in Pen Drive and six set copies after approval."					
	B	2.00	Station	1580.00	3160.00	AT Par 3160.00
11	Description:- Supply of final Cable Route Plan as per laid cable duly measured at every 30 m clearly indicating distance of laid cable from fixed point of reference & indicating all track crossings and tail cables in original tracing along with Auto CAD in Pen Drive and Six set copies after approval.					
	Please see Item Breakup for details.	127396.00	AT Par	127396.00		
12	Description:- Design and supply of cable courage plan, location particulars, Cable termination rack particulars, cable meggering report, earth resistance particulars, Traction bonding diagram, 1/2 wire count sheet and any other drawing in AutoCAD in A3/A4 size. The contractor shall initially supply 3 sets of circuits complete for approval of Railways. Railways will return one set to the contractor duly approved with alterations/corrections, if any. The contractor shall incorporate Railway's alterations/corrections in the tracings without any deviation and submit all tracings complete in all respects to the Railways along with PENDRIVE & 4 sets of final approved drawings. This includes designing of cable coreage plan based upon LP in consultation with engineer-in-charge For small/medium yards.					
	Please see Item Breakup for details.	48642.00	AT Par	48642.00		
13	Description:- Design and supply SWR Diagram on standard tracing paper of 95grams for each station, Corrected version of SWR plans after checked & approved by Rly's 25 Ferro copies will be supply for each of the plans.					
	Please see Item Breakup for details.	116740.00	AT Par	116740.00		
14	Description:- Preparation of SWR including supply of SWR booklets (25 Nos. per station).					
	Please see Item Breakup for details.	431896.00	AT Par	431896.00		
15	Description:- "Preparation of Cable Route Plan of buried S & T Cables using Radio Detector 8200 GS or Similar model GPS Model and DGPS for Per Trench per Km. For existing cables as per the instruction of Engineer in-charge. Submission of report in KMZ file format, Soft Copy Only."					
	B	2.00	Set	21176.39	42352.78	AT Par 42352.78

16	Description:- Installation, wiring, testing, and commissioning of Data logger complete along with accessories using Contractors' own wiring & fixing materials as per the following configuration. (It includes loading of NETWORKING software, networking of data logger, installation of FEP & Fault diagnosis system). The requisite communication cable/channel for networking will be arranged by Railway. 1024 digital & 32 analog inputs/ 4096 digital & 32 analog inputs. (All the Indoor & outdoor gears wiring in cataloged included in this along with laying 230V supply cable from IPS room, 12 core cable from auto change over for monitoring supplied.) Note- It included logging of all gears as per site incharge.					
17	Please see Item Breakup for details.		494260.88	AT Par	494260.88	
	Description:- Foundation, Erection & Installation of CLS without route indicator.					
18	B	12.00	Numbers	3059.68	36716.16	AT Par 36716.16
	Description:- Erection of CLS Post with base and signal unit on top or on OFF set Bracket, fixing of front and back staging, ladder and guards, signal name plates / boards if any with contractor's own brackets and fixing materials. This also includes erection of auxiliary signals like calling on, shunt signal if any. The work shall be done as per instructions of Rly engineer at site. It also includes provision & fixing of maintenance platform as per design given by Engineer -In-Charge at site. It also includes supply of padlock for signal units and cable termination box. 'X' arms to be provided by the contractor till the signals are introduced. The item includes cutting of Signal post if required by Site In charge. 2/3/4 aspect signal unit mounted on offset bracket with junction type route indicator 1/2/3 or multilamp lamp route indicators mounted on signal post.					
19	B	12.00	Numbers	738.50	8862.00	AT Par 8862.00
	Description:- Fixing of Junction type Route Indication 1-Way/2-Way/3- Way on the top of the signal post.					
20	B	6.00	Numbers	2391.56	14349.36	AT Par 14349.36
	Description:- Fixing of Calling-on Signal/A-Sign/AG-Sign unit on signal post. The item includes fixing of Co- On signal /'A' sign/ 'AG' sign unit on signal post with bracket, hood etc. Item includes supply bracket & fixing materials etc. by the contractor. The item also includes termination of cables & wiring inside Co- On signal /'A' sign/'AG' sign unit as per standard practice. Note- This item must be operated individually, Not to be operated in Installation/Erection of CLS.					
21	Please see Item Breakup for details.		82473.04	AT Par	82473.04	
	Description:- Foundation, Erection & Installation of Shunt Signal.					
22	B	17.00	Numbers	1930.03	32810.51	AT Par 32810.51
	Description:- Erection of Position Light shunt signal on Offset bracket on main signal.					
23	B	30.00	Numbers	22354.53	670635.90	AT Par 670635.90
	Description:- "Fixing of Electrical Point Machine on the extended sleepers at points as per std. practice and as per RDSO Drg No. SA 91 51-52 or 9710 or 9161 as per section of rails used. Item includes fixing switch extension bracket, providing insulation for switch extension bracket, fixing ground connection, adjusting opening of the switches and adjusting the point machine with crank handle. The item also includes - (i) Complete material for installation like ground-connections, switch extension brackets, point insulation material, I pipes, wiring materials, various fixing nuts & bolts including castle nuts, spring washers (ii) All smithy & fitting works required at site for complete installation. (iii) Installation of gauge tie plate & providing insulation for gauge tie plate (Insulation in William Stretcher Bar will be Provide by Railways). (iv) Wiring inside the point machine, insertion and termination of tail cable in point machine and junction boxes / location box /cable hut as per extant practice on WR and the instruction of Railway Engineer at site. (v) Supply and fixing of suitable size GI pipes with flange for taking cable into point machine. Note : The ground connections shall be suitable to the Point Machines as specified by Engineer-in-charge and shall be suitable to the point lay out i.e. 60 Kg. / 52 Kg / 90R as per yard layout. Electrical Point Machine and M-6 / Screw less terminals will be supplied by Railways / covered in Schedule separately."					
24	B	30.00	Turn-out	3120.46	93613.80	AT Par 93613.80
	Description:- Refixing of electrical point machine, ground connection during phase working (No interlocked working) after removing the existing fitting if any, adjustment if necessary, cable termination, wiring, testing and commissioning of electrically operated point, fixing and connecting point indicator on derail switch if necessary. The work shall be done as per extant practice on WR & the instruction of Railway Engineer at site.					
25	B	34.00	Per Track Circuit	6667.03	226679.02	AT Par 226679.02
	Description:- "Fixing and wiring of DC track circuit equipments i.e. track feed charger, resistance, track relay, battery, PPTC fuses etc., in the Apparatus Case and battery box as per standard practice. Termination of tail cable on M 6 / Screw less terminals WAGO or FINOLEX or similar approved make terminals/ fuse blocks / HRC fuse. Item includes testing /commissioning of track circuit. Complete wiring material (including PPTC fuses) which are not covered in Schedule will be supplied by contractor. (Supply of Track feed battery charger, track feed battery, resistances & 'B' type choke & Track relays will be supplied by Railways / covered in Schedule separately)."					
	B	34.00	Set	7328.72	249176.48	AT Par 249176.48

26	Description:- Installation of DC track circuits covering points zones also. The item includes provision of continuity bonds of seven strand PVC jacketed wire/ GI wire 8 SWG on rail joints after drilling bond-hole of 7.0/7.1/7.2mm Dia (double bond with sleeves and rail clips are to be provided at each rail joint), insertion of insulated block joint, fixing of Track lead junction box on MS angle two numbers of size 40X40X5 mm 1200 mm length for track feed/ jumper / track relay ends of track CCTs (as per double TLJB arrangements) and also for fixing jumper cables as per insulation diagram WR Drg No. CSTE/6055 and standard practice, making rail connections through suitable insulated sleeves from Track lead junction box at TF, jumper & TR end with seven strand PVC jacketed wire /GI wire 8 SWG, rail clips for fixing bond wire on the TLJB as per standard practice, termination of tail cables on bootleg terminals etc. TF/TR wiring shall be fixed on the suitable arrangement on PRC sleepers with the help of hooks. Hooks shall be provided on PRC sleepers with the help of suitable steel bracket. This item also includes fixing & supply of channel pins etc. The item also includes supply of MS angles/ trestles, GI wire 8 SWG / seven strand PVC jacketed wire, hooks, rail clips etc.						
	Please see Item Breakup for details.		198286.50	AT Par	198286.50		
27	Description:- Provision of Field accessories of DC Track Circuits						
28	B	100.00	Numbers	376.10	37610.00	AT Par	37610.00
	Description:- Charging of Lead Acid Batteries (2V 80AH) with contractors' own battery grade sulphuric acid and distilled water with a minimum of two charge-discharge cycles, installation of charged batteries in groups & their connection & wiring. The work shall be done as per the extant practice of W.Rly & instruction of the Engineer-in-charge. Detailed measurements of initial charging shall be recorded jointly by the contractor & Rly's site-in-charge.						
29	B	200.00	Set	185.47	37094.00	AT Par	37094.00
	Description:- "Provision of bonding with GI wire 4mm Dia (8 SWG) for track jumper & fish plate joints bonds. This will include drilling of 7.0/7.1/7.2 mm Dia holes in rails (4 Nos.) and provision of two jumpers for each bond, clipping of bonds etc. with contractors own tools as per instruction of Rly.Engineer at site."						
30	B	120.00	Numbers	1391.31	166957.20	AT Par	166957.20
	Description:- Erection, Fitting and Rail connection of Track Lead Junction Box on two supports (M.S.angle) with contractor's fixing material and PVC jacketed wire for track lead connection including angles of size 40 x 40 x 5 mm 1200 mm length This will include drilling of holes for track lead/side connections on rail. The work shall be done as per Drg. No. S&T/Const./JHS/T 115 & instructions of Rly engineer at site.						
31	B	2.00	Set	750808.56	1501617.12	AT Par	1501617.12
	Description:- "Supply, Installation, Testing and Commissioning of High Availability Single section digital axle counters with Dual sensor system as per RDSO/SPN/177/2012 version 3or latest. This includes The supply of High frequency web mounting type Tx coil/Rx coil, VR/PR Box duly wired, Vital relays, PR Relays, Clamp with deflector plates & hardware, Dual display reset box with auto resetting facility, Surge voltage protection devices and filter card to be mounted on din rail etc. as per OEM for complete installation & testing& commissioning of(HASSDAC) system NOTE: One set of HASSDAC system will include equipment required to monitor One Up line or One Den line of a full Block Section between two stations. Note: - "Supply of HASSDAC as per RDSO specification along with outdoor industrial grade enclosure (Approved by Railways) similar to Rattle/Pyrotech make."						
32	B	80.00	Numbers	366.58	29326.40	AT Par	29326.40
	Description:- Fixing & wiring of QNA1 / QNA1K relays for GPR Circuit in apparatus case as per Standard practice. Fixing and wiring material shall be supplied by the contractor.						
33	B	30.00	Numbers	5186.41	155592.30	AT Par	155592.30
	Description:- Fixing of KLCR and its without this includes supply of MS sheet box for fixing of KLCR relay along with push button etc. (KLCR will be supplied by Railway).						
34	B	14.00	Numbers	9184.44	128582.16	AT Par	128582.16
	Description:- Installation of Cable Termination Racks Assembly complete including wall supports, scaffolding, 8 way/ARA terminals /Screw less connectors, Tag blocks & other necessary accessories etc. The work shall be done as per approved plan, extant practice on WR & the instruction of Rly engineer at site.						
35	B	24.00	Each Module	915.42	21970.08	AT Par	21970.08
	Description:- "Installation wiring testing and commissioning of Fuse changeover system (FACS). This includes the provision of a common Buzzer & indication at the ASM Room & ESM Duty Room and the painting of fuse details. This also includes the fabrication of a frame for the installation of FACS at the Station/ LC gate where the installation of relay racks is not feasible."						
36	B	30.00	Per Telephone	2245.88	67376.40	AT Par	67376.40
	Description:- Wiring, installing of Magneto / DTMF telephone in ASM office, at locations, Relay Room, Point locations on both directions and siding Point Control locations as per instructions of Engineer In-Charge for traffic purpose.						
	B	8.00	Numbers	5732.92	45863.36	AT Par	45863.36

37	Description:- Supply & Fixing of Stop Board, Block section limit Board, goods warning board and all other boards with contractors own material. The work shall be done as per instruction of Rly. Engineer incharge as per IRSEM.					
	B	300.00	Numbers	5579.77	1673931.00	AT Par 1673931.00
38	Description:- Installation of Earth Electrode including MS flat for clamp etc. and connection to signalling equipments, lever frames, apparatus cases, signal, relay rack, block instrument, etc. as per technical specification given. This item includes digging of pit in earth 3 M deep & fixing earth electrode pipe, casting of cement concrete enclosure & cover as per RDSO/SPN/197/2016. Soil treatment to be done as per std. practice. This item includes provision of MS Flat, Earth lead wires and Soldering of lead wires. The other end of the wire is to be connected to block equipment, power equipment, cable sheath, and signals etc. as per site requirements. 7 strand GI wire shall be used as earth lead wire. (Supply of earth electrode is covered in other item).					
	B	2000.00	Numbers	22.75	45500.00	AT Par 45500.00
39	Description:- Fixing of ARA Terminals /Screw less connectors and fuse blocks on phenolic laminated sheets and fixing by stainless steel/brass nuts & bolts. This includes provision of two additional holes on the board on either side for cable conductor entry.					
	B	16000.00	Numbers	23.70	379200.00	AT Par 379200.00
40	Description:- Termination of outdoor cables, main cables laid in location boxes, Cable termination rack etc. at both ends on ARA terminal or on 8 way terminals or on screw less connectors. Both ends of a cable core terminated shall be counted as one terminal. This includes all associated works of pulling out the cable from underground, peeling off insulation, dressing of cable core supported on sting rod with contractor's own material. The work shall be done as per instructions of Rly engineer at site.					
	Please see Item Breakup for details.			32567.58	AT Par	32567.58
41	Description:- "Painting of two coats of synthetic enamel paint over one coat of primer on the following after scraping & cleaning surface wherever necessary with contractor's own supply of paints. Wherever required contractor shall apply coating of epoxy paint also as per instructions of site-in-charge. Epoxy paint will be supplied by Railways. NOTE-The paint and primer should be from Asian Paints/ Nerolac / Dulux / Berger. The primer / enamel paints (Aluminum synthetic, black enamel, brilliant white and yellow) will be as per (IS 5660 of 1970) / (IS 2932 of 1974)."					
	B	2.00	Station	3768.86	7537.72	AT Par 7537.72
42	Description:- Lettering & Numbering of detail and description writing of on relay rack, relays, cable termination rack, battery & power equipments, IPS, operating panel, axle counter etc. constituting entire system with contractor's own paint and writing material. The work shall be done as per extant practice on W.R Rly & instruction of Rly engineer at site.					
	B	20.00	cum	2061.36	41227.20	AT Par 41227.20
43	Description:- "Providing brick masonry in ratio 1:6 cement and mortar including plastering with 1:4 cement and sand mixture both sides, 20 mm thick each with contractor's owned class II bricks, including excavation, curing, grouting, bolting etc. wherever required. Bricks sand and cement to be supplied by the contractor."					
	B	20.00	cum	6259.00	125180.00	AT Par 125180.00
44	Description:- Cement concrete work for miscellaneous items in the ratio 1 : 3 : 6 . Item includes excavation, ramming, curing and plastering with cement & sand mixture (aggregate not exceeding 3.8 cm.) (Aggregate cement & sand to be supplied by the contractor).					
	B	30.00	cum	154.51	4635.30	AT Par 4635.30
45	Description:- Earthwork in filling in embankment, guide bunds, around buried type abutments, bridge gaps, trolley refuges, rain bunds if provided, platforms etc. with earth excavated from outside railway boundary entirely arranged by the contractor at his own cost as per RDSO's latest guidelines and specifications and special condition of contract including all leads, royalty, lifts, ascents, descents, crossing of nallahs or any other obstructions. The rates shall include all dressing of bank to final profile demarcation and setting out of profile, site clearance, removing of shrubs, roots of vegetation growth, heavy grass, benching of existing slope of old bank, all handling/re-handling. Taxes, Octroi and royalty etc. as a complete job. Cut trees shall be property of railways and to be deposited in the railway godown unless specified otherwise in the Special conditions of contract.					
	B	24.00	Month	48751.63	1170039.12	AT Par 1170039.12
46	Description:- "Hiring of non-AC SUV/MUV vehicle for Officer(up to 2500kms) Innova/ Hexa or similar type of vehicle including maintenance, major minor repairs, cost of lubrication, fuel, drivers and all other ancillary costs etc. complete. (2 no.s vehicle for 24 Months) ."					
	B	100.00	MT	452.58	45258.00	AT Par 45258.00
47	Description:- Transportation of S&T material leading up to 1 Km including Loading from Starting point, unloading & Stacking at destination.					
	B	24.00	Man-Month	31233.72	749609.28	AT Par 749609.28
48	Description:- Auto CAD engineer to be provided by contractor (the CV to be got approved by railway) Work of his/her given in technical specifications. He/ She will do duly in Dy. CSTE/C/office as well as in Field for making signaling drawing, Survey etc.					

	B	2000.00	Man-Days	707.28	1414560.00	AT Par	1414560.00	
49	Description:- Skilled man power to be provided by contractor for Engg. JCBs working to provide marking & supervisory work for the S & T cables during digging work by JCB's and repairing /restoring/jointing of cables, if damaged Cables & Joints Material will be provided by railway. While Chuna marking will be done by his/her Chuna will provided by contractor information for deputing skilled man power for above work will be provided by Railway Engineer incharge before 24 hours from commencement of digging by JCBs. They will check cables route by Cable route tracer and will do chuna marking and will show the cables (on rough sketch) available in a small length approximate 50-100 meters of digging. Note- Minimum two man will be provided at a time including Cable jointer, they will stay whole time during JCB digging work. (The CV to be got approved by Railway).							
	B	2400.00	Hour	1084.88	2603712.00	AT Par	2603712.00	
50	Description:- "Hiring of JCB Machine (in good working condition) for leveling and dressing ground/dismantling structures including disposal of debris through dumpers etc. with contractor's labour, JCB machine, machine operator, fuel, etc. The contractor shall arrange road permit for vehicle for all the states of operation, as per instructions of engineer incharge and vehicle shall not be more than three years old."							
	Please see Item Breakup for details.				577645.90	AT Par	577645.90	
51	Description:- "Excavation and Casting of Apparatus Case foundation with contractor's own materials including cement and anchor bolts of standard size. The required scaffolding Ferma etc. for Casting of foundation will have to be brought by the contractor at his own cost."							
	Please see Item Breakup for details.				80100.50	AT Par	80100.50	
52	Description:- Installation of Apparatus Cases with miniature 'E' type lock on CC foundation. This includes filling of location foundations with river bed sand and plastering on top of the sand. 'E' Type lock will be provided by Railway.							
	B	90.00	Numbers	5388.67	484980.30	AT Par	484980.30	
53	Description:- IS 13410: Glass Reinforced Polyester Sheet Moulding Compounds (SMC) Size of Sheet - (1000x1000x8)							
	Please see Item Breakup for details.				153379.20	AT Par	153379.20	
54	Description:- Fabrication and fixing of SMC sheet in location box by providing all fixtures as per Railway Drawing including fixing of PVC coated string rods at the back side for cable support with contractor's own materials. The work shall be done as per Drg and arrangement similar to SK 783-1/2. With latest alterations & as per instructions of Rly engineer at site. Note- SMC sheet will be taken in place of phenolic laminated sheet.							
	Please see Item Breakup for details.				23885.00	AT Par	23885.00	
55	Description:- Painting of two coats of synthetic enamel paint over one coat of primer on the following after scraping & cleaning surface wherever necessary with contractor's own supply of paints. Wherever required contractor shall apply coating of epoxy paint also as per instructions of site-in-charge. Epoxy paint will be supplied by Railways. NOTE-The paint and primer should be from Asian Paints/ Nerolac / Dulux / Berger. The primer / enamel paints (Aluminum synthetic, black enamel, brilliant white and yellow) will be as per (IS 5660 of 1970) / (IS 2932 of 1974).							
	B	50.00	Numbers	129.26	6463.00	AT Par	6463.00	
56	Description:- Lettering/ Numbering Termination particulars, equipments names etc., legibly and neatly inside location boxes. This includes supply of paints of Asian Paints/ Nerolac / Dulux / Berger make. (Full Case).							
	B	40.00	Numbers	88.18	3527.20	AT Par	3527.20	
57	Description:- "Lettering/Numbering Termination particulars, equipments names etc., legibly and neatly inside location boxes. This includes supply of paints of Asian Paints/ Nerolac/ Dulux / Berger make. (Half Case)"							
	B	400.00	cum	839.00	335600.00	AT Par	335600.00	
58	Description:- Excavation of cable trench as per cable route plan, 1 Mtr. deep and of 0.3 Mtr. to 0.6 Mtr wide advised by Engineer-in-charge alongside the track in normal (all type) soil/strata, conforming to distances as per cable route plan and refilling. This work includes clearing of route from bushes etc., covering of cable laid in trench by loose soil for a layer of 50mm thickness approximately before covering by bricks. The work shall be done as per the extant practice on Western Railway and instructions of Railway Engineer at site. In case 1m depth of trench is not achievable due to site conditions, specific approval of JA grade officer will be required for each site where trench depth of 1m is not possible. Without the approval of JA Grade officer, no payment for trenching will be made for trench depth less than 1m.							
	B	3000.00	cum	873.93	2621790.00	AT Par	2621790.00	
59	Description:- Digging of trench 1.2 M deep from rail flange/ road level and, 0.3 Mtr to 0.6 Mtr wide and back filling after placing of DW/C / RCC/GI pipe. (Placing of DW/C/RCC/GI pipe covered separately).The ballast disturbed be screened and dressed as required by Engineer-in-charge or his representatives and road tarred immediately. For track crossing, Drg. No. CSTE/3644 Pg.7 of 11 and for Road Crossing, Drg. No. CSTE/3644 Pg. 5 of 11 are to be followed.							
	B	200.00	cum	512.76	102552.00	AT Par	102552.00	

60	Description:- Digging of cable trench 0.3 Mtr. Deep and 0.3 Mtr. Wide on Asphalted Platform / Road / Hard rocky area. Refilling with earth leveling of trenches & restoring the original surface of trenches.						
	B	100.00	cum	438.73	43873.00	AT Par	43873.00
61	Description:- "Cutting of Hard rock in trenches /Preparation of cable way/Chase 150 mm wide at the bottom and 300 mm deep in hard rock (Drg prepared by contactor & approved by Engineer In charge) for laying of S&T cables where minimum required depth not possible & which is verified and agreed by Engineer In charge of the work. This representative shall be made as per Drg. No RE/S&T/ALD/SK/301/85. Refilling of the same with concrete mixture of 1:3:6 from top of the cable way/ chase. Payment of concrete will be made separately through a separate item in the schedule of work."						
62	B	200.00	Running Metre	468.16	93632.00	AT Par	93632.00
	Description:- Providing chase in hard rocky soil for laying of S&T cables where optimum depth (0.5m) is not possible and which is verified and agreed by engineer-in-charge. After laying of cables, it should be covered with PCC work in ratio of 1:3:6.						
63	B	2400.00	Metre	1187.85	2850840.00	AT Par	2850840.00
	Description:- "Horizontal direction drilling/boring without damage of surface road using Auger Machine. The bore shall be 150 mm Dia & shall be done at the depth of minimum 1200 mm from the ground level. The ground level shall be considered ignoring the bank height of the bank of the road. The length of the bore shall be minimum 4 Mtr long. The HDD with or without HDPE pipe as per direction of Engineer In charge. Note- HDPE pipe supply is taken as separate item. This item also includes cable laying (HDD boring)."						
64	B	2.00	Numbers	12567.83	25135.66	AT Par	25135.66
	Description:- "Digging of cable pit (min2x2x1m) as per instruction of Site Engineer, supplying and filling of sand before and after coiling the cables, covering top of the cable pit with stones and providing brick masonry on all four sides of the cable pit and plastering thereafter."						
65	B	2000.00	Running Metre	33.22	66440.00	AT Par	66440.00
	Description:- Placing of DWC/RCC pipes along with collars in trenches at places of track and road crossings, platform cuttings etc. also for straight cable laying. (Cable laying is covered separately.)						
66	B	200.00	Running Metre	418.07	83614.00	AT Par	83614.00
	Description:- Laying and fixing of Medium class GI pipes 100 mm Dia (4.5 mm thickness) as per IS 1239 (Part 1) 2004 or latest with coupling on culverts/bridges, perforated at a distance of 20 cm or less with 10 mm Dia hole, or at any other locations as decided by Site Engineer. The GI pipe is to be filled with chattered compound. It includes supply of all material required for fixing arrangement. Contractor will also supply flexible/corrugated HDPE pipe at the end of GI pipe to protect the cables from sharp edges and sudden bends. The laying and fixing to be done as per RDSO drawings No. SDO/cable laying/011 and SDO/cable laying/012, issued vide RDSO document No. RDSO/Sl/G/2010 Version 1.1 dated 04.02.2014, or latest.						
67	B	200000.00	Running Metre	9.37	1874000.00	AT Par	1874000.00
	Description:- Laying of S&T Cables of various cores/ pairs/ quads in trenches/ GI pipes/ RCC pipes/ DWC pipes/ Trucking. This also includes laying of cables in track crossings & road crossings. Item includes provision of labels of colored plastic adhesive tapes or any other identifiable material on each cable to give the cable number at each G.P.(Cables will be daggered before and after its laying by contractor under supervision of Railway Representative and he will submit the meggering report of each testing). Length of the cable laid includes the length of the cable coiled for termination purposes.						
68	B	300.00	Numbers	412.66	123798.00	AT Par	123798.00
	Description:- Supply and installation of RCC cable route marker engraved and painted on both side along the route every 50 mm and route diversion as per Drg. No 4014/00/CC4 or latest/ Stone marker.						
69	B	2.00	Set	1002274.30	2004548.60	AT Par	2004548.60
	Description:- Supply, Installation Testing and Commissioning of block proving by digital axle counter (BPAC) using UFSBI for Single line operation as per RDSO specn. No IRS/5/105/2012 (ver.0) it comprises of auto change over facility for quad and OFC working. Necessary modem for quad and ofc should be supplied along with auto changeover arrangement details are as follows. (i) Universal fail safe block interface (UFSBI) with complete accessories as per Rdso specn no. IRS/5/104/2012 (ii) block panel as per Rdso s-32019 (iii) relay rack with locking and sealing arrangement duly wired as per Rdso: s-32020 along with complete relays. (iv) Block telephone with accessories as per Rdso/spn/191/2005. (v) Automatic media changeover along with additional modem as per manufactures specification for BPAC using ufsbi (item no i) for supply of above items. Unit will be in set consisting of 02 no.s of each items.						
70	B	2.00	Set	88885.02	177770.04	AT Par	177770.04
	Description:- Installation, Testing & commissioning of Block panel including UFSBI equipment as per standard practice & directive on 1:3:6 CC foundations as per drawing No CSTE 6095.						
	B	1.00	LC Gate	49762.71	49762.71	AT Par	49762.71

71	Description:- "Installation, testing and commissioning of electrically operated lifting barrier, complete with Casting of cement concrete foundation for pedestal and boom rest post, cabling, power supply connection & wiring with complete outdoor work as per approved drawing, wiring etc."						
	B	1.00	LC Gate	15900.59	15900.59	AT Par	15900.59
72	Description:- Complete Indoor wiring testing & commissioning of station / LC Gate. This includes: (i) Prewiring & fixing of all base plates as per approved wiring diagram. (Supply of relay base covered in schedule 'A'. Excess quantity of base plate, if required will be supplied by Railways, prewiring of which will be done by the contractor.) (ii) Fixing of Relay groups on relay racks. (iii) Soldering of tag block terminals, dressing of wires as preapproved rack arrangements/Circuit diagrams. (iv) Wiring on bus bar, fuse base condenser, resistance etc. as per wiring diagram (v) Wiring on Relay rack to relay rack via IDF, IDF to CT rack in relay room. (vi) Wiring on panel tag block shall be repeated on tag blocks located on IDF & CT rack in relay room. (vii) Wiring between control panel room & relay room. (viii) Supply of simulation panel, which shall be separate for each station and shall be left after commissioning. (ix) Provision 200 way tag blocks for data logger and providing jumpers between voltage free terminals on relay racks and data loggers, tag block with 0.6sq mm cable. (x) Wiring between Integrated power supply and data logger tag block with one square mm /0.6 sq. mm cable as per instruction of Engineer in- charge. (xi) Wiring of key lock arrangement at SM's office/ site & Earth leakage detectors. (xii) Wiring of block instruments from CT rack to block instrument terminals and includes supply & laying of indoor cables for this purpose as per standard arrangements xiii) All wiring & wiring materials necessary to complete Station/ LC gate (Within station limit) Installation but not cover in the schedule anywhere (xiv) Writing of description on all relays & other indoor equipments Note: All wiring shall be done as per std. practice of Railways with neat dressing & threading. All wiring will be done as per standard practice of Railways with neat dressing & threading. Detailed testing will include functional testing, selection table, and locking table and cross sheet testing with the help of operating panel and simulation panel in the presence of railway officials to their satisfaction. A copy tested selection table, locking table and cross sheet duly signed by contractor to be submitted to field office for record. This included supply of lamps for simulation panel for testing Note- Contractor will Put sufficient Staff to carry out the testing round the clock, if desired by Railway Engineer and will ensure that any alteration which become necessary during testing are carried out & testing is repeated wherever required.						
	B	1.00	LC Gate	26702.78	26702.78	AT Par	26702.78
73	Description:- Casting of CC foundations in the ratio of 1:3:6 for sliding boom as per Drg. Minimum 10 No.s of foundation per set shall be cast using standard size holding down bolts & nuts for erection. Item include excavation, ramming, curing and plastering 1:4 cement and sand mixture. Aggregate, cement, sand and holding down bolts & nuts to be supplied by the contractor.						
	B	1.00	Numbers	15908.46	15908.46	AT Par	15908.46
74	Description:- "Installation & commissioning of Sliding booms with E type lock and KLCR. This includes wiring of KLCR, running of cables, necessary, painting & transportation of materials from store to site. All material required to commissioning of slide booms on gate will be supplied by the contractor."						
	B	2.00	Numbers	5015.64	10031.28	AT Par	10031.28
75	Description:- Supply & installation of powder-coated MS Sheet KLCR Box for LC Gates to house 2/3 KLCR.						
	Please see Item Breakup for details.			218028.92	AT Par	218028.92	
76	Description:- "Installation, Wiring and testing of Integrated Power Supply System. This includes power distribution connection to bus bars and relay racks in the room with contractor's own wiring materials and fabrication and fixing of AC/DC power distribution board made on 8mm thick SMC sheets or any standard make with connections suitable for 32 A. Wiring to be done considering site requirement, depending upon the load with suitable wires, lugs & glands as per instructions of Engineer-in-charge. The work includes installation of ELD's, fixing & wiring of change over switch(program switch) for selection of DG set supply (DG1 & DG2) and wiring of change over switch (program switch) for selection of mains or DG supply. This item also includes supply & fixing of ladder along the wall for carrying power supply wires/cables from IPS room to Relay room/power room etc. Any masonry work required will be carried out by contractors own material."						
	B	2.00	Lot	21700.75	43401.50	AT Par	43401.50
77	Description:- "Installation of LT Power Panel/Power distribution panel/ Auto Changeover Panel, power supply equipments such as Rectifiers Transformers, Battery chargers etc. including mounting on wooden planks/Hylam Sheet and complete wiring for automatic change over arrangement, mounting of Program switches on Bakelite sheet of size 300mm x 300 mm x 8 mm fitted to MS angle (size 25mm x25mm x 5mm) brackets, wiring as per requirements. Necessary wires to be supplied by Rlys, lugs & glands to be supplied by Contractor."						
	B	20.00	KVA	1097.04	21940.80	AT Par	21940.80
78	Description:- Provision of Power supply arrangement, with contractors own Generating sets, capacity 5 KVA or above as per requirement of Station Signalling load, for testing of Signalling system in the case of irregular Local power supply /under capacity AT,s supply system at station. {per Set/Day}.						
	B	30.00	Numbers	299.74	8992.20	AT Par	8992.20
79							

	Description:- "Installation and commissioning of various classes of lightening cum surge protection device as decided by site engineer. This include supply and fixing of any other material required to complete the installation & commissioning of lightening cum surge protection device."							
80	B	10.00	Kg	121.63	1216.30	AT Par	1216.30	
	Description:- Rubber Mat for Power Equipment room. (5mm thick).							
81	B	8.00	Numbers	6785.00	54280.00	AT Par	54280.00	
	Description:- Installation of Microcontroller based programmable static switching module (Auto changeover).							
82	Please see Item Breakup for details.				3110980.70	AT Par	3110980.70	
	Description:- Supply, Installation, Testing and Commiioning of fire alarm system as per RDSO spec. No. RDSO/SPN/217/2021 version 2 or latest.							
83	B	125.00	Per Detection Point (DP)	15648.00	1956000.00	AT Par	1956000.00	
	Description:- Installation of track device (double rail contact) including digging of trench, track crossing, laying of anti-rodent, anti-oxidant & non-flame propagating type Double Walled Corrugated (DWC) pipe as per IS- 14930 part- I or II or latest and all other accessories as per site requirement to be for laying of transmitter and receiver cable. The item also includes installation of EJB / Track side Electronics including foundation & earthing as per OEM's guidelines and Technical requirement & specification with their own material. NOTE- Installation / programming / configuration / commissioning of Axle counter equipment to be carried out in accordance with latest guidelines issued by Railways/RDSO preferably by Authorized representative of OEM.							
84	B	4.00	Numbers	11984.00	47936.00	AT Par	47936.00	
	Description:- Installation of Central Evaluator of axle Counter, wiring from CT rack to Central Evaluator, installation and wiring of the reset box, LV box (if required) and associated power supply wiring. This includes supply of shielded cable of required conductor size for wiring between CT rack to evaluator rack, all other wires, power supply cable and wiring materials. The power supply cable from power room to Central Evaluator should not be less than 10 sq.mm PVC wire. Earthing as per OEM's guidelines & specification with their own material. This also includes painting and writing work on evaluator as per site requirement. NOTE- Installation /programming / configuration / commissioning of Axle counter equipment to be carried out in accordance with latest guidelines issued by Railways/RDSO preferably by Authorised representative of OEM.							
85	B	10000.00	Numbers	7.00	70000.00	AT Par	70000.00	
	Description:- "Provision of ferrules on Cable, As per the latest guideline of Railways, which includes all associated work like printing, identifying, fixing, etc.(POLICY NO-02/2024/latest)"							
86	Please see Item Breakup for details.				2131462.82	AT Par	2131462.82	
	Description:- " Supply and Installation of Solar Power system for 110volt/300AH battery bank load as IPS System. Each panel containing the following items."							
87	B	10.00	Numbers	7779.15	77791.50	AT Par	77791.50	
	Description:- Installation of Microcontroller based Quad Cable Conductor's Earth Resistance Sensing Unit, for 24 nos. conductors with metering facility for one conductor at a time							
88	B	10.00	Numbers	982.67	9826.70	AT Par	9826.70	
	Description:- Dismantling/Releasing of the existing outdoor signalling items such as CLS unit with posts alongwith base, lever frames (5 levers set), battery box with equipments, location box with equipments, block instruments, point machines, mechanical point, AFTC/DAC, Relay rack, CT Rack alongwith Relay rack, IDF with all accessories. All these unit will be counted as one no. along with their accessories. This includes the cost of transportation of released material from site to Railway Scrap Depot. (No. to be read as per Signal/Track device/Location/Point/CT Rack/RR etc)							
S.No.	Item Code	Item Qty	Qty Unit	Unit Rate	Basic Value	Escl.(%)	Amount	Bidding Unit
Schedule () C-Supply of MSDAC							39274463.75	Above/ Below/Par
	C	125.00	Per Detection Point (DP)	314195.71	39274463.75	AT Par	39274463.75	

1

Description:- Supply of Multi Section Digital Axle Counter (MSDAC) for mentioned detection Point by the purchased & track Section as per SIP, complete with all accessories, cable required with each track device & card viz. Axle detectors, Track Side Electronics/DAC field units, Central Evaluator (Central Evaluator unit should be housed in a pre-fabricated rack to be supplied along with the system), reset unit, Relay unit, Event Logger & Diagnostic terminals, etc. Required for different Detection Points & Track Sections as per RDSO Specifications No. RDSO/SPN/176/2013, Ver.3 or latest and OEM/manufacturer's specification and as per Annexures. (Quantity 01 No. = 01 DP) Inspection Authority: RDSO. Note - As per WR's Policy No 03/2024 Para No. 3.4.2 .e .iv "VDU/Reset box can be used for resetting. At Stations having more than 10 Track sections, the Railway propose to use a separate VDU-based resetting system. Such a VDU-based system if using a PC, it must be industrial grade".

-END OF DOCUMENT-

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

DY CSTE C BRC acting for and on behalf of The President of India invites E-Tenders against Tender No **SnT_C_BRC_138_2024-25** Closing Date/Time 26/05/2025 15:00 Hrs. Bidders will be able to submit their original/revised bids upto closing date and time only. Manual offers are not allowed against this tender, and any such manual offer received shall be ignored.

1. NIT HEADER

Name of Work	"Design, Supply, Installation, Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPAC proving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling System in Jambusar and Samni Section in connection with provision of Gauge Conversion work under Dy.CSTE Construction Vadodara Division, Gujarat (Western Railway		
Bidding type	Normal Tender		
Tender Type	Open	Bidding System	Two Packet System
Tender Closing Date Time	26/05/2025 15:00	Date Time Of Uploading Tender	01/05/2025 16:45
Pre-Bid Conference Required	No	Pre-Bid Conference Date Time	Not Applicable
Advertised Value	157320335.49	Tendering Section	BARODA DIV
Bidding Style	Single Rate for Each Schedule	Bidding Unit	
Earnest Money (Rs.)	936600.00	Validity of Offer (Days)	90
Tender Doc. Cost (Rs.)	0.00	Period of Completion	12 Months
Contract Type	Works - General	Contract Category	Expenditure
Bidding Start Date	12/05/2025		
Are JV allowed to bid	Yes	Number of JV Member Allowed	3
Are Consortium allowed to bid	No	Number of Consortium Member Allowed	0
Ranking Order For Bids	Lowest to Highest	Expenditure Type	Capital (Works)

2. SCHEDULE

S.No.	Item Code	Item Qty	Qty Unit	Unit Rate	Basic Value	Escl.(%)	Amount	Bidding Unit
Schedule () A-Supply of Items							82558896.63	Above/ Below/Par
1	A	467.00	Per Functional Vital Bit	83238.19	38872234.73	AT Par	38872234.73	
	Description:- "Design, manufacture and supply of Hot Standby Architecture Electronic Interlocking (EI) system i.e. Distributed or Centralized as per requirement of zonal railway, complete as per RDSO specification and as per attached technical requirement & tentative approved Signalling Plans & Diagrams. This include Central Processing Equipment , Interface Equipment, All Interfacing Relays suitable for EI, In-built event Logger, interconnecting cables and Jumper wires, Required power supply converters for EI equipments, Housing for EI equipments & relay racks , fuses , screw less disconnecting type terminals, fixture mounting arrangements, Industrial grade maintenance Terminals (32" LED or higher size with UPS minimum 1 hr back up with Printer) and other necessary accessories to make the EI system functional as per approved signalling plan.All items shall be supplied as per, per functional bit/station for functioning of EI. Negative variation in functional bit not permitted and for positive variation card wise/Modules etc. breakup should furnish by tenderer. Technical Requirement- (1) No of Bits Each station. (2) Architecture-Minimum 2 out of 2 (3) Non vital I/O- can be used only for accessories where SIL-4 condition required. (4) Station less than 200 routes- RDSO/SPN/192/2019 Ver.2.0 with latest amendment. 5.Station greater than 200 routes - RDSO/SPN/203/2011 Ver1 or latest. Supply of 10% Essential spares of the EI equipments subject to minimum one of each type mainly consisting of processor, cards/ module, interface relay, DC-DC Convertors, Moxa switch, OFC Connectors, etc. Item wise detailed break up with unit and quantity to be provided in separate annexure. (The quantity involves 10% spare). Note - Rate does not include cost of VDUs and Embedded PC . Dual operator Industrial Grade VDU panel and Embedded PC will be taken separately. SAMNI (293), JAMBUSAR (174) "							
	Please see Item Breakup for details.				433185.00	AT Par	433185.00	

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

2	Description:- "Supply, Installation and Commissioning of EI VDU (Visual Display Unit, 4 K with all suitable accessories Compatible to EI Interlocking in Safe Mode 24x7 at controlling station. The item must comply minimum following specification- (a) Screen Size (Diagonal):- As below (b) Resolution :- 4K (c) Viewing angle degree: - 178x178 degree (d) Brightness :- 500 Nits (e) contrast ratio 4000:1 (f) Backlit :- Direct LED (g) Jack Interface: - HDMI -3 no. 1.2 DP, DVI USB 2.0 -2 no. CI Slot RF In AV In Component In (RCA5 Type) Digital Audio Out RGB In (D-sub 15pin)-PC PC Audio Input RS232C (D-Sub 9pin) RJ45 Stereo mini jack. (h) Optical Out :- Available Note- Screen size will be decided as per instruction of engineer incharge."						
3	A	2.00	Numbers	272862.00	545724.00	AT Par	545724.00
	Description:- "Supply and Installation of Modular power supply arrangement for VDU and industrial PC (Embedded PC) with input and output redundancy arrangement and Hot pluggable Modules as per RDSO specification. Make - Gallant or similar. One set consists of- (1) Input O- ring diode module with potential free -1 No contacts (PFC) for two 110 V DC sources from IPS and single 110 VDC bus Qty 1 No. (2) Isolated Inverters (Master / slave) - Input-110 V DC Output: 120 V AC/220V A500VA - 02 Nos.(3) Isolated DC-DC converters- Input : 110 v DC Output : 24 V DC/ 10A,Qty -10Nos (4) 3 U SS rack with back panel mother board /front panel power connectors inverter auto change over switch and all required over switch and all required protection circuits (3U height for main rack 132.5mm +/-10% & 1U height for mounting 44.5mm +/- 10%) Qty - 1 No.Make- Gallant or similar."						
4	A	2.00	Set	147350.87	294701.74	AT Par	294701.74
	Description:- Portable workstation for Data input & configuration with necessary software/ programs / Accessories, simulation and functional testing, diagnostics, and troubleshooting and commissioning of EI system. A suitable table and chair of a reputed make shall be supplied by the contractor. Note: The specification of the portable workstation shall be as per the Technical specification given in Annexure or higher version as approved by Engineer In-Charge. All the required software should be uploaded Licensed CD should be given along with the software. (Name of the reputed firm and technical specification shall be written in tender documents.)						
5	A	2.00	Set	130201.33	260402.66	AT Par	260402.66
	Description:- Instruments and Tool Kits required for Trouble Shooting and repair of hardware and software for the EI system should be supplied for stations as per schedule item 1 above. This includes tools required for EI maintenance sorts of crimping, insertion, removal. General purpose tools like screwdrivers, spanners, PCB extractor, temp. Controlled soldering iron, wire cutter, nose pliers, etc. Measuring instruments with carrying case/ holders/ cabinet for technicians/ J.E. for testing, Maintenance and repair at the site). Each set comprises the following - (1) Crimping tool for all types of special cable assembly used in EI system. (2) Insertion tool for all types of special cable assembly used in EI system. (3) Removal tool for all types of special cable assembly used in EI system. (4) Digital multimeter (Fluke 111 or better) (5) Steel cabinet/ Almira, Size: 1980mm height, 915 mm width and 485 mm depth (Godrej Make/Jalaram) of good quality to store tools, spare cards and documents.(6) Clamp Earth Tester. (7)Clamp Current Meter.						
6	A	2.00	Numbers	966052.64	1932105.28	AT Par	1932105.28
	Description:- Pyrotech Workspace make New Modular Control Desk size 4102x2576 mm for provision of 02 Nos. Monitors made in "XLAT" system. (1) Table Top - The material of the working surface shall be made of thermally treated Aluminum -Trihydrate and acrylic resin material supported on minimum 25 mm thick MDF base. (2) Structure- Powder Coated Aluminum Sturdy Structure and extreme side Aesthetic Legs. The structure shall be rigid enough to withstand BIFMA X5.5: 2014 (Latest Edition). (3) Monitor Arm - UL certified monitor arm assembly shall have auto lock, push & remove feature for quick release of VESA mounts and modular arm extensions for ease in maintenance and fixing of monitor by one technician within 30 seconds without using any tools. (4) Shutters & Side Legs - Front and back shutters shall be of 18 mm Laminated MDF Board with premium finish Side leg.						
7	A	2.00	Job	133269.46	266538.92	AT Par	266538.92
	Description:- Earthing of EI equipment, relay racks and Power equipment etc. to be done along with the supply of all requisite materials. Earthing shall be in the form of Ring Earth conforming to RDSO specification No. RDSO/SPN/197/2008 (with a min. of 6 maintenance free earth electrodes) & RDSO Drawing issued under Railway Board letter No. 2010/Sig./SGF/EI (Ansaldo) Dated 22.06.11, made using copper rings with earth resistance less than 1 ohm. The earthing shall be maintenance free & earth enhancement compound should be used. The ring earth shall be connected to copper flat of size 25x3 mm in the relay room and IPS room. This copper flat shall be fixed on the wall to the entire breadth of the Relay room and IPS room as an earth bus bar and all earth connections shall be taken from it. A, B, C, & D class protection shall be provided for all EI equipment. Note - This will also cover the earthing & necessary protection of EI equipment as per details given in the scope of work of Special Condition of Contract and other requirement given in Chapter of tender document & Pre- commissioning check list of EI system.						
8	A	8.00	Man-Days	1133.48	9067.84	AT Par	9067.84
	Description:- Training of Officers for installation, Commissioning, Testing, and Repairs & Trouble shooting of the EI system. (Hard copies of training material/ course modules to be given to each participant).						
9	A	20.00	Man-Days	1219.30	24386.00	AT Par	24386.00
0							

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

	Description:- Training of Technician/ Jr. Engineer for installation, Commissioning, Testing, Repairs & Troubleshooting alteration, design of EI system, as per details given in Special Condition of Contract. (Hard copies of training manuals/ course module to be given to each participant).						
10	Please see Item Breakup for details.			1260625.00	AT Par	1260625.00	
	Description:- "Data logger system for Railway S&T installation As per spec. IRS: S-99 2006 (Amdt-3) or latest. Central Monitoring Unit (Hardware Configuration as per Annexure) with UPS minimum 06 hrs battery backup and required Software tools. This also includes the supply of one no composite computer & printer table (Godrej workstation table) for keeping the Processor module and one no Godrej make operator chair model PCH7001."						
11	A	2.00	Set	52451.40	104902.80	AT Par	104902.80
	Description:- Failure Analysis & Fault Diagnostic software for data logger of 1024 digital inputs /4096 digital inputs.						
12	A	2.00	Numbers	287336.91	574673.82	AT Par	574673.82
	Description:- Failure Analysis System or Central Monitoring Unit with Printer. As per technical specification IRS: S-992006 (Amdt-3) or latest. The specification of Failure Analysis System should be got approved from the Engineer in charge before supply. The Specification of Failure Analysis System shall be as per technical specification given in contract Agreement or higher version as approved by Engineer In-Charge. (Technical specification shall be provided in tender documents.)						
13	A	2.00	Numbers	33329.05	66658.10	AT Par	66658.10
	Description:- 750 VA Off line UPS with battery backup 3 Hours for Failure Analysis System of reputed make as per Engineer in-charge.						
14	A	17.00	Numbers	8199.23	139386.91	AT Par	139386.91
	Description:- Main Signal Post Tubular 140 mm Dia, 4.6 Mtr Length as per IRS: S-6/81 or Latest & RDSO Drg. No. SA-24625 (Advance).						
15	A	17.00	Numbers	10895.41	185221.97	AT Par	185221.97
	Description:- Main Signal Post Tubular 140 mm Dia, 5.6 Mtr Length as per IRS: S-6/81 or Latest & RDSO Drg. No. SA-24625 (Advance).						
16	Please see Item Breakup for details.			131475.28	AT Par	131475.28	
	Description:- Supply Color Light Signal Accessories.						
17	A	34.00	Numbers	7441.30	253004.20	AT Par	253004.20
	Description:- Main LED Signal lighting unit working on 110v ac as per RDSO specn. No. RDSO/SPN /199/2010 rev.1.1 retrofit table in existing CLS housing (sa23002, s23024/m) Red Aspect.						
18	A	17.00	Numbers	8496.65	144443.05	AT Par	144443.05
	Description:- Main LED Signal lighting unit working on 110 v ac as per RDSO Specn. No. RDSO/SPN/199/2010 rev.1.1 retrofit table in existing CLS housing (sa23002, s23024/m) GREEN Aspect.						
19	A	40.00	Numbers	7441.30	297652.00	AT Par	297652.00
	Description:- Main LED signal lighting unit working on 110 v ac as per RDSO Specn. No. RDSO/SPN/199/2010rev.1.1 retrofit table in existing CLS housing (sa23002, s23024/m) Yellow Aspect.						
20	A	6.00	Numbers	4932.78	29596.68	AT Par	29596.68
	Description:- Main LED Signal lighting unit 110 v ac for calling on signal in Railway signaling as per RDSO/SPN/153/2011 (rev. 4.1) or latest						
21	A	60.00	Numbers	4935.39	296123.40	AT Par	296123.40
	Description:- Main LED Signal lighting unit110 v ac for Shunt Signal in railway signaling as per RDSO/SPN/153/2011 (Rev. 4.1) or latest.						
22	A	17.00	Numbers	4439.28	75467.76	AT Par	75467.76
	Description:- Offset brackets for Main Signal, made of tubular steel, outer diameter 140 mm, thickness of pipe 4.5 mm. horizontal length of pipe 545 mm & vertical length of pipe 324 mm with fixing arrangement on Main Signal post as per Drawing No SW/554/G/R.						
23	A	19.00	Numbers	28577.72	542976.68	AT Par	542976.68
	Description:- Non Metallic (FRP) color light signal housing multi-unit type for railway signaling suitable for RE area TWO Aspects. Complete without lenses, lamps and signal transformer as per RDSO DRG. No. SA 23001/A/M Adv. Alt- S and as per SPEC. No. RDSO/SPN/194/2006 (Vol. 1.0) or latest and FRP material as per RDSO SPEC. No. RDSO / SPN / 151/ 1997 or latest.						
24	A	15.00	Numbers	29823.91	447358.65	AT Par	447358.65
	Description:- "Non Metallic (FRP) color light signal housing multi-unit type for railway signaling suitable for RE area THREE Aspects. Complete without lenses, lamps and signal transformer as per RDSO DRG. No. SA 23001/A/M Adv. Alt- S and as per SPEC. No. RDSO/SPN/194/2006 (Vol.1.0) or latest and FRP material as per RDSO SPEC. No. RDSO/SPN/151/1997 or latest."						
25	A	2.00	Numbers	33303.86	66607.72	AT Par	66607.72

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

			Description:- Non Metallic (FRP) color light signal housing multi-unit type for railway signalling suitable for RE area FOUR Aspects. Complete without lenses, lamps and signal transformer as per RDSO Drg.No. SA 23001/A/M Adv. Alt- Sand as per SPEC. No. RDSO/SPN/194/2006 (Vol.1.0) or latest and FRP material as per RDSO SPEC. No. RDSO/SPN/151/1997 or latest.				
26	A	8.00	Numbers	21050.52	168404.16	AT Par	168404.16
			Description:- Non Metallic (FRP) Junction route indicator unit 1 ways as per Drg. No. RDSO SA 23403 suitable for LED Signal Lighting Unit & as IRS: S-66/84 amndt-1 or latest.				
27	A	2.00	Numbers	35164.69	70329.38	AT Par	70329.38
			Description:- Non Metallic (FRP) Junction route indicator unit 3 ways as per Drg. No. RDSO SA 23403 suitable for LED Signal Lighting Unit & as IRS: S-66/84 amndt-1 or latest.				
28	A	7.00	Numbers	21442.84	150099.88	AT Par	150099.88
			Description:- Non Metallic (FRP) Junction route indicator unit 4 way as per Drg. No. RDSO SA 23401 suitable for LED Signal Lighting Unit & as IRS: S-66/84 amndt-1 or latest.				
29	A	6.00	Numbers	2669.43	16016.58	AT Par	16016.58
			Description:- Calling ON Signal Unit with Brackets & Fixing accessories. Calling On Signal Unit shall conform to RDSO Drg no 24351(Adv.) Alt1 suitable to LED Signal Lighting Unit.				
30	A	8.00	Numbers	4530.07	36240.56	AT Par	36240.56
			Description:- "Position Light Shunt Signal Unit Complete with Post (made of GI Pipe of 80 mm Diameter Medium Class IS Spec. No. IS: 1239 Pt. 1/1990) Base, Hood, and Cover, etc. as per Drg. No. SA-23840, Signal Number Plate, suitable for LED Signal Lighting Unit. (Supply of LED Unit is not covered in this item)."				
31	A	18.00	Numbers	3359.74	60475.32	AT Par	60475.32
			Description:- Position Light Shunt Signal Unit Complete, with offset bracket, hood, Cover etc. as per Drg. No. SA-23840 suitable for LED Signal Lighting Unit. (Supply of LED Unit is not covered in this item).				
32	A	40.00	Set	1280.82	51232.80	AT Par	51232.80
			Description:- "Fabrication and fixing of 'A' Marker (Drg No. CSTE/6180), 'AG' Marker (Drg No. CSTE/6181), 'P' Marker (Drg No. CSTE/6182), Arrow Marker (Drg No. CSTE/6183), 'G' Marker (Drg No. CSTE/6184), 'C' Marker (Drg No. CSTE/6185). Marker disk on signals as per standard practice All material required for this work shall be supplied by Contractor."				
33	A	30.00	Numbers	120528.49	3615854.70	AT Par	3615854.70
			Description:- "Electric Point Machine ,Non Trailable, Internal Locking, 220 Mm Throw With IP 67 Motor, Minimum AC Immunity 400Vac With Tools And Complete Accessories Including Complete Ground Connection And All Insulation, Crank Handle And Along With Clamp Point Lock 60Kg, TWS As Per Drg.No. RDSO/S/11000 As Per Rdso Spn. lrs:- 24/2002 With Amd.01 Or Latest. IRS Type."				
34			Please see Item Breakup for details.		376001.92	AT Par	376001.92
			Description:- Supply of DC Track Circuit Accessories as follows -				
35	A	10.00	Numbers	282.46	2824.60	AT Par	2824.60
			Description:- Hydrometer, Exide make or similar for measuring the specific gravity of Battery Graded acid with mounting stand in location Boxes.				
36	A	2.00	Set	125614.33	251228.66	AT Par	251228.66
			Description:- Standard Tool kits, Test and Measuring instruments required for Installation, testing, commissioning & maintenance of HASSDAC. Kit will includes all tools & measuring instruments as per ANNEXURE (Annexure shall be attached with CA).				
37	A	2.00	Set	144043.40	288086.80	AT Par	288086.80
			Description:- "Supply of Tools Kit for Digital Axle Counter (Multi section/Single section). (MSDAC comply to the RDSO spec. No. RDSO/SPN/176/2013/Ver.3 or latest and manufacturer's specification and SSDAC comply to the RDSO/SPN/177/2012,Ver.3 or latest respectively). The tool kit shall be minimum equipped with the following equipments- (i) All mechanical tools shall be of reputed make like Taparia/Bosch etc. (ii) Digital multimeter true RMS type of make Fluke 189 or similar reputed make with probe set - 1 No. (iii) Adjustable torque wrenches 25-135 N/mtr with 13 mm and 19 mm inserts- 1 set (iv) Set of spanners screw drivers and soldering iron - 1 set (v) Dummy wheel - 1 No. (vi) Marking Jig - 1 No. (vii) Adapter card - 1 No. (viii) Extended wired socket to interface with diag No. stic plug - 1 No. (viii) Selector switch on panel base - 1 No. (ix) DAC EC card puller etc."				
38	A	100.00	Numbers	5525.31	552531.00	AT Par	552531.00
			Description:- Relay, AC Immune, Plug-in-type, style "QNA1K" ACI DC Neutral line, 24V D C 1000 Ohms 6F.6B contacts, front contacts metal to carbon and back contacts metal to carbon. Complete with plug board, retaining clip and connectors confirming to IRS: S34, IRS: S23, BRS931A. As per RDSO Specification No. STS/E/Relays/UEA (PI) Dt.30/05/97. Annexure II. The interlocking pin code CDEKY.				
39	A	50.00	Numbers	4878.90	243945.00	AT Par	243945.00
			Description:- Miniature, Plug in Type, M to C,DC Neutral ,Track relay, ACI, Style QTA2, 9 Ohm, 2F-1B contact, Code - FGKX Spec : BRS :939-A & 966 (Appx-F2) & IRS : S-23, S- 23,S-34 & 60.				
	A	20.00	Numbers	5393.68	107873.60	AT Par	107873.60

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

40	Description:- Miniature, Plug in type, M to C, AC immunized, DC biased Track Relay, 2F-2B contacts, style QBAT-9 ohms. Code ABEJX Spec:- RDSO/SPN/84 Ver. 2 : IRS - S@ 45"44@IRS-S-23, IRS-S@ 45<45@ 78.						
	A	2.00	Numbers	5242.00	10484.00	AT Par	10484.00
41	Description:- Relay fail safe electronic time delay device mounted on Q series relay base and cover with fixed timing of 60/120 second confirming to IRS:S:61/2000(ver.1.0) (Amdt. 3) or Latest,IRS:S:34 and IRS:S:23 (as applicable). The Interlocking code for this unit shall be AFGKY.						
	A	30.00	Numbers	9743.97	292319.10	AT Par	292319.10
42	Description:- Key Lock Relay working on 24V DC, AC immunize with different ward combinations (Three ward plates to be supplied with each relay). Key ward shall be specified by engineer incharge as per requirement.						
	A	1.00	Numbers	1536.49	1536.49	AT Par	1536.49
43	Description:- "Supply and fixing of CH/KLCR boxes appropriate size in field / in location boxes / in SM office / at LC gate as per site condition. It should be made of Hylam /wooden (teak wood) o f high quality as per requirement. Item includes supply of any minor bracket nuts, bolts and hole drilling MS angle, MS plate etc. It also includes fixing of KLCR relays in the boxes. Prior approval to be taken from Engg. In charge before supply of box."						
	A	2.00	Numbers	3089.90	6179.80	AT Par	6179.80
44	Description:- Supply o f self supported aluminum flat step ladder (conforming to ISI) 5 ft. height. Ladder should be self- supported and it should be made up of rust proof Aluminum of Min 16 SWG. No plastic hinges/Step support should be used.						
	A	2.00	Numbers	58030.77	116061.54	AT Par	116061.54
45	Description:- Supply of Smart Cabinet/Rack for Housing of Various S&T equipments like KLCR, Reset Box, IPS Indication Panel, CA VA Unit for FACS, SP AU for Point Reversal, Crank Handle, Quad Cable Earth Sensing Unit along with Fixing of KLCR (KLCR will be provided by Railway) as per instruction of Site Engineer, Make RITTAL, SANTEL, VERO , PRESIDENT, APC Schneider or similar reputed make.						
	A	14.00	Numbers	24008.12	336113.68	AT Par	336113.68
46	Description:- Cable termination racks as per Drg. no. CSTE 5004, 5005, 5006 complete along with fitting arrangements and also with arrangement for fixing four 8-way terminal strips/ Screw less terminals on each row having 16 such rows. Supply of 8 way terminal strips/ Screw less terminals not covered under this item. Cable termination rack shall be Powder Coated.						
	A	2.00	Numbers	11252.46	22504.92	AT Par	22504.92
47	Description:- "Supply & installation of Test board (LED, Pin tool type) for relay Room as per as per Drg.No RST/C/105 A & B."						
	A	4.00	Numbers	151574.89	606299.56	AT Par	606299.56
48	Description:- Earth Leakage Detector as per RDSO/SPN/256/2002 or latest with latest amendments. The basic detector unit shall comprise of 8 channels, for use on signaling circuits of 110V AC/DC and/or 60V/24V/12V DC as ordered by purchaser. If the detector is required for less number of channels, dummy plates shall be provided. For additional requirement add on /expendable cabinet may be used. The voltage specified shall be provided with + 25% and - 10% tolerance.						
	A	700.00	Numbers	129.41	90587.00	AT Par	90587.00
49	Description:- Cartridge fuse block made of PBT as per RDSO Drg No SA-23748 Alt 4 & Spec No IRS S 75/2006 with the latest amendment. The fuse block shall be suitable for round- head type voltage fuses. This also includes the supply of equivalent n o o f N D type Fuses o f 2 A capacity a s per specification IRS S-78/92.						
	A	200.00	Numbers	10.42	2084.00	AT Par	2084.00
50	Description:- PPTC fuse 12V/24V/110v AC GP 16-400 (2A) for TF/TR circuit, make- Raychem, Epcos, Siemens.						
	A	600.00	Numbers	57.21	34326.00	AT Par	34326.00
51	Description:- Round head type non deteriorating type low voltage cartridge fuse a s per Spec No IRS/S/78/92 with latest amendments 2A/4A/6A capacity.						
	A	4.00	Each Module	51953.78	207815.12	AT Par	207815.12
52	Description:- Fuse auto changeover system f o r u s e i n Railway Signaling System as per RDSO/SPN/209/2012 rev.1 with latest amendments. One Automatic changeover Unit comprises 24 nos. of external Non-Deteriorating Type or 'G' type fuses from 4 Amp to 10 Amp capacities which are in signaling circuits. The system shall have 6 cards with a monitoring arrangement of 4 fuses in one card.						
	A	24.00	Each Module	29743.63	713847.12	AT Par	713847.12
53	Description:- "Fuse auto changeover system f o r u s e i n Railway Signaling System as per RDSO/SPN/209/2012 rev.1 with latest amendments. One Automatic changeover Unit comprises 32 nos. of external Non-Deteriorating Type or 'G' type fuses from 0.6 Amp to 4 Amp capacities which are in signaling circuits. The system shall have 8 cards with a monitoring arrangement of 4 fuses in one card."						

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

54	Please see Item Breakup for details.	476025.00	AT Par	476025.00	
	Description:- Disconnect Terminal Block, Screwless type, as per RDSO Spec. No.RDSO/SPN/189/2004. With the latest amendments.				
55	A	200.00	Numbers	270.84	54168.00
				AT Par	54168.00
	Description:- Supply of 4 connection points single potential through screw less terminal block for 6 Sq.mm - 35 Sq.mm, 4 connection points 284-621/624 or superior, suitable for power cable connection.				
56	A	8.00	Numbers	6814.05	54512.40
				AT Par	54512.40
	Description:- Fire Extinguisher CO2 type (capacity 5 kg).				
57	A	24.00	Numbers	120.12	2882.88
				AT Par	2882.88
	Description:- SMC Booklets of each station register for SMC register. (1 Register to be read as 1 Number).				
58	A	300.00	Numbers	196.79	59037.00
				AT Par	59037.00
	Description:- Pad locks Godrej make, Hardened NavTal 7 lever, 65mm Dia with common key or similar product having same feature & technical data.				
59	A	300.00	Numbers	2798.99	839697.00
				AT Par	839697.00
	Description:- Earth Electrode as per Drg. No. CSTE / 6091.				
60	A	160.00	Set	10403.08	1664492.80
				AT Par	1664492.80
	Description:- Maintenance Free Earth Electrode of length 3m, including supply of 3 bags of Earth enhancement material for earthing (10KGs /bag) for each electrode & other accessories as per Drg. No. SDO / RDSO/ E&B/001 and RDSO Spec No. RDSO / SPN/197/2008.				
61	A	8500.00	Numbers	75.00	637500.00
				AT Par	637500.00
	Description:- ARA Terminal blocks with links made of PBT Spec No.s/75/2006 (Rev - 2) with latest amendments and RDSO Drg.No.SA-23741A Alt.4.				
62	A	4.00	Numbers	17036.67	68146.68
				AT Par	68146.68
	Description:- Steel Plain Almirah with 4 adjustable slaves Size: 1980 mm height, 915 mm width and 485 mm depth. Make: Godrej Storewel Plain Large or Similar of reputed brand will be specified by Engineer in-charge.				
63	A	4.00	Numbers	2655.97	10623.88
				AT Par	10623.88
	Description:- Office Chair makes Godrej CH-7B or similar of reputed brand will be specified by Engineer in-charge.				
64	A	4.00	Numbers	8188.30	32753.20
				AT Par	32753.20
	Description:- Office Revolving Chair Godrej Make Model No.9u02r Bravo Or Similar of reputed brand will be specified by Engineer in-charge.				
65	A	4.00	Numbers	16052.54	64210.16
				AT Par	64210.16
	Description:- Office table with laminated top with three drawers on left hand side and one locker on the right hand side. Olive brown with duplicate keys. Make: Godrej Model T-9 or Similar of reputed brand will be specified by Engineer in-charge.				
66	A	100.00	Numbers	15611.07	1561107.00
				AT Par	1561107.00
	Description:- Apparatus Case Single NE Rly Type as per Drg. No. W. Rly/SW/47/68 Alt-A, fitted with two no.s of E Type lock (ward No will be specified by Engineer-in Charge) as per RDSO Drg. No. SA 3376/3473 and Key to Drg. No. 3377.Note- This item includes the supply & fixing of 2 No.s E Type Lock fitted on both doors, along with two Keys.				
67	A	60.00	Numbers	9893.99	593639.40
				AT Par	593639.40
	Description:- Apparatus Case half NE Rly Type as per Drg. No. W. Rly/SW/47/68 Alt-A fitted two no.s E Type lock of (ward No will be specified by Engineer-in Charge) as per RDSO Drg. No. SA 3376/3473 and Key to Drg. No. 3377. Note: This item includes the supply & fixing of 2 No.s E Type Lock fitted on both doors, along with two Keys.				
68	A	1.00	Kilometre	174705.11	174705.11
				AT Par	174705.11
	Description:- PVC insulated Railway Signalling multi-core Indoor Cable 60 core x 0.6mm Dia conforming to IRS:76/89 (Amd 3) or latest.				
69	A	2.00	Kilometre	183153.70	366307.40
				AT Par	366307.40
	Description:- PPVC insulated Railway Signaling multi-core Indoor Cable 1mm x 24 mm x 1 mm Dia conforming to IRS:76/89(Amd3) or latest.				
70	A	1.00	Kilometre	92180.73	92180.73
				AT Par	92180.73
	Description:- PVC insulated Railway Signaling multi-core Indoor Cable 1 mm x 40 mm x 0.6mm Dia conforming to IRS:76/89(Amd3) or latest.				
71	A	2.00	Kilometre	5548.54	11097.08
				AT Par	11097.08
	Description:- Single core multi-strand wire 0.5 sq.mm. (16 conductor each dia. 0.2mm), as per IRS 76/89 (Amd3) or latest.				
	A	2.00	Kilometre	33366.21	66732.42
				AT Par	66732.42

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

72	Description:- Flexible cable (Power wire), multi-strand copper conductors cross-section 1x6 Sq.mm.(85 conductors each diameter 0.30 +/- 0.01) as per IS 694/1990 with insulation thickness of 0.80 mm nominal conductor resistance 3.30 ohms/km and test parameters are as per IRS(S)76/89 or latest.						
73	A	1.00	Kilometre	136063.55	136063.55	AT Par	136063.55
	Description:- Flexible cable (Power wire), multi-strand copper conductors cross section (1x16Sq.mm).101 Conductors each diameter 0.45 +/- 0.01 as per IS 694/2010 with insulation thickness of 1.2mm nominal conductor resistance 1.127 Ohms/Km and test parameters as per IRS(S) 76/89 or latest.						
74	A	1.00	Kilometre	132505.12	132505.12	AT Par	132505.12
	Description:- Flexible cable (Power wire), multi-strand copper conductor's cross section 25 Sq. mm (0.4x196) as per specn. IS 694/2010 with latest amendment, and test parameters as per IRS(S) 76/89.						
75	A	5000.00	Numbers	2178.12	10890600.00	AT Par	10890600.00
	Description:- Supply Polyolefin cable channel of size width 240/340 mm, height 155/230 internal/external, length 1meter produced of polyolefin with fire protection class K-1 in accordance with DIN 53438 Part-II for laying signaling/telecom cables, channel attachable to each other with male-female swallow tail connectors and having a suitable detachable cover, as per RDSO STS/E/cable laying Precise Vol-IV and as per technical specifications.						
76	A	600.00	Numbers	1912.20	1147320.00	AT Par	1147320.00
	Description:- "Double Walled Corrugated (DWC) HDPE Pipe with associated collars etc. as per RDSO Specification No. RDSO/SPN/204/2011 or latest anti-rodent & anti-oxidant and non-flame propagating type in 6 meters straight length and of size 120 mm outer dia & 103.5 mm inner dia.One of the following coupling arrangements should also be supplied with each pipe as per the site requirement. (1) Suitable snap fit coupler with rubber 'O- Ring (2) Spacers (3) Tees (4) Bend, (5) End-cap (The total quantity of above items is equal to no. of pipes supplied.) DWC pipe shall be marked at every 1 mtr length in such a way that manufacturer's name, vender name and year of manufacture can be easily identified. Color -Bright Orange; Min Weight = 4kg. Test Check by Consignee & Sample check by JAG officer."						
77	A	200.00	Running Metre	1170.28	234056.00	AT Par	234056.00
	Description:- Medium Class G.I. Pipes to IS: 1239 (Pt.)-2004 or latest; 100 mm dia. (int. Dia) 3.65 mm thick or above with coupling. G.I. pipes shall have ISI mark on it and contractor should submit manufacturer's test certificate of G.I. pipes.						
78	A	1.00	Set	469571.95	469571.95	AT Par	469571.95
	Description:- Electrically Operated Lifting Barrier complete set suitable for 110V DC/24V DC supply with hand generator back up & motorized boom locking arrangements as per RDSO Spec. SPN/208/2012 with the latest amendment. One set consisting of 02 No.s of Barriers of length 09.76 Mtr. along with Spares & tool kit mentioned in RDSO Spec. SPN/208/2012 clause 10.1 & 10.2.						
79	A	1.00	Set	144275.33	144275.33	AT Par	144275.33
	Description:- MS Sliding type mechanical Boom barrier assembly 11 to 12 Meter Long, movement drive mechanism, resetting & supporting stand suitable for Mechanical/ Electrical level crossing gate as an emergency arrangement as per Drg.						
80	A	2.00	Set	8475.45	16950.90	AT Par	16950.90
	Description:- Dual tone bell/buzzer with flasher arrangement 25W horn,(Make of any ISI approved firm) working voltage as per circuit design.						
81	A	2.00	Set	1665.03	3330.06	AT Par	3330.06
	Description:- Road warning Flasher kit for LC gate as per circuit design.						
82	A	2.00	Numbers	1442868.80	2885737.60	AT Par	2885737.60
	Description:- "SMPS based Integrated Power Supply System for Station with MSDAC as per RDSO/SPN/165/2012 version -3 or latest and Drg No. CSTE/6155/ 4 of 7. This includes transportation, installation and Commissioning of Integrated Power Supply System. NOTE : Item to be supply after Engineer Incharge approval."						
83	Please see Item Breakup for details.				973893.36	AT Par	973893.36
	Description:- "Microcontroller based programmable static switching module (Auto changeover) of Reliance Electricals Make or similar, with an at a glance LCD display suitable for break-less switching between two DC supplies as per attached technical specifications."						
84	A	2.00	Numbers	13356.84	26713.68	AT Par	26713.68
	Description:- Supply of Digital Earth Resistance tester three terminal type with LED display, 1999 count, KOICO model 5600 or any reputed make approved by engineer in-charge.						
85	A	2.00	Numbers	8240.40	16480.80	AT Par	16480.80
	Description:- Supply of Digital Insulation Tester 100V/250V/500V range of Model Rish insu 20 Make-RISHABH or MECO or similar.						
	A	2.00	Numbers	18194.34	36388.68	AT Par	36388.68

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

86	Description:- Digital low current clamp meter to measure current leaks (parasitic draw down to 1 mA) and electric loads from 1mA to 100 Amp AC/DC, Voltages from 0 to 600V AC/DC, small jaw size to measure current in signalling circuit, 4 digit display. Make -Fluke, GTC/KEW, Scope or superior with better specification as mentioned with all accessories like test lead, batteries and carrying case, sample may be got approved from consignee before supply.							
87	A	2.00	Numbers	44774.52	89549.04	AT Par	89549.04	
	Description:- Digital Multimeter of Fluke 287 Industrial, True RMS with temperature, Analog bar graph, Digital display, Backlight, 1000V AC/DC, measure up to 10A, 20A for up to 30 seconds or Superior.							
88	A	2.00	Numbers	12853.59	25707.18	AT Par	25707.18	
	Description:- Professional AC/DC clamp meter 3 ¾ digit, true RMS measurement, For Measurement of DC/AC currents up to 1000A, Voltage up to 600V, resistance up to 40 M, and frequency up to 1 MHz with a set of leads & carrying case. Model - DCM39A or equivalent/ higher.Make- Motwane /Stanley /Fluke/ Megger.							
89	A	2.00	Set	35317.28	70634.56	AT Par	70634.56	
90	Description:- Supply of Standard Tools set.							
	A	2.00	Numbers	4515.84	9031.68	AT Par	9031.68	
91	Description:- Road Measuring Cycle, made of Aluminum with 05 digit counter, foldable with the bag.							
	A	2.00	Numbers	578945.76	1157891.52	AT Par	1157891.52	
92	Description:- Supply of Cable Fault locator as per specification attached. Make- Tempo/Stanley Communication Model Sidekick Plus Kit Standard (1155-5001) or equivalent.							
	A	10.00	Numbers	72605.40	726054.00	AT Par	726054.00	
93	Description:- Supply of Microcontroller based Quad Cable Conductor's Earth Resistance Sensing Unit, for 24 nos. conductors with metering facility for one conductor at a time							
	A	2000.00	Metre	285.05	570100.00	AT Par	570100.00	
94	Description:- Supply of SPLIT DWC pipe conforming to RDSO/SPN/204/2011 Ver. 1.1 or latest RDSO specification, Non metallic, corrugated, multiwalled, normal duty, pliable, without protection against chemical attack and Non flame propagating in 2 meter length of size 200 mm outer dia & 175 mm inner dia. (Permitted tolerance in dia = +/-2mm) (TWO half round pipe constitute one split pipe)							
	A	400.00	Numbers	701.00	280400.00	AT Par	280400.00	
	Description:- "High density polyethylene pipes (HDPE) of 110 mm/125 mm outer Dia, 10 mm wall thickness, along with one coupler for every 6 Mtr. As per spec. No. IS 4984:2016 with latest amendments and material grade - PE 80."							
S.No.	Item Code	Item Qty	Qty Unit	Unit Rate	Basic Value	Escl.(%)	Amount	Bidding Unit
Schedule () B-Execution of Items							35486975.11	Above/ Below/Par
1	Please see Item Breakup for details.				2003826.00	AT Par	2003826.00	
	Description:- "Installation, wiring, programming, testing and commissioning of EI equipment supplied as per supply item in schedule 'A' including transportation from Consignee's depot to site. The works and materials for installation, wiring, testing and commissioning, grouting, cutting of floors, walls, refilling of the same, re-plastering, required CC/ masonry works, fixing/ placing/ laying of insulated ladders/ casing-capping/ cable trays/ RCC/GI pipes / Cables, termination of cables with lugs/ connectors, painting, / lettering are to be provided/ done by the contractor for the equipments supplied vide Item of Schedule ""A"" of this contract. This also covers the networking of built in EI Data loggers of all the stations to monitor the system to any other places where desired by Engineer-in-charge. Note: Installation shall be comply with RDSO Technical Advisory Note No STE/E/TAN/3012 dtd. 28.08.2014 or latest. Installation, wiring, programming, testing and commissioning of Operator VDU in Hot stand-by with Redundancy. Any Equipments/cards/Modules required for Hot stand-by with Redundancy shall be supplied & Installed by the Contractor. This also include supply of one no Godrej make operator chair model PCH7001 or better , one no. of composite computer & printer table (Godrej work station table or better) for keeping MT , one no Godrej make operator chair model PCH7001 or better. Termination of indoor/ PIJF cables in relay room on relays, tag blocks, CT racks as per approved wiring diagram including alterations/ modifications as required at site. Soldering to be done at all required termination. Dressing/ lacing of wiring shall be done neatly with help of dressing thread / plastic self-lock strip of suitable size. The tools/ equipments/ materials/ simulation boards required for testing shall be supplied / fabricated by contractor. This included replacement of modules/ cards/ LEDs/ equipments going defective during testing. Necessary power supply boards with required capacity plugs, sockets, surge & lightning protection boxes shall be supplied and installed by the contractor. 230V supply shall be arranged by Railways. In case supplies are required to be extended, from Power room / relay room then same shall be extended by the contractor with his own materials such as 1X16 sq. mm wires, cables, lugs,RCC/GI pipes, insulated ladders etc. After ST/LT testing, Factory Acceptance Tests (FAT) & Square Sheet testing system should be fault free while submitting to Railways, otherwise suitable necessary action can be taken by Engineer-in-charge."							
	Please see Item Breakup for details.				81804.80	AT Par	81804.80	

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

2	Description:- Design of SIP and submission of copy (three copy) for approval.					
3	Please see Item Breakup for details.	39486.00	AT Par	39486.00		
	Description:- Design of ST/LT/TOC/Square sheet/RCC (Three copy) for approval.					
4	Please see Item Breakup for details.	296152.00	AT Par	296152.00		
	Description:- Design of Circuit Diagrams consisting Wiring/ Logic diagram, contact analysis, fuse detail, Input/output bit chart, VDU diagram, Interface etc. submission of Three paper copies for approval.					
5	Please see Item Breakup for details.	10858.00	AT Par	10858.00		
	Description:- "Design of Miscellaneous diagram consist of Floor Plan of Relay Room , Battery Room, Power Equipment Room, Data logger room, Power Supply Diagrams along with power supply calculation, Earthing Diagram, Power panel diagram, IPS wiring diagram , Auto change over diagram , Block circuit wiring diagram, Digital Axle counter wiring diagram and all other relevant drawings (Three copy) for approval."					
6	B	2.00	Set	9873.00	19746.00	AT Par 19746.00
	Description:- Design of Cable Route Plan submission of Three paper copies for approval.					
7	Please see Item Breakup for details.	1636.00	AT Par	1636.00		
	Description:- Supply of Completion SIP in Original tracing along with Auto CAD copy in Pen Drive and Six set copies after approval.					
8	Please see Item Breakup for details.	1580.00	AT Par	1580.00		
	Description:- Supply of completions ST/LT/TOC in original tracing along with AutoCAD copies in Pen Drive and six set copies after approval.					
9	Please see Item Breakup for details.	59230.00	AT Par	59230.00		
	Description:- Supply of Circuit Diagrams consisting wiring/Logic diagram, contact analysis, fuse detail, Input/output bit chart, VDU diagram, Interface in Auto CAD in Pen Drive and Six set of Copies after approval.					
10	Please see Item Breakup for details.	5922.00	AT Par	5922.00		
	Description:- "Supply of diagrams consist of Floor Plan of Relay Room, Battery Room, Power Equipment Room, Data logger room, Power Supply Diagrams along with power supply calculation, Earthing Diagram, Power panel diagram, IPS wiring diagram, Auto change over diagram, Block circuit wiring diagram, Digital Axle counter wiring diagram and all other relevant drawing in original tracing along with AutoCAD in Pen Drive and six set copies after approval."					
11	B	2.00	Station	1580.00	3160.00	AT Par 3160.00
	Description:- Supply of final Cable Route Plan as per laid cable duly measured at every 30 m clearly indicating distance of laid cable from fixed point of reference & indicating all track crossings and tail cables in original tracing along with Auto CAD in Pen Drive and Six set copies after approval.					
12	Please see Item Breakup for details.	127396.00	AT Par	127396.00		
	Description:- Design and supply of cable courage plan, location particulars, Cable termination rack particulars, cable meggering report, earth resistance particulars, Traction bonding diagram, 1/2 wire count sheet and any other drawing in AutoCAD in A3/A4 size. The contractor shall initially supply 3 sets of circuits complete for approval of Railways. Railways will return one set to the contractor duly approved with alterations/corrections, if any. The contractor shall incorporate Railway's alterations/corrections in the tracings without any deviation and submit all tracings complete in all respects to the Railways along with PENDRIVE & 4 sets of final approved drawings. This includes designing of cable coreage plan based upon I.P in consultation with engineer-in-charge For small/medium yards.					
13	Please see Item Breakup for details.	48642.00	AT Par	48642.00		
	Description:- Design and supply SWR Diagram on standard tracing paper of 95grams for each station Corrected version of SWR plans after checked & approved by Rly's 25 Ferro copies will be supply for each of the plans.					
14	Please see Item Breakup for details.	116740.00	AT Par	116740.00		
	Description:- Preparation of SWR including supply of SWR booklets (25 Nos. per station).					
15	Please see Item Breakup for details.	431896.00	AT Par	431896.00		
	Description:- "Preparation of Cable Route Plan of buried S & T Cables using Radio Detector 8200 GS or Similar model GPS Model and DGPS for Per Trench per Km. For existing cables as per the instruction of Engineer in-charge. Submission of report in KMZ file format, Soft Copy Only."					
16	B	2.00	Set	21176.39	42352.78	AT Par 42352.78

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

10	Description:- Installation, wiring, testing, and commissioning of Data logger complete along with accessories using Contractors' own wiring & fixing materials as per the following configuration. (It includes loading of NETWORKING software, networking of data logger, installation of FEP & Fault diagnosis system). The requisite communication cable/channel for networking will be arranged by Railway. 1024 digital & 32 analog inputs/ 4096 digital & 32 analog inputs. (All the Indoor & outdoor gears wiring in cataloged included in this along with laying 230V supply cable from IPS room,12 core cable from auto change over for monitoring supplied.) Note- It included logging of all gears as per site incharge.						
17	Please see Item Breakup for details.			494260.88	AT Par	494260.88	
	Description:- Foundation, Erection & Installation of CLS without route indicator.						
18	B	12.00	Numbers	3059.68	36716.16	AT Par	36716.16
	Description:- Erection of CLS Post with base and signal unit on top or on OFF set Bracket, fixing of front and back staging, ladder and guards, signal name plates / boards if any with contractor's own brackets and fixing materials. This also includes erection of auxiliary signals like calling on, shunt signal if any. The work shall be done as per instructions of Rly engineer at site. It also includes provision & fixing of maintenance platform as per design given by Engineer -In-Charge at site. It also includes supply of padlock for signal units and cable termination box. X' arms to be provided by the contractor till the signals are introduced. The Item includes cutting of Signal post if required by Site In charge. 2/3/4 aspect signal unit mounted on offset bracket with junction type route indicator 1/2/3 or multilamp lamp route indicators mounted on signal post.						
19	B	12.00	Numbers	738.50	8862.00	AT Par	8862.00
	Description:- Fixing of Junction type Route Indication 1-Way/2-Way/3- Way on the top of the signal post.						
20	B	6.00	Numbers	2391.56	14349.36	AT Par	14349.36
	Description:- Fixing of Calling-on Signal/A-Sign/AG-Sign unit on signal post. The item includes fixing of Co- On signal /'A' sign/ 'AG' sign unit on signal post with bracket, hood etc. Item includes supply bracket & fixing materials etc. by the contractor. The item also includes termination of cables & wiring inside Co- On signal /'A' sign/'AG' sign unit as per standard practice. Note- This Item must be operated individually, Not to be operated in Installation/Erection of CLS.						
21	Please see Item Breakup for details.			82473.04	AT Par	82473.04	
	Description:- Foundation, Erection & Installation of Shunt Signal.						
22	B	17.00	Numbers	1930.03	32810.51	AT Par	32810.51
	Description:- Erection of Position Light shunt signal on Offset bracket on main signal.						
23	B	30.00	Numbers	22354.53	670635.90	AT Par	670635.90
	Description:- "Fixing of Electrical Point Machine on the extended sleepers at points as per std. practice and as per RDSO Drg No. SA 91 51-52 or 9710 or 9161 as per section of rails used. Item includes fixing switch extension bracket, providing insulation for switch extension bracket, fixing ground connection, adjusting opening of the switches and adjusting the point machine with crank handle. The item also includes - (i) Complete material for installation like ground-connections, switch extension brackets, point insulation material, l pipes, wiring materials, various fixing nuts & bolts including castle nuts, spring washers (ii) All smithy & fitting works required at site for complete installation. (iii) Installation of gauge tie plate & providing insulation for gauge tie plate (Insulation in William Stretcher Bar will be Provide by Railways). (iv) Wiring inside the point machine, insertion and termination of tail cable in point machine and junction boxes / location box /cable hut as per extant practice on WR and the instruction of Railway Engineer at site. (v) Supply and fixing of suitable size GI pipes with flange for taking cable into point machine. Note ; The ground connections shall be suitable to the Point Machines as specified by Engineer-in-charge and shall be suitable to the point lay out i.e. 60 Kg. / 52 Kg / 90R as per yard layout. Electrical Point Machine and M-6 / Screw less terminals will be supplied by Railways / covered in Schedule separately."						
24	B	30.00	Turn-out	3120.46	93613.80	AT Par	93613.80
	Description:- Refixing of electrical point machine, ground connection during phase working (No interlocked working) after removing the existing fitting if any, adjustment if necessary, cable termination, wiring ,testing and commissioning of electrically operated point, fixing and connecting point indicator on derail switch if necessary. The work shall be done as per extant practice on WR & the instruction of Railway Engineer at site.						
25	B	34.00	Per Track Circuit	6667.03	226679.02	AT Par	226679.02
	Description:- "Fixing and wiring of DC track circuit equipments i.e. track feed charger, resistance, track relay, battery, PPTC fuses etc., in the Apparatus Case and battery box as per standard practice. Termination of tail cable on M 6 / Screw less terminals WAGO or FINOLEX or similar approved make terminals/ fuse blocks / HRC fuse. Item includes testing /commissioning of track circuit. Complete wiring material (including PPTC fuses) which are not covered in Schedule will be supplied by contractor. (Supply of Track feed battery charger, track feed battery, resistances & 'B' type choke & Track relays will be supplied by Railways / covered in Schedule separately)."						
	B	34.00	Set	7328.72	249176.48	AT Par	249176.48

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

26	Description:- Installation of DC track circuits covering points zones also. The item includes provision of continuity bonds of seven strand PVC jacketed wire/ GI wire 8 SWG on rail joints after drilling bond-hole of 7.0/7.1/7.2mm Dia (double bond with sleeves and rail clips are to be provided at each rail joint) insertion of insulated block joint, fixing of Track lead Junction box on MS angle two numbers of size 40X40X5 mm 1200 mm length for track feed/ jumper / track relay ends of track CCTs (as per double TLJB arrangements) and also for fixing jumper cables as per insulation diagram WR Drg No. CSTE/6055 and standard practice, making rail connections through suitable insulated sleeves from Track lead Junction box at TF, jumper & TR end with seven strand PVC jacketed wire /GI wire 8 SWG, rail clips for fixing bond wire on the TLJB as per standard practice, termination of tail cables on bootleg terminals etc. TF/TR wiring shall be fixed on the suitable arrangement on PRC sleepers with the help of hooks. Hooks shall be provided on PRC sleepers with the help of suitable steel bracket. This item also includes fixing & supply of channel pins etc. The item also includes supply of MS angles/ trestles, GI wire 8 SWG / seven strand PVC jacketed wire, hooks, rail clips etc.						
	Please see Item Breakup for details.		198286.50	AT Par	198286.50		
27	Description:- Provision of Field accessories of DC Track Circuits						
	B	100.00	Numbers	376.10	37610.00	AT Par	37610.00
28	Description:- Charging of Lead Acid Batteries (2V 80AH) with contractors' own battery grade sulphuric acid and distilled water with a minimum of two charge-discharge cycles, installation of charged batteries in groups & their connection & wiring. The work shall be done as per the extant practice of W.Rly & instruction of the Engineer-in- charge. Detailed measurements of initial charging shall be recorded jointly by the contractor & Rly's site-in- charge.						
	B	200.00	Set	185.47	37094.00	AT Par	37094.00
29	Description:- "Provision of bonding with GI wire 4mm Dia (8 SWG) for track jumper & fish plate joints bonds. This will include drilling of 7.0/7.1/7.2 mm Dia holes in rails (4 Nos.) and provision of two jumpers for each bond, clipping of bonds etc. with contractors own tools as per instruction of Rly.Engineer at site."						
	B	120.00	Numbers	1391.31	166957.20	AT Par	166957.20
30	Description:- Erection, Fitting and Rail connection of Track Lead Junction Box on two supports (M.S.angle) with contractor's fixing material and PVC jacketed wire for track lead connection including angles of size 40 x 40 x 5 mm 1200 mm length This will include drilling of holes for track lead/side connections on rail. The work shall be done as per Drg. No. S&T/Const./JHS/T 115 & instructions of Rly engineer at site.						
	B	2.00	Set	750808.56	1501617.12	AT Par	1501617.12
31	Description:- "Supply, Installation, Testing and Commissioning of High Availability Single section digital axle counters with Dual sensor system as per RDSO/SPN/177/2012 version 3or latest. This includes The supply of High frequency web mounting type Tx coil/Rx coil, VR/PR Box duly wired, Vital relays, PR Relays, Clamp with deflector plates & hardware, Dual display reset box with auto resetting facility, Surge voltage protection devices and filter card to be mounted on din rail etc. as per OEM for complete installation & testing& commissioning of(HASSDAC) system NOTE: One set of HASSDAC system will include equipment required to monitor One Up line or One Den line of a full Block Section between two stations. Note: - "Supply of HASSDAC as per RDSO specification along with outdoor industrial grade enclosure (Approved by Railways) similar to Rattle/Pyrotech make."						
	B	80.00	Numbers	366.58	29326.40	AT Par	29326.40
32	Description:- Fixing & wiring of QNA1 / QNA1K relays for GPR Circuit in apparatus case as per Standard practice. Fixing and wiring material shall be supplied by the contractor.						
	B	30.00	Numbers	5186.41	155592.30	AT Par	155592.30
33	Description:- Fixing of KLCR and its without this includes supply of MS sheet box for fixing of KLCR relay along with push button etc. (KLCR will be supplied by Railway).						
	B	14.00	Numbers	9184.44	128582.16	AT Par	128582.16
34	Description:- Installation of Cable Termination Racks Assembly complete including wall supports, scaffolding, 8 way/ARA terminals /Screw less connectors, Tag blocks & other necessary accessories etc. The work shall be done as per approved plan, extant practice on WR & the instruction of Rly engineer at site.						
	B	24.00	Each Module	915.42	21970.08	AT Par	21970.08
35	Description:- "Installation wiring testing and commissioning of Fuse changeover system (FACS). This includes the provision of a common Buzzer & indication at the ASM Room & ESM Duty Room and the painting of fuse details. This also includes the fabrication of a frame for the installation of FACS at the Station/ LC gate where the installation of relay racks is not feasible."						
	B	30.00	Per Telephone	2245.88	67376.40	AT Par	67376.40
36	Description:- Wiring, installing of Magneto / DTMF telephone in ASM office, at locations, Relay Room, Point locations on both directions and siding Point Control locations as per instructions of Engineer In-Charge for traffic purpose.						
	B	8.00	Numbers	5732.92	45863.36	AT Par	45863.36

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

37	Description:- Supply & Fixing of Stop Board, Block section limit Board, goods warning board and all other boards with contractors own material. The work shall be done as per instruction of Rly. Engineer incharge as per IRSEM.						
38	B	300.00	Numbers	5579.77	1673931.00	AT Par	1673931.00
	Description:- Installation of Earth Electrode including MS flat for clamp etc. and connection to signalling equipments, lever frames, apparatus cases, signal, relay rack, block instrument, etc. as per technical specification given. This item includes digging of pit in earth 3 M deep & fixing earth electrode pipe, casting of cement concrete enclosure & cover as per RDSO/SPN/197/2016. Soil treatment to be done as per std. practice. This item includes provision of MS Flat, Earth lead wires and Soldering of lead wires. The other end of the wire is to be connected to block equipment, power equipment, cable sheath, and signals etc. as per site requirements. 7 strand GI wire shall be used as earth lead wire. (Supply of earth electrode is covered in other Item).						
39	B	2000.00	Numbers	22.75	45500.00	AT Par	45500.00
	Description:- Fixing of ARA Terminals /Screw less connectors and fuse blocks on phenolic laminated sheets and fixing by stainless steel/brass nuts & bolts. This includes provision of two additional holes on the board on either side for cable conductor entry.						
40	B	16000.00	Numbers	23.70	379200.00	AT Par	379200.00
	Description:- Termination of outdoor cables, main cables laid in location boxes, Cable termination rack etc. at both ends on ARA terminal or on 8 way terminals or on screw less connectors. Both ends of a cable core terminated shall be counted as one terminal. This includes all associated works of pulling out the cable from underground, peeling off insulation, dressing of cable core supported on string rod with contractor's own material. The work shall be done as per instructions of Rly engineer at site.						
41	Please see Item Breakup for details.			32567.58	AT Par	32567.58	
	Description:- "Painting of two coats of synthetic enamel paint over one coat of primer on the following after scraping & cleaning surface wherever necessary with contractor's own supply of paints. Wherever required contractor shall apply coating of epoxy paint also as per instructions of site-in-charge. Epoxy paint will be supplied by Railways. NOTE-The paint and primer should be from Asian Paints/ Nerolac / Dulux / Berger. The primer / enamel paints (Aluminum synthetic, black enamel, brilliant white and yellow) will be as per (IS 5660 of 1970) / (IS 2932 of 1974)."						
42	B	2.00	Station	3768.86	7537.72	AT Par	7537.72
	Description:- Lettering & Numbering of detail and description writing of on relay rack, relays, cable termination rack, battery & power equipments, IPS, operating panel, axle counter etc. constituting entire system with contractor's own paint and writing material. The work shall be done as per extant practice on W.R Rly & instruction of Rly engineer at site.						
43	B	20.00	cum	2061.36	41227.20	AT Par	41227.20
	Description:- "Providing brick masonry in ratio 1:6 cement and mortar including plastering with 1:4 cement and sand mixture both sides, 20 mm thick each with contractor's owned class II bricks, including excavation, curing, grouting, bolting etc. wherever required. Bricks sand and cement to be supplied by the contractor."						
44	B	20.00	cum	6259.00	125180.00	AT Par	125180.00
	Description:- Cement concrete work for miscellaneous items in the ratio 1 : 3 : 6 . Item includes excavation, ramming, curing and plastering with cement & sand mixture (aggregate not exceeding 3.8 cm.) (Aggregate cement & sand to be supplied by the contractor).						
45	B	30.00	cum	154.51	4635.30	AT Par	4635.30
	Description:- Earthwork in filling in embankment, guide bunds, around buried type abutments, bridge gaps, trolley refuges, rain bunds if provided, platforms etc. with earth excavated from outside railway boundary entirely arranged by the contractor at his own cost as per RDSO's latest guidelines and specifications and special condition of contract including all leads, royalty, lifts, ascents, descents, crossing of nallahs or any other obstructions. The rates shall include all dressing of bank to final profile demarcation and setting out of profile, site clearance, removing of shrubs, roots of vegetation growth, heavy grass, benching of existing slope of old bank, all handling/re-handling. Taxes, Octroi and royalty etc. as a complete job. Cut trees shall be property of railways and to be deposited in the railway godown unless specified otherwise in the Special conditions of contract.						
46	B	24.00	Month	48751.63	1170039.12	AT Par	1170039.12
	Description:- "Hiring of non-AC SUV/MUV vehicle for Officer(up to 2500kms) Innova/ Hexa or similar type of vehicle including maintenance, major minor repairs, cost of lubrication, fuel, drivers and all other ancillary costs etc. complete. (2 nos vehicle for 24 Months) ."						
47	B	100.00	MT	452.58	45258.00	AT Par	45258.00
	Description:- Transportation of S&T material leading up to 1 Km including Loading from Starting point, unloading & Stacking at destination.						
48	B	24.00	Man-Month	31233.72	749609.28	AT Par	749609.28
	Description:- Auto CAD engineer to be provided by contractor (the CV to be got approved by railway) Work of his/her given in technical specifications. He/ She will do duly in Dy. CSTE/C/office as well as in Field for making signaling drawing, Survey etc.						

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

49	B	2000.00	Man-Days	707.28	1414560.00	AT Par	1414560.00	
	Description:- Skilled man power to be provided by contractor for Engg. JCBs working to provide marking & supervisory work for the S&T cables during digging work by JCB's and repairing /restoring/jointing of cables, if damaged Cables & Joints Material will be provided by railway. While Chuna marking will be done by his/her Chuna will provided by contractor information for deputing skilled man power for above work will be provided by Railway Engineer incharge before 24 hours from commencement of digging by JCBs. They will check cables route by Cable route tracer and will do chuna marking and will show the cables (on rough sketch) available in a small length approximate 50-100 meters of digging. Note- Minimum two man will be provided at a time including Cable jointer, they will stay whole time during JCB digging work. (The CV to be got approved by Railway).							
50	B	2400.00	Hour	1084.88	2603712.00	AT Par	2603712.00	
	Description:- "Hiring of JCB Machine (in good working condition) for leveling and dressing ground/dismantling structures including disposal of debris through dumpers etc. with contractor's labour, JCB machine, machine operator, fuel, etc. The contractor shall arrange road permit for vehicle for all the states of operation, as per instructions of engineer incharge and vehicle shall not be more than three years old."							
51	Please see Item Breakup for details.				577645.90	AT Par	577645.90	
	Description:- "Excavation and Casting of Apparatus Case foundation with contractor's own materials including cement and anchor bolts of standard size. The required scaffolding Ferma etc. for Casting of foundation will have to be brought by the contractor at his own cost."							
52	Please see Item Breakup for details.				80100.50	AT Par	80100.50	
	Description:- Installation of Apparatus Cases with miniature 'E' type lock on CC foundation. This includes filling of location foundations with river bed sand and plastering on top of the sand. 'E' Type lock will be provided by Railway.							
53	B	90.00	Numbers	5388.67	484980.30	AT Par	484980.30	
	Description:- IS 13410: Glass Reinforced Polyester Sheet Moulding Compounds (SMC) Size of Sheet - (1000x1000x8)							
54	Please see Item Breakup for details.				153379.20	AT Par	153379.20	
	Description:- Fabrication and fixing of SMC sheet in location box by providing all fixtures as per Railway Drawing including fixing of PVC coated string rods at the back side for cable support with contractor's own materials. The work shall be done as per Drg and arrangement similar to SK 783-1/2. With latest alterations & as per instructions of Rly engineer at site. Note- SMC sheet will be taken in place of phenolic laminated sheet.							
55	Please see Item Breakup for details.				23885.00	AT Par	23885.00	
	Description:- Painting of two coats of synthetic enamel paint over one coat of primer on the following after scraping & cleaning surface wherever necessary with contractor's own supply of paints. Wherever required contractor shall apply coating of epoxy paint also as per instructions of site-in-charge. Epoxy paint will be supplied by Railways. NOTE-The paint and primer should be from Asian Paints/ Nerolac / Dulux / Berger. The primer / enamel paints (Aluminum synthetic, black enamel, brilliant white and yellow) will be as per (IS 5660 of 1970) / (IS 2932 of 1974).							
56	B	50.00	Numbers	129.26	6463.00	AT Par	6463.00	
	Description:- Lettering/ Numbering Termination particulars, equipments names etc., legibly and neatly inside location boxes. This includes supply of paints of Asian Paints/ Nerolac / Dulux / Berger make. (Full Case).							
57	B	40.00	Numbers	88.18	3527.20	AT Par	3527.20	
	Description:- "Lettering/Numbering Termination particulars, equipments names etc., legibly and neatly inside location boxes. This includes supply of paints of Asian Paints/ Nerolac/ Dulux / Berger make. (Half Case)"							
58	B	400.00	cum	839.00	335600.00	AT Par	335600.00	
	Description:- Excavation of cable trench as per cable route plan, 1 Mtr. deep and of 0.3 Mtr. to 0.6 Mtr wide advised by Engineer-in-charge alongside the track in normal (all type) soil/strata, conforming to distances as per cable route plan and refilling. This work includes clearing of route from bushes etc., covering of cable laid in trench by loose soil for a layer of 50mm thickness approximately before covering by bricks. The work shall be done as per the extant practice on Western Railway and instructions of Railway Engineer at site. In case 1m depth of trench is not achievable due to site conditions, specific approval of JA grade officer will be required for each site where trench depth of 1m is not possible. Without the approval of JA Grade officer, no payment for trenching will be made for trench depth less than 1m.							
59	B	3000.00	cum	873.93	2621790.00	AT Par	2621790.00	
	Description:- Digging of trench 1.2 M deep from rail flange/ road level and, 0.3 Mtr to 0.6 Mtr wide and back filling after placing of DWC/ RCC/GI pipe. (Placing of DWC/RCC/GI pipe covered separately).The ballast disturbed be screened and dressed as required by Engineer-in-charge or his representatives and road tarred immediately. For track crossing, Drg. No. CSTE/3644 Pg.7 of 11 and for Road Crossing, Drg. No. CSTE/3644 Pg. 5 of 11 are to be followed.							
60	B	200.00	cum	512.76	102552.00	AT Par	102552.00	

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

60		Description:- Digging of cable trench 0.3 Mtr. Deep and 0.3 Mtr. Wide on Asphalted Platform / Road / Hard rocky area. Refilling with earth leveling of trenches & restoring the original surface of trenches.						
61	B	100.00	cum	438.73	43873.00	AT Par	43873.00	
		Description:- "Cutting of Hard rock in trenches /Preparation of cable way/Chase 150 mm wide at the bottom and 300 mm deep in hard rock (Drg prepared by contactor & approved by Engineer In charge) for laying of S&T cables where minimum required depth not possible & which is verified and agreed by Engineer In charge o f t h e w o r k o r h i s representative shall be made as per Drg. No RE/S&T/ALD/SK/301/85. Refilling of th same with concrete mixture of 1:3:6 from top of the cable way/ chase. Payment of concrete will be made separately through a separate item in the schedule of work."						
62	B	200.00	Running Metre	468.16	93632.00	AT Par	93632.00	
		Description:- Providing chase in hard rocky soil for laying of S&T cables where optimum depth (0.5m) in not possible and which is verified and agreed by engineer-in-charge. After laying of cables, it should be covered with PCC work in ratio of 1:3:6.						
63	B	2400.00	Metre	1187.85	2850840.00	AT Par	2850840.00	
		Description:- "Horizontal direction drilling/boring without damage of surface road using Auger Machine. The bore shall be 150 mm Dia & shall be done at the depth of minimum 1200 mm from the ground level. The ground level shall be considered ignoring the bank height of the bank of the road. The length of the bore shall be minimum 4 Mtr long. The HDD with or without HDPE pipe as per direction of Engineer In charge. Note- HDPE pipe supply is taken as separate item. This item also includes cable laying (HDD boring)."						
64	B	2.00	Numbers	12567.83	25135.66	AT Par	25135.66	
		Description:- "Digging of cable pit (min2x2x1m) as per instruction of Site Engineer, supplying and filling of sand before and after coiling the cables, covering top of the cable pit with stones and providing brick masonry on all four sides of the cable pit and plastering thereafter."						
65	B	2000.00	Running Metre	33.22	66440.00	AT Par	66440.00	
		Description:- Placing of DWC/RCC pipes along with collars in trenches at places of track and road crossings, platform cuttings etc. also for straight cable laying. (Cable laying is covered separately.)						
66	B	200.00	Running Metre	418.07	83614.00	AT Par	83614.00	
		Description:- Laying and fixing of Medium class GI pipes 100 mm Dia (4.5 mm thickness) as per IS 1239 (Part 1) 2004 or latest with coupling on culverts/bridges, perforated at a distance of 20 cm or less with 10 mm Dia hole, or at any other locations as decided by Site Engineer. The GI pipe is to be filled with chattered compound. It includes supply of all material required for fixing arrangement. Contractor will also supply flexible/corrugated HDPE pipe at the end of GI pipe to protect the cables from sharp edges and sudden bends. The laying and fixing to be done as per RDSO drawings No. SDO/cable laying/011 and SDO/cable laying/012, issued vide RDSO document No. RDSO/SI/G/2010 Version 1.1 dated 04.02.2014, or latest.						
67	B	200000.00	Running Metre	9.37	1874000.00	AT Par	1874000.00	
		Description:- Laying of S&T Cables of various cores/ pairs/ quads in trenches/ GI pipes/ RCC pipes/ DWC pipes/ Trucking. This also includes laying o f cables in track crossings & road crossings. Item includes provision of labels of colored plastic adhesive tapes or any other identifiable material on each cable to give the cable number at each G.P.(Cables will be daggered before and after its laying by contractor under supervision of Railway Representative and he will submit the meggering report of each testing). Length of the cable laid includes the length of the cable coiled for termination purposes.						
68	B	300.00	Numbers	412.66	123798.00	AT Par	123798.00	
		Description:- Supply and installation of RCC cable route marker engraved and painted on both side along the route every 50 mm and route diversion as per Drg. No 4014/00/CC4 or latest/ Stone marker.						
69	B	2.00	Set	1002274.30	2004548.60	AT Par	2004548.60	
		Description:- Supply, Installation Testing and Commissioning of block proving by digital axle counter (BPAC) using UFSBI for Single line operation as per RDSO specn. No IRS/S/105/2012 (ver.0) it comprises of auto change over facility for quad and OFC working. Necessary modem for quad and ofc should be supplied along with auto changeover arrangement details are as follows. (i) Universal fail safe block interface (UFSBI) with complete accessories as per Rdso specn no. IRS/S/104/2012 (ii) block panel as per Rdso s-32019 (iii) relay rack with locking and sealing arrangement duly wired as per Rdso: s: 32020 along with complete relays. (iv) Block telephone with accessories as per Rdso/spn/191/2005. (v) Automatic media changeover along with additional modem as per manufactures specification for BPAC using ufsbi (item no i) for supply of above items. Unit will be in set consisting of 02 no.s of each items.						
70	B	2.00	Set	88885.02	177770.04	AT Par	177770.04	
		Description:- Installation, Testing & commissioning of Block panel including UFSBI equipment as per standard practice & directive on 1:3:6 CC foundations as per drawing No CSTE 6095.						
	B	1.00	LC Gate	49762.71	49762.71	AT Par	49762.71	

**DYCSSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

71	Description:- "Installation, testing and commissioning of electrically operated lifting barrier, complete with Casting of cement concrete foundation for pedestal and boom rest post, cabling, power supply connection & wiring with complete outdoor work as per approved drawing, wiring etc."						
	B	1.00	LC Gate	15900.59	15900.59	AT Par	15900.59
72	Description:- Complete Indoor wiring testing & commissioning of station / LC Gate. This includes: (i) Prewiring & fixing of all base plates as per approved wiring diagram. (Supply of relay base covered in schedule 'A'. Excess quantity of base plate, if required will be supplied by Railways, prewiring of which will be done by the contactor.) (ii) Fixing of Relay groups on relay racks. (iii) Soldering of tag block terminals, dressing of wires as preapproved rack arrangements/Circuit diagrams. (iv) Wiring on bus bar, fuse base condenser, resistance etc. as per wiring diagram (v) Wiring on Relay rack to relay rack via IDF, IDF to CT rack in relay room. (vi) Wiring on panel tag block shall be repeated on tag blocks located on IDF & CT rack in relay room. (vii) Wiring between control panel room & relay room. (viii) Supply of simulation panel, which shall be separate for each station and shall be left after commissioning. (ix) Provision 200 way tag blocks for data logger and providing jumpers between voltage free terminals on relay racks and data loggers, tag block with 0.6sq mm cable. (x) Wiring between Integrated power supply and data logger tag block with one square mm /0.6 sq. mm cable as per instruction of Engineer in- charge. (xi) Wiring of key lock arrangement at SM's office/ site& Earth leakage detectors. (xii)Wiring of block instruments from CT rack to block instrument terminals and includes supply & laying of indoor cables for this purpose as per standard arrangements xiii) All wiring & wiring materials necessary to complete Station/ LC gate (Within station limit) Installation but not cover in the schedule anywhere (xiv) Writing of description on all relays & other indoor equipments Note: All wiring shall be done as per std. practice of Railways with neat dressing & threading. All wiring will be done as per standard practice of Railways with neat dressing & threading. Detailed testing will include functional testing, selection table, and locking table and cross sheet testing with the help of operating panel and simulation panel in the presence of railway officials to their satisfaction. A copy tested selection table, locking table and cross sheet duly signed by contactor to be submitted to field office for record. This included supply of lamps for simulation panel for testing Note- Contactor will Put sufficient Staff to carry out the testing round the clock, if desired by Railway Engineer and will ensure that any alteration which become necessary during testing are carried out & testing is repeated wherever required.						
73	B	1.00	LC Gate	26702.78	26702.78	AT Par	26702.78
	Description:- Casting of CC foundations in the ratio of 1:3:6 for sliding boom as per Drg. Minimum 10 No.s of foundation per set shall be cast using standard size holding down bolts & nuts for erection. Item include excavation, ramming, curing and plastering 1:4 cement and sand mixture. Aggregate, cement, sand and holding down bolts & nuts to be supplied by the contactor.						
74	B	1.00	Numbers	15908.46	15908.46	AT Par	15908.46
	Description:- "Installation & commissioning of Sliding booms with E type lock and KLCR. This includes wiring of KLCR, running of cables, necessary, painting & transportation of materials from store to site. All material required to commissioning of slide booms on gate will be supplied by the contactor."						
75	B	2.00	Numbers	5015.64	10031.28	AT Par	10031.28
	Description:- Supply & installation of powder-coated MS Sheet KLCR Box for LC Gates to house 2/3 KLCR.						
76	Please see Item Breakup for details.			218028.92	AT Par	218028.92	
	Description:- "Installation, Wiring and testing of Integrated Power Supply System. This includes power distribution connection to bus bars and relay racks in the room with contractor's own wiring materials and fabrication and fixing of AC/DC power distribution board made on 8mm thick SMC sheets or any standard make with connections suitable for 32 A. Wiring to be done considering site requirement, depending upon the load with suitable wires, lugs & glands as per instructions of Engineer-in-charge. The work includes installation of ELD's, fixing & wiring of change over switch(program switch) for selection of DG set supply (DG1 & DG2) and wiring of change over switch (program switch) for selection of mains or DG supply. This item also includes supply & fixing of ladder along the wall for carrying power supply wires/cables from IPS room to Relay room/power room etc. Any masonry work required will be carried out by contactors own material."						
77	B	2.00	Lot	21700.75	43401.50	AT Par	43401.50
	Description:- "Installation of LT Power Panel/Power distribution panel/ Auto Changeover Panel, power supply equipments such as Rectifiers Transformers, Battery chargers etc. including mounting on wooden planks/Hylam Sheet and complete wiring for automatic change over arrangement, mounting of Program switches on Bakelite sheet of size 300mm x 300 mm x 8 mm fitted to MS angle (size 25mm x25mm x 5mm) brackets, wiring as per requirements. Necessary wires to be supplied by Rlys, lugs & glands to be supplied by Contractor."						
78	B	20.00	KVA	1097.04	21940.80	AT Par	21940.80
	Description:- Provision of Power supply arrangement, with contractors own Generating sets, capacity 5 KVA or above as per requirement of Station Signalling load, for testing of Signalling system in the case of irregular Local power supply /under capacity AT,s supply system at station.{per Set/Day}.						
79	B	30.00	Numbers	299.74	8992.20	AT Par	8992.20

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

	Description:- "Installation and commissioning of various classes of lightening cum surge protection device as decided by site engineer. This include supply and fixing of any other material required to complete the installation & commissioning of lightening cum surge protection device."							
80	B	10.00	Kg	121.63	1216.30	AT Par	1216.30	
	Description:- Rubber Mat for Power Equipment room. (5mm thick).							
81	B	8.00	Numbers	6785.00	54280.00	AT Par	54280.00	
	Description:- Installation of Microcontroller based programmable static switching module (Auto changeover).							
82	Please see Item Breakup for details.				3110980.70	AT Par	3110980.70	
	Description:- Supply, Installation, Testing and Commiioning of fire alarm system as per RDSO spec. No. RDSO/SPN/217/2021 version 2 or latest.							
83	B	125.00	Per Detection Point (DP)	15648.00	1956000.00	AT Par	1956000.00	
	Description:- Installation of track device (double rail contact) including digging o f trench, track crossing, laying of anti-rodent, anti-oxidant & non-flame propagating type Double Walled Corrugated (DWC) pipe as per IS- 14930 part- I or II or latest and all other accessories as per site requirement to be for laying of transmitter and receiver cable. The item also includes installation of EJB / Track side Electronics including foundation & earthing as per OEM's guidelines and Technical requirement & specification with their own material. NOTE- Installation / programming / configuration / commissioning of Axle counter equipment to b e carried out i n accordance with latest guidelines issued by Railways/RDSO preferably by Authorized representative of OEM.							
84	B	4.00	Numbers	11984.00	47936.00	AT Par	47936.00	
	Description:- Installation o f Central Evaluator o f axle Counter, wiring from CT rack to Central Evaluator, installation and wiring of the reset box, LV box (if required) and associated power supply wiring. This includes supply of shielded cable of required conductor size for wiring between CT rack to evaluator rack, all other wires, power supply cable and wiring materials. The power supply cable from power room to Central Evaluator should not be less than 10 sq.mm PVC wire. Earthing as per OEM's guidelines & specification with their own material. This also includes painting and writing work on evaluator as per site requirement. NOTE- Installation /programming / configuration / commissioning of Axle counter equipment to be carried out in accordance with latest guidelines issued by Railways/ RDSO preferably by Authorised representative of OEM.							
85	B	10000.00	Numbers	7.00	70000.00	AT Par	70000.00	
	Description:- "Provision of ferrules on Cable, As per the latest guideline of Railways, which includes all associated work like printing, identifying, fixing, etc.(POLICY NO-02/2024/latest)"							
86	Please see Item Breakup for details.				2131462.82	AT Par	2131462.82	
	Description:- " Supply and Installation of Solar Power system for 110volt/300AH battery bank load as IPS System. Each panel containing the following items."							
87	B	10.00	Numbers	7779.15	77791.50	AT Par	77791.50	
	Description:- Installation of Microcontroller based Quad Cable Conductor's Earth Resistance Sensing Unit, for 24 nos. conductors with metering facility for one conductor at a time							
88	B	10.00	Numbers	982.67	9826.70	AT Par	9826.70	
	Description:- Dismantling/Releasing of the existing outdoor signalling items such as CLS unit with posts alongwith base, lever frames (5 levers set), battery box with equipments, location box with equipments, block instruments, point machines, mechanical point, AFTC/DAC, Relay rack, CT Rack alongwith Relay rack. IDF with all accessories. All these unit will be counted as one no. along with their accessories. This includes the cost of transportation of released material from site to Railway Scrap Depot. (No. to be read as per Signal/Track device/Location/Point/CT Rack/RR etc)							
S.No.	Item Code	Item Qty	Qty Unit	Unit Rate	Basic Value	Escl.(%)	Amount	Bidding Unit
Schedule () C-Supply of MSDAC							39274463.75	Above/ Below/Par
1	C	125.00	Per Detection Point (DP)	314195.71	39274463.75	AT Par	39274463.75	

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

Description:- Supply of Multi Section Digital Axle Counter (MSDAC) for mentioned detection Point by the purchased & track Section as per SIP, complete with all accessories, cable required with each track device & card viz. Axle detectors, Track Side Electronics/DAC field units, Central Evaluator (Central Evaluator unit should be housed in a pre-fabricated rack to be supplied along with the system), reset unit, Relay unit, Event Logger & Diagnostic terminals, etc. Required for different Detection Points & Track Sections as per RDSO Specifications No. RDSO/SPN/176/2013, Ver.3 or latest and OEM/manufacturer's specification and as per Annexures. (Quantity 01 No. = 01 DP) Inspection Authority: RDSO. Note - As per WR's Policy No 03/2024 Para No. 3.4.2 .e .iv "VDU/Reset box can be used for resetting. At Stations having more than 10 Track sections, the Railway propose to use a separate VDU-based resetting system. Such a VDU-based system if using a PC, it must be industrial grade".

3. ITEM BREAKUP

Schedule	Schedule A-Supply of Items					
Item- 2	"Supply, Installation and Commissioning of EI VDU (Visual Display Unit, 4K with all suitable accessories Compatible to EI Interlocking in Safe Mode 24x7 at controlling station. The item must comply minimum following specification- (a) Screen Size (Diagonal):- As below (b) Resolution :- 4K (c) Viewing angle degree: - 178x178 degree (d) Brightness :- 500 Nits (e) contrast ratio 4000:1 (f) Backlit :- Direct LED (g) Jack Interface: - HDMI -3 no. 1.2 DP, DVI USB 2.0 -2 no. CI Slot RF In AV In Component In (RCA5 Type) Digital Audio Out RGB In (D-sub 15pin)-PC PC Audio Input RS232C (D-Sub 9pin) RJ45 Stereo mini jack. (h) Optical Out :- Available Note- Screen size will be decided as per instruction of engineer incharge."					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Approximate Screen size 55 inch	Numbers	5.00	86637.00	433185.00
Total						433185.00
Item- 10	"Data logger system for Railway S&T installation As per spec. IRS: S-99 2006 (Amdt-3) or latest. Central Monitoring Unit (Hardware Configuration as per Annexure) with UPS minimum 06 hrs battery backup and required Software tools. This also includes the supply of one no composite computer & printer table (Godrej workstation table) for keeping the Processor module and one no Godrej make operator chair model PCH7001."					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	1024 digital and 32 analog inputs.	Numbers	2.00	630312.50	1260625.00
Total						1260625.00
Item- 16	Supply Color Light Signal Accessories.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	CI Base (As per IRS S-10 & RDSO Drg. No. 2011/M With latest assembly). (2) Pinnacle. (3) Ladder Assembly, as per RDSO Drg. No. SA-23156, with Base, Ladder Guards, Platform, Front Maintenance Platform, MS Supporting bracket to Support Ladder.(4) Signal Front Staging Complete Assembly for CLS Unit.(5) Signal back staging as per extent WR Practice.	Set	34.00	3251.33	110545.22
2	02	Supply of signal no plate as per Drg no CSTE Drg No CSTE/6186.	Numbers	34.00	615.59	20930.06
Total						131475.28
Item- 34	Supply of DC Track Circuit Accessories as follows -					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Track feed battery chargers, 110V AC input, 2 to 6/10 V DC Output; as per Specn. No. IRS.S 89/ 2013 with latest amendments. Charger shall be suitable for charging 80 AH battery.	Numbers	34.00	3523.27	119791.18
2	02	Choke Coil for Single Rail Track Circuit on 25 KV 50 Hz AC Electrified Section as per Spec No IRS S 65/1983 with latest amendments.	Numbers	34.00	2129.53	72404.02
3	03	Low maintenance Lead acid secondary cell 2 V/80 AH (Track feed Battery), shelf mounting type conforming to IRS:S- 88/2004 or latest (uncharged).	Numbers	68.00	2213.81	150539.08

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

4	04	Adjustable Track Feed Resistance disc type 30 ohms as per RDSO Drg. No. SA 20166/M (Adv.) with latest amendments (with Phenolic molded base).	Numbers	34.00	978.46	33267.64
					Total	376001.92
Item- 54	Disconnect Terminal Block, Screw less type, as per RDSO Spec. No.RDSO/SPN/189/2004. With the latest amendments.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Disconnect Terminal Block, Screw less type, 4-wire front entry (Two in-put & Two out-put) The color will be decided by Engineer - in - Charge. (Preferably I n Blue, Red & Grey Colors i n the ratio o f 1:2:3). as per RDSO Spec. No. RDSO/SPN/189/2004. With latest amendments.Note- Make to be approved by Railway before supply.	Numbers	6000.00	58.53	351180.00
2	02	Supply of End plate 2.5mm/0.091 in thick as per site requirement.	Numbers	500.00	11.07	5535.00
3	03	Supply of End Stopper 10mm/0.0394 in width as per site requirement.	Numbers	500.00	10.86	5430.00
4	04	Supply o f Carrier Rails for above 35 mm x 7.5mm, 1mm/0.039 i n thickness un-slotted type as per site requirement.	Numbers	1000.00	113.88	113880.00
					Total	476025.00
Item- 83	"Microcontroller based programmable static switching module (Auto changeover) of Reliance Electricals Make or similar, with an at a glance LCD display suitable for break-less switching between two DC supplies as per attached technical specifications."					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Upto 40A for 20-110VDC. Model No: RE-SDSM-40.	Numbers	4.00	74930.00	299720.00
2	02	Upto 70A for 20-110VDC. Model No: RE-SDSM-70.	Numbers	4.00	90466.67	361866.68
3	03	Upto 40A for 110VAC. Model No: RE-SASM-40.	Numbers	4.00	78076.67	312306.68
					Total	973893.36
Schedule	Schedule B-Execution of Items					
Item- 1	"Installation, wiring, programming, testing and commissioning of EI equipment supplied as per supply item in schedule 'A' including transportation from Consignee's depot to site. The works and materials for installation, wiring, testing and commissioning, grouting, cutting of floors, walls, refilling of the same, re-plastering, required CC/ masonry works, fixing/ placing/ laying of insulated ladders/ casing-capping/ cable trays/ RCC/GI pipes / Cables, termination of cables with lugs/ connectors, painting, / lettering are to be provided/ done by the contractor for the equipments supplied vide Item of Schedule ""A"" of this contract. This also covers the networking of built in EI Data loggers of all the stations to monitor the system to any other places where desired by Engineer-in-charge. Note: Installation shall be comply with RDSO Technical Advisory Note No STE/E/TAN/3012 dtd. 28.08.2014 or latest. Installation, wiring, programming, testing and commissioning of Operator VDU in Hot stand-by with Redundancy. Any Equipments/cards/Modules required for Hot stand-by with Redundancy shall be supplied & Installed by the Contractor. This also include supply of one no Godrej make operator chair model PCH7001 or better , one no. of composite computer & printer table (Godrej work station table or better) for keeping MT , one no Godrej make operator chair model PCH7001 or better. Termination of indoor/ PIJF cables in relay room on relays, tag blocks, CT racks as per approved wiring diagram including alterations/ modifications as required at site. Soldering to be done at all required termination. Dressing/ lacing of wiring shall be done neatly with help of dressing thread / plastic self-lock strip of suitable size. The tools/ equipments/ materials/ simulation boards required for testing shall be supplied / fabricated by contactor. This included replacement of modules/ cards/ LEDs/ equipments going defective during testing. Necessary power supply boards with required capacity plugs, sockets, surge & lightning protection boxes shall be supplied and installed by the contractor. 230V supply shall be arranged by Railways. In case supplies are required to be extended, from Power room / relay room then same shall be extended by the contractor with his own materials such as 1X16 sq. mm wires, cables, lugs,RCC/GI pipes, insulated ladders etc. After ST/LT testing, Factory Acceptance Tests (FAT) & Square Sheet testing system should be fault free while submitting to Railways, otherwise suitable necessary action can be taken by Engineer-in-charge."					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

1	01	without Object Controller	Station	2.00	1001913.00	2003826.00
					Total	2003826.00
Item- 2	Design of SIP and submission of copy (three copy) for approval.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Upto four-line station	Set	2.00	40902.40	81804.80
					Total	81804.80
Item- 3	Design of ST/LT/TOC/Square sheet/RCC (Three copy) for approval.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Upto four line station	Set	2.00	19743.00	39486.00
					Total	39486.00
Item- 4	Design of Circuit Diagrams consisting Wiring/ Logic diagram, contact analysis, fuse detail, Input/output bit chart, VDU diagram, Interface etc. submission of Three paper copies for approval.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Upto 50 Routes	Station	2.00	148076.00	296152.00
					Total	296152.00
Item- 5	"Design of Miscellaneous diagram consist of Floor Plan of Relay Room , Battery Room, Power Equipment Room, Data logger room, Power Supply Diagrams along with power supply calculation, Earthing Diagram, Power panel diagram, IPS wiring diagram , Auto change over diagram , Block circuit wiring diagram, Digital Axle counter wiring diagram and all other relevant drawings (Three copy) for approval."					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Upto four line	Station	2.00	5429.00	10858.00
					Total	10858.00
Item- 7	Supply of Completion SIP in Original tracing along with Auto CAD copy in Pen Drive and Six set copies after approval.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Upto four line station	Numbers	2.00	818.00	1636.00
					Total	1636.00
Item- 8	Supply of completions ST/LT/TOC in original tracing along with AutoCAD copies in Pen Drive and six set copies after approval.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Upto four line station	Numbers	2.00	790.00	1580.00
					Total	1580.00
Item- 9	Supply of Circuit Diagrams consisting wiring/Logic diagram, contact analysis, fuse detail, Input/output bit chart, VDU diagram, Interface in Auto CAD in Pen Drive and Six set of Copies after approval.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Upto four line station	Station	2.00	29615.00	59230.00
					Total	59230.00
Item- 10	"Supply of diagrams consist of Floor Plan of Relay Room, Battery Room, Power Equipment Room, Data logger room, Power Supply Diagrams along with power supply calculation, Earthing Diagram, Power panel diagram, IPS wiring diagram, Auto change over diagram, Block circuit wiring diagram, Digital Axle counter wiring diagram and all other relevant drawing in original tracing along with AutoCAD in Pen Drive and six set copies after approval."					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Upto four line station	Station	2.00	2961.00	5922.00
					Total	5922.00

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

Item- 12	Design and supply of cable courage plan, location particulars, Cable termination rack particulars, cable meggering report, earth resistance particulars, Traction bonding diagram, 1/2 wire count sheet and any other drawing in AutoCAD in A3/A4 size. The contractor shall initially supply 3 sets of circuits complete for approval of Railways. Railways will return one set to the contractor duly approved with alterations/corrections, if any. The contractor shall incorporate Railway's alterations/corrections in the tracings without any deviation and submit all tracings complete in all respects to the Railways along with PENDRIVE & 4 sets of final approved drawings. This includes designing of cable coreage plan based upon I.P in consultation with engineer-in-charge For small/medium yards.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Station	Station	2.00	63698.00	127396.00
					Total	127396.00
Item- 13	Design and supply SWR Diagram on standard tracing paper of 95grams for each station. Corrected version of SWR plans after checked & approved by Rly's 25 Ferro copies will be supply for each of the plans.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	For stations having up to 4 lines	Numbers	2.00	24321.00	48642.00
					Total	48642.00
Item- 14	Preparation of SWR including supply of SWR booklets (25 Nos. per station).					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	For stations having up to 4 lines	Numbers	1.00	34049.00	34049.00
2	02	For stations having more than 4 lines	Numbers	1.00	82691.00	82691.00
					Total	116740.00
Item- 15	"Preparation of Cable Route Plan of buried S & T Cables using Radio Detector 8200 GS or Similar model GPS Model and DGPS for Per Trench per Km. For existing cables as per the instruction of Engineer in-charge. Submission of report in KMZ file format, Soft Copy Only."					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	In Yard Section	Kilometre	8.00	53987.00	431896.00
					Total	431896.00
Item- 17	Foundation, Erection & Installation of CLS without route indicator.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Excavation and Casting of foundation for main signal post as per CSTE/3122 (WR) with contractor's own materials including cement and anchor bolts of standard size. The required scaffolding Ferma etc. for Casting of foundation will have to be brought by the contractor at his own cost.	Numbers	28.00	12887.18	360841.04
2	02	Erection of CLS Post with base and signal unit on top or on OFF set Bracket, fixing of front and back staging, ladder and guards with contractor's own brackets and fixing materials. This also includes erection of auxiliary signals like calling on, shunt signal if any. The work shall be done as per instructions of Rly engineer at site. It also includes provision & fixing of maintenance platform as per design given by Engineer -In-Charge at site. It also includes supply of padlock for signal units and cable termination box. X' arms to be provided by the contractor till the signals are introduced. The Item includes cutting of Signal post if required by Site Incharge. 2/3/4 aspect signal unit mounted directly on signal post.	Numbers	16.00	8338.74	133419.84
					Total	494260.88
Item- 21	Foundation, Erection & Installation of Shunt Signal.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

1	01	Excavation and Casting of foundation for Shunt Signal as per Drg. No. CSTE/6090 with Contractor's own materials including Cement and Anchor Bolts of Standard Size. The required scaffolding, Ferma etc. for Casting of foundation will have to be brought by the Contractor at his own cost.	Numbers	8.00	6139.76	49118.08
2	02	Erection of Position Light Shunt signal with Base, Post, and Signal unit. Wiring & Fixing of Number Plate. The work shall be done as per instructions of Rly engineer at site.	Numbers	8.00	4169.37	33354.96
					Total	82473.04
Item- 27 Provision of Field accessories of DC Track Circuits						
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Track Lead Junction Boxes as per C.Rly Drg. No.RST 11509 made from fiber glass/SMC/FRP along with terminal blocks.	Numbers	120.00	1120.65	134478.00
2	02	GI wire 8 SWG (4mm Dia) suitable for track circuit rail bonding.	Kg	50.00	68.17	3408.50
3	03	Channel Pins MS (Galvanized) single groove, 7 mm suitable for 4mm Dia bonding wire as per spec No IRS S 17 & RDSO Drg No. S-69/M.	Numbers	10000.00	6.04	60400.00
					Total	198286.50
Item- 41 "Painting of two coats of synthetic enamel paint over one coat of primer on the following after scraping & cleaning surface wherever necessary with contractor's own supply of paints. Wherever required contractor shall apply coating of epoxy paint also as per instructions of site-in- charge. Epoxy paint will be supplied by Railways. NOTE-The paint and primer should be from Asian Paints/ Nerolac / Dulux / Berger. The primer / enamel paints (Aluminum synthetic, black enamel, brilliant white and yellow) will be as per (IS 5660 of 1970) / (IS 2932 of 1974)."						
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Main Signal Post with Signal Units, Surface base and complete fittings as per Western Railways standard practice.	Numbers	30.00	382.17	11465.10
2	02	Shunt signal post with signal unit, surface base as per Western Railway's Standard Practice.	Numbers	10.00	231.00	2310.00
3	03	Track Lead Junction Box. (Black enamel outside only).	Numbers	120.00	65.78	7893.60
4	04	Point Machine with ground connections complete (Point Machine with Black enamel only outside and ground connections with Red Oxide).	Numbers	30.00	112.56	3376.80
5	05	LC Gate	Numbers	1.00	7522.08	7522.08
					Total	32567.58
Item- 51 "Excavation and Casting of Apparatus Case foundation with contractor's own materials including cement and anchor bolts of standard size. The required scaffolding Ferma etc. for Casting of foundation will have to be brought by the contractor at his own cost."						
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	"Single Case as per Drg No SK 748 or CSTE/5074 or SS Location"	Numbers	50.00	7162.63	358131.50
2	02	"Half Case as per Drg No SK 747or CSTE/5074 or SS Location."	Numbers	40.00	5487.86	219514.40
					Total	577645.90
Item- 52 Installation of Apparatus Cases with miniature 'E' type lock on CC foundation. This includes filling of location foundations with river bed sand and plastering on top of the sand. 'E' Type lock will be provided by Railway.						
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Single Case	Numbers	50.00	1076.29	53814.50
2	02	Half Case	Numbers	40.00	657.15	26286.00
					Total	80100.50

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

Item- 54	Fabrication and fixing of SMC sheet in location box by providing all fixtures as per Railway Drawing including fixing of PVC coated string rods at the back side for cable support with contractor's own materials. The work shall be done as per Drg and arrangement similar to SK 783-1/2. With latest alterations & as per instructions of Rly engineer at site. Note- SMC sheet will be taken in place of phenolic laminated sheet.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Single Case	Numbers	50.00	2445.36	122268.00
2	02	Half Case	Numbers	40.00	777.78	31111.20
					Total	153379.20
Item- 55	Painting of two coats of synthetic enamel paint over one coat of primer on the following after scraping & cleaning surface wherever necessary with contractor's own supply of paints. Wherever required contractor shall apply coating of epoxy paint also as per instructions of site-in- charge. Epoxy paint will be supplied by Railways. NOTE-The paint and primer should be from Asian Paints/ Nerolac / Dulux / Berger. The primer / enamel paints (Aluminum synthetic, black enamel, brilliant white and yellow) will be as per (IS 5660 of 1970) / (IS 2932 of 1974).					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Apparatus Case Full Size. (Outside & inside)	Numbers	50.00	276.86	13843.00
2	02	Apparatus case Half Size. (Outside & inside)	Numbers	40.00	251.05	10042.00
					Total	23885.00
Item- 76	"Installation, Wiring and testing of Integrated Power Supply System. This includes power distribution connection to bus bars and relay racks in the room with contractor's own wiring materials and fabrication and fixing of AC/DC power distribution board made on 8mm thick SMC sheets or any standard make with connections suitable for 32 A. Wiring to be done considering site requirement, depending upon the load with suitable wires, lugs & glands as per instructions of Engineer-in-charge. The work includes installation of ELD's, fixing & wiring of change over switch(program switch) for selection of DG set supply (DG1 & DG2) and wiring of change over switch (program switch) for selection of mains or DG supply. This item also includes supply & fixing of ladder along the wall for carrying power supply wires/cables from IPS room to Relay room/power room etc. Any masonry work required will be carried out by contactors own material."					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	For Station	Numbers	2.00	109014.46	218028.92
					Total	218028.92
Item- 82	Supply, Installation, Testing and Commiioning of fire alarm system as per RDSO spec. No. RDSO/SPN/217/2021 version 2 or latest.					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	Power supply Unit 24VDC, 5 Amps, with two batteries.	Numbers	2.00	27946.80	55893.60
2	02	Control Module to address sounder cum strobe.	Set	2.00	9344.08	18688.16
3	03	Relay module to connect the Data logger to the panel.	Numbers	2.00	10456.32	20912.64
4	04	Zone Interface module.	Numbers	2.00	4769.01	9538.02
5	05	Aspirating type (air sampling) for relay room with inbuilt fault isolator.	Numbers	2.00	283550.80	567101.60
6	06	Cable EOL.(1 Nos =30m)	Numbers	10.00	3593.52	35935.20
7	07	Copper pipe with 25mm Dia and 1mm thickness.	Numbers	400.00	1459.08	583632.00
8	08	UL/EN/FM/VDS/LPCB approved Microprocessor based Networkable Analog addressable and modular type of Fire Alarm Control panel with display, i n b u i l t changing facility and provision o f G S M module suitable t o send SMS to configured mobile numbers.	Numbers	2.00	104427.60	208855.20
9	09	Resettable, addressable multisensory (heat and smoke) which is fully compatible with analogue addressable protocol, electronically addressed.	Numbers	32.00	4254.03	136128.96

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

10	010	Analogue Addressable, resettable Manual Call point with inbuilt integral short circuit isolator having status LED for alarming & standby mode, Electronically addressed.	Numbers	32.00	5239.19	167654.08
11	011	Analogue type Linear heat sensing (LHS) Cable.	Numbers	800.00	959.97	767976.00
12	012	Liner heat sensing (LHS) interface module.	Numbers	2.00	101368.82	202737.64
13	013	Addressable loop powdered sounder cum Strobe with inbuilt fault isolator.	Each Module	2.00	8555.72	17111.44
14	014	Hooter cum Strobe.	Numbers	2.00	6199.20	12398.40
15	015	UV/IR Flame detector with required modules.	Numbers	4.00	76604.44	306417.76
					Total	3110980.70
Item- 86	" Supply and Installation of Solar Power system for 110volt/300AH battery bank load as IPS System. Each panel containing the following items."					
S No.	Item No	Description of Item	Unit	Qty	Rate	Amount
1	01	" Supply, installation, testing and commissioning of Solar photovoltaic Module as per IRS: S:84/92 (Amendment -2) or latest, 12Volt-80 Watt Peak, 72 Nos. in each set) series & parallel combinations (Preferably 9 series X 8 Parallel) will be as per site requirements & instruction of Engineer-in-Charge."	Set	2.00	941926.96	1883853.92
2	02	Supply, installation, testing and commissioning of charge controller of 110V, 60 Amp. compatible with solar panel installed with digital meter. The charger controller should have provision of over voltage protection and low voltage protection , Blocking Diode fitted in the charge controller unit as per RDSO/SPN/187/2004 Amnd-1 or latest	Set	2.00	23961.90	47923.80
3	03	" Supply, installation, testing and commissioning of Array junction Box (02 Nos par set) & Main junction Box (01 No par set) fitted with MOV's etc. to safeguard the system from surges and suitable for above item as per instruction of Engineer-in-Charge."	Set	2.00	7986.83	15973.66
4	04	" iv. Supply , installation , testing and commissioning of theft proof mounting frame of angle iron MS Galvanized with adequate strength & weather -proof for solar panel (4-Module & 5- Module strstructure) as with suitable tilting arrangement to be fixed on roof top of building or any other location as per approve drawing and as per instruction of Engineer in charge. In addition to holes provided for fixing on the mounting structure, extra holes are to be provided suitably in the frame for cable routing. 1 No/ Set Installation must have porper earth terminals and shall be porperly earthed as per instrucion of Engineer in charge."	Set	2.00	55911.99	111823.98
5	05	" v. Supply, and installation, of power cables with conduit pipes and grouting bolts/Hardware. This includes 1X2.5 sq. mm (minimum 50 mtr) , 2X2.5 sq.mm (minimum 250 mtr) for series and parallel connection of module. 2X10sq mm (minimum 200 mtr), copper cable of RDSO approved supplier between junction charge controllers."	Set	2.00	31950.08	63900.16
6	06	vi. Supply, installation, testing and commissioning of Earthing kit for solar Panel system. (1 No./set) as per instruction of Engineer-in-Charge.	Set	2.00	3993.65	7987.30
					Total	2131462.82

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

4. ELIGIBILITY CONDITIONS

Important : All documents uploaded and remarks / confirmation entered by the bidders against any eligibility condition shall be opened as part of technical bid only

Special Financial Criteria

S.No.	Description	Confirmation Required	Remarks Allowed	Documents Uploading
1	The tenderer must have minimum average annual contractual turnover of V/N or 'V' whichever is less; where V= Advertised value of the tender in crores of Rupees N=Number of years prescribed for completion of work for which bids have been invited.The average annual contractual turnover shall be calculated as an average of "total contractual payments" in the previous three financial years, as per the audited balance sheet. However, in case balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover. The tenderers shall submit requisite information as per Annexure-VIB, along with copies of Audited Balance Sheets duly certified by the Chartered Accountant/ Certificate from Chartered Accountant duly supported by Audited Balance Sheet.	No	No	Allowed (Mandatory)

Special Technical Criteria

S.No.	Description	Confirmation Required	Remarks Allowed	Documents Uploading
1	(a) The tenderer must have successfully completed or substantially completed any of the following during last 07 (seven) years, ending last day of month previous to the one in which tender is invited: Three similar works costing not less than the amount equal to 30% of advertised value of the tender, or Two similar works costing not less than the amount equal to 40% of advertised value of the tender, or One similar work costing not less than the amount equal to 60% of advertised value of the tender. (b) (i) In case of composite works (e.g.works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and inthe case of major bridges substructure, superstructure etc.), tenderer must have successfully completed any of the following during last 07(seven) years, ending last day of month previous to the one in which tender is invited: Three similar works costing not less than the amount equal to 30% of advertised value of each component of tender, or Two similar works costing not less than the amount equal to 40% of advertised value of each component of tender, or One similar workcosting not less than the amount equal to 60%of advertised value ofeach component of tender. Note: Separate completed works ofminimum required values shall also be considered for fulfillment oftechnical eligibility criteria for different components.	No	No	Allowed (Mandatory)

Bidders shall confirm and certify on the behalf of the tenderer including its constituents as under:

S.No.	Description
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.

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

8	I/we understand that if the contents of the certificate submitted by us are found to be forged/false at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security and may also lead to any other action provided in the contract including banning of business for a period of upto two year. Further, I/we and all my/our constituents understand that my/our offer shall be summarily rejected.
9	I/we also understand that if the contents of the certificate submitted by us are found to be false/forged at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Bid Security/Security Deposit and Performance guarantee and may also lead to any other action provided in the contract including banning of business for a period of upto two year.
10	I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

Partnership firm/Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc.

S.No.	Description
1	Partnership firm/Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc. Please submit a certificate in the prescribed format (please download the format from the link given below). Non submission of the certificate, or submission of certificate either not properly filled in, or in a format other than the prescribed format shall lead to summary rejection of your offer. (Click here to download the Format of Self Certification)

5. COMPLIANCE

Important : All documents uploaded and remarks / confirmation entered by the bidders against any compliance condition shall be opened as part of technical bid only.

Commercial-Compliance

S.No.	Description	Confirmation Required	Remarks Allowed	Documents Uploading
1	Please enter the percentage of local content in the material being offered. Please enter 0 for fully imported items, and 100 for fully indigenous items. The definition and calculation of local content shall be in accordance with the Make in India policy as incorporated in the tender conditions.	No	Yes	Allowed (Optional)

Technical-Compliances

S.No.	Description	Confirmation Required	Remarks Allowed	Documents Uploading
1	The tenderer whether sole proprietor / a company or a partnership firm / joint venture (JV) / registered society / registered trust / HUF / LLP etc if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person, specifically authorizing him/them to sign the tender, submit the tender and further to deal with the Tender/ Contract up to the stage of signing the agreement except in case where such specific person is authorized for above purposes through a provision made in the partnership deed / Memorandum of Understanding / Article of Association/Board resolution, failing which tender shall be summarily rejected.	No	No	Allowed (Mandatory)

6. Documents attached with tender

S.No.	Document Name	Document Description
1	tenderdocument138_compressed.pdf	tender document

This tender complies with Public Procurement Policy (Make in India) Order 2017, dated 15/06/2017, issued by Department of Industrial Promotion and Policy, Ministry of Commerce, circulated vide Railway Board letter no. 2015/RS(G)/779/5 dated 03/08/2017 and 27/12/2017 and amendments/ revisions thereof.

As a Tender Inviting Authority, the undersigned has ensured that the issue of this tender does not

**DYCSTE-C-BRC-S AND T/WESTERN RLY
TENDER DOCUMENT**

Tender No: SnT_C_BRC_138_2024-25

Closing Date/Time: 26/05/2025 15:00

violate provisions of GFR regarding procurement through GeM.

Signed By: HEMANT KUMAR MAHAWAR

Designation : Dy.CSTE/C/BRC

6792512/2025/O/o DY CSTE/C/BRC/WR

6686104/2025/O/o DY CSTE/C/BRC/WR-25



WESTERN RAILWAY

**TENDERDOCUMENT
(OpenE-Tender)**

Tender No.S&T/C/BRC/138/2024-25

NAME OF THE WORK: - “Design, Supply,Installation,Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPACproving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling Systems in Jambusar and samni Section in connection of provision ofGauge Conversion Work under Dy. CSTE Construction, Vadodara, Gujarat (Western Railway)

E-TenderDocumentCost:Nil

(Fordetails pleaserefer to website-“www.ireps.gov.in

INDEX

ParaNo.	Items	PageNo.
	E-TenderNotice	5
	Section-I	
	Chapter-I:Tender Form(FirstSheet)	11
	Chapter-II:InstructionstoTenderer	14
1.0	GeneralInstructions	14
2.0	Signingof Tender	14
3.0	Submission ofthe tender	14
4.0	Openingof the Bids	16
5.0	EvaluationoftheTender	16
6.0	CompliancetoTenderConditions,Specifications& Drawings	16
7.0	Bid Security.	16
8.0	Securitydeposit.	18
9.0	Briefdescriptionofwork	19
10.0	Qualifying/EligibilityCriteria	19
11.0	Documentsto besubmitted bydifferenttypes of tenderers.	35
12.0	Powerof Attorney.	36
13.0	EmploymentofretiredRailwayemployeesetc.	37
14.0	Errors,omissionsanddiscrepancies.	38
15.0	Acceptance/rejectionoftender.	38
16.0	Localcondition	38
17.0	DrawingsfortheWork	39
18.0	ExecutionofContractAgreement.	39
19.0	Negotiationwith Tenderer(s)	39
20.0	Addressfor Communication	40
21.0	MobilisationAdvance	40
22.0	Pricevariation clause.	40
23.0	Joint Venture.	40

24.0	E-ReverseAuction	40
25.0	Procurementofpricesensitiveequipment	41
	Chapter-III:SpecialConditionsof Tender & Contract	43
1.0	General	44
2.0	Scopeof work	44
3.0	Programmeofwork	44
4.0	Noninterlocked working,	46
5.0	Completion&Commissioningofthe work	47
6.0	Extension(s)toCompletionperiod	49
7.0	Time limitation.	49
8.0	Inspectionofwork	49
9.0	Inspectionoftrenches,chases,fillingsetc.	50
10.0	Representationon works.	50
11.0	Materials(supply,transportations,inspectionofmaterials,handling,return &safecustody.)	51
12.0	Inspectionof Materials	52
13.0	Safeworkingmethod.	54
14.0	Ratesfor items.	56
15.0	Qty.inscheduleand quantities&theirvariations.	57
16.0	Measurement andpaymentofworks.	59
17.0	Deductionofincometax.	60
18.0	Goods&ServicesTax(GST)	60
19.0	Completionofwork.	61
20.0	Warrantyperiod	62
21.0	Programmingof workto avoidinterferencewithtrainmovement	62
22.0	SiteClearance	62
23.0	Progressreporting	62
24.0	Presenceofsupervisor atsite	63
25.0	Training	63
26.0	ForceMajeure	63
27.0	PerformanceGuaranteeBond(PGB)	64
28.0	Engagementofqualifiedengineers	65

6792512/2025/O/o DY CSTE/C/BRC/WR

Tender No.S&T/C/BRC/138/2024-25

6686104/2025/O/o DY CSTE/C/BRC/WR

OpenE-Tender

29.0	ContractLabourAct	66
30.0	BondedLabourAct	68
31.0	InsuranceandEPF(EmploymentProvidentFund)	68
32.0	Mobilisationadvance	68
33.0	Aspectofvitiatio	68
34.0	Pricevariation clause.	69
35.0	SecurityDeposit.	69
36.0	Performanceofthecontractor.	70
37.0	Arbitration	70
38.0	Jurisdiction ofcourt.	70
39.0	LawandGoverningtheContract.	70
40.0	AnnualmaintenancecontractofEI	70
41.0	Special clause.	70
42.0	PenaltyClause	70
43.0	LetterofCreditOffloadingof Work	71
44.0	OffloadingofWorks	71
	Chapter-IV:GCCApril2022withcorrectionslip	72
	Section-II	
	Importantcirculars,Appendix& Annexures.	73
	Section-III	
	ScheduleofWorks	74
	Scope of work	75-
	Section-IV	
	TechnicalSpecifications	
	Drawings	

6792512/2025/O/o DY CSTE/C/BRC/WR

Tender No.S&T/C/BRC/138/2024-25

6686104/2025/O/o DY CSTE/C/BRC/WR

OpenE-Tender

WESTERN RAILWAY**“E-TenderNotice”**

Tender No. S&T/C/BRC/138/2024-25

Date-

Dy CSTE construction BRC,acting for and on behalf of the President of India invites E-Tender for the following work:

Nameofwork	Design, Supply,Installation,Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPACproving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling Systems in Jambusar and samni Section in connection of provision ofGauge Conversion Work under Dy. CSTE Construction, Vadodara, Gujarat (Western Railway) ”..
Bidding/TenderType&System	WorksNormalOpenE-Tender, Twopacketsystem. (IREPSPortal)
TenderAdvertisedValue	
BidSecurity/Earnest Money	
CostofTenderDocument	NIL
Pre-Bid Conference	NA
Bidstartdate	15daysbeforeclosingdate
Time &Dateof Closing ofBid	15.00Hrs.on As per NIT Header.
Time& DateofOpeningofTechnical Bid	NA
Time & Date of Opening of CommercialBid	Datewillbeintimatedafterevaluationofthetechnical bid.
ValidityofOffer	As per NIT Header..
Completionperiod	As per NIT
JVAllowed	NOT Allowed
TenderingsectionOfficeIncharge& Placeof Openingof Bid	Dy CSTE C BRC, DRM office Vadodara, Gujarat
ThetendercanbeviewedonlineatE-TenderPortalwww.ireps.gov.inandtheoffer mustbe submittedonthesameE-TenderPortal.	

1. GeneralInformation/InstructionofTender

- TenderDocumentisavailableonwww.ireps.gov.inatdesignatedplace.
- The Bid Security shall be deposited either in cash through e payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents. Bank Guarantee bond to be submitted as per Annexure –VIA of Part I of

GCC(Appendix 1, annexure M).The original Bank Guarantee should be delivered in person to the official floating this tender before closing date for submission of bids (i.e. excluding the last date of submission of bids)Tenderers are advised to keep a watch on any corrigendum to the documents being released by the tender inviting office to ensure that they use the latest document for their offers.

- c) (It is the responsibility of the Tenderer to check any correction or any modifications published subsequently in the web site and to take into account while submitting their tender.
- d) If the Tenderer / Contractor makes any change / addition / deletion and the same is detected at any stage even after the award of the tender, full Bid Security will be forfeited and the contract will be terminated at his / their risk and cost. The tenderer is also liable to be banned from doing business with railways and / or prosecuted.
- e) Tenderer(s) to please note that after opening of tender, any document/credential pertaining to technical & financial eligibility, constitution of firm etc. shall neither be asked nor be entertained/considered under any circumstances and no claim or representation whatsoever from the tenderer in this regard shall be entertained. Scanned copy of the documents, uploaded by the tenderer shall be clear & readable.

However, Railway reserves the right to seek any clarification on the documents/credentials already submitted by the tenderer along with the offer. **E-Tender under Single Packet** are invited from reliable, Bonafide & experienced agencies with required experience as per prequalification criteria stipulated in Tender Document for the above work.

2. The TENDER DOCUMENT forming the complete Tender (which is deemed to be part of the contract) consist of the following

2.1 Packet-1, Technical Document:

The Technical Bid comprises of the following -

Section I: -

- Chapter I: Tender form
- Chapter II: Instructions to Tenderers
- Chapter III: Special conditions of Tender & Contract
- Chapter IV: GCC April 2022 with correction slip.

Section II: - Appendix, Annexure, Attachments

Section IV: - Technical Specifications for the schedule of the Tender

1. Indian Railways Standard General Conditions of Contract 2022, hereinafter called General Conditions of Contract, and Indian Railway Code for the Engineering Department with up to-date corrections (not enclosed herewith). Relevant instructions to tenderer & general conditions of contract & formats are also available in GCC annexures/appendixes.
However, conditions/provisions in the Tender Form and Special Conditions of Tender & Contract and Technical Specifications will override any overlapping or conflicting conditions / provisions given in these documents.
It is presumed that Bidder has acknowledged the knowledge of GCC of Railways.
2. Indian Railway Signaling / Telecommunication Manual with latest corrections (not enclosed herewith).
3. All general and detailed drawings pertaining to this work which will be issued by the Chief Signal & Telecomm. Engineer, W R, or his representative from time to time with all changes and modifications.

4. **Order of Precedence of Documents:** In a contract agreement, in case of any difference, contradiction, discrepancy, with regard to conditions of tender/contract, specifications, drawings, Bill(s) of Quantities etc., forming part of the tender/contract, the following shall be the order of precedence:
- i. Letter of Award/Acceptance (LOA)
 - ii. Bill(s) of Quantities/Schedule of Rates
 - iii. Special Conditions of Contract
 - iv. Technical Specifications as given in tender documents
 - v. Drawings
 - vi. Indian Railways Standard General Conditions of Contract updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
 - vii. IR Specifications/RDSO Specifications/Guidelines updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
 - viii. Relevant B.I.S. Codes updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.

Note: The documents which are not enclosed herewith can be seen in the office of Dy Chief Signal & Telecom Engineer, Vadodara Div, Western Railway, on any working day during office hours.

5. Contents of the Technical Bid to be submitted by Tenderer should include the following-
- (Pl. refer tender documents for details required in each Part/Annexures etc. to be submitted along with the offer. Documents may be submitted carefully as eligibility will be decided generally based on documents submitted along with offer)*
- i) Mandatory Information Fields required in IREPS Portal to be filled correctly.
 - ii) Covering Letter if any.
 - iii) Summary details of Technical Bid duly filled by Bidder in attached Format. (Appendix 1, Annexure A)
 - iv) Tender Form as per (Appendix 1, Annexure B)
 - v) Affidavit/Certificate as per Annexure-V or (C&H for JV Bidder) of tender Doc. As the case may be.
 - vi) Details of Technical Eligibility Fulfilment: List of 1 or 2 or 3 works which are similar in nature & of value mentioned in tender conditions. This shall be supported by credential/work completion certificate in respect of works fulfilling technical eligibility criteria issued by user/Employer.
 - vii) Details of FINANCIAL CREDENTIAL in the form of
 - a. Average Annual contractual payment received/contractual turnover issued by CA. Duly supported by Audited Balance Sheets.
 - b. Audited Balance Sheets duly certified by the Chartered Accountant for required period (past 3 financial years).
 - viii) Details of Bid Capacity Eligibility Criteria: **(for tender value more than 20 crore)**
 - a. CA certificate & Calculations of Bid Capacity as per given formula.
 - b. Detailed Break up of financial turnover (Value A) duly supported by List of works showing contractual payment received in past 3 financial years duly certified by CA.
 - c. Details of Balance liabilities of contractual works (Value of B) duly supported by List of all ongoing works duly certified by CA.
 - ix) Details of make of specific Equipment & MOU/Authorization from OEMs/Indian

Representatives with relevant details like country of origin (to check land sharing country details), Local content related documents, past experience of OEMs/Equipment, etc. if asked in the tender. Power of Attorney duly supported by Board resolution/partnership deeds as the case may be.

- x) Copy of MOA & Article of Association (AOA)/partnership deed/JV agreement based on type of Bidder as mentioned in tender document.
- xi) Other documents as mentioned in tender documents/check list attached with tender documents including deviation certificates, MOU with OEMs (if asked), make of specific equipment offered (E I , IPS, MSDAC, Datalogger, switches, IPMPLS equipment, etc.)
- xii) Certificate of Local content duly certified by CA. (Appendix 1, Annexure K)
- xiii) Declaration of site acquaintance. (Appendix 1, Annexure J)
- xiv) Other optional documents: (May be submitted with 30 days of issue of LOA):
 - a. List of Plant & Machineries.
 - b. List of Technical Manpower. (Appendix 2, Annexure 3)
 - c. List of Works In Hand (if not submitted with Bid capacity)
 - d. Planning Of Execution, Proposed Scheme and Programme of Work To Complete It Within The Stipulated Completion Period.

2.2. PART-II, FINANCIAL BID:

The financial bid documents comprise the following:-

SECTION IV:- SCHEDULE OF WORKS

Different schedules (with details of items) as listed in IREPS portal.

Contents of the Offer Document:

- A. Offer Document should be complete with rates quoted by the tenderer for Supply, Works and execution in prescribed Proforma at designated place on www.ireps.gov.in website. An incomplete offer will be summarily rejected.
- B. The tenderer(s) shall quote a single percentage against **all items in each schedule of the tender both, in „figures’ and words’**, in the designated space provided. If there be any variance in percentage quoted by the tenderer in „words’ and „figures’, that quoted in „words’ will be treated as final.

6792512/2025/O/o DY CSTE/C/BRC/WR

Tender No.S&T/C/BRC/138/2024-25

6686104/2025/O/o DY CSTE/C/BRC/WR

OpenE-Tender

SECTION-I

CHAPTER-I:	TenderForm
CHAPTER-II:	InstructionstoTenderers
CHAPTER-III:	SpecialConditionsof Contract
CHAPTER-IV:	GeneralConditionsofTender&Contract(Attachments2and 2.x)

6792512/2025/O/o DY CSTE/C/BRC/WR

6686104/103025/O/o DY CSTE/C/BRC/WR

OpenE-Tender

SECTION-I

CHAPTER-I:Tender Form

{TENDER FORM}

Appendix1,Annexure-B

(Ref:Annexure-IofPartIofGCC)

WESTERNRAILWAY

TENDERFORM(FirstSheet)

Tender No. S&T/C/BRC/138/2024-25

Name of Work:-**Design, Supply,Installation,Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPACproving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling Systems in Jambusar and samni Section in connection of provision ofGauge Conversion Work under Dy. CSTE Construction, Vadodara, Gujarat (Western Railway)**

To

ThePresidentofIndia

ActingthroughtheDyCSTE/C/ Vadodara W.R.

**2nd Floor, Annex. II, DRM Office Compound, Pratapnagar,
Vadodara, Gujarat**

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

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

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

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

5. We are a Labour Cooperative Society and our Registration No. iswith.... 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 mutuallyagreed to between us and indicated in the letter of acceptance of my/our offer for this work.

Signatureof Witnesses:

(1) _____

(2) _____

Signatureof Tenderer(s)

Date

Address of the Tenderer(s)

CHAPTER-II
{INSTRUCTIONSTOTENDERERS}

1.0 GENERAL INSTRUCTIONS:

- i) On behalf of the President of India, Dy Chief Signal & Telecom Engineer/c o n s t . Railway, Vadodara, invites tenders from established firms and reliable manufacturers or their authorised agents for the supply and execution.
- ii) All offers in the prescribed form, should be submitted before the time and date fixed for the receipt of offer or offers as set forth in the tender papers. Offers received after the stipulated time and date, are liable to be rejected.
- iii) All information in the offer should be in English. Information in any language must be accompanied by its authenticated translation in English. In the event of any discrepancy between an offer in a language other than English and its English translation, the English translation will prevail.
- iv) The offers shall be as per:
 - a. Instructions to Tenderers,
 - b. General Condition of Contract,
 - c. Special Conditions of Contract,
 - d. Technical Specifications,
 - e. Schedules,
 - f. Annexure.
- v) However, the tenderer shall indicate their compliance or otherwise against each clause and sub-clause of these conditions. The tenderer shall for this purpose enclose a separate statement indicating compliance or otherwise of each clause and sub-clause. Whenever, a tenderer deviates from such provision of a clause/sub-clause, he shall furnish his detailed justification for the same. However, acceptance of any such condition/deviation is not bound on the railway while accepting the offer.

2.0 SIGNING OF TENDER:

- i) The Tenderer must submit his offer on **www.ireps.gov.in**. This is to be submitted using the Registration process with Class III Digital Signature Certificate and Digital Encryption Certificate. Any document submitted through the above Digital Signature will be deemed to have been signed. However, all Annexures are to be properly filled up, signed & stamped wherever required and to be uploaded at designated place for the completion of offer.

3.0 SUBMISSION OF TENDER:

- i) Tender shall be submitted in Single part with compliance of Technical requirement and Financial Offer as instructed in Tender Document and IREPS guidelines.
- ii) Tenders must be submitted in the designated place on **www.ireps.gov.in** using the Class III Digital Signature Certificate and Digital Encryption Certificate.
- iii) The online offer will be accepted till Date and time as specified in above NIT Header.
- iv) **The Bid Security shall be deposited either in cash through e payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents.**
- v) **All rates must be submitted only under Specified Space only on ireps portal.**
- vi) Any individual(s) signing the tender or other documents connected therewith should specify whether he is signing:
 - a. as sole proprietor of the concern or as attorney of the sole proprietor;
 - b. as a partner or partners of the firms;
 - c. as a director, Manager or Secretary in the case of a Limited company duly authorised by resolution passed by the board of directors or in pursuance of the Authority conferred by Memorandum of Association.

- vii) In the case of a firm not registered under the Indian partnership Act, all the partners or the attorney duly authorised by all of them should sign the tender and all other connected documents. The original power of attorney should be submitted to the W. Railway for verification, if required.
- viii) All prices and other information like documents etc. having a bearing on the price shall be written both in figures and in words in the prescribed offer form. In case of difference in word and figure the amount written in words will be taken into consideration. In the event of any discrepancy between unit rate and total cost (Unit rate X quantity), the value shown in unit rate will be taken for evaluation purposes.
- ix) Offers shall be as per the General and Special Conditions of Contract given in the Bid Documents. However, the tenderer shall indicate his acceptance or otherwise against each clause and sub-clause of the General and Special Conditions of Contract. For this purpose, the tenderer shall enclose a separate statement (Appendix 1, Annexure I) indicating only the deviations from any clause or sub-clause of the General and Special Conditions of Contract, which he proposes with full Justification for such deviations. Railway, however, reserves the right to accept or reject these deviations and Railway's decision thereon shall be final.
- x) The tenderer should avoid ambiguity in his offer e.g. if his offer is to his standard sizes/length/dimensions, he should specially state them in detail without any ambiguity. Brief descriptions such as "standard length" etc. should be avoided in the offer.
- xi) Tender documents in which tenders are submitted by the tenderer(s) shall become the property of Railway and the Railway shall have no obligation to return the same to the tenderer(s).
- xii) This tender document (in full) downloaded along with the various documents required to be uploaded at www.ireps.gov.in before the date and time stipulated in the tender document.
- xiii) The Bid Security shall be deposited either in cash through e-payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents.
- xiv) Tenderers intending to participate in the e-Tender must make payment of Bid Security either in cash through e-payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents.
- xv) Tenders other than in the form of e-Tendering shall not be accepted against this tender. For this purpose, tenderers are required to register themselves with IREPS. Registration requires procurement of Class III Digital Signature Certificate and Digital Encryption Certificate.
- xvi) Bidding unit to be entered as per ireps website requirement.
- xvii) In case of any difficulty faced by the tenderer while submitting their bid in the IREPS website assistance from a help desk available with the website may be sought.
- xviii) Railway Administration will not be responsible for any delay/difficulties /inaccessibility of the downloading facility for any reason whatsoever. In case of any discrepancy between the tender documents downloaded from the internet and the master copy available in the offices, the latter shall prevail and will be binding on the tenderer(s). No claim on this account will be entertained.
- xix) The tender document is available after having deposited the requisite cost of the tender document (if any) as per NIT on IREPS website. It is understood that you agree to abide by the conditions laid down in the tender document when you submit the tender.

4.0 OPENING OF THE BIDS (TWO packet System): NA

- i) The E-Tender PACKET-I (Technical Bid) will be opened on date and time as specified in NIT Header. Opening will be done as per IREPS Portal norms.
- ii) The opening of PACKET-II (Price Bid) of the qualified bidders will be intimated later on. Note: -The successful tenderer who will be considered technically acceptable and eligible will be informed and the Financial Bids (PACKET-II) of these tenderers will be opened subsequently on the date time notified to the tenderer/s. The financial bids of unsuccessful tenderer/s will not be opened.
- iii) Price Bids will be opened on the IREPS Website.
- iv) The tenderer's representatives, who are present during the opening of Bids, shall sign a register as token of their attendance.
- v) In the event of the specified date of Bid Opening happens to be holiday/bandh, the Bids will be opened at the appointed time and location on the next working day.

5.0 EVALUATION OF THE TENDER:

- i) The tender will be evaluated on aggregated cost of work comprising all Schedules.

6.0 COMPLIANCE TO TENDER CONDITIONS, SPECIFICATION & DRAWINGS:

- i) The equipment offered shall be in accordance with the drawings and specifications. Details of variation from the drawings and specifications, if any, should be clearly indicated and in such an event, a certificate from the users must be furnished to the effect that the product offered performs the requisite functions satisfactorily, & is an alternative acceptable in one or more other countries. The name of users in those foreign countries should also be indicated.
- ii) Firms who have not carried out the works and supplied the items tendered for in this case for the Indian Railways in the past should give details of supplies and works carried out and the customers along with their performance certificates.
- iii) The tenderer(s) shall indicate paragraph by paragraph for each section of the tender document that either his tender complies in every respect with the requirements of each clause and sub-clause or if not, precisely how they differ from the requirements of the tenderer(s). In later case, "the tenderers) shall enclose a separate statement as per Performa given, indicating only the deviations for any clause or sub-clause of General Conditions of Contract, Special conditions of Contract, Instructions to tenderer(s) and conditions of tendering, Technical specification, etc. which he proposes with" details justifications for deviations proposed. The purchasers, reserves the right to accept or reject these deviations and his decision thereon shall be final.
- iv) In case the tenderer(s) is not able to comply with the provisions of any condition(s) and/or technical specification of this tender, he shall submit clause-wise non-compliance report giving reasons, and to submit in writing " I/We hereby confirm that I/We agree to comply all the conditions of the complete Tender this effect, he shall mentioned in different para of this tender document except those mentioned in my/our non-compliance statement enclosed," along with his offer, without which his/their offer is liable to be rejected.

7.0 BID SECURITY:

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

Value of the Work	Bid Security
For works estimated to cost up to Rs. 1 crore	2% of the estimated cost of the work
For works estimated to cost more than Rs. 1 crore	Rs. 2 lakh plus 1/2% (half percent) of the excess of the estimated cost of work beyond Rs. 1 crore subject to a maximum of Rs. 1 crore

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 the Department of Industrial Policy and Promotion (DIPP) as „Startups' shall be exempted from payment of Bid Security detailed above.
 - iii) Labour Cooperative Societies shall submit only 50% of above Bid Security detailed above.
- (b) It shall be understood that the tender documents have been issued to the tenderer and the tenderer is permitted to tender in consideration of stipulation on his part, that after submitting his tender he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to the Engineer. Should the tenderer fail to observe or comply with the said stipulation, the aforesaid amount shall be liable to be forfeited to the Railway.
- (c) If his tender is accepted, this Bid Security mentioned in sub para (a) above will be retained as part security for the due and faithful fulfilment of the contract in terms of Clause 16 of the Standard General Conditions of Contract. The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation that may happen thereto while in their possession, nor be liable to pay interest thereon.
- (2) The Bid Security shall be deposited either in cash through e-payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents. The Bank Guarantee bond shall be as per Annexure-VIA of Part I of GCC and shall be valid for a period of 90 days beyond the bid validity period.
- (3) In case, submission of Bid Security in the form of Bank Guarantee, following shall be ensured:
- (i) A scanned copy of the Bank Guarantee shall be uploaded on e-Procurement Portal (IREPS) while applying to the tender.
 - (ii) The original Bank Guarantee should be delivered in person to the official nominated as indicated in the tender document before the closing date for submission of bids (i.e. excluding the last date of submission of bids). (Appendix 2, Annexure M).
 - (iii) Non submission of scanned copy of Bank Guarantee with the bid on e-tendering portal (IREPS) and/or non-submission of original Bank Guarantee within the specified period shall lead to summary rejection of bid.
 - (iv) The Bid 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 Security for the Tender**”

No. _____” and shall clearly indicate the name and address of the Bidder. In addition, the Bid Due Date should be indicated on the right-hand top corner of the envelope.

- (vii) The envelope shall be addressed to the officer and _____ address as mentioned in the tender document.
- (viii) If the envelope is not sealed and marked as instructed above, the Authority assumes no responsibility for the misplacement or premature opening of the contents of the Bid submitted and consequent losses, if any, suffered by the Bidder.

8.0 SECURITY DEPOSIT:

- i) The Security Deposit shall be **5%** of the contract value. The Bid Security submitted by the Contractor with his tender will be retained/encashed by the Railways as part of security for the due and faithful fulfilment of the contract by the Contractor. Provided further that, if Contractor submits the Cash or Term Deposit Receipt issued from a Scheduled commercial bank of India or irrevocable Bank Guarantee Bond from a Scheduled commercial bank of India, either towards the Full Security Deposit, the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security, to the Contractor.
- ii) 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.
- iii) The Irrevocable Bank Guarantee submitted towards Security deposit shall be initially valid up to the stipulated date of Maintenance period plus 60 days and shall be extended from time to time, depending upon extension of contract granted in terms of Clause 17A and 17B of the Standard General Conditions of Contract.

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

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

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

ii) Forfeiture of Security Deposit: Whenever the contract is rescinded as a whole under clause 62 (1) of these conditions, the Security Deposit already with railways under the contract shall be forfeited. However, in case the contract is rescinded in

part or parts under clause 62(1) of these conditions, the Security Deposit shall not be forfeited.

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 this clause will be payable with interest accrued thereon.

9.0 BRIEF DESCRIPTION OF THE WORK:

Please refer to Appendix 2, Annexure 1.

For exact item wise details, schedule of work & its corresponding technical specification may be referred. However, any further clarifications thereof can be obtained from the office of Dy. Chief Signal & Telecommunication Engineer/Const.BRC, W. Railway well in advance.

10.0 QUALIFYING/ELIGIBILITY CRITERIA:

Tender eligibility criteria defined in para 10.1 to 10.5 must be fulfilled or else Bid may be rejected summarily. All Tenderer(s) irrespective of their being known to this organisation or not, must submit related supporting documents in respect of the following:

10.1 TECHNICAL ELIGIBILITY CRITERIA:

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

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

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

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

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

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

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

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

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

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

(b) (3) To evaluate the technical eligibility of a tenderer, only components of work as stipulated in tender documents for evaluation of technical eligibility, shall be considered. The scope of work covered in other remaining components shall be either executed by

tenderer himself if he has work experience as mentioned in clause 7 of the Standard General Conditions of Contract through subcontractor fulfilling the requirements as per clause 7 of the Standard General Conditions of Contract or jointly i.e., partly himself and remaining through subcontractor, with prior approval of Chief Engineer in writing.

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

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

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

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

Note for Item 10.1:

Work experience certificates from private individuals shall not be considered. However, in addition to work experience certificates issued by any Govt. Organization, work experience certificate issued by Public listed company having average annual turnover of Rs 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, incorporated/registered at least 5 years prior to the date of closing of tender, shall also be considered provided the work experience certificate has been issued by a person authorized by the Public listed company to issue such certificates.

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

Similar Nature of Work means:

Please refer to Appendix 2, Annexure 1.

For Joint Venture Firm please refer Clause 17 of GCC 2022. (Along with all correction slips)

10.2 Financial Eligibility Criteria: (Ref: para 10.2 of GCC (along with all correction slips))

The tenderer must have minimum average annual contractual turnover of V/Nor., 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 bid has 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 the balance sheet of the previous year is yet to be prepared/ audited, the audited balance sheet of the fourth previous year shall be considered for calculating average annual contractual turnover.

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

For Joint Venture Firm please refer Clause 17 of GCC 2022.

10.3 Bid Capacity: (Applicable for tender costing > 20 Cr.)

Applicable as per para 10.3 of GCC 2022. (along with all correction slips)

The tender/technical bid will be evaluated based on the bid capacity formula detailed as Annexure- VI of GCC.

For tenders having advertised value more than Rs 20 crore where ineligibility criteria include bid capacity also, the tenderer will be qualified only if its available bid capacity is equal to or more than the total bid value of the present tender. The available bid capacity shall be calculated as under:

Available Bid Capacity = $[A \times N \times 2] - 0.33 \times N \times B$ Where,

A = Maximum value of construction work 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 bid has been invited.

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

Note:

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

(i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) for calculating A, as per proforma at Appendix 1, Annexure F1 and

(ii) Existing commitments and balance amount of ongoing works with tenderer as per the prescribed Proforma (Appendix 1, Annexure F2) of Railway for statement of all works in progress and also the works which are awarded to tenderer but yet not started upto the date of inviting of tender for calculating B. In case of no works in hand, a „NIL' statement should be furnished. The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.

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

- (i) Maximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) by each member of JV for calculating A in prescribed Performa at Appendix 1, Annexure F1 and
- (ii) Existing commitments and balance amount of ongoing works with each member of JV either in individual capacity or as a member of other JV as per the prescribed Performa(.....) of Railway for statement of all works in progress and also the works which are awarded to each member of JV either in individual capacity or as a member of other JV but yet not started up to the date of inviting of tender for calculating B. In case of no works in hand, a „NIL' statement should be furnished.
The submitted details for (i) and (ii) above should be duly verified by Chartered Accountant.
- (c) Value of a completed work/work in progress/work awarded but yet not started for a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above-mentioned bid capacity in the tender under consideration.
- (d) The arithmetic sum of individual “bid capacity” of all the members shall be taken as JV's “bid capacity”.
- (e) In case, the tenderer/s failed to submit the above statement along with offer, their/his offer shall be considered as incomplete and will be rejected summarily.
- (f) The available bid capacity of tenderer shall be assessed based on the details submitted by the tenderer. In case, the available bid capacity is lesser than estimated cost of work put to tender, his offer shall not be considered even if he has been found eligible in other eligibility criteria/tender requirements.

10.4 Criteria related to specific Equipment's

10.4.1 Criteria related to specific Equipment's OEMs in RDSO approved Source

- i) EI: The systems to be offered against this tender shall be from RDSO approved sources only on the date of tender opening.
- (a) The successful bidder shall submit an undertaking from RDSO-approved EI OEM, within 21 days from issue of LOA or at last with submission of PG, to confirm compliance with extant RDSO guidelines and to meet specific requirements and to provide after-sales support required during the warranty period and beyond the warranty period, failing which the contract is liable to be terminated.
- (b) The successful bidder shall submit authorised breakup of cards / modules, with complete details of EI system i.e detail of all modules, cards and accessories, full details of quantities (station/OC wise) & unit base rate item wise, including spares, in proforma provided with this tender, before supply of material.
- ii) MSDAC: For ease of maintenance, only one uniform made of MSDAC is to be supplied and installed in this Project. The systems to be offered against this tender shall be from RDSO approved sources only on the date of tender opening.
- (a) The successful bidder shall submit an undertaking from RDSO-approved MSDAC OEM, within 21 days from issue of LoA or at last with submission of PG, to confirm compliance with extant RDSO guidelines and to meet specific

requirements and to provide after-sales support required during the warranty period and beyond the warranty period, failing which the contract is liable to be terminated.

- (b) The successful bidder shall submit authorised breakup of Material, with complete details of MSDAC system i.e detail of all modules, cards and accessories, full details of quantities (station/OC wise) & unit base rate item wise, including spares, in proforma provided with this tender, before supply of material.

10.4.2 Criteria related to special Equipment's vendors (Non-RDSO approved Source) (Not Applicable in this tender)

(i) IT Networking Equipment (Industrial grade) and their OEMs/Authorized Indian Representative.

10G network is being proposed in the section due to introduction of large number of applications like AIML (Artificial Intelligence/Machine learning) powered, IOT device based early warning systems for predictive maintenance, CCTV surveillance system in tunnels, emergency communication system based on IP PA speaker, SIP based call points, SCADA system, etc. required in section. This project will have Distribution/edge switches of industrial grade to connect various sensors/equipment's. Switches required lot of configurations, logic and protocols which may not be known to Railway Engineers/contractors, hence MOU shall be submitted for proper sales, service and warranty purpose.

Normally Industrial switches are manufactured by Multinational companies. Some company started manufacturing in India also. Still Industrial grade switches are not 100% made in India as chips/cards are still not manufactured in India. Thus to comply GCC clause 7C & 7D, following information may be submitted to qualify the technical suitability of Bid.

a. Authorization/MOU from OEM / Authorized Indian Representative of OEMs of IT Networking Equipment's. (Industrial switches & Enterprise grade core switch) for successful commissioning of robust backbone IT Network for integrated tunnel communication system consisting of CCTV, Comm. System, SCADA system, IOT device based (IP Modbus protocol) Predictive maintenance system etc. and after sales and support for proper working of systems."

b. RDSO has issued General specification for enterprise switches (Non-Industrial) but approval of sources has not been done so far. In this project only proven type Industrial grade equipment need to be quoted. (Make CISCO, Allied Digital, Alcatel Lucent, Juniper, Extreme, HP or similar). All type switches shall be same make for smooth interoperability.

c. This is applicable for OEM of Networking (industrial grade switches) whose products are proposed should meet the following criteria.

Eligibility Criteria Requirements	Supporting Document Required
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1	<p>The OEM of Industrial & other Switches, should have proven facilities for Engineering, manufacture, assembly, integration, testing and basic facilities with respect to space, Engineering, Personnel, Test equipment, Manufacture, Training, Logistic Supports for above equipments used for Backbone networking used in Tunnels/Railway sector; continuously for at least past one year in the India or any other country. In case OEM is located outside India, it should have authorised training, repair and service Centre facilities in India also.</p> <p>The OEM of equipment should not be form land border country. If OEM major shareholder has dual citizenship, then that OEM will be considered form land border country and that OEM offered equipment supply from any other country will not be accepted</p>	<p>The certificates/Undertaking along with the complete address of OEM for the sales and support will have to be submitted along with bid.</p> <p>Certificate of incorporation of parent company or their Indian subsidiaries have to be submitted.</p> <p>If the parent company is sharing border countries, proper licence from an Authorised government agency must be submitted.</p>
1	<p>The Industrial grade series switch of OEM should preferably be satisfactorily working in Indian Railway Environment in RE area since last one year. This includes satisfactory working of equipment in Metro or in any Railways establishment since last one year successfully.</p>	<p>Satisfactory performance certificate from end user clearly mentioning the make and grade (industrial) of equipment.</p>
2	<p>Hardware and Software supplied by OEM should not have any malicious code.</p>	<p>No Malicious Code Undertaking Letter to be provided. (as per Appendix 1, Annexure-Q).</p>
3	<p>The system must be interoperable with other make networking equipment.</p>	<p>Undertaking for system interoperability to other make equipment. (as per Appendix 1, Annexure-Q).</p>
4	<p>The OEM of Industrial grade switches or their authorized representative shall have service facility in India</p>	<p>Self-declaration of OEM having service facility in India or service Centre authorization letter to its representative in India</p>

5	Deviation in technical specification are permitted if they are certified Authorised technical officer of OEMs.	Parawise Technical compliance declaration to be submitted.
6.	Datasheetof equipmentmaybesubmitted.	Copyof datasheet (optional)

(ii) Emergency communication system with IP based PA and SOS/Call point phone system and their OEMs/Authorised Indian Representative

a. MOU from OEM / Authorised Indian Representative of OEMs of Emergency communication system with IP based PA and SOS/Call point phone system for successful commissioning of integrated tunnel communication system and after salesand support for proper working of systems.”

b. RDSO has issued General specification for Industrial grade IP speaker & call point phones but approval ofsources has not been done so far. In this project onlyproven type equipment needs to be quoted. (make Zenitel or similar)

c. OEM of Emergency communication system with IP based PA and SOS/Call point phone system whose products are proposed should meet the following criteria

	EligibilityCriteriaRequirements	Supporting Document Required
1	<p>The OEM ofEmergency communication system (Common server) with IP based PA andSOS/Call point phone system, should haveproven facilities for Engineering, manufacture, assembly, integration, testing and basic facilities with respect to space, Engineering, Personnel, Test equipment, Manufacture, Training, Logistic Supports for above equipments used for PA system and Emergency call phones system in Tunnels/Railway sector; continuously for at least pastone yearin Indiaoranyother.IncaseOEM is located outside India, it should have authorised training, repair and service Centre facilities in India also.</p> <p>The OEM of equipment should not be form land border countryIf OEM major shareholder has dualcitizenship,thenthatOEMwillbe considered form land border country and that OEMofferedequipmentsupplyfromanyother</p>	<p>The certificates/Undertaking along with the complete address for the same willhave to be submitted along with bid.</p> <p>Certificate of incorporation and shareholding of parent company and subsidiaries have to be submitted.</p> <p>If the parent company is sharing border countries, proper licence from an Authorised government agency must besubmitted.</p>

	country will not be accepted	
1	<p>The Communication server Equipment with IP speaker (Industrial grade) with or without phones offered by the OEM must be satisfactorily working in Railway Environment in RE area. This includes satisfactory working of equipment in Metro or in Railways since last one year successfully.</p> <p>Further Robust Industrial grade Call point /SOS phones must be working successfully in any tunnels since last one year successfully.</p>	Satisfactory Working certificate from end user clearly mentioning the make & model no./series/family of the offered equipment.
2	Hardware and Software supplied by OEM should not have any malicious code.	No Malicious Code Undertaking Letter to be provided (as per Appendix 1, Annexure-Q).
3	The system components like IP speakers, call point phones must be interoperable with other make SIP server based systems.	Undertaking for system interoperability to other SIP enabled components (Speakers/phones) and vice versa.

4	The OEM of Call point/SOS phones(Industrial grade) & IP speakers (Industrial grade) or their authorised representative shall have service facility in India	Self-declaration of OEM having service facility in India or service Centre authorization letter to its representative in India
5	They shall fulfil technical specifications with Nil deviations.	Technical compliance declaration to be submitted.
6.	Make of Equipment and its technical details need to be submitted with a tentative scheme.	Make Technical detailsof equipment.

(iii) Control Desk work- Supply and installation of Modular VDU operator Console Size: 4102x2576mm. This console is intended for use in a railway station's Electronic interlocking system and needs to accommodate various components such as VDU for monitoring and control, several phones, UFSBI panel, required CPU or server & other accessories. As large no of EI is being installed/replace in section, this is in modular nature different module may be added or removed as needed , depending on the requirements of the installation or replacements of EI system. The console must be properly installed and commissioned as part of the EI installation or replacement project. The console and associated equipment should be of a type similar to Pyrotech or equivalent, adhering to relevant specifications. The tenderer must provide the necessary certificates, test reports, and documents along with their bid to compliance with the project requirements.

Technical Specifications: -The control room console shall conform to high standard of engineering as mentioned in the document; meeting the specified codes, standards and designs. It shall be capable of performing 24X7 operations under the specified environmental condition in compliance to control room ergonomic norms i.e. ISO 11064. All the certificates and reports mentioned below and in BOQ shall be submitted along with the technical bid.

Structure:-

- Made of heavy duty extruded vertical and horizontal aluminium profiles. The extrusions shall be duly powder coated with 40+ microns over all surfaces. All sheet metal parts shall be finished with a durable, black, electrostatic powder coating. Valid trademark registration certificate issued by the Government of India for the Control Desk proposed in this tender. Valid Trademark registration certificate to be submitted along with the technical bid.
- To allow future extension and expansion, a weld free system shall be proposed. Interconnecting joints shall not be visible. The structure shall be rigid enough to withstand BIFMA X5.5 tests. The structure shall allow easy assembly of hinged shutters, slat wall, gland plate, and monitor arms in extremely rigid manner. Valid certificate of BIFMA X5.5 from authorized agencies to be submitted along with technical Bid.
- The EPD (Environmental product declaration) of control room console shall be verified in accordance with ISO 14025 (from UL/Intertek) for Impact on

Environment by control room console. Valid report/document from UL/Intertek to be submitted along with the technical bid.

Table-top: - The material of the working surface shall be made up of Alumina Tri-hydrate and acrylic resin material supported on minimum 12 mm thick MDF base. The top finish shall be fire retardant, waterproof, scratch resistant and shall have high hardness. The proposed console's life cycle shall be assessed (from approved LCA consultant) for environmental impacts associated with all the stages of a product's life for cradle to grave analysis. Valid report/document from UL/Intertek to be submitted along with the technical bid.

SlatWall: - Shall be made of approximately 2mm thick extruded aluminium.

Monitor Arm: - The Console shall feature ergonomic display mounting arms. It shall enable quick & easy replacement of VESA mounts & arm extensions as per the ergonomic. UL audit certified design feature of monitor arm assembly shall have auto lock, push & remove feature for quick release of VESA mounts and modular arm extensions for ease in maintenance and fixing of monitor by one technician within 30 seconds without using any tools.

Shutters & Side Legs: - Front, and back shutters shall be of 18 mm Laminated MDF Board with a premium finish. Side leg shall be of 25mm of the same finish. The proposed console shall be Greenguard Gold certified. Valid certificate to be submitted along with the technical bid. The proposed control desk shall be ANSI/BIFMA e3-2019 certified/tested at least for level 3 from UL/Intertek as per Furniture Sustainability Standard to identify the sustainability level of the furniture with respect to the environmental, health & wellness, and social impacts applicable to product(s).

Cable Trays and Wiring: - The desks shall be designed with vertical and horizontal cable trays to allow for continuous cable management between the cabinets. Wire shall be routed into the cabinet through gland plate. The proposed console shall be RoHS Certified/tested from UL/Intertek and the valid certificate/ test report shall be submitted along with the technical bid.

Hardware: - All bolts shall be of SS material to avoid rust due to environment. The remaining hardware shall be Nickel Plated MS.

(iv) **Cable route tracer-** Supply of Cable route tracer with integrated high precision GPS system to accurately capture and map the location of existing buried cables and newly laid cables. The system should automatically digitize maps based on GNSS coordinates, allowing real-time integration with an RTK GNSS receiver, ensuring accuracy up to 5 cm.

The cable route tracer should feature a built-in GPS system that allows for precise mapping of cable routes with up to 5 cm accuracy using GNSS coordinates. The device should automatically digitize maps of cable routes in real-time, integrating survey data such as cable depth and distance with the GPS coordinates and transfer to PC via USB in .xls/.xlsx, .csv & .kml for Google Maps, bluetooth to real-time communicate with external device android app for mapping needs. Supply include: Receiver and Transmitter unit, rechargeable battery and chargers and other accessories including Direct Connection Lead, Extension Cable, Earth Stake, soft bag, Make Model: Radiodetection RD8200G, Path finder PLDL cable route locator or Similar. This will benefit further include better project planning, efficient use in future of HDD Trenchless without cable cuts, and faster response to cable fault management.

Detailed technical specification requirements as below: Receiver :

1. LCDDisplay:ReceivershouldcontainLCDdisplay,Backlit,Displaysize:Minimum 3 inchx 2inch
2. Audio: equipment should have volume control including in various steps including zero.
3. Vibration:Equipmentsshouldhaveavibratinghandletoprovideindicationwhen over buried utility being located.
4. InternalAntennas:Minimum4antennas.
5. Locating modes : Instrument should have Peak, Null , Broad peak & Pinpoint peak modes.
6. Operating modes : Receiver should have Transmitter mode, Power Mode, RF/Radio mode and Cathodic Protection mode.
7. Frequencies: facilityto applyminimum 36 activefrequenciesin thefrequencyrange 200Hz to 476kHz. Frequencies should be user configurable/programmable.
8. Guidance: instrument should have:
 - leftrightarrowfunction
 - compassforprovidingorientation/line direction
9. Receiver Display information : Backlit LCD display should provide following information:Locating Mode Indication, Left/Right Arrows,depth measurement, line orientation (compass), Antennae operating mode ,Continuous Battery Check, Operating frequency, volume.
10. Current Measurement : Receiver should also have current measurement function. There should be option to view the current measurement, live / in real time (when used in transmitter mode) during route tracing process.
11. Current direction :Receiver should have function for display of current direction with up / down arrows.
12. Output: Receivershouldprovide USBport forpoweringaGNSSreceiver.
13. Bluetooth : locating receiver should be Bluetooth enabled, for direct transfer of data to mobile app during logging through mobile phone.
14. Compatibility : Locating receiver should contain a mount for directly mounting the GNSS Receiver based on RTK/RTX directly on the locating receiver to allow single person usage. Locator should provide USB output 5V, to allow power up GNSS receiver .
15. GNSS position and depth data logging : on clicking log button on locating receiver should allow direct log of GNSS location with depth data of cable being traced on mobile app.
16. Gaincontrol: DigitalAutoandManualGaincontrol.
17. Depthrangemeasurement capabilityintransmittermode:Upto10morhigher. There should be option to view the depth measurement, live / in real time (when used in transmitter mode) during route tracing process.
18. Power Harmonics frequencies should be available of 150Hz, 180Hz, 250Hz, 300Hz, 350Hz, 420Hz, 450Hz or higher.
19. Depth measurement in passive power & RF mode : feature should be available for checking approximate depth without need for transmitter.
20. OperatingTemperature Range:Operating-20to+55Deg.C .
21. Environmentalrating: WeatherproofandcomplyingtoIP65
22. Weight of receiver (with battery & including GNSS receiver) should be less than 2.5 Kg.
23. Battery: Lithiumionrechargeablebatterypack,Backup8-10Hrs.
24. GNSS : GNSS receiver should be RTK/RTX Capable providing accuracy generally in range of 10mm horizontal / 20mm vertical with upto 2cms / 5cms accuracy horizontal/verticalwithcorrectionhubserviceforwhichlicenseshouldbe

provided. GNSS receiver should be light weight not exceeding 350grams and should be mountable directly on locator receiver. GNSS receiver should be L1/L2/L5/MSS Multifrequency compatible, and should provide signal tracking capability to various GNSS positioning technologies such as GPS, GLONASS, SBAS, NaviC, ETC. GNSS receiver should be powered up by locator receiver via USB with no need for additional batteries. GNSS Receiver should be IP65 Water proof. Should be USA FCC Part 15 (Class B Device)

25. GNSS Correction service : should be offered with license for minimum 3 years for correction of GNSS accuracy upto 5 cms directly in field, without need for further manual intervention.

UtilityMapperGIS MobileApp:

1. MobileApp&PCDatabase License:
 - Mobile app should be provided with license for 5 years, which should have connectivity capability to cable locating receiver and GNSS device, for direct generation of maps on field collating coordinates and depth data, and data retrieval to PC database through cloud for downloading maps in .csv , .shp and other formats.
 - It should be possible to add project name, attributes such as cable type etc. Mobile app should also collect date/time of survey data acquisition.
 - It should be further possible to add images of specific locations surveyed or logged.
 - Mobile app should have pre fed attributes such as cable type, cable sizes information to allow railway executive utilize pre fed workflow inputs. Mobile app should have auto sync to cloud, to allow data acquired in field to be available for download from cloud on PC in real time.
 - Cloud access for accessing archive of stored projects should be available for 5 years +/- 1 month.
 - It should be further possible to view projects and maps of data surveyed on PC through web cloud access.
 - It should be possible to create sketches on the archived map data for project planning.
 - Data should be accessible on cloud server through username and password.
2. Dual Bluetooth phone, android, should be provided as part of supply, pre-configured with Mobile App license and correction service.

Transmitter:

1. Output power : transmitter should be capable of providing 12 Watts maximum output power with user controllable power settings (low to high) .
2. Output Voltage: Transmitter offered should be capable of applying ≥ 130 Volts maximum voltage with voltage booster for longer length surveys.
3. Frequencies available: facility to apply minimum 36 active frequencies in the frequency range 200Hz to 476kHz. Frequencies should be user configurable/programmable.
4. Load Matching: automatic impedancematching.
5. Display type: LCD, Backlit
6. Display information : should include multimeter function to display cable resistance load, voltage and current. Additionally remaining battery, mode used etc.
7. Internal Battery : Lithium ion rechargeable Battery pack with capability of continuous usage ≥ 8 hours.

8. Standard accessories: Direct Connection Lead and ground rod.
9. Modes of operation: Direct Connection Mode & Induction mode.
10. Controls: Push buttons for Frequency, Output Level and Information
11. Fault locating mode: Instruments should have fault locating mode built in instrument for sheath fault locating, should A frame be opted for in future .
12. Weight less than 3.0 Kg.
13. Temperature Range: Operating -20 to +55 Deg. Cor better.
14. Construction & Environmental rating : High Impact ABS. Weather proof and complying to IP65.

Scope of supply:

1. Locating receiver, per specifications
2. Transmitter, per specifications.
3. Dual Bluetooth Mobile phone, android, with:

10.5 Site Acquaintance verification criteria: (appendix 1, Annexure J)

Safety of material and staff will be the responsibility of the contractor. It is required that firms should compulsorily visit the site condition before filling the tender. The certificate to this effect may be submitted. Railway may like to have proof of visit of site to adjudged seriousness & sincerity of bidder while quoting rates.

10.6. Joint Venture will be permitted in this tender. All required documents to be as per Indian Railway GCC 2022. (along with all correction slips). Please submit MOU as per Appendix 1- Annexure G & certificate by Each member as per annexure H.

10.7 Partnership Firm: The tenderer shall submit documents as mentioned in Clause 18 of the Tender Form (Second Sheet) of GCC 2022. (along with all correction slips)

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

[Explanation for Para 10.1 to 10.5 - Eligibility Criteria:]

1. *Substantially Completed Work means an ongoing work in which payment equal to or more than 90% of the present contract value (excluding the payment made for adjustment of Price variation (PVC), if any) has been made to the contractor in that ongoing contract and no proceedings after termination of contract on Contractor's*

default has been initiated. The credential certificate in this regard should have been issued not prior to 60 days of date of invitation of present tender.

2. In case a work is started prior to 07 (seven) years, ending last day of month previous to the one in which tender is invited, but completed in last 07 (seven) years, ending last day of month previous to the one in which tender is invited, the completed work shall be considered for fulfilment of credentials.
3. If a work is physically completed and completion certificate to this extent is issued by the concerned organisation but final bill is pending, such work shall be considered for fulfilment of credentials.
4. In case of completed work, the value of the final bill (gross amount) including the PVC amount (if paid) shall be considered as the completion cost of work. In case the 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. 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. Organisation or public listed company as defined in Note for Item 10.1 Para 10 of the Tender Form (Second Sheet), the same shall be considered for the purpose of fulfilment of credentials.
6. In case a work is considered similar in nature for fulfilment of technical credentials, the overall cost including the PVC amount (if paid) of that completed work or substantially completed work, shall be considered and no separate evaluation for each component of that work shall be made to decide eligibility.
7. In case of newly formed partnership firm, the credentials of individual partners from previous proprietary 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 the previous entity and his share in the 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 a copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc.
8. In case of existing partnership firm, if any one or more partners quit the partnership firm, the credentials of remaining partnership firm shall be re-worked out i.e., the quitting partner(s) shall take away his credentials to the extent of his share on the date of quitting the partnership firm (e.g. in a partnership firm of partners A, B & C having share 30%, 30% & 40% respectively and credentials of Rs 10 crore; in case partner C quits the firm, the credentials of this partnership firm shall remain as Rs 6 crore). For this purpose, the tenderer shall submit along with his bid all the relevant documents which include a 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 an existing partnership firm if any new partner(s) join the firm without 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 a copy of previous partnership deeds, dissolution/splitting deeds and proof of surrender of PAN No.(s) in case of dissolution of partnership firm etc.

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

10.9 Tenderer Credentials: Documents testifying tenderer's 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 W. Railway shall submit along with his / their tender:

- i) Certificates and testimonials regarding contracting experience for the type of job for which tender is invited with a list of works carried out in the past.
- ii) Audited Balance Sheet duly certified by the Chartered Accountant regarding contractual payments received in the past.
- iii) **CA certified local content certificates for complete tender value need to be submitted.**
 - a. **Note: minimum value shall be filled in IREPS Portal (Mandatory Field), However certificate may specify either minimum value or range of values as the case may be. (Details may be submitted as attached Format Appendix 1, Annexure K).**
- iv) The list of personnel / organisation 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.
- v) A copy of certificate stating that they are not liable to be disqualified and all their statements/documents submitted along with the bid are true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-V. Non submission of a copy of certificate by the bidder shall result in summary rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self-attested / digitally signed by which she/he/they is/are qualifying the Qualifying Criteria mentioned in the Tender Document.
- vi) 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.

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

(b) In case any information submitted by the 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 the agency shall be banned from doing business for a period of two years.

Non-compliance with any of the conditions set forth herein above is liable to result in the tender being rejected.

10.10 The tenderer(s) must submit copies of certificates and testimonials with regards to:

- i. Summary details of Technical Bid duly filled by Bidder in attached Format. (Appendix 1, Annexure A)
- ii) Tender Form as per (Appendix 1, Annexure B)
- iii) Affidavit/Certificate as per Annexure-V or (V and VA both) of GCC/Appendix 1, Annexure C or H of tender Doc.
- iii) Details of Technical Eligibility Fulfilment: List of 1 or 2 or 3 works which are similar in nature & of value mentioned in tender conditions. This shall be supported by credential/work completion certificate in respect of works fulfilling technical eligibility criteria issued by user/Employer.
- iv) Details of FINANCIAL CREDENTIAL in the form of
 - a. Average Annual contractual payment received/contractual turnover issued by CA. duly supported by Audited Balance Sheets.
 - b. Audited Balance Sheets duly certified by the Chartered Accountant for required period (past 3 financial years).
- v) Details of Bid capacity Eligibility Criteria:
 - a. CA certificate & Calculations of Bid capacity as per formula
 - b. Details of Break up of Financial turnover (Value A) duly supported by List of works showing contractual payment received in past 3 financial years duly certified by CA.
 - c. Details of Balance liabilities of contractual works (Value of B) duly supported by List of all ongoing works duly certified by CA.
- vi) Power Of Attorney duly supported by Board resolution/partnership deeds as the case may be.
- vii) Copy of MOA & Article of Association (AOA)/partnership deed/JV agreement based on type of Bidder as mentioned in tender document.
- viii) Other documents as mentioned in tender documents/check list attached with tender documents including deviation certificates, MOU with OEMs (if asked), make of specific equipments offered (EI, IPS, MSDAC, switches, IPMPS equipments, etc.)
- ix) Certificate of Local content duly certified by CA. (Appendix 1, Annexure K)
- x) Declaration of site acquaintance. (Appendix 1, Annexure J)

Other optional documents: (May be submitted within 30 days of issue of LOA):

- List of Plant & Machineries.
- List of Technical Manpower. (Appendix 2, Annexure 3)
- List of Works In Hand (if not submitted with Bid capacity)
- Planning Of Execution, Proposed Scheme And Programme of Work To Complete It Within The Stipulated Completion Period.

10.11 Engineering Organization:

i) The Contractor shall also employ at least one Project Manager and 01 Site Engineer for this Work, details of which are to be given in (Appendix 2, Annexure 3).

ii) The above deployed persons must be trained in railway signalling system and safety in General from Railway signalling Training institute, with valid certificate. In case the person is not found trained, He will be sent to SBI(STTC)/IRISET(SC) for training immediately at the cost of the contractor.

10.12 Construction Machinery

The firm should have minimum construction machinery, Tools and plants, vehicles etc. Details of which will be furnished by them along with the tender.

10.13 Test and measuring instruments, special tools and installation material

Special tools required for installation and maintenance of all the equipment shall be arranged by the tenderer(s) in adequate quantities. All installation materials for complete commissioning of the system shall be provided by the tenderer(s).

All tests and measuring instruments and other arrangements required for all the acceptance tests shall be provided by the tenderer(s) free of cost.

11.0 Documents to be submitted by different type of tenderer

A. The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm / Company / Joint Venture (JV) / Registered Society / Registered Trust / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) 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.

i. 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) above.

b. HUF:

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

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

c. Partnership Firm:

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

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

e. Company registered under Companies Act 2013:

- i) The copies of MOA (Memorandum of Association) / AOA (Articles of Association) of the company
- ii) A copy of Certificate of Incorporation
- iii) A copy of Authorization/Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual to sign the tender on behalf of the company and create liability against the company.
- iv) All other documents in terms of Para 10 of the Tender Form (Second Sheet) above.

f. LLP (Limited Liability Partnership):

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

g. Registered Society & Registered Trust:

- i) A copy of Certificate of Registration
- ii) A copy of Memorandum of Association of Society/Trust Deed
- iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust.
- iv) A copy of Rules & Regulations of the Society
- v) All other documents in terms of Para 10 of the Tender Form (Second Sheet) above.

B 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.

C 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.

D A tender from JV shall be considered only where permissible as per the tender conditions.

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

12.0 Power of Attorney

The tenderer whether sole proprietor / a company or a partnership firm / joint venture (JV) / 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 authorising him/them to sign the tender, submit the tender and further to deal with the Tender/ Contract up to the stage of signing the agreement except in case where such specific person is 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.

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

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

13.0 EMPLOYMENT, PARTNERSHIP, SHARE etc. of Retired Railway Employee:

a. Should a tenderer

- i) be a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, whether in the executive or administrative capacity or whether holding a pensionable post or not, in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, OR
- ii) being partnership firm / joint venture (JV) / registered society / registered trust etc have as one of its partners/members a retired Engineer of the gazetted rank or any other gazetted officer working before his retirement, OR
- iii) being an incorporated company have any such retired Engineer of the gazetted rank or any other gazetted officer working before his retirement as one of its directors

AND

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

THEN

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

iv) In case, upon successful award of contract, should a tenderer depute for execution of the works under or

b. to deal matters related with this contract, any retired Engineer of gazetted rank or retired gazetted officer working before his retirement in the Engineering or any other department of any of the railways owned and administered by the President of India for the time being, and now in his employment, then the tenderer will ensure that retired Engineer or retired gazetted officer had retired from government service at least 1 year prior to the date of his employment

with tenderer and in case he had retired from service within a year then he possesses the requisite permission from the President of India or any officer, duly authorised by him in this behalf, to get associated with the tenderer.

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

Note: -If information as required as per 16.a), b), c) above has not been furnished, contract is liable to be dealt in accordance with provision of clause 62 of the Standard General Condition of contract.

14.0 Errors, Omission & Discrepancies:

The contractor(s) shall not take any advantage of any mis-interpretation of the conditions due to typing or any other error and if in doubt, shall bring it to the notice of the Engineer, without delay. In case of any contradiction only the printed rules, and books should be followed and no claim for the mis-interpretation shall be entertained.

15.0 Acceptance/Rejection of Tender(s):

1. The authority competent for the acceptance of this tender does not bind himself to accept the lowest or any other tender nor does he undertake to assign reasons for declining to consider any particular tender or tenders. No tenderer(s)/ tenderer(s) shall demand any explanation of the cause of rejection of her/his/their tender. No correspondence will be entertained with the tenderer(s)/tenderer(s) in respect of the rejection of any or all tenders.
2. The tender containing erase and/or alterations of the tender documents are liable to be rejected. Any corrections made by the tenderer(s) in his/their entries must be attested.
3. If a tenderer(s) deliberately gives/tenders wrong information in her/his/their tender or creates circumstances for the acceptance of his/their tender, the Railway reserves the right to reject such tender at any stage.
4. If a tenderer(s) expires after the submission of his tender or after the acceptance of his tender, the Railways shall deem such tender as cancelled. If a partner of the firm expires after the submission of their tender or after the acceptance of their tender the Railway shall deem such tender as cancelled unless the firm retains its character.

16.0 Local Conditions:

1. It will be imperative on each tenderer(s) to fully acquaint himself with all the local conditions and factors which would have any effect on the performance of the contract and cost of the stores. The purchaser shall not be entertaining any request for clarifications from the tenderer(s) regarding such local conditions. No request for the change of price or time schedule of delivery of stores shall be entertained after the offer is accepted by the purchaser on account of any local condition or factor.
2. In the event of the tenderer(s) desiring to have a field survey before furnishing his quotations, he may apply to Railway for permission in this regard. Such permission will be given in writing by the Railways but the expenses in this regard will be borne by the tenderer(s) completely.

3. The intending tenderer is advised to study the tender papers carefully. Any submission of a quotation by the tenderer(s) shall be deemed to have been done after a careful study and examination of these documents with full understanding of the implication thereof. These conditions and specifications shall be deemed to have been accepted unless otherwise, specifically commented upon by the tenderer(s) in his quotation. Failure to adhere to anyone or all these instructions may render his offer liable to be ignored without any reference.
4. Should a tenderer(s) find discrepancies in, or omission from the drawing or any of the tender papers or he has any doubt to their meaning, he should at once notify the Railway who may send a written clarification to all tenderer(s).
5. Before submitting tender(s) the tenderer(s) is advised to inspect the proposed site of work and fully acquaint himself/themselves with the site conditions, working hours, type of land, trees or shrubs that he/ they will have to cut, stacking space for materials, approach roads, pathways available etc. and all relevant items connected with the execution of the work. No claim shall be entertained at a later stage by the Railway on such grounds from the contractor(s).

17.0 Drawing(s) For the Work:

Drawing(s) for the work can be seen in the office of the Dy. Chief Signal & Telecommunication Engineer/Works Western Railway, at any working day during office hours. The drawings are tentative and Railway reserves the right to make changes in plans if considered necessary and no compensation in any form will be admissible on this account. The contractor(s) will have to execute the work as per final plans at the rates quoted by him/them.

18.0 Execution of Contract Agreement:

The successful tenderer(s) shall be required to execute a contract agreement (hereinafter called CA) with the Railway for carrying out the work according to condition of Tender & Contract, Special Condition of Tender & Contract, Specification of Tender, "General Conditions of Contract", edition-2022 with latest amendments of W. Railway (which shall also be applicable in this work, although meant for use in connection with Civil Engineering Works) and Schedule of Work after depositing the required Performance Guarantee Bond (PGB) as detailed under Special Conditions of Tender & Contract. The Tenderer shall execute the contract documents agreement within seven days of notice from Railways that the Contract Agreement is ready.

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

19.0 NEGOTIATION WITH TENDERER(S):

The Railway reserves the right to hold negotiations with L-1 tenderer, who should be the *lowest, valid, eligible and technically acceptable* tenderer considered for award of contract directly if the rates were not unreasonably high.

20.0 ADDRESS FOR COMMUNICATION:

Tenderer(s) shall indicate his fully communicable postal address, Mobile Number, email id, WhatsApp Number, telephone numbers, and fax numbers. Any communication sent to the tenderer(s) at his said address, shall be deemed to have reached timely, notwithstanding the fact that the communication could not reach the tenderer(s) at all or in time because of any inaccuracy or defect in the said address. Any change thereof shall be advised to the Railway promptly. All notices, communications, reference and complaints made by the Railway or the Engineer or the Engineer's Representative or the Contractor inter-se concerning the works shall be in writing or email on registered email IDs and no notice, communication, reference or complaint not in writing or through e-mail, shall be recognized.

21.0 MOBILISATION ADVANCE: Mobilisation Advance is applicable as per para 46.(4)

(a). (Applicable for tender more than 20 Cr.)

22.0 PRICE VARIATION: Price Variation is not applicable in this tender and even in the extended period.

23.0 JOINT VENTURE: Joint Venture is permissible under this Tender. Different documents required to be submitted by JV partners may be studied in great detail given in GCC. Some documents need to be given by Each member of the JV.

24.0 E-Reverse Auction: Applicable only for tender costing more than 50 Cr. (NA for this case)

Electronic Reverse Auction (e-RA)

- i) The process of e-RA will be followed for works tenders valued more than Rs. 50 Cr.
- ii) Technical Bid and Initial Price offer.
 - a) Bidders shall be simultaneously required to electronically submit a Technical commercial Bid and Initial Price offer. Offers found eligible for award contract/meeting eligibility criteria shall be categorised as Qualified for Award Contract for the purpose of e-RA.
 - b) Offers not complying with essential technical & commercial requirements of tender shall be declared as Ineligible for the award of contract.
 - c) Initial price offer of only those bidders categorised as Qualified for award of contract shall be opened and tabulated by the system separately.
- iii) Financial Bid:
 - a) Financial Bid shall comprise of Final Price Offer obtained through Reverse Auction. Following conditions and procedure shall be followed in selection of bidder..... Conduct of Reverse Auction.

Selection of bidders for Reverse for the award of Contract in work tenders:

Name of tenderers qualified for award of contract	Name of tenderers to be selected for Reverse Auction	Remarks
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<3	NIL*	The bids disallowed from participating in Reverse Auction shall be 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, the IREPS system itself
3 to 6	3	
Morethan 6	50% of bidders Qualified for award of contract (round off to next higher integer)	

*If the number of bidders qualified for the 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).

- b) During the Reverse Auction process, bidders shall not be allowed to bid a rate higher than the lowest Initial Price Offer.
- iv) After obtaining the final bids of Reverse Auction, tenders shall be finalised as per the existing policy.
- v) Date and time of start of e-RA will be communicated to qualified tenderers after evaluation of the Technical Bid.
- vi) Initial e-RA period: 06 (six) Hrs (e-RA will be opened for this duration)
- vii) 30 (thirty) min (In case any offer is received in the time period equal to auto extension period from the time of last bid. There shall be no upper limit of the number of auto extensions. When no offer is received in the last auto extension period, e-RA shall be closed).
- viii) Minimum decrement (%): 0.1 (Zero point one) %
- ix) After submission of Initial Price Bid, tenderers will not be allowed to receive the taxes and other levies.
- x) During the auction period, identities of the participating tenderer will be kept hidden.
- xi) Minimum admissible bid value will be the last bid value minus minimum decrement as specified above. Starting point for reverse auction shall be the lowest Initial Price Bid of the tenderer eligible for award of contract.
- xii) After close of e-RA, tabulation of last (minimum) bids received from all the tenderers will be generated and made visible to Railways and participating tenderers.
Bidders are not allowed to withdraw their last offer.
- xiii) L-1 will be defined as the lowest bid obtained after the closure of R.A. session.
- xiv) Bidders may refer to the User Manual for contractors for Two stage Reverse Auction (Works Module), provided in the learning centre of IREPS website in case of any difficulty.

25. Procurement of price sensitive equipment: As per Railway Board guidelines, Cables and MSDAC can be procured through work tender keeping price of these equipment in range of store procurement rates. To comply with these instructions, a separate schedule (Schedule B) for supply & installations of these items has been included in the rate schedule. To curb the tendency of increasing the rates in supply of these items in Works contract, a reasonable limit needs to be imposed while quoting rates for this schedule.

As per AOR of USSOR 2021 of Railway Board rate analysis, 15% overhead charges are applicable on basic purchase rates of individual items. **Thus the upper limit for quoting rates on this schedule will be 15%. Bidders shall give a compliance in summary**

6792512/2025/O/o DY CSTE/C/BRC/WR

6686104/2025/O/o DY CSTE/C/BRC/WR

OpenE-Tender

statement of bid (Appendix1, Annexure A) that quoted rates for this schedule (Schedule-B) are within permissible limit.

In case it is found at the stage of finance Bid evaluation that rates for these items scheduleismorethanpermissiblelimit,Bid willbeconsiderednotresponsiveandoffer will be rejected summarily. Further, it will be treated as false information and will be dealt as per GCC/certificate of bidder for debarring in repeat tender.

CHAPTER-III {SPECIALCONDITIONSOFTENDERANDCONTRACT }

1.0 GENERAL:

- 1.1 The Special Conditions of Tender and Contract, along with the Technical Specifications and the Schedule of Works of this contract in addition to the General Condition of the Contract, 2022 with latest amendments shall also be applicable for this contract. Indian Railway Code for the Engineering Department with up to date corrections, Standard Specifications for materials and works and the Indian Railway Signal / Telecommunication Manual shall govern the work to be executed.
- 1.2 Where there is any conflict between the Special conditions of Tender & Contract and Specifications on one hand and General Conditions of Contract, 2022 on the other hand, the former shall prevail.
- 1.3 Any special conditions stated by the tenderer(s) in the covering letters submitted along with the tender shall be deemed to be the part of the contract to such extent only as have explicitly been accepted by the Railways, and incorporated in the contract agreement.
- 1.4 General details of site, works, scope of work, definition of similar works, etc. have been compiled as Appendix 2, Annexure-1.

2.0 Scope of The Work:

The scope of the work broadly includes supply of materials and execution of the work as described in details in the Schedule of Work, drawings and technical specifications of the tender, unless deviations if any, specifically approved by the Railway. (Pl refer Appendix 2, Annexure 1)

3.0 Programme of Works:

- 3.1 **Completion Period:** The contractor shall have necessary resources to execute the work so that the entire work is completed within a period as specified in NIT header from the date of issue of Letter of Acceptance of the tender. The Progress of Work shall commensurate with Target set by Zonal Railways/Railway Board. The Contractor has to perform accordingly with required resources to execute the work in time. Penalty may be invoked, if the Progress required is not met in time.
- 3.2 The Contractor who has been awarded the work shall as soon as possible but not later than 30 days after the date of receipt of the acceptance letter in respect of contracts with initial completion period of two years or less or not later than 90 days for other contracts have to submit the detailed programme of work indicating the time schedule of various items of works in the form of Bar Chart/PERT/CPM. He shall also submit the details of organisation (in terms of labour and supervisors), plant and machinery that he intends to utilise (from time to time) for execution of the work within the stipulated date of completion. The programme of work amended as necessary by discussions with the Engineer, shall be treated as the agreed programme of the work for the purpose of this contract and the Contractor shall endeavour to fulfil this programme of work. The progress of work will be watched accordingly and the liquidated damages will be with reference to the overall completion date. Nothing stated herein shall preclude the Contractor in achieving earlier completion of item or whole of the works than indicated in the programme.
- 3.3 The arrangement or the approval of the programme by the Engineer shall not relieve

the contractor of any of his responsibilities to complete the various sections of the work.

- 3.4 If the work does not commence within specified date of starting or if at the subsequent time the rate of execution falls below the specific programme as mentioned above, the Railway Administration 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 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 to complete the work within stipulated date of completion of the Agreement, the Railway shall be entitled to take the action for rescinding the contract in terms of Clause 62 of GCC-2022 with latest amendments.
- 3.5 The contractor shall be held responsible for the execution of the work according to the Programme given above for the execution of the work in full compliance of the approved SIP, PD & RCC and also the various clauses of the technical supplements, Technical specifications, instruction and drawings available separately. Failure to comply with any of these will be dealt with as per provision laid down in General Conditions of Contract 2022.
- 3.6 The contractor on his part will have to employ labour in full strength commensurate with the working area available. He will also arrange matching materials and equipment to complete the job most expeditiously so as to ensure that the work is completed in phases within the stipulated period.
- 3.7 No facility whatsoever, e.g. provisions of approach road and provision of temporary level crossing etc. will be provided by the Railway for carting materials. Approach roads within the Railway limits can be used for carting materials.
- 3.8 The contractor shall collect the materials and shall commence the work on receipt of Letter of Acceptance of Tender.
- 3.9 The contractor shall have to procure all the requisite tools for execution of the work before the actual commencement of the work and the contractor shall satisfy the Engineer-in-charge that the tools so procured are of good quality.
- 3.10 Supervising personnel as deemed necessary shall be posted at the site of work by Railway and such personnel will give demarcation for installation of various Signal and/or Telecom equipment and the contractor shall then carry out the work as per approved plans and specification etc.
- 3.11 The contractor shall give at least seven days' notice to the Engineer-in-charge regarding commencement of the work, so that he can arrange supervisory staff in time. The Contractor shall complete the work in a reasonable time as allowed without causing hindrance and disturbance to train working.
- 3.12 The successful tenderer(s) will however have no claim or right in the execution of any work which in the opinion of Engineer should be carried out departmentally or otherwise and the Railway reserves the right at any time to keep back from the contract and carry out the work or any portion of the work through any other agency, it may think necessary, without assigning any reason. No claim for compensation / loss or whatsoever on this account will be entertained by the Railway.
- 3.13 No work on working installations shall be undertaken without the specific permission of the Railway representative and without the presence of Railway representative at the site of the work.
- 3.14 The contractor shall be responsible for safe custody of all newly installed equipment including Railway materials, if any, till such time installation is completed in all respects and is taken over by the Railway.
- 3.15 The work during execution shall be subjected to checks and tests at all stages as prescribed in Technical Specification. The tests shall be carried out by the engineer-in-charge or his

authorised representative. After taking the test a list of discrepancies / deficiencies, if any, shall be given to the contractor. The contractor shall be liable to remedy such discrepancies/ deficiencies as discovered during these tests and make good at his own cost, within a period of 30 (Thirty) days from the date of testing.

3.16 The contractor shall have to arrange adequate tools and measuring equipment for execution of the work at his own cost.

3.17 If at any time, any materials or tools which the contractor would normally have to arrange for himself for executing the work is supplied by the Railway either at the contractor's request suo-moto in order to prevent possible delay in the execution of the work due to contractor's inability to make adequate arrangements for the supply thereof or otherwise, such materials or tools may be made available to the contractor from the Railway stores if available at the discretion of engineer-in-charge.

3.18 In case of loss or damage caused to materials and/or tools supplied as mentioned above recovery shall be made from the contractor in terms of clause No. 11.1 of CHAPTER III OF SECTION I of tender document.

3.19 If the materials or tools however, not available in Railway stock or Railway decides not to supply the same, whatsoever be the reason, the Railway shall not be bound to arrange for the supply nor will this fact be accepted as an excuse for delay in the execution of the work.

3.20 NA.

3.21 While executing the work any increase of quantity up to 25% shall in no degree affect the validity of the contract and shall be performed by the contractor as provided therein and be subject to the same conditions, stipulations and obligations originally included and approved for in specification and drawings and the amount to be paid thereof shall be calculated in accordance with the accepted rates of the schedule.

a. For completion of the work if any necessity arises for execution of excess quantity of any item (work as well as supply) beyond 25% of the quantity provided in the schedule of work, the contractor shall notify the engineer-in-charge at least 7 (Seven) days in advance. The Railway shall have the option to execute such extra work / supply by any other means and the contractor shall have no claim for loss or damage that may result from such procedure.

b. The rates for such items increasing beyond 25% shall be decided in terms of GCC, 2022 (along with all correction slips).

3.22 Commissioning Tests:

After execution of all the items of the work as per schedule of the work the contractor will offer the entire work for commissioning tests with at least 15 (fifteen) days advance intimation to the Engineer-in-charge.

In case of any faults detected during the said test, the contractor shall be responsible for localization of fault(s) and rectify of those at his own cost and then re-offer for testing, till the entire work is finally cleared for acceptance by the Engineer-in-charge.

Any special type of Measuring Instruments and accessories required for Commissioning Testing of the installations are to be arranged and brought at site by the contractor at his cost

4.0 Non-Interlocked working/Disconnection:

4.1 NON-INTERLOCKED WORKING-

The mandatory requirement for deployment of technical staff by contractor during NI period should be typically as mentioned below:

.Relay Room: Two wiremen/technicians or as per engineer in charge along with a supervisor should be available in the relay room for carrying out testing, wiring during commissioning

each distributed relay room.

- b. In Panel/SM room: Two wiremen/technicians or as per engineer incharge should be available in the SM's office for testing the panel and block wiring etc. exclusively. They will work under the supervision of the relay room supervisor.
- c. Outdoor Room: Sufficient staff with supervisor to look after the outdoor activities. The strength of staff as mentioned above is the bare minimum required for small 3 or 4-line stations. Proportionately, more staff should be deputed whenever required as per direction given by Engineer In charge.
- d. The strength of staff as mentioned above is the bare minimum required for small 3-line stations. Proportionately, more staff should be deputed whenever required.
- e. The deployed Technical staff from contractors must be trained in railway signalling system and safety in General from Railway signalling Training institute, with valid certificate. In case the person is not found trained, He will be sent to SBI/STTC for training immediately at the cost of the contractor.

4.2 DISCONNECTION WORKING–

The Instant Work also includes establishment of new communication between adjacent stations.

- (a) Block Section - Working on Quad/OFC Cable in Block Section between Station “A” and “B” there should be a good jointer available in Block section for jointing along with the necessary help for doing the job to the satisfaction of supervisor In-charge.
- (b) At Station – One no. of Technical Person to be placed at each Station “A” and Station “B” during disconnection for any kind of technical support during disconnection/reconnection. Same should be competent for Quad/OFC parameter measurement.

5.0 COMPLETION, COMMISSIONING and Closure of the Work:

- i. 5.1 (i) The work shall not be considered to have been completed in accordance with the terms of contract until the engineer in-charge shall have issued certificate in writing to this effect. No approvals of material or workmanship or approval of part of the work during the program of execution shall bind the engineer in-charge or in any way prevent him from even rejecting the work which is claimed to be completed and to suspend the issue of his certificate of completion until such alterations and modifications of reconstruction have been effected at the cost of the contractors as shall enable him to certify that the work has been completed to his satisfaction.

(ii) After the work is completed, the contractors shall give notice of such completion to the engineer in-charge and within 30 days of receipt of such notice the engineer in-charge/ site-engineer nominated by engineer-in-charge shall inspect the work and if there is no defect in the works shall furnish the contractor with a certificate indicating the date of completion. However if there are any defects which in the opinion of the engineer in-charge are rectifiable he shall inform the contractors the defects noticed. The contractor after rectification of such defects shall notify the engineer in-charge and then the engineer in-charge shall inspect the work and issue the necessary completion certificate within three days if the defects are rectified to his satisfaction and if not he shall inform the contractor indicating defects yet to be rectified. The time cycle as above shall continue.

5.2 Work Closure:-

A) **Work closure without AMC schedule:-** Refer to GCC code 51 (1).

B) **Work Closure with AMC Schedule of specific equipment:-**

If the AMC of EI or (any other specific equipment) is the part of the original work/tender, it will be executed by the Open Line division under the following conditions:

Schedule of AMC- Schedule will be separate for AMC part. AMC condition shall be clearly defined including cost, time, periodicity, availability of staff, penalties etc.

Date of Commencement of AMC: The AMC will commence based on the expiry of warranty periods.

Bank Guarantee (BG): A separate Bank Guarantee will be obtained for the AMC for the 5% value of AMC schedule cost for validity of complete AMC period.

Agreement Execution: The AMC agreement will be executed between the Sr. Divisional Signal & Telecom Engineer (Sr.DSTE) and the Contractor and will be called as subsidiary AMC contract agreement

Warranty Period for specific equipment (EI):

- a. **Multiple Stations:-** For works involving EI multiple stations for completion period more than one year :
 - i. The warranty period for the first station shall be two years or completion period whichever is less after commissioning of station.
 - ii. The warranty period for the last station shall be one year or completion period whichever is less after commissioning of station.
- b. If all stations are completed within a year of contract then the warranty period shall be one year from the commissioning of the last station.
- c. **Single Station: work involve single station**
 - If the scope includes only a single station, the warranty period will be one year from its commissioning.

Note:- For other specific equipment - Warranty period may be defined separately.

Handover of AMC: The AMC portion shall be handed over to the Sr.DSTE after the completion of warranty period and handed over to Sr DSTE within one month, through separate subsidiary contract agreement of AMC.

Closure of Work/Final Bill: The work shall be closed after handing over the AMC portion to the Open Line division. In case, AMC part was not agreed to execute by open line, contract can be close without operating this item.

6.0 Extension(s) to Completion period:

- I. Time is the essence of the contract. Extension of time for the completion of the work shall be governed by Clause No. 17 of the General Condition of Contract with latest amendments edition and the contractor shall be responsible for requesting such extension in terms thereof. The contractor will have to complete the work, within specified period from the date of issue of the letter of acceptance of this tender, unless any extension to the date of completion is granted subsequently as per General Condition of Contract 2022 with latest amendments edition (GCC) vide clause no. 17, 17A(i) (ii) (iii).
- II. Extension under Clause No. 17(B) provides recovery of liquidated damages from the contractor. If the extension period is granted due to contractor's delay, clause No. 17(B) of GCC will be implemented.

7.0 Time Limitation:

- I. Subject to any requirement in the contract as to execution of any portion or portions of the work before completion of the whole, the contractor shall fully and finally complete the whole of the work comprised in the contract by the date entered in the contract, provided that if any modifications have been ordered which, in the opinion of the Railway engineer have materially increased the magnitude of the work, then such extension of the contract date of completion may be granted as shall appear to the Railway Engineer to be reasonable in the circumstances, provided moreover that the contractor shall be responsible for requesting such extension of the date as he may consider necessary as soon as cause thereof shall arise and in any case not less than one month before expiry of the original date fixed for completion of the work.
- II. In all cases where extension of the contract date of completion is required the contractor shall have to make normal request in writing to the Engineer-in-charge of the work who shall then promptly forward such request to the competent authority with his clear and complete comments, recommendation and any other information as necessary for obtaining final decision by the competent authority.

8.0 Inspection of Works:

Field Book and Order Book in terms of Paras 1122E and 1123E respectively of the Engineering Code shall be maintained at the site of the work by Railway wherein instructions regarding the working etc. shall be recorded by the Engineer or his executive subordinates. It is expected of the contractor or his representative at the site to note such instructions whenever asked upon to do so and take action accordingly.

The contractor shall maintain accurate records, plans and charts showing the dates and progress of all main operations and the Engineer shall have access to this information at all times. Records of tests made shall be handed over to the Engineer's representative after carrying out the tests. The following registers will be maintained at site, by the Railway's representative.

- I. **Site Order Register** - All instructions issued by the engineer or the supervisor to the contractor or his representative as the case may be, shall be entered. The contractor(s) or his/their representative at the site shall acknowledge such instructions whatever asked upon to do and take action accordingly. The contractor shall promptly acknowledge orders given therein by the Engineer or his representative or his superior officers and comply with them. The compliance shall be reported by the Contractor to the Engineer in good time so that it can be checked.

- II. **Field Book** - In the Field Book, the date of inspection and particulars of any special features, incorrect practice(s) and deficiencies observed in the work being executed and/or materials supplied by the contractor shall be recorded by the Engineer or his executive subordinates. It will be the responsibility of the contractor to rectify the deficiencies observed (if any) at his own cost and also to prevent any recurrence. Complaints, deficiencies if any, pointed out by the contractor or his representative shall also be recorded in this book.
- III. **Hindrance Register** - A hindrance register should be maintained by the contractor to record various hindrances encountered during execution. The hindrances are to be noted on a day to day basis with date of occurrence and removal. Disputes, if any, should be included in the program status report and discussed with the contractor in weekly/monthly/steering committee meetings. Record of hindrances can be used to seek contractual extension of dates for milestones, consequent compensation for delays as well as raise attention for early removal of hindrance.

All registers at item (i) to (iii) mentioned as above will be maintained by the representative of the contractor and signed by the representative of the engineer. Any other registers considered necessary by the Engineer, shall be maintained at site in which the representative of the Engineer and the contractor will have to sign. The registers, proforma charts, etc. will be the property of the Railway. Registers as mentioned above will have to be maintained depending on the scope of the work as prescribed by Engineer's/representative at site.

9.0 Inspection of Trenches, Chases And Fillings:

Details can be seen in tender schedule specifications.

10.0 Representation on Works:

- a) The contractor shall when he is not personally present on the site of the work, place and keep a responsible agent at the works during working hours who shall on receiving reasonable notice, present himself to the Engineer and orders given by the Engineer or the Engineer's representative to the agent shall be deemed to have the same force as if they had been given to the contractor. Before absenting himself, the contractor shall furnish the name and address of his agent for the purpose of this clause. The Contractor shall place and keep on the works at all times efficient and competent staff to give necessary directions to his workmen and to see that they execute their works in sound and proper manner and shall employ only such supervisor, workmen and labourers in or about the execution of any of the works as are careful and skilled in their various trades.

The contractor shall at once remove from the work any agent, supervisors, workmen or labourer who shall be objected to by the Engineer and if and whenever required by the Engineer. He shall submit a correct return showing the names of all staff and workmen employed by him. In the event of the Engineer being of the opinion that the contractor is not employing on the works a sufficient number of staff and workmen as is necessary for the proper completion of the works within the time prescribed, the contractor shall forthwith on receiving intimation to this effect take on the additional number of staff and labour specified by the Engineer within seven days of being so required and failure on the part of the contractor to comply with such instructions will entitle the Railway to rescind the contract under Clause-61 of the General Condition of contract 2022 with latest amendments edition.

The contractor(s) shall nominate in writing his representative(s) on the works who will be authorised to receive and acknowledge materials issued by the Railway and take all orders issued by the inspecting official of the Railway, as mentioned in clause No. 9.0 above before commencement of execution of work at site, with intimation to the engineer-in-charge well in advance. Contractor shall also ensure that at least one nominated representative remains available at site during execution of work.

Regarding representation on works and supervision, the provisions in clause 12 of General Condition of Contract and clause 24 of Standard Special Condition of contract shall be applicable respectively.

b) **Night work:** The provision in clause 23 of General Condition of Contract shall be noted regarding execution of work between sunset and sunrise. If the contractor is, however, satisfied that the work is not likely to be completed in time except by resorting to night work, by special order the contractor would be requested to carry out the work even at night, without conferring any right on the contractor for any extra payment for introducing night work. In the event of night working, the contractor will make necessary adequate lighting arrangements for smooth execution of the work. If the contractor works round the clock on all days including Sundays and holidays, the Railway shall make arrangements for the supervision accordingly.

11.0 MATERIALS (Supply, Transportation, Inspection, Handling, return & Safe Custody):

Material Consignee:

- (i) Work Supervising In charge: **SSE/SIG/Construction/Pratapnagar or any other Supervisor nominated by Dy.CSTECBRC Western Railways will be the consignee of Work.**
- (ii) Engineer In charge: **DSTE/C/BRC or ADSTE/C/BRC or Any officer nominated by Dy.CSTE/C/BRC-Western Railways will be the Engineer in-charge of the work for Measurement (MB) test check.**
- (i) Supply of some items have to be supplied as per IRS/RDSO specification. In such cases, material has to be supplied from RDSO approved vendor only. However, for items for which vendors have not been approved by RDSO, make of equipment has to be approved by Engineer In charge before procurement of items.
- (ii) For all other supply items which are to be supplied as per non IRS/RDSO specification costing more than 1% of tendered cost, make and supplier name has to be approved by Engineer In Charge if they are not already mentioned in tendering stage or in schedule or LOA.
- (iii) All the materials, except mentioned otherwise, are to be drawn by the contractor or his authorised representative from the Store depot of the **Consignee**, as per instruction of the Engineer-in-charge of the work, by placing requisitions as and when required supported by Indemnity Bond to the approximate value of materials in the requisition. Railway will supply required quantity of materials, if felt necessary for completion of the work. All of these materials are to be transported to the site of the work by the contractor as per the details given in the tender schedule. The Indemnity Bond shall not be released till such time the materials for which the INDEMNITY BOND is furnished are installed and handed over with full account to the Railway by the contractor.

I. MATERIAL HANDLING

- a) The materials as detailed in Schedule shall be brought by the contractor to the site of work after offering the same in the office of **Consignee** for inspection and record. The contractor

shall have such materials by authorised representative of Engineer-in-charge before being used for the work. He will also produce necessary inspection certificates to prove that the materials have already been passed by RDSO/RITES/CONSIGNEE where required. The materials have to be submitted to the office of **Consignee** along with the challan of the firm who has supplied the material and will be taken into the account of the Supervisor-in-charge and then shall be issued to the contractor, supported by IndemnityBond; equal to the value of payment claimed by the contractor for materials supplied.

- b) The contractor shall be liable to render full accountability for the materials issued by the Railway. If the quantity of the Railway materials is consumed in excess or wasted or damaged or lost or otherwise not satisfactorily accounted for, recovery shall be made from the contractor at twice the assessed rate of materials, prevailing at the time of last issue of the materials, if necessary by cashing the IndemnityBond. The assessed rate will be calculated by escalating the W. Railway's last purchase rate at the rate of 12% (Twelve percent) cumulative per year or part thereof. Materials consumed in excess or wasted or damaged or lost or unsatisfactorily accounted for shall be similarly charged to the contractor at the above rate.

c) **RETURN OF RLY MATERIALS:**

The contractor has to return at his cost any cut pieces of wires / cables etc. that may be left out and any surplus materials from the work and other packing materials that might have been handed over to him. These shall be handed over to **Consignee**. The contractor shall take proper written acknowledgement from the representative of the Engineer-in-charge for all the materials returned by him.

- II. The Signalling and Telecom materials for which RDSO approved/Recommended List firms exist should be procured from approved/Recommended List firms only. No materials are to be procured from firms which are banned by Railway Board/RDSO.

12.0 Inspection of Materials:

- I. In addition to what is indicated in the GCC of W. Railway, the Contractor shall also adhere to the following:

- a. All Materials supplied are to be inspected by the respective Inspection Authorities. As a General rule, items supplied as per RDSO specification are to be inspected by RDSO/RITES if the value of the item is more than 5 lakhs. Items supplied as per IS & other specifications to be inspected by RITES/Consignee depending upon value of item.
- b. Inspection Charges for RDSO and RITES shall be borne by Railway, subject to the provisions herein contained.
- c. The cost of all Tests and/or Analysis effected at the Manufacturers or Contractors premises shall be borne by Contractor. Tests parameters as given in technical specifications/RDSO specifications, which are not possible to test at factory/OEM's premises/Indian representative premises, necessary test reports of type tests/routine tests reports need to be submitted to the satisfaction of Engineer in-charge.
- d. The materials put up for Inspection shall be of the same type nature as specified in the Schedule and Specification. Any variation shall require prior approval of the Railway.
- e. The expenses of travel, boarding etc. for Railway Engineer's representative incurred inwards Inspection shall be borne by Railway.
- f. After inspection the contractor shall produce the materials along with Inspection Certificate, to **Consignee** for acceptance.

- g. If any material is found by the Engineer-in-charge to be not as per the specification or not in proper condition the same is to be replaced by the contractor within 15 (Fifteen) days free of cost. For this the Engineer-in-charge's decision is final and binding on the contractor.
- h. All the materials inspected and passed shall be marked suitably by the inspecting official and are to be kept under contractor's custody which will be used for execution only in presence of Railway supervisor at site. However, Railway reserves the right to reject any material, if found spoiled / damaged during execution, for which the contractor shall replace at his cost.
- i. Any material rejected by the inspecting official due to not being as per the specification or not in proper condition, the same is to be removed by the contractor within 7 (Seven) days at his cost. For this the decision of the inspecting official shall be final and binding on the contractor.
- j. The Engineer's representative has all the powers to inspect the materials at any stage and reject defective or inferior Work or Material. The contractor shall carry out such tests as may be required in the opinion of the Engineer at his cost.
- k. Any material can be installed only after inspection and acceptance by the Railway's Representative.
- l. Contractor may be called on to pay all expenses incurred by Railway in respect of work or material found to be defective or of Inferior Quality or otherwise unacceptable.
- m) Contractor shall be responsible for checking the materials before taking delivery from Railway Stores that all the materials given to him are in good condition. Any replacement required for defective/broken parts have to be requisitioned and obtained from the depot of the Subordinate in-charge of stores after returning the defective broken equipment provided the Railway Engineer is satisfied that such breakage/defects etc. is not due to the negligence etc. of the contractor or his representatives. He must also ensure that the materials supplied by him are also in good condition and if any defect /discrepancy noticed in the course of inspection of the Engineer or his authorised representative will have to be rectified/replaced at his own cost.
- n) The materials issued by the Railway shall be used solely and economically for the purpose of the works covered under this contract only. The materials shall be used in such quantities and manner as are indicated in schedule or as approved by the Engineer-in-charge of the works whose decision thereon shall be final. Wastage or damage to materials shall not be caused by the contractor in any manner.
- o) The contractor shall be liable to render full account for the materials issued by the Railway. The contractor has to return to the **Consignee** Store Depot cut pieces of wires / cables that may be left out and surplus materials, if any, from the work and other packing materials that might have been handed over to him and shall take proper written acknowledgement from the Engineer's representative for all the materials returned by him.
- p) A joint statement of materials issued, used and material returned shall be made by the Contractor and Engineer's representative. Such Joint Material Statement shall be checked and endorsed by the Site Engineer.
- q) If any quantity of the Railway materials consumed in excess or washed or damaged or lost or otherwise not satisfactorily accounted for recovery shall be made from the

contractor at twice the market rate of materials prevailing at the last issue of the materials.

- r) If the materials, tools as however not available in the Railway stock, or the Railway decided not to supply the same, whatever be the reason, the Railway shall not be bound to arrange for the supply nor will this fact be accepted as an excuse for delay in the execution of the work.
- s) The site supervisor of the work and the contractor shall make out a list jointly signed for the materials, if expected to be released from a station and then after collection of the released materials by the contractor, the same shall be transported and handed over to **Consignee**
- t) Stores Depot was directed by **Consignee** after verifying the released materials with the list jointly prepared by Inspector-in-charge & the Contractor and acknowledged the receipt.

13.0 Safe Working Methods:

- I. The Contractor shall at all times adopt such safe measures of working and will ensure safety of train traffic, structures, equipment and labour.

Fluorescent jackets, Shoes and protective Gears to work in the RE area must be provided by the contractor to his labour/staff working on the track, failing which they will not be allowed to work near the track. Contractor will be solely responsible for delay in work, if work is stopped by the Railway due to such circumstances.

- I. Trenching for laying cable across track/ road and laying of cable across track/road shall be done only in presence of Railway's representative. It shall be ensured by the contractor that digging of trenches, for cable laying, and pits for foundations do not cause any unsafe condition to the running of trains.
- II. No work on a working installation such as, points, signals, track circuits, level crossing gates, STMs, MUXs, cabin level frame, bridges, yards, etc., shall be undertaken without specific permission of the Railway's representative and in the absence of Railway's representative at the site of work.
- III. The contractor shall take all precautionary measures in order to ensure protection of his own personal moving about all working on the Railway premises and shall have to conform to the rules and regulations of the WESTERN RAILWAY. As and when, while the work under the contract is in progress, there is likely to be any danger to the persons employed by the contractor due to running traffic or while working on Railway premises, the contractor shall apply in writing to the Railway to provide flagmen and look out-man for protection. The Railway will however, decide as to whether it is necessary to post such flagmen and look out-man for various types of works and also the number of such men required to protect the contractor's staff working at site. The flagmen and look out-man will be Railway servants and no expenses on this account will be recovered from the contractor.
- IV. The contractor should abide by all the Railway regulations and also ensure that the same are followed by his representatives, servants or Sub-contractor or workmen. He is, therefore, bound under this clause to give notice to them about the provision of this clause and the consequent liabilities of the contractor under the agreement.

- V. Within the station, especially on the passenger platform, the contractor shall ensure sufficient free space for movement of passenger traffic. He must cover the excavations carried out in such areas with a view to avoid any accidents.
- VI. The work must be carried out most carefully in such a way that they do not hinder the Railway operation except as agreed to by the Railway.
- VII. The contractor's employees and workers shall not for any reason operate any appliance or installations of the Railway concerning the safety of train movements, but they should whenever necessarily notify the qualified Railway staff who will then take necessary steps. Special precautions are to be taken for installation of point machines. If required, the spacing of sleeper in connection with installation of point machines has to be done by the contractor.
- VIII. The contractor shall abide by the Indian Electricity Act and the Indian Electricity Rules as amended from time to time.
- IX. Suitable ladders for climbing the posts and slings for supporting men on the post shall be used. Ropes if required shall be used for erection of the Poles. The size of the rope shall be adequate. The contractor shall take necessary precautions for working near the power lines. If at any time the Railway finds the safety arrangement is inadequate or insufficient, the contractor shall take immediate corrective action as directed by the Railways representative at site. Any direction in the matter shall in no way absolve the contractor of his sole responsibility to adopt a safe working method.
- X. Necessary personal safety equipment as considered adequate by the Engineer-in-charge should be kept available for the use of the persons employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate steps to ensure proper use of equipment by those concerned.
- XI. No electrical apparatus which is liable to be a source of danger used by the operator shall remain electrically charged.
- XII. Suitable face masks should be supplied by the contractor for use by the workers when paint is applied in the form of spray.
- XIII. Step taken in order to avoid damages to Railway Installations:
The contractor shall see that no damage is caused to Railway Signaling and transmission wires, cables, station installations, communications lines, electric devices, trains, tracks, any kind of fencing as well as any rolling stock and in general to all Railway installations and equipment. If any damage is caused to or suffered by any Railway property, by or as a consequence of the acts or unlawful omissions of the contractor, its employees and workmen or other persons connected with it, the necessary repairs or replacement shall be affected by the Railways at the risk and cost of the contractor. The said expenses shall be recovered from the money due and payable to the contractor or by the other appropriate process.
- XIV. Contractor's liability costs, damages etc:
All costs, damages and expenses which the Railway may incur or suffer and which are recoverable from the contractor under the terms of this contract or the relevant law may at

the discretion of the Railways, be recovered by deducting the requisite amounts from any money due and payable or refund to the contractor on any account whatsoever or by legal proceeding. The Railway also reserves the right and shall be entitled to retain payments due to the contractor under this contract and to set off the same against all claims whether arising out of this contract or out of any other transaction whatsoever against the contractor, in exercising this right the Railway shall not act unreasonably.

XV. In the event of any breach of the aforesaid conditions, the contractor shall in addition to throwing himself open to action for contravention of the terms of the agreement and for criminal breach of trust, be liable to account to Government for all money, advantages or profits resulting on which in the usual course would have resulted by reason of such breach.

XVI. No vehicle will normally be permitted to play adjacent to the running lines. The contractor will be responsible for the safety of hired trucks and men etc. working at the site. He will also be responsible for any damage caused to the Railway property, staff and passengers' vehicles having been allowed to ply on the Bank, in case of an accident of any nature, the contractor will be indemnified for any losses caused by him as a result of the accident.

XVII. Electric Supply: The contractor(s) should make his/their own arrangement for arranging electric supply, as may be required for work. The Railway may however assist in recommending his application to the electricity authority for the power supply. Contractor may make use of Railways electrical supply for indoor works such as for lighting, soldering, minor drilling works etc. free of cost at RBG rooms and Location Huts.

XVIII. Passes and Identity Cards: No Railway free passes will be issued to the contractor or his workmen for travel by train. However, identification letters may be issued to individuals employed for the work, on written demand from the contractors.

14.0 Rates for Items:

i) The estimated rates, quantities & amount in Rupees for each of the items of the Tender Schedules along with total Estimated Cost are given in the Tender Document. The Tenderer(s) shall not quote against the individual items of Schedules. They shall only quote as one single percentage above or below or at par to the total cost applicable for each Schedules in the nominated space provided under IREPS Website. The rate so quoted should be written both in figure & words.

ii) The rate quoted by the contractor in the schedule shall be inclusive of all taxes and charges for labour, transportation, plants and equipment, tools, fuel and consumable (if any) etc. However, if rates of existing GST or cess on GST for Works Contract is increased or any new tax /cess on Works Contract is imposed by Statute after the date of opening of tender but within the original date of completion/date of completion extended under clause 17 & 17A and the Contractor thereupon properly pays such taxes/cess, the Contractor shall be reimbursed the amount so paid. Further, if rates of existing GST or cess on GST for Works Contract is decreased or any tax/cess on Works Contract is decreased / removed by Statute after the date of opening of tender, the reduction in tax amount shall be recovered from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India.

- iii) No separate Discount shall be given separately except at the designated place in IREPS website.
- iv) No price escalation of the rate(s) shall ordinarily apply under this contract as detailed in Clause No. 31.0 of Special Conditions of Tender & Contract.
- v) Arrangement for permit and licence for materials will not be made by the Railway or any assistance given. The contractor(s) will have to make his/their arrangements. Also no import licence shall be arranged by the Railway for this work.
- vi) "ROAD PERMIT" for transporting the materials from manufacturer's premises to go-down/site of work will not be provided by the Railway nor any assistance given. The contractor will have to make his / their own arrangement for ROAD PERMIT.
- vii) The rate quoted by the contractor shall be the cost of complete work and shall include the cost of all labour and materials including transport, loading, unloading as well as sheds, construction plants, scaffolding and for which no separate payment is made to him on satisfactory completion of the work shall remain the property of the contractor.
- viii) The contractor shall entirely be responsible for ensuring safety of his labour, vehicles, construction plants and equipment while working, no extra payment shall be allowed to the contractor for any safety precautions to be observed during the execution of the work. The cost of such precautions shall be deemed to have been included in the rates for all the items of the schedule.
- ix) It shall be clearly understood that the rates to be quoted shall include all wastages and wash away either due to rains or storm or floods or other causes whatsoever. The rate shall also include the cost that may be necessary or stacking the materials at site of work.
- x) The quoted rates shall be deemed to include charges for all site facilities for labour that are considered necessary for execution of the work. Subject to availability of land the Railway may provide free site for labour camp, construction of yard etc. close to site of work.
- xi) No assurance can be given regarding the vulnerability of Railway land given for use to the contractor flooding during high floods. The Railway undertakes no responsibility or liability in this regard.
- xii) **Site facilities:** The rates should be deemed to include charges for any and all site facilities that are considered necessary for the execution of the work unless otherwise indicated in the contract. In this connection, specific attention is drawn to stipulations in clause 1(1) of the general condition of the contract.

15.0 QUANTITIES IN SCHEDULE AND THEIR VARIATIONS:

- I. The quantities specified in the schedule of works enclosed herewith are approximate and meant to give the tenderer(s) an idea of the quantum of work involved. The Railway reserved the right to increase or decrease the quantities against various items and add/or delete from the items upto 25% of the quantities or even more as per the actual requirement at site. The successful tenderer(s) will have to execute all items required for the successful completion of the work at the quoted rates. The Engineer on behalf of the

Railway is authorized to order in writing to enlarge, extend, diminish or reduce the works or make any alterations in the design, character, position of site, quantities, dimensions or in the method of their execution or in the combination and use of materials for execution thereof or to order any additional works to be done or any works not be done. The contractor shall be bound to carry the work.

II. The following procedures shall be adopted for dealing with variation in quantities during execution of work/contract:

Individual NS items (i.e. Non-Schedule items as per Tender Schedule) in the contract shall be operated with variation of plus or minus 25% and payment would be made as per agreement rate. For this, no finance concurrence would be required.

In case an increase in quantity of an individual item by more than 25% of the agreement quantity is considered as unavoidable, the same shall be executed by floating a fresh tender. If floating a fresh tender for operating that item is considered not practicable, quantity of that item may be operated in excess of 125% of the agreement quantity, subject to the following conditions: -

- 1) 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.
- 2) 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 items of works.
- 3) In case an increase in quantity of an individual item by more than 25% of the agreement quantity is considered unavoidable, then same shall be executed at following rates
 - (a) Quantities operated in excess of 125% but upto 140% of the agreement quantity of the concerned item, shall be paid at 98% of the rate awarded for that item in that particular tender;
 - (b) Quantities operated in excess of 140% but upto 150% of the agreement quantity of the concerned item shall be paid at 96% of the rate awarded for that item in that particular tender;
 - (c) Variation in quantities of individual items beyond 150% will be avoided and would be permitted only in exceptional unavoidable circumstances and shall be paid at 96% of the rate awarded for that item in that particular tender.
 - (d) **Variation to quantities of Minor Value Item:**
The limit for varying quantities for minor value items shall be 100% (as against 25% prescribed for other items). A minor value item for this purpose is defined as an item whose original agreement value is less than 1 % of the total original contract value.
 - (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;
 - (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;

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

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

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

(vi) For the tenders accepted at Zonal Railways Level, variations in the quantities will be approved by the authority in whose powers the revised value of the agreement lies.

The aspect of variation of tender with respect to variation in quantities should be checked and avoided. In case of variation of the tender (both increase as well as decrease of value of contract agreement), sanction of the competent authority as per single tender should be obtained.

In the event of any reduction in the quantity to be supplied or work to be executed for any reasons whatsoever the contractor shall not be entitled to any compensation but shall be paid only for the actual amount of work done or quantity of supply made in accordance with the accepted rate of the schedule. Supply of materials and works not covered by the schedule of work, but necessary for completion of the work as per approved plan, will be executed by the contractor, for which contractor will quote separately.

16.0 MEASUREMENTS & PAYMENT FOR WORKS:

i) In terms of clause No. 45 of General Condition of Contract measurements of the work in progress shall be taken and recorded in the prescribed official Measurement Book from time to time and at such intervals as in the opinion of the engineer-in-charge shall be proper having regard to the progress of the work. The contractor shall be present at the site and shall sign the results of the measurements (which shall also be signed by the engineer-in-charge or his authorised representative) recorded in the aforesaid measurement book as an acknowledgement of his acceptance of the accuracy of the measurements.

ii) Under the Contract all bills would be passed through the MB only.

iii) The Contractor shall be entitled to be paid from time to time by way of "On Account Payment" as per Clause 46 of General Condition of Contract, at the rate in the accepted schedule of rates only for the items of the schedule of works except for supply of materials as in the opinion of the Engineer-in-charge he has executed in terms of the contract.

I. For Schedules:

A. For Item including Supply only.

a) 80% payment will be made on supply of the materials. Further 10% payment will be made on installation of the materials at site and the balance 10% will be paid after successful commissioning of equipment or all balance payment will be made after commissioning of the complete system.

b) *100% will be paid for spares & for other items, which are not required to be erected by the contractor on receipt of the equipment and no loss certificate by consignee.*

B. For Item including Supply and Execution/Installation

70% payment will be made on supply of the materials. Further 20% payment will be made on installation of the materials at site and the balance 10% will be paid after successful commissioning of the complete system.

C. For Item execution/installation only

90% payment will be made on completion of the Installation works and Balance 10% payment will be made on successful commissioning of the complete system.

II. The contractor shall be paid the final payment in terms of the clause No. 51 of the General Condition of Contract.

III. Implementation of outstation payment in Railway through RTGS / NEFT: Unless otherwise specified payments to the Contractor will be transferred electronically to his bank account. The tenderer(s) should submit their bank details.

D. The balance payment may be released against Bank Guarantee of an equal amount on the discretion of the competent authority, if commissioning is held up on Railway's account for a period of more than three months after the installation is tested by the contractor to the full satisfaction of Railways and kept ready for commissioning.

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

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

17.0 DEDUCTION OF INCOME TAX:

The Railway shall at the time of arranging payment to the contractor be entitled to deduct Income Tax on the gross amount of each bill, at specified rate decided by the Railway Board from time to time (at present the rate is 2%). An Income Tax Deduction Certificate can be issued to the firm on demand and the final settlement of Income Tax should be made with concerned income tax authority.

18.0 GOODS & SERVICES TAX (GST):

a. Before submitting a tender, the tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the works, that all conditions liable to be encountered during the execution of the works are taken into account and that the rates she

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.

- b. (Tenderers will examine the various provisions of The Central Goods and Services Tax Act, 2017(CGST)/ Integrated Goods and Services Tax Act, 2017(IGST)/ Union Territory Goods and Services Tax Act, 2017(UTGST)/respective state's State Goods and Services Tax Act (SGST) also, as notified by Central/State Govt.& as amended from time to time and applicable taxes before bidding. Tenderers will ensure that full benefit of Input Tax Credit (ITC)likely to be availed by them is duly considered while quoting rates.
- c. The successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST Act to railway immediately after the award of contract, without which no payment shall be released to the Contractor. The Contractor shall be responsible for deposition of applicable GST to the concerned authority.
- d. In case the successful tenderer is not liable to be registered under CGST/IGST/UTGST/ SGST Act, the railway shall deduct the applicable GST from his/their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.
- e. When work is tendered for by a firm or company, the tender shall be signed by the individual legally authorised to enter into commitments on their behalf.
- f. The Railwaywill not be bound byanypower of attorneygranted bythe 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.
- g. All the bidders / tenders should ensure that they are GST compliant and their quoted tax structure /rates are as per GST Law. Offer must be inclusive of Goods & Service Tax.

Contractorshall be liable to pay/refundtheamountcollected as GSTto theIndian Railways along with interest and penalties, if any imposed by the authorities, in case

GSTinput tax credit of Indian Railways is denied/rejected by the tax authorities due to reasonsmentionedbelowbut notlimitedto:

Wrong/incorrectinvoicesissuedbyContractor;

No-filing of GST returns;

Non-paymentofGSTcollectedfromIndianRailwaystotheauthorities; 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, prosecutionor inquiry byor against the Indian Railways arising out, directlyor indirectly, of failure bythe contractor to complywith 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.

19.0 Issueofworkcompletion Certificate:

19.1 Issue of work completion Certificate: As per para 5 above.

20.0 WARRANTY PERIOD/ Defect Liability period:

- a. The contractor shall be bound to rectify free of cost at site any defects and/or shortcomings that may arise in the work executed for a period of 365 (Three hundred sixtyfive) days after completion and taking over of the installation by the Railway. The aforesaid maintenance period of 365 days shall be reckoned from the date of taking over the work by the Railway, excluding day(s) that will lapse, from the date of sending the intimation by the Railway, to the Contractor (at his last known address) up to the date of completion of rectification. Should any dispute arise as to the correctness of the defects pointed out, the decision of Engineer-in-charge in this regard shall be final and binding. The necessary disconnection of working circuits /equipment (if any) for carrying out rectification shall be arranged by the Engineer-in-charge and such work shall be done only in presence of his authorised representative.
- i. After completion of such rectification works, all the circuits and equipment shall be tested and checked thoroughly by an authorised representative of the Engineer-in-charge before reintroduction of normal working.
- b. **Warranty for materials:** All the materials supplied under this contract shall be warranted for trouble free service for a period of 365 (three hundred sixty five) days from the date of commissioning of work.
- c. **Removal of defective works:** If in the opinion of the Engineer, any of the work shall have been executed with improper materials or defective workmanship, the contractor when required by the Engineer, shall re-execute the same and substitute proper materials and workmanship forthwith at his own cost and in case of default of contract in so doing within a week, the Engineer shall have full power to employ other persons to execute the work and the cost thereof shall be borne by the contractor.

20.1 NA

21.0 PROGRAMMING OF WORK TO AVOID INTERFERENCE WITH TRAIN MOVEMENTS:

The contractor will programme his work in such a manner so as not to interfere in the working and movement of trains. No extra payment shall be allowed on this account and for taking any precautions or wastage of Contractor Labour, Time etc. due to train working

22.0 SITE CLEARANCE:

At the end of the work in each section the contractor shall as a part of his contractual obligation leave the area completely cleared of rubbish and obstructions of all kinds according to the instructions of the Railways representatives. Besides, he shall take execution of work to avoid the presence of loose earth and ballast on platforms, in drains, on the track formation and pathways in the vicinity. If within fortnight of completion of the particular item of site work, the refuge is not cleared, the Railway will arrange to get them removed at the cost of the contractor. However, before the Railway actually gets the site cleared, intimation in writing shall be sent to the contractor.

23.0 PROGRESS REPORTING:

There shall be a formal official meeting between Contractor and Engineer Incharge every 15 Days regarding the Work Progress. The contractor shall submit to the Railway at his own cost periodic progress reports at regular intervals regarding the state and progress of work. The details and proforma of the report will mutually be agreed after award of the contract. Such reports shall be for daily man power, equipment and plant deployment, weekly work progress and monthly progress review reports. All actions as directed by IR pursuant to such reports shall be promptly attended to.

24.0 PRESENCE OF SUPERVISORS AT SITE:

No work of wiring, commissioning / energization of equipment, cable lying, jointing etc. should be carried out unless and until contractors' technical supervisors are present at site.

25.0 TRAINING:

- i) The tenderer shall undertake to impart training to Railway staff either at site of installation or their factory premises in different aspects of equipment, its architecture, functioning and planning, management supervision, field installation supervision, commissioning, testing and maintenance both for H/W and S/W areas in order to transfer complete know how so as to impart full knowledge and confidence to independently execute successfully the erection and maintenance of the exchange. The training courses should include hands-on equipment, visits to installations apart from formal classes.
- ii) The OEM should train the Railway personnel to such level of proficiency that they may carry out changes in the OEM specialised system without the help of OEM.
- iii) Expenses on travel, accommodation and the incidental expenditure on training program for the Railway Staff will be borne by Railway.
- iv) The subjects of training, details of courses etc. should be furnished on demand of the Railway and it should be ensured that the trainees are given sufficient material for technical reference and guidance as well as for imparting complete know-how.
- v) In addition to the above, tenderer should also quote for fees leviable, if any, for the various courses man-week wise and course-wise so as to enable Railway to depute additional employees if considered necessary.
- vi) The complete documentation on the courses should be supplied to the trainees. Railway, however reserves the right to vary the number of personnel as well as course modules and training periods so considered necessary.
- vii) A CD/PEN DRIVE made with the specific intent of giving training on the theory and maintenance of equipment shall also be supplied.

26.0 FORCE MAJEURE:

- 26.1 If, at anytime, during the continuance of the agreement, the performance in whole or in part by either party of any obligation under the agreement shall be prevented or delayed by reasons of any war, hostile acts of the enemy, civil commotion, sabotage, fires, floods, explosions, epidemics/pandemic, quarantine restrictions, strikes and lock-outs and any statute, statute rules, regulations, orders or requisitions issued by any Govt. Department or a competent authority or acts of God (hereinafter referred to as eventualities), then provided notice of the

happening of any such eventuality is given by either party to the other within 30 days from the date of occurrence thereon, neither party shall, by reason of such eventualities be entitled to terminate this contract agreement nor shall either party have any claim for damages against the other in respect of such non-performance or delay in performance.

- 26.2 Performance of the contract agreement shall, however, be resumed as soon as practicable after such eventuality has come to an end or ceased to exist. Provided that, if performance in whole or part of any obligation under the contract agreement is delayed by means of any such eventuality for a period exceeding six months, either party may, at his option, terminate the contract agreement provided further that in the event of such prevention or delay as aforesaid, then, instead of exercising the option, both parties may consult with each other with a view to agreeing between them the action mutually to be taken in order to minimise the effects of such prevention or delay and continue the operation of this contract agreement.

27.0 PERFORMANCE GUARANTEE BOND:

The procedure for obtaining Performance Guarantee is outlined below:

- a) The successful bidder shall have to submit a Performance Guarantee (PG) **within 21 (Twenty one)** days from the date of issue of Letter of Acceptance (LOA). Extension of time for submission of PG beyond 21 (Twenty one) days and upto 60 days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 12% per annum shall be charged for the delay beyond 21 (Twenty one) days, i.e. from 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.
- i. 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 the contract is terminated, the railway shall be entitled to forfeit Bid Security and other dues payable to the contractor against that particular contract, subject to maximum of PG amount. In case a tenderer has not submitted Bid Security on the strength of their registration as a Startup recognized by Department of Industrial Policy and Promotion (DIPP) under Ministry of Commerce and Industry, DIPP shall be informed to this effect.
- ii. The failed Contractor shall be debarred from participating in re-tender for that work.
- b) The successful bidder shall submit the Performance Guarantee (PG) in any of the following forms, amounting to 5% of the original contract value:-
 - i) A deposit of Cash;
 - ii) Irrevocable Bank Guarantee;
 - iii) Government Securities including State Loan Bonds at 5% below the market value;
 - iv) Pay Orders and Demand Drafts tendered by any Scheduled Commercial Bank of India;
 - v) Guarantee Bonds executed or Deposits Receipts tendered by any Scheduled Commercial Bank of India;
 - vi) Deposit in the Post Office Saving Bank;
 - vii) Deposit in the National Savings Certificates;
 - viii) Twelve years National Defence Certificates;
 - ix) Ten years Defence Deposits;
 - x) National Defence Bonds and

- xi) Unit Trust Certificates at 5% below market value or at the face value whichever is less. Also, FDR in favour of Dy FA&CAO/C/RTM (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 (notwithstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:
 - i) Failure by the Contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer may claim the full amount of the Performance Guarantee.
 - ii) Failure by the Contractor to pay the 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.

28.0 ENGAGEMENT OF QUALIFIED ENGINEER:

- i) The contractor shall also employ Qualified Graduate Engineer(s) or equivalent, or Qualified Diploma Holder Engineer(s), as prescribed in tender documents.
- ii) In case the contractor fails to employ the Engineer, as aforesaid in para (i), he shall be liable to pay liquidated damages at the rates, as prescribed in tender documents.
- iii) No. of qualified engineers required to be deployed by the contractor for various activities contained in the works contract shall be specified in the tender documents as „special condition of the contract'.
- iv) Accordingly in terms of provision of clause (i) above, contractor shall also employ following qualified Engineers during the execution of allotted work
 - a) One qualified Graduate Engineer when the cost of work to be executed is Rs.200 lakh and above, and
 - b) One qualified Diploma Holder Engineer when the cost of work to be executed is more than Rs.25 lakh but less than Rs.200 lakh.

- v) Further, in case the contractor fails to employ the qualified Engineer, as aforesaid in para (iv) above, he in terms of provision of clause (ii) above, shall be liable to pay an amount of Rs.40,000/- and Rs.25,000/- for each month or part thereof for the default period for the provision, as contained in para [iv (i)] and [iv (ii)] above respectively.

a. The decision of the Engineer -in-charge as to the period of default and Amount shall be final and binding on the Contractor.

- vi) The contractor during the entire course of the work shall abide by the Minimum Wages Act, 1948, Provisions of Apprentices Act, Provision of Payment of wages Act, Provision of Contract Labour Act, Provision of Workmen's Compensation Act, Provision of Mines Act and all Acts and Laws of the Land.
- vii) The contractor shall not employ men below the age of 18 years.
- viii) The deployed Technical Supervisory staff must be trained in railway signalling system and safety in General from Railway signalling Training institute, with valid certificate. In case the person is not found trained, He will be sent to SBI/STTC for training immediately at the cost of the contractor.

29.0 CONTRACT LABOUR ACT:

- a) The contractor shall observe all the provisions of the Contract Labour (Regulation and Abolition) Act, 1970 and Central Rules 1971 or any statutory modifications or re-engagements thereof for the time being in force and any rules and regulations made thereunder in respect of all the persons directly or through petty contractors or subcontractors employed by him under this contract and shall indemnify the Railway from and against any claims under the Contract Labour (Regulation and Abolition) Act 1970 and Central Rules 1971 or any further rules and regulations framed thereunder, by or on behalf of any person directly or through petty contractors or subcontractors employed by him or otherwise.
- b) The contractor shall obtain licence from the Licensing Officer specified in the Act, paying necessary licence fee as per section 12 of the Act, 1970 and Rules 26 of the Central Rules, 1971. In every case in which by virtue of section 20(2) and 21(4) of the Contract Labour (Regulation and Abolition) Act, 1970, the Railway is obliged to provide amenities or pay wages to Labour employed by the contractor in executing the work, the Railway will recover from the contractor the expenditure so incurred by the Railway or Wages so paid, and without prejudice to the right of the Railway under section 20(2) and 21(4) of the said Act, the Railway shall be at liberty to recover such amounts or part thereof by deducting it from the security deposit or from any sum due to the Railway by the contractor whether under this or any other contract/contracts.
- c) The attention of the tenderer is drawn to the Contract Labour (Regulation & Abolition) Act, 1970, Contract Labour (Regulation & Abolition) General Rules 1971 and clause 55(2)(i) of the NF Railway Engineering Department Regulation for dy.cste Tenders and Contract, General Conditions of Contract 2022 and Standard Special Conditions of Contract with latest edition. Successful tenderer(s) shall comply with the provision of the said Act and Rules, the CSTE/Dy.CSTE being the principal employers under the said Act and Rules.
- d) The attention of the contractor is also drawn to the rules of the Inter State Migrant Workmen (Regulation of employment conditions of service) Central rules 1980. The successful tenderer(s) should comply with these rules as per the said Act/1079 (ACF No. 30 of 1979) with Central rules 1980.

- e) Provided that if any dispute arises as to the expenditure incurred by the Railway in the provision of amenities under the said Act, the decision of the Engineer thereon shall be final and binding.
- f) Building and Other Construction Workers Act, 1996 and : The salient features of the Act are as follows:-
- g) It applies to every establishment which employs, or had employed on any day of the preceding twelve months, ten or more building workers in any building or other construction work.
- h) The cess shall be levied and collected @ 1% of the cost of construction incurred by an employer.
- i) For the purpose of levy of cess, cost of construction shall include all expenditure incurred by an employer in connection with the building or other construction work but shall not include:
 - j) cost of land; and
 - k) any compensation paid or payable to a worker or his kin under the Workmen's Compensation Act, 1923.
- l) Every building worker who has been engaged in any building or other construction work for not less than 90 days during the preceding twelve months is required to be registered as a beneficiary under this Act.
- m) This will be applicable from the date of receipt of notice from the State Labour Commissioner/ Labour Department.
- n) The tenderer/contractor for carrying out any construction work in concern State 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 concern State Government and submit certificate of Registration issued from the Registering Officer of the concern State Government (Labour Department). For enactment of this Act, the tenderer shall be required to pay cess @ 1% of cost of construction work to be deducted from each bill. Cost of material shall be outside the purview of cess, when supplied under a separate schedule item.
- o) Contractor is to abide by the provisions of Payment of Wages act & Minimum Wages act in terms of clause 54 and 55 of Indian Railways General Condition of Contract. In order to ensure the same, an application has been developed and hosted on website www.shramik_kalyan.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 the public domain. The Registration/updating of Portal shall be done as under:
- p) Contractor shall apply for onetime registration of his company/firm etc. in the Shramik-kalyan portal with requisite details subsequent to issue of Letter of Acceptance. Engineer shall approve the contractor's registration in the portal within 7 days of receipt of such request.
- q) Contractor once approved by any Engineer, can create a password with login ID (PAN No.) for subsequent use of the portal for all LoAs issued in his favour.
- r) The contractor once registered on the portal, shall provide details of his Letter of Acceptances (LoA) / Contract Agreements on shramik-kalyan portal within 15 days of issue of any LoA for approval of the concerned engineer. Engineers shall update (if required) and approve the details of LoA filled by the contractor within 7 days of receipt of such request.

- s) After approval of LoA by Engineer, contractor shall fill the salient details of contract labourers engaged in the contract and ensure updating of each wage payment to them on shramikkalyan portal on monthly basis.
- t) 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.
- u) 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 labourers 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.”

30.0 BONDED LABOUR Act:

The tenderer shall note that the bonded labour system is completely done away with on the Indian Railways including contractor's establishment on the Railway.

31.0 INSURANCE & EPF (Employees Provident Fund):

The Contractor shall purchase “All Risk Insurance Policy” of “Man and materials including machinery” with beneficiary as WR. The “All Risk Insurance Policy” shall be operative from the Date of commencement of work for the duration i.e. “Period of Completion of Work”

32.0 MOBILISATION ADVANCE: Mobilization Advance is applicable as per para 46.(4)

(a) of GCC. (For tender value more than 20 Cr.)

33.0 ASPECT OF VITIATION:

The contract shall not be vitiated by any inadvertent error of any kind in the surveys, information, specification drawing or schedule of quantities. The aspect of vitiation of tender with respect to variation in quantities should be checked and avoided. As a result of variations, a contract shall be considered "vitiating" 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 Rs 50 lakh)	5

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

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

33.2 The above shall be regulated as under:

- a. The case shall be decided by the tender accepting authority (competent for the revised quantity) and shall not be treated as a case of single tender.
- b. These instructions will be similarly applicable to earning contracts with H-1, H-2 substituted for L-1, L-2 and so on.
- c. Executives while executing the work shall make all efforts to ensure that no vitiation takes place in normal circumstances. Vitiating should be an exception rather than a routine affair. Efforts should be made to invite bids on the basis of percentage above/below/at par.
- d. Vitiating should always be computed with respect to the items, rates, quantities and conditions as available at the time of Tender Opening and subsequent changes/ additions by way of new items will not be counted for computing Vitiating. [Ref: RB letter No. 2017/Trans/01/Policy Dated 08.02.2018].

34.0 PRICE VARIATION CLAUSE: (not applicable)

- 34.1 The price quoted by the contractor and accepted by the Railway shall hold good till the completion of the work. The tenderer should quote a firm price without any price variation.
- 34.2 Price variation is not applicable in this tender, even in the extended period.
- 34.3 Price quoted by the Tenderer shall be firm during the bidder's performance of the contract and not subject to variation on any account. Any bid submitted with an adjustable price quotation will be treated as Non-responsive and rejected.

35.0 SECURITY DEPOSIT:

[Also refer to Para 16 of GCC Part-II]

1. The Security Deposit shall be returned to the contractor after successful completion of the work as certified by the competent authority and 1-year Warranty Period.
2. The competent authority shall normally be the authority that is competent to sign the contract. If this competent authority is of the rank lower than JA grade, then a JA grade officer (concerned with the work) should issue the certificate.
3. The certificate, inter alia, should mention that the work contract has been satisfactorily completed in all respects and maintenance period or guarantee period or warranty period, if any, is completed satisfactorily and no dues are to be paid / recovered from the contractor and final bill has been passed and no Audit Objection / Vigilance/CBI/ SPE/ Arbitration cases are pending against the contract. And that all the contractual obligations have been fulfilled by the contractor to Railways against the contract concerned.
4. Before releasing the Security Deposit and unconditional and unequivocal "No claim certificate" from the contractor concerned should be obtained. Railway shall not be liable to pay any kind of interest for the Bid Security and Security Deposit.

36.0 PERFORMANCE OF CONTRACTOR:

Performance of the contractor will be judged in respect of the following items each carrying 1(one) mark for satisfactory performance and 0(zero) mark for unsatisfactory performance.

- i) Deployment of skilled and unskilled persons before Non-Interlocking period.
Where applicable.
- ii) Deployment of skilled and unskilled persons during Non-Interlocking period.
Where applicable.
- iii) Deployment of supervisors.
- iv) Quality of work.
- v) Timely completion of the work.
- vi) Timely supply of critical items.
- vii) Timely compliance of deficiencies pointed out in joint inspection with open lines.
- viii) Timely submission of completion drawings.
- ix) Correctness of circuit diagrams and installations.
- x) Promptness in correspondence and joint meeting called.

37.0 ARBITRATION:

Arbitration and settlement of disputes shall be governed by clause No. 63, 64.1 to 64.7 of General Conditions of Contract 2022 with latest amendments subject to any corrections made prior to the opening of this tender.

38.0 JURISDICTION OF COURT:

The courts of the place from where the acceptance of tender has been issued shall alone have jurisdiction to decide any dispute arising out of or in respect of the contract.

The successful tenderer(s) shall have to sign the contract agreement only at the office from where the acceptance letter has been issued.

39.0 LAWS GOVERNING THE CONTRACT:

This contract shall be governed by the Laws of India for the time being in force. Irrespective of place of working, the place of performance or place of payment under the contract, the contract shall be deemed to have been made at the place from which the acceptance of the tender has been issued.

40.0 ANNUAL MAINTENANCE CONTRACT: Not Applicable**41.0 SPECIAL CLAUSE:**

Subject as otherwise provided in this contract all notice to be given on behalf of the President of India and all other action to be taken on his behalf may be given or taken on his behalf by the Dy. Chief Signal & Telecom Engineer construction Vadodara-W. Railway.

42.0 PENALTY CLAUSE:

If in the opinion of Engineer-in-Charge,

1. The contractor is not able to follow or execute or comply any instructions by Engineer or Engineer-in-Charge or any of his nominated representative at site, intimated to the contractor or his authorised representative from time to time through letter or email or telephone or through any other mode of communication, within seven days from intimation of such instruction, OR

2. If progress of the work being executed by the Contractor is not satisfactory.
3. Penalty may be imposed on the contractor and recovered from running bills at the following rate:
 - a. In case of first instance, Penalty of Rs. 500/- (Five hundred) per day will be imposed on the contractor after seven days from intimation of instruction till complete execution or compliance of the same.
 - b. In case of second instance, Penalty of Rs. 1000/- (One Thousand) per day will be imposed on the contractor after seven days from intimation of instruction till complete execution or compliance of the same.
 - c. In case of third or more instances, Penalty as may be deemed fit by Engineer or Engineer-in-Charge, will be imposed on the contractor.
 - d. Imposition of any Penalty amount shall be intimated to the contractor and recovered from running bills.

43.0 LETTER OF CREDIT :

The option of payment through LC has been enabled for all tenders whose value is equal to or greater than Rs.10 Lacs. Hence Letter of Credit is applicable in this Tender which can be availed as per board's letter no. 2018/CE-I/CT/9 dated 04.06.2018.

44.0 Offloading of Works: For Offloading of Work please refer to 40A of GCC 2022 (along with all correction slips).

Chapter-IV
GENERALCONDITIONSOFCONTRACT

General Condition of Contract Issued by Railway Board (Not included, may be downloaded from Railway Website)

“General Conditions of Contract” (GCC) of Western Railway in addition to and/or in part super-session up to latest correction slips” will be applicable.

Booklet of General Conditions of Contract (GCC) Works Hand Book July 2020 edition/latest edition (**with latest amendments**), may be purchased by Tenderer(s) from Engineering Department of Western Railway at their own cost.

SECTION – II

Importantcirculars,Appendix&Annexures.

S N	Description	No/Link
1	GCCwithcorrectionslips	https://indianrailways.gov.in/railwayboard/view_section.jsp?lang=0&id=0,1,304,366,526,2624
2	Appendix 1&2andtheAnnexures	Attachments2

SECTION-III

SCHEDULEFORWORK

GIVENONIREPSWEBSITEATDESIGNATEDPLACEINCONNECTIONWITH THE
ABOVE TENDER NOTICE AND TENDER NO.

Annexure-B:ScopeofWork

GeneralrequirementspecificationsandtheScopeofWorkofinthisSection (<u>No deviation permitted in any of the items of this annexure</u>)		
Sr.No.	Itemsdescribingscopeofwork	Compliance of Tenderer
1	GENERAL	
	Scope of this S&T work under Doubling Project: Under Design, Supply,Installation,Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPACproving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling Systems in Jambusar and samni Section in connection of provision ofGauge Conversion Work under Dy. CSTE Construction, Vadodara, Gujarat (Western Railway)	
	This tender is invited for- <ol style="list-style-type: none"> 1) SupplyinstallationtestingCommissioningof Electronic Interlocking System at jambusar and Samnistation 2) SupplyinstallationtestingCommissioningof MSADC at jambusar and SamniYard 3) SupplyinstallationtestingCommissioningof indoor and out doorSignaling equipment. 4) SupplyinstallationtestingCommissioningof IPS with Battery bank at Stations 5) SupplyinstallationtestingCommissioningof FACS , ELD , Fire Alarm at both stations. 6) Trenching,laying,jointing,termination,wiring ofS&Tcables. 	

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Section IV Technical Specification
TECHNICAL REQUIREMENTS & SPECIFICATIONS FOR SIGNALING AND TELECOM ITEMS

(Work are to be executed as per the latest work policy of 03/2024 dated 15.04.2024)

All information available in this section is for general understanding. Railway has tried to give complete information but some vital parameters may not be available in below furnished information. Bidders are required to survey the site, visit the office to understand requirements of the project. All information provided in this section shall be cross verified from site before taking final decision by Bidder on any technical & operational matters related to Bid.

TECHNICAL REQUIREMENTS & SPECIFICATIONS

Para No.	Description
1.1	Technical specification of electronic interlocking
1.2	Supply of documents
1.3	Specification for portable work station
1.4	Instruments and tool kits for
1.5	General requirements and specifications for installation of EI system:
1.6	Earthing of E.I equipment:
1.7	Datalogger:
1.8	Modified KLCR
1.9	Tag blocks:-
1.10	Relay/ctracks:
1.11	Disconnect terminal block:-
1.12	Multi-core indoor cable
1.13	Indoor single core wire
1.14	Power wire:
1.15	Fuses:-
1.16	Fuse auto changeover system:
1.1	Auto changeover power panel
1.18	Program switches:
1.19	Conventional power supply equipments
1.2	Earth leakage detector:
1.21	Furniture:
1.22	Fire extinguisher:
1.23	Ms dac
1.24	Electric point machine
1.25	Laminated dhy lum sheet:

1.26	Colour light signal complete
1.27	Offset bracket
1.28	Signal unit
1.29	Route indicators:
1.32	Count/a-signal unit:
1.33	Shunt signal unit:
1.34	Ar terminals:
1.35	Location boxes:
1.36	Earth electrode:
1.37	Half round rcc
1.38	Cable jointing
1.39	Power distribution board:
1.4	Dwc pipes
1.41	Technical specification of toolkit
1.43	LED signal lighting unit:
1.44	Datalogger system:
1.45	Erection of relay rack and cable termination rack:
1.46	Running of indoor cables, jumpering, installation and testing and commissioning
1.47	<u>Universal failsafe Block interface</u>
1.48	19" 9U RACK
1.49	Crank handle relay box
1.50	Panel cum block instrument table
1.51	Fixing and wiring of qna1
1.52	Automatic fire alarm system
1.53	Installation of power supply equipments:
1.54	Installation of fuse change over system:
1.55	Digging of trenches
1.56	Placing of various pipes/rcc ducts
1.58	Laying of cables
1.59	Fixing of pipes and troughing bridges and culverts
1.60	Termination of the cables:
1.61	The foundation for the signal post:
1.62	Installation of signal post & c/s unit.
1.63	Installation of all types of apparatus case
1.64	Casting of cc foundation
1.65	Fabrication and fixing of phenolic laminated sheet:-
1.66	Digging of cable pit:

1.67	Boards/markers
1.68	Installationofthepointmachines
1.72	Completepainting, varnishingandwriting
1.73	Independentchecking/verification/validationoflogic-circuit /wiring diagrams:
1.78	Guidelinesregardingsignalinggearsdescriptionwriting
1.79.1	16port e1 cards
1.79.2	Standard19"rack
1.79.3	Ler&lsripmpls
1.79.4	LC-SC/SC-SC/LC-LC/FC-LCpatchcord
1.79.5	Layer2,24portaggregatemanagedswitch
1.79.6	Layer2,24port
1.79.7	POE switch
1.79.8	Layingof6 coreOFC cable
1.79.10	Fxsgateway(48 port)
1.79.11	GooseneckMIC
1.79.12	Gateway
1.79.13	IPphone
1.79.14	Push button telephone
1.79.15	1KVA online UPS
1.79.16	SinglepoleDC MCB
1.79.17	CAT-6 CABLE.
1.79.18	Gwirelessrouter
1.79.19	5pair0.5 mmcopperconductor:
1.79.23	OFC cableand makingthesplicejoint
1.79.24	OFC jointing
1.79.25	STRAIGHTJOINTENCLOSURE
1.79.26	LAYINGOFPVCCABLE/CAT6CABLE
1.79.27	Supplyof 48v, 50ampsbatterycharger
1.79.28	SPECIFICATIONOF19"42U RACK
1.79.30	OFCpatch cord
1.79.31	DC distribution arrangement
1.79.32	Class B,C&D typelightning protection
1.79.34	Fibre distributionmanagementsystem
1.79.35	PerforatedGlcable
1.81	HDPE125 (OD),PN8, PE100with thickness(7.4mmto 8.2 mm)

1.1	TECHNICAL SPECIFICATION of ELECTRONIC INTERLOCKING
	<ul style="list-style-type: none"> i. The EI system should be as per RDSO Spec. RDSO/SPN/192/2019 Ver. 2 or latest (with latest amendment). ii. The architecture to be deployed shall be as per para 7.1 of RDSO Spec. RDSO/SPN/192/2019 Ver. 2. In addition, hot standby processor(s) / system shall be provided with the facility of automatic changeover. The train operation shall not be affected and there shall be no unsafe occurrence due to switching over from main system to standby system. It should also be ensured that the fault, which affected the main processor / system, does not affect the hot standby processor / system iii. EI shall be designed with CENTRALISED arrangement. iv. It shall be ensured that Signaling and interlocking arrangements of the yard are in accordance with the approved Signaling plan and ToC approved by Western Railway headquarter. The Electronic Interlocking system with the latest amendment issued by RDSO to this specification has to be supplied by the contractor against this tender. In addition to specification, the Electronic Interlocking system supplied against this tender should incorporate all the extant instructions/ guidelines issued by RDSO prior to the date of tender opening. Note: The EI offered by the tenderer should have RDSO approval on the date of opening of tender. All the EI systems being supplied against this contract should be procured from one RDSO approved manufacturer as per RDSO specification of EI system. v. The EI supplier shall share protocol for direct interfacing with future technology of Kavach, CTC/TMS & Data logger, whenever required. Failing to provide this protocol with Railways will result in a penalty of Rs. 10 lakhs per EI supplied against said project. vi. In case of any field input/output failure, it is to be ensured that the station interlocking is made available continuously after the changeover and train movements are not hampered by any single input/output module failure. vii. The Field gears shall be either directly driven or driven by Interface Relay of approved type as per W. Rly standard practice viii. At these outdoor installations the point operation is working on 110 V DC with independent detection ix. At these outdoor installations, colour light signals with LED lighting should be workable on 110V AC supply from relay room and with ECRs x. Track repeater relays / slot relays / Gate controls relays/ siding control relays/repeater relay shall be of approved type as per W.Rly standard practice xi. The conductors in the cables outside building shall be 1.5 sq. mm (copper) conforming to IRS: S-63/2007 with latest Amd xii. The specification for Workstation for Data Input & Configuration is given in Annexure xiii. Earth Pit chambers shall be made up of preferably FRP material, with locking arrangement and hinge shall be used for earth pits. Drawing of earth pit attached as Annexure

	<p>xiv. The System Configuration, Route Control Table, Route Release Table, Square/Cross Sheet, all required interlocking/Logic diagrams and other documents required for designing of the System shall be prepared by the contractor on the template of Western Railway and shall be got approved by Railways</p> <p>xv. The Electronic Interlocking systems to be offered against this tender shall be from RDSO Approved sources only on the date of tender opening.</p> <p>xvi. Both track detections in case of dual detection, shall be taken as vital inputs to the EI system. The logic of paralleling will be done in the EI system.</p> <p>xvii. Technical advisory note no. STS/E/TAN/3012 Ver 3.0 dt: 28.06.21 and Correction in Technical Advisory Note (TAN) No. 3012 Ver 3.0 dated 11.07.2022 to be further referred.</p> <p>xviii. Railway Board's letter No. 2022/Sig/36/Sig Drg. dated 29.03.2022 for Implantation of Standard Signaling Typical circuits & Drawings to be further referred.</p> <p>xix. This includes inbuilt EI block working, with Mode and Media changeover..</p> <p>xx. At least 15% spare bit in each card and overall to be provisioned during initial installation. The system shall have provision for accommodating an additional 15 % of I/O in future</p>
1.1.1	<ol style="list-style-type: none"> 1. The EI system should be as per RDSO Spec. RDSO/SPN/192/2019 Ver. 2 or latest (with latest amendment). 2. Table of Control (TOC) will be designed by the contractor on the basis of approved SIP which will be provided by the railway. After approval of TOC by Railways, application logic circuits, interface circuits and VDU layout (based on approved SIP) will be designed by the contractor and submitted to the Railways for approval. 3. Table of Control (ToC) and application logic circuits are required to be independently checked, verified and approved by IRSE / IRSTELO licence holders before submission to Railways for approval. IRSE / IRSTELO licence holders as Principle Signal Designer and Verifier should certify about correctness of the logic circuits. If error in design is found then action will be initiated as per IRSE / IRSTELO conditions for cancellation of licence. Dy. CSTE (D&D) CCG shall be deciding authority in this. 4. Both track detections in case of dual detection, shall be taken as vital inputs to the EI system. The logic of paralleling will be done in the EI system. 5. Power supply shall be extended as per the TAN issued from RDSO. 6. EI shall have user-friendly graphic based design tools to generate station specific application software to carry out future yard modifications. All the software tools required for yard modification shall be provided by the supplier. It shall be possible for Railway to carry out yard modifications without the help of firm and the training shall be imparted by the supplier to Railways signaling staff for the same as per agreement with Railways. 7. The earthing arrangement required for the EI system and all other indoor signalling equipment (IPS, data-loggers, UFSBI etc.) shall be done by Contractor as per recommended value of earth resistance specified by the manufacturer/RDSO. The earthing shall be done as per latest RDSO specification (With latest amendment) for "Code of

	Practice for Earthing and Bonding System for Signalling Equipments) and as per Western Railway Practice.
	8. Training of Railway's staff/officers in all aspects of software & hardware to enable understanding and maintenance of the EI system. As maintenance spares are to be used only after the end of warranty period, supply of these items may be made after the
	9. While designing the circuit it shall be kept in mind until and otherwise advised by the Railways engineer in charge, one front contact of each and every relay shall be kept spare for data logger purposes.
	10. For the EI system the circuit shall be designed considering the interfacing relays in mind.
	11. The internal circuits shall be suitably protected and electrically isolated from external circuits.
	12. Signal circuits shall be so designed as to prevent display of signal aspect less restrictive than intended and also prevent setting up of unsafe conditions when signaling supply voltage or Frequency fluctuates or the supply is restored following a failure of normal supply.
	13. Cross-over between tracks and diamond crossings shall be provided with protection that will eliminate the possibility of a train, engine or wagon occupying the cross-over or diamond and signal on either track displaying other than the most restrictive indication
	14. Relays controlling yellow, double yellow and green aspects of signals shall have arrangements of Cutting in relays similar to track repeater relay, where such relays are fed from outside locations.
	15. Both track detections in case of dual detection, shall be taken as vital inputs to the EI system. The logic of paralleling will be done in the EI system. It shall be possible to generate an Exception report from Data Logger to know failure of individual DAC track in dual arrangement.
	16. Manual resetting of MSDAC tracks shall be as per clause no 5.4 of RDSO/SPN/176/2013 ver 3.0. Industrial grade VDU based manual resetting system shall be used.
	17. All spare I/O ports of EI need to be wired and extended up to the termination rack. The CPU of Operator VDU should be fixed in such a way that all its ports are easily accessible.
	18. With reference to Para 4.3.6 of IRS:S-36-87, Emergency full route / sub-route cancellation in case of track circuit failures with sealing facility and emergency operation for throwing signal to danger, shall be provided along with non-re-settable counters for recording the operation. It shall be ensured that the counter shall record the operation, just before the operation is affected. Emergency sub-route cancellation facility as referred in Para 4.3.6 of IRS: S-36-87 shall be provided. Also facility for Emergency operation of points (under track relay down condition) shall be provided which shall be counted with counters.
	19. The circuit shall be so made that the vital operation of throwing back the cleared signal to the least restrictive aspect shall be possible and the circuits shall be so prepared to effect the operation, even if its original supply fuse is blown off.

	<p>20. The lamp lighting circuit for all lamps including shunt signals shall be on double cutting principle.</p> <p>21. Care should be taken during design of circuits and installation, so as to contain repercussions of any failure to the minimum possible gears and equipment. The contractor shall be bound to amend his design, if the Railways suggest another design for achieving the above.</p> <p>22. Initiation and cancellation circuit should be drawn as per geographical layout of the yard.</p> <p>23. Flasher, Timer if required during work of commissioning to be arranged by the firm.</p>
1.1.2	Interlocking of Crank Handles:
	The grouping of crank handles for point operation is as detailed in the Signaling plan. There shall be two common controlling buttons for each group for releasing control/taking back control.
1.1.3	Cross Protection:
	For all external circuits, cross protection with double cutting shall be provided to prevent unsafe operation due to a cross, break or both.
1.1.4	Video Display Unit Control or VDU Control Terminal (Dual)
	<p>The following minimum requirements shall be catered for the both VDU Control Terminal / maintenance terminals (but it is not limited to) :</p> <ol style="list-style-type: none"> 1. It shall have a minimum of two serial ports. The serial ports shall have inbuilt isolation or external isolation shall be provided 2. Embedded Industrial grade fan less PC with latest PC configuration shall be provided and suitable Compact Flash Disc memory space shall be catered for the backup requirements and inbuilt power backup 3. Shall have Ethernet/OFC communication with the CIU either on copper cable or OFC, with suitable isolators. 4. It shall have keyboard/mouse operation. 5. It shall be possible to disable the menus in case of emergency. It shall have a required level of security features & access control i.e. logging (the ports & applications provided on the unit shall be password protected) for the operator/maintainer. 6. It shall synchronise the counters/clocks all the time and particularly when resuming from a failure. 7. Shall support buzzers/alarms as in CCIP. 8. The VDU monitor shall be of 4 K resolution; the size of monitor shall be 55 inches minimum with stand having height, tilt and pivot adjustments. If it is not possible to accommodate station interlocking in one screen then VDU with higher size to be provided or more than one monitor of thin edge type/bezel type to be provided to display the full yard as per instruction of engineer in charge. 9. A typical VDU layout (Drg. No. CSTE/6273) and a list of standard commands for gear operation in Electronic Interlocking may be obtained from Railway on demand. 10. <u>Design of the VDU table is attached as Annexure-. A VDU table shall be provided as per this design.</u> 11. A flashing indication shall be provided on the VDU to indicate the healthy condition of the main System communication channel. 12. The current position/ status of various field equipment and track circuits shall be displayed on the VDU using different colours/ symbols. 13. Three dot markers in Red, Blue & Green colours respectively shall also be displayed prominently at conspicuous locations on the VDU terminal to indicate that the colour

	<p>monitor is healthy and all the three colours (Red, Blue & Green) are present in right proportion.</p> <p>14. The control terminal shall work with 230V ± 10%, 50Hz AC power supply, for which an UPS of adequate capacity shall be supplied along with the system.</p> <p>15. VDU inverter with auto changeover and DC-DC converter as per TAN shall be provided by the contractor</p> <p>16. If VDU and CIU are in separate buildings (which is generally the case), then they shall be interfaced using FOM (Fiber Optic Modem) to protect against lightning and surges. Railways shall allow only underground OFC for its use if the CIU and VDU are in different rooms. Patch-cords shall be allowed only in cases where both are in the same room.</p> <p>17. Operation of signal gear shall not be possible simultaneously through both VDUs. In case of VDU's used in Hot standby, VDU switch over is required in the following conditions:</p> <ol style="list-style-type: none">1. VDU to EI communication failure.2. VDU computer failure.3. VDU monitors failure.4. One VDU is not controllable due to mouse failure. <p>18. To circumvent any unauthorised operation inadvertently, logic equivalent to Stop collar function of Panel system to be incorporated through software.</p> <p>19. As per WR's policy, Separate Key cum counter box with 2 VDUs in E.I to be provided in SM office. Key cum counter box shall be framed as per CSTE drg No. 6229 and comprises SM & RRBU keys, Eight electromechanical counter (ERRB, EBPU, RRBU, UOS, COGGB, COCYZ, ECHYZ, AXLE COUNTER RESET KEY), one spare and ammeter with bypass switch. Inputs to be incorporated in EI.</p> <p>20. MT consisting of a standard PC with printer from a reputed manufacturer (as per instructions of Railway's engineer in-charge) shall be provided for following Operations: - Display of the current status of points, signals, controls etc. of the yard. ii) Storage of minimum one-month data or 10,00,000 events. iii) Display of recorded events and iv) Data transfer to floppy, CD, flash memory or any other storage media. v) Transfer of recorded events to external data logger.</p>																																																						
1.1.5	<p>Details Breakup of Item No. 1 of Schedule "A2" for "Supply of Materials of Electronic Interlocking" to be given by successful tenderer.</p> <table><tr><th>Sr. No.</th><th>Description of items</th><th>Units</th><th>Qty.</th><th>Base Rate</th><th>Total Amount</th></tr><tr><td>A</td><td>Main EI System</td><td></td><td></td><td></td><td></td></tr><tr><td>(i)</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>(ii)</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>B</td><td>Supply of 10% Essential spare of the EI equipments</td><td></td><td></td><td></td><td></td></tr><tr><td>(i)</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td>(ii)</td><td></td><td></td><td></td><td></td><td></td></tr><tr><td></td><td>Total Amount (Awarded cost)</td><td></td><td></td><td></td><td></td></tr><tr><td></td><td></td><td></td><td></td><td></td><td></td></tr></table> <p>NOTE: 1) The total amount must be equal to the awarded cost of item no 1 of EI supply. 2) Spare of EI shall be supplied after complete installation of EI system and in instruction of engineer in charge.</p>	Sr. No.	Description of items	Units	Qty.	Base Rate	Total Amount	A	Main EI System					(i)						(ii)						B	Supply of 10% Essential spare of the EI equipments					(i)						(ii)							Total Amount (Awarded cost)										
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1.1.6	<p>Following test reports made available after testing of the Signaling Installation before commissioning of the system :</p> <p>For Indoor: One Wire/Two Wire Test record.</p>																																																						

	<p>ContactbreaktestRecord[InWDaftersoldering(applicabletoMetaltoMetal)]</p> <p>Simulation test Record for :</p> <p>Locking Test (as per Locking Table)</p> <p>Selection Test (as per Selection Table)</p> <p>Sub-routerelease(Shorttrain/LongTrain)</p> <p>Back Locking Test</p> <p>ApproachLockingTest(asperSelectionTable)</p> <p>Track Locking of Points.</p> <p>IndicationLockingofPoints.</p> <p>EmergencyOperationofPointswithcontrollingtrackCircuitsfailed. Square Sheet test Record.</p> <p>CascadingofSignalAspect.</p> <p>AspectControltest(asperControlChartinSignalingPlan) Red</p> <p>Lamp Protection.</p> <p>Compliancecertificateoftechnicaladvisorynoteas perRDSO/HQ'sformat</p> <p>ForOutdoor:</p> <p>CableTestReportsofMainCable/tailcable. Earth Test Record.</p> <p>AXLECOUNTERTrackParameters.</p> <p>OperatingparametersofPointsandCorrespondenceTest. Cable Test reports of Tail Cable .</p> <p>ForPowerEquipments:</p> <p>Load/NoLoadCurrentsandVoltagesofPowerEquipmentandallitsmodules. Battery History records.</p>
1.2	<p>Supply of documents (Manuals for Installation, Testing, commissioning and maintenance of the system):</p> <p>(Oneset consistsof 6sets offollowingdrawingsper Station).</p> <p>(i) Manualforinstallation,Testing,Commissioningandmaintenanceofthesystemfor Technicians / Jr. Engineers. (Installation & Maintenance level)</p> <p>(ii) Functioningandsystemoverview(Highermanagementlevel).</p> <p>(iii) Completiondocumentsasperspecialconditionsof contract.</p> <p>(iv) Design&SupplyofcircuitsandplanstosuitlayoutgiveninthesignallingplanforHot Standby Architecture Electronic Interlocking (EI) system.</p> <p>All plans and wiring diagrams shall be prepared on Auto cad Drawing and supplied with CD/PENDRIVE. This will include supply of VDU diagram, Square Sheet, WiringDiagrams (Application Logic and Interface Circuit), Fuse Analysis, Contact Analysis, Tag BlockAnalysis. Power Supply Distribution / Power equipment arrangement (with program switch) Diagram. Auto Changeover diagram and all other relevant drawings given in tender document.</p> <p>Six sets of documents for each station containing system details, site installation details / drawings, maintenance manual, operation procedure etc. in bound book and in soft copy as per practice ofrailways. This shall also include.</p> <ol style="list-style-type: none"> Tableof Control. RouteRelease Table Square/CrossSheet WiringDiagrams. Floorplan,powersupplyarrangement,interfacediagram,Earthingplanetc. ApplicationProgramListing. Relay/CableTerminationparticulars.

- viii. Input/output assignment details.
- ix. Relay layout and contact analysis chart.
- x. SWR diagram.
- xi. Control (Domino) panel/VDU diagram.
- xii. Troubleshooting charts.
- xiii. Signaling cable route plan.
- xiv. Fuse analysis and FACS, wiring details.
- xv. Junction/location box detail plan, Cable Route Plan, Cable Chart, Cable Core Chart
- xvi. C Track detail diagram
- xvii. Any other drawing as required by the Railway.

The contractor shall initially supply 1 set of documents (Paper Prints) for approval of Railways. He shall ensure that each sheet has a block for signature of Railway official as well as a block for signature of firm, duly signed by the authorised signatory of the firm. The name of the work as given by Railways shall be written on every sheet under the work column. All the drawings shall be supplied in a good quality folder for each station. After approval of documents by Railways, the contractor will make copies of the approved documents and return the approved document to Railways. The contractor will then make necessary correction to Application Logic software duly incorporating Railways' alterations/ corrections/ comments, if any. After Complete Testing / Commissioning of the station, tracings of completion documents as mentioned above will be submitted to Railways for approval. Along with the Completion application logic, a different report (showing addition & deletion in different colours) as compared to earlier approved application logic should also be submitted. After approval of completion application logic by Railways, 5 sets of copies of completion tracings will be submitted to Railways.

All the drawings shall be supplied in a good quality folder for each station. During installation, a folder containing all the drawings, testing procedures, commissioning procedures shall be kept at the stations.

Note:- He shall ensure that each sheet has a block for signature of railway official as well as a block for signature of firm, duly signed by the authorised signatory of the firm. The name of the work as given by Railways shall be written on every sheet under the work column. **All the drawings shall be supplied in a good quality folder with plastic sheet for each sheet for station copy.**

1.3 SPECIFICATION FOR Portable Work Station for Data Input & Configuration: Laptop

Reputed make with the approval of Engineer in charge. The higher version of the systems may be accepted with the approval of Engineer-in-Charge.

1.3	SPECIFICATION FOR Portable Work Station for Data Input & Configuration: Laptop	
(a)	CPU	Intel Core i7 or latest
(b)	Memo	Minimum 8GB DDR4 or Latest RAM Expandable to 16GB.
(c)	Hard Disk Drive	1TB HDD or Higher Capacity
(d)	Screen	15.6" LED
(e)	Keyboard	Wireless keyboard.
(f)	Mouse	With Wireless Optical Mouse and mousepad
(g)	Ports	2 USB Ports, 1 HDMI Port, etc.

	(h)	Operating System	Windows10Preloadedwith Media.
	(i)	NetWorking facility	Integrated10/100/1000 GbELAN
	(j)	Warranty	12 months.
	(k)	Software	MSoftware2010StandardorLatest,Antivirusfor Threeyears.
	(l)	Printer	ReputedmakeLaserBlack&WhitePrintercumScanner cum copier loaded with 1 Set of toner. (Model to be approved byEngineer-In-Charge prior to supply)
	(m)	External Hard Disk Drive	PortableSSDhavingcapacity1TBorHigherwith USB 3.1 withbackupS/W
	(o)	Furniture for Operator	Computer cum printer table top size 1200 mm x 750 mm x 750 mm, 2 keyboards pull out tray, Drawer & Shelf, Computer Chairas suggested bythe Engineer– in – charge.
	(p)	UPS	Oneno. ofonlineUPSwith 1 hourbackup.
12.4	SPECIFICATIONFORInstrumentsandToolKitsrequiredforTroubleshootingand repairof hardwareandsoftwareforEI		
	<p>Itshouldbesupplied for stationsasper scheduleitem1 above. (This includes tools required for EI maintenance, sorts of crimping, insertion, removal, general purpose tools like screwdrivers, spanners, PCB extractor, temp. controlled soldering iron, wire cutter, nose pliers etc. & measuring instruments with carrying case/ holders/ cabinet for technicians/ J.E. for testing, Maintenance and repair at site). Each set comprises of the following:-</p> <ul style="list-style-type: none"> * Crimpingtool foralltypes ofspecialcableassemblyusedin Elsystems. * Insertion tool for all types ofspecial cableassemblyusedin Elsystems. *Removal tool forall types of special cable assembly used in EI systems. * Digitalmultimeter(Fluke111or better) * Steel cabinet/ Almira, Size: 1980mm height, 915 mm width and 485 mm depth (Godrej Make/Jalaram) of good quality to store tools, spare cards and documents. * Steel Book rack Size: 1850mm height, 900 mm width and 316 mm depth for keeping documents. (Godrej Make/Jalaram) * ClampEarthTester. * ClampCurrentMetre. 		
12.5	<u>GeneralRequirementsandSpecificationsforinstallationofElssystem:</u>		
	<ol style="list-style-type: none"> 1. Thedesign of theElssystem shall beas pertheSignalingplan issued to thecontractor. 2. RailwaysshallprovideapproveddiagramslkeSIP,TableofControl. 3. Any alteration in the interlocking plan to be done during the course of execution, shallbe carried out by the contractor expeditiously without any extra cost. 4. Thesystemshallbecommissionedwith100%HOTSTANDBYconfigurationofall levels as approved by RDSO. 5. The EI system shall be commissioned with the dual VDU for the operation of signaling gears. 6. All the execution/wiring of the system shall be carried out as per the standards definedby RDSO. 7. AlltheterminationsontheRacksor back-plane,shallbe taggedbothwaysi.e.theorigin 		

	<p>and destination of the wire can be understood.</p> <ol style="list-style-type: none"> 8. The signal flow diagram for diagnostic purposes shall also be supplied along with the execution. 9. The earthing shall be provided as per the latest standards of RDSO as mentioned in tender documents. Parametric earth bond as per drawing TAN / 3006 shall be provided as far as possible for better protection of E.I installation. 10. All the cables connected to the EI system, O.C. (if any) shall be properly laced and described. 11. The optical fibre connecting the different subsystems shall be connected through FDMS. All these connections shall be housed in required telecom racks which are protected against interference and dust. 12. The contractor shall supply the AS MADE DOCUMENTS as per tender document 13. Pre-commissioning checklist shall be jointly signed by the Railway's and OEM's representative. 14. The contractor shall inform names of qualified Service Engineers deputed at the location approved by Railway's Engineer and their contact numbers, so that they can be contacted during failure. The failure is to be attended and rectified within least possible time from the time of reporting of failure 15. All replacement and repairs that Railway shall call upon the contractor to deliver or perform under this warranty shall be delivered and performed by the contractor promptly and satisfactorily, if the contractor so desires the replaced parts can be taken over by him or his representative in India for disposal as he deems fit within a period of three months from the date of replacement of goods / parts. At the expiry of this period, no claim whatsoever shall lie on the Railway. 16. Necessary spares, consumables, tools & instruments shall preferably be supplied by the contractor at least two weeks in advance of commissioning of the particular station. 17. All the consumables and sundry installation materials required for execution of this work like Nut and Bolts, Welding Rods, Sleeves, Lugs etc., and not listed as per the detailed schedule will have to be brought by the Tenderer at his own cost 18. Cement & Steel for use of the work should be procured by the tenderer at their own cost from the main producers / their authorised dealers / authorised stock-yards which should conform to IS specification. Individual rates quoted by the Tenderer should be inclusive of cost of Cement / Steel wherever applicable. 19. All the wires, fuses/MCB, required for installation of indoor equipment shall be marked properly with the label identification tag. The wires, fuses/MCB required for installation of indoor & outdoor equipments shall be as per OEM specification unless specified by the Railways. All the materials in this connection shall be supplied by the contractor. 20. Details of Equipments shall be neatly written on indoor & outdoor equipment preferably by using stencils for outdoor & aluminium etched labels/letter writing machine for indoor 21. All installation work shall be subject to inspection by the Railway to ensure that the work is done in accordance with specifications, approved designs and drawings and is of the best quality suitable for the purpose 22. Before offering the installation for commissioning, Contractor shall ensure the following: <ul style="list-style-type: none"> ● All preparatory installation work has been completed . ● Simulated tests have been conducted and test results submitted ● Required approved drawings are available at site ● Shall certify that all technical parameters of EI systems are as per RDSO Standard & Western Railway Practice and records submitted
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	<ul style="list-style-type: none"> • Tools, Instruments and Spares are available at site • Installation & Maintenance Manuals, Fault Diagnostic Charts & Troubleshooting Procedures are available at site <p>23. Contractor shall involve Site Engineers / Supervisors during system installation & commissioning. Contractor shall involve them in all aspects of Design, Programming, Installation & Commissioning at site to enable them in learning all aspects & stages of design, installation, testing & commissioning of EI System.</p> <p>Note: - <u>QUALITY AUDIT OF INSTALLATIONS:</u> The Contractor shall arrange for a quality audit of installation by authorised representative of manufacturer for Electronic Equipments like Electronic Interlocking (EI), AXLE COUNTERS, AFTC, UFSBI, MUX, Data-logger etc. who will certify that the installation has been done as per OEM's specification & standard practices and pre-commissioning check list / guidelines issued by RDSO from time to time. The Contractor should also submit a certificate issued by OEM Stating "That quality and integrity of the installation (Electronic Interlocking System) remain the complete responsibility of the OEM, Any deficiency pointed out later should be rectified free of cost by OEM.</p>
	<p>The entire installation shall be tested by the contractor and after satisfying himself, the railway shall jointly test along with the contractor. Any alteration during testing shall be carried out at free of cost as required by Railways before commissioning. All „As made' documents have to be submitted before commissioning. Each installation shall be tested in the presence of the supervisory officials deputed by the Railways as soon as the particular installation/equipment is installed and unless the working of the equipment is actually ensured, it will not mean that the work has been completed to the satisfaction of the railway. This work involves testing and commissioning of the entire installation</p>
	<p>Before testing and commissioning of the entire installation, eight copies of final 'as made' details as hereunder shall have to be supplied duly incorporating all particulars for the station. Circuit diagrams prepared in AutoCAD 2000 will be supplied by Railways in compact discs. All „As made' shall be prepared by the contractor in Auto-cad 2000 and submitted in compact discs in duplicate. All 'As made' documents/plans shall be made by the contractor as per Western Railway practice only as laid down in the Special Condition of Contract and shall be handed over to the Railways, duly signed.</p> <ol style="list-style-type: none"> 'As made' circuit diagram 'As made' power supply layout diagram 'As made' contact analysis chart 'As made' relay disposition chart 'As made' Termination particulars of all locations & FTOT Any other document required as per WR practice/Engineer-in-Charge. <p>Any correction made during testing shall be incorporated before submitting 'FINAL' 'As made' plan.</p> <p>The contractor is required to supply the 15 numbers of bound registers of 200 pages with good quality papers for following purpose:</p> <ol style="list-style-type: none"> 1. Cable meggering register 2. Relay Register, 3. Block Joint Register, 1. Route Test Register, 5. Lamp Replacement Register, 6. Relay Room Key Register, 7. Battery Register,

	<p>8 RouteCancellationRegisterand</p> <p>9 Earthresistanceregisters oras persite requirement.</p>
1.6	<p><u>GeneralRequirementsandSpecificationsforEarthingof E.IEquipment:</u></p> <p>Earthing of EI equipment, relay racks and Power equipment etc. to be done along with the supply of all requisite materials. Earthing shall be in the form of Ring Earth conforming to RDSO specification no. RDSO/SPN/197/2008 (with a min. of 6 earth electrodes) & RDSO Drawing issued under Railway Board letter No. 2010/Sig./SGF/EI (Ansaldo) Dated 22.06.11, made using copper rings with earth resistance less than 1 ohm.</p> <p>The earthing shall be maintenance free & earth enhancement compound should be used. The ring earth shall be connected to a copper flat of size 25 x 3 mm in the relay room and IPS room. This copper flat shall be fixed on the wall to the entire breadth of the Relay room and IPS room as an earth bus bar and all earth connections shall be taken from it. A, B, C, & D class protection shall be provided for all EI equipment. Counter for Class A type is to be provided. Earth Pit chambers shall be made up of preferably FRP material, with locking arrangement and hinges shall be used for earth pits. Drawingof earth pit attached as Annexure</p> <p>Note:- This will also cover the earthing & necessary protection of EI equipment as per details given in the scope of work of Special Condition of Contract and other requirements given in technical specification & Pre commissioning check list of EI system.</p>
1.7	<p><u>SpecificationsandRequirementsforData logger:</u></p> <ol style="list-style-type: none"> 1. Data logger shall be supplied as per RDSO specifications IRS: S-99/2006 (Amendment 3) or latest with latest amendments. 2. Dataloggershallbesuppliedfor1024Digitalinputsand32analoginputsasmentioned in the schedule of materials. 3. Dataloggershallbesuppliedfor1024Digitalinputsand32analoginputsasmentioned in the schedule of materials. 4. While supplying the data logger it shall be kept in mind that only those data loggershall be supplied which can be programmed to be a part of network of the existing data loggers 5. Dataloggers shall besupplied alongwiththeonlineUPS. 6. Data loggers shall be supplied with the Fault diagnostic software and Failure analysissystem as per the requirements issued by the HQ from time to time. 7. Data logger shall be supplied along-with the printer as mentioned below. The suitable connecting cable shall also be supplied for connecting the data logger with the printer 8. The Front end Processor shall be supplied along with the Data Logger IFF specifically has been asked in the schedule of materials. 9. <u>Specifications and Requirements for the Printers:</u>following are the minimum specifications, however actual should be confirmed before the supply from Officer in Charge.The printer shall be heavy duty printer with laser Black and White printing. 10. <u>Specifications and Requirements for the UPS:</u> The UPS system for the servers and Failure analysis system should be online UPS of reputed make.The UPS system for the Data Logger system should be able to supply minimum 6 Hrs. back-up. 11. <u>Specifications and Requirements OF FAULT DIAGNOSISSOFTWARE:</u>Logic for Report generation are defined by RDSO & as per Western Railway Practice. 12. <u>Specificationfordesktoptypecentral monitoringunit/Failureanalysissystem:</u>

CONFIGURATION: Reputed make with the approval of Engineer in charge. The higher version of the systems may be accepted with the prior approval of Engineer-in-Charge

(a)	CPU	IntelCorei7or superior
(b)	Memo	8GBorLatestRAMExpandableto 16GB.
(c)	Hard Disk Drive	1TB HDD orHigherCapacity
(d)	Screen	Minimum24" LED
(e)	Keyboard	Wireless keyboard
(f)	Mouse	WirelessOpticalMousewithmousepad
(g)	Ports	Minimum2 USBPorts,1HDMI Port
(h)	Operating System	Windows 10 with genuine licencePreloaded with Media.
(i)	Net Working facility	Integrated10/100/1000 GbELAN
(j)	Warranty	12 months.
(k)	Software	MS Office 2010 Standard or Latest, Antivirus for Three years and softwareto view yard simulation and report including fault reports particular to station
(l)	Printer	Reputed make Laser Black & White Printer cum Scanner cum copier loaded with 1 Set of toner. (Model to be approved by Engineer-In-Charge prior to supply)
(m)	Furniture for Operator	Computer cum printer table top size1200 mm x 750 mm x 750 mm, 2 keyboards pull out tray, Drawer & Shelf, Computer Chair as suggested by Engineer- in – charge.
(o)	Pendrive	Minimum128GBpen drive

13. DualCardE1toSerialPortConverterfornetworkingof Data Logger

SuitabletoinsertintheexistingDataLogger/FEPEurorack. Features:

- DTE SIDE: Asynchronous (RS232).
- DCE SIDE: 4 wire E1 communications (G.703) Linespeed 2.048 MBPS.
- 2 No's DTE Ports and 2 No's DCE Ports.
- Line Impedance: 120 Ohm (Balanced)
- LED Indications: Power, E1 Sync, Test, Error, TD, RD and Health.
- In-built BERT tester.
- Supports following loopback tests for diagnostic purpose.
- Remote loopback test.
- Local loopback test.

E1 interface

- Standards Compliance: ITU-TG.703.

	<ul style="list-style-type: none"> • E1 Transceiver chipset should comply with ITU-T G.736 and G.823. • Interface rate: 2.048 Mbps \pm 50 ppm. • Line Coding: HDB3. • Line Isolation: 1500V (RMS). <p>RS-232 port</p> <ul style="list-style-type: none"> • Standards Compliance: EIA RS-232C • Interface Types: RS-232 • Signal: TXD, RXD, GND • Baud Rate: Up to 57600 bps (autobaud) • Asynchronous serial <p>Electrical & Mechanical:</p> <ul style="list-style-type: none"> • Input Voltage: 5VDC • Power Consumption: less than 2W • Operating Temperature: -10°C to +70°C • Storage Temperature: -10°C to +70°C • Euro rack insertable.
1.8	<u>Specifications and Requirements of Modified KLCR</u>
	Modified Key Lock Relay working with 24 V DC ACI INTEGRA Make with Different word combinations Contact configuration 4F/4B with manual push button. Sample to be get approved before supply of material (inspection by Consignee)
1.9	<u>Specifications and Requirements of Tag Blocks:-</u>
	160/200 Way Tag Blocks with PVC cover as per the requirement as per (IRS:S-77/2006 rev.1) or latest and drawing no. SA-24751 & 52.
1.10	<u>Specifications and Requirements for Relay/CT Racks:-</u>
	<p>The racks shall be supplied as per the CSTE's drawings. The drawings to be followed are CSTE- 6028 for relay rack, CSTE-5004, 5005, 5006 for CT rack. In addition to the drawing parameters following shall also be compiled.</p> <ol style="list-style-type: none"> 1. Until and unless it is specifically mentioned, all the racks shall be supplied with IDF arrangements. 2. The Scaffolding should include 20% extra (with minimum 2 Relay Rack positions). 3. All the cables shall be guided on proper ladders. All these ladders shall be supplied by the contractor. 4. The cable supporting L-angles on the back side of the Relay Racks shall be of sufficient length (minimum 250 mm) to cover all the cables. 5. For all the relay racks each row shall be supplied with one string rod (properly insulated by sleeves) for the cable dressings. 6. The CT Racks shall also be supplied with proper size string rods to support cables at the back side..
1.11	<u>Specifications and Requirements for Disconnect Terminal Block:-</u>
	<p>Disconnect Terminal Block, Screw less type, as per RDSO Spec. No. RDSO/SPN/189/2001 With latest amendments. (i) Disconnect Terminal Block, Screw less type, 4- wire front entry (Two in-put & Two output) The colour will be decided by Engineer -in- Charge. (Preferably In Blue, Red & Grey Colors in the ratio of 1:2:3)</p> <p>(ii) Supply of End plate for above item (i) 2.5mm/0.091 in thick as per site requirement.</p> <p>(iii) Supply of End Stopper for above item (i) 10mm/0.0394 in width as per site requirement.</p> <p>(iv) Supply of Carrier Rails for above 35mm x 7.5mm, 1mm/0.039 in thickness un-slotted type as per site requirement.</p>
1.12	<u>Specifications and Requirements for Multi-core indoor cable:-</u>
	PVC Insulated Railway Signaling multi-core Indoor Cable 1x60x0.6mm dia conforming to

	IRS:76/89(Amd3)or latest. PVC insulated Railway Signaling multi-core Indoor Cable 1 x 40 x 0.6 mm dia conforming to IRS:76/89 (Amd3) or latest. PVCinsulatedRailwaySignalingmulti-coreIndoorCable1x24x1mmdiaconformingto IRS:76/89 (Amd3) or latest.						
1.13	<u>SpecificationsandRequirementsforSignalingIndoorSinglecorewire:-</u>						
	PVC insulated Railway Signaling Indoor Single core wire conforming to IRS 76/89 (Amd3) or latest. Of size 1 x 0.6 mm & 1 x 1 mm Note:-WireColors shall bedecided byengineer-in -Charge						
1.14	<u>SpecificationsandRequirementsforPowerwire:-</u>						
	Flexible cable (Power wire), multi-strand copper conductors cross section 1x6 Sq.mm.(85 conductoreach diameter 0.30 +/-0.01)as per IS 694/1990 with insulation thickness of0.80 mm nominal conductor resistance 3.30 ohms/km and test parameters are as per IRS (S)76/89. Flexible cable (Power wire), multi-strand copper conductors cross section (1x16Sq.mm).101 Conductors each diameter 0.45 + 0.01 as per IS 694/2010 with insulation thickness of 1.2mm nominal conductor resistance 1.127 Ohms/Km and test parameters as per IRS(S) 76/89. All the power wires shall be supplied as per IS specification no. IS 2465/1984 & IS 694/1990 with test parameters as per IRS (S) 76/89.						
	Sr No	Area in Sq mm	Total no.of conductors	Dia of each conductor in mm(+/_ 0.01)	Insulation thickness in mm	Nominal conductor resistance in Ohm/Km	Current rating
	1	6	85	0.3	0.8	3.3	35
	2	10	141	0.3	0.8	1.91	45
	3	16	226	0.3	1.0	1.21	62
		16	126	0.4	1.0	1.21	62
	4	25	354	0.3	1.2	0.78	80
			196	0.4	1.2	0.78	80
	5	35	495	0.3	1.2	0.554	102
			276	0.4	1.2	0.554	102
1.15	<u>SpecificationsandRequirementsforFuses:-</u>						
	IndicatingtypelowvoltagegenondeterioratingfuselinkasperIRSS-80/92.0.6Amp Indicatingtypelowvoltagegenon-deterioratingfuselinkasperIRSS-80/92.1.6Amp Indicating type low voltage non-deteriorating fuse link as per IRS S-80/92. 6 Amp Indicative type Fuse base/ holder with cap, suitable to G type fuse of capacity0.63A - 3.0A. 0.6 Amp Indicative type Fuse base/ holder with cap, suitable to G type fuse of capacity0.63A - 3.0A. 1.6 Amp Indicative type Fuse base/ holder with cap, suitable to G type fuse of capacity 0.63A - 3.0A. 6 Amp TheGtypefusebaseandlinksinthefusestripshallbeofanyofthefollowingmake MALNAD or RAPID or SYSTEM ENGINEERING WORKS. Approval of railway's Engineer In Charge may be taken before supply of material						

1.16	<u>Specifications and Requirements for Fuse auto change over system:-</u>
	<p>This specification for Fuse Auto Changeover System for use in Railway Signaling is RDSO/SPN/209/2012 Rev.2</p> <p>Supply, Installation, Testing and Commissioning of Automatic Fuse Changeover & Fuse 'Blown Off' Indication system in some of the Signaling Installations for Improvement to system Reliability.</p> <p>This specification lays down the requirements and tests of Fuse Monitoring & Automatic Changeover System for Railway S&T Installations.</p> <p>The changeover system covered in this specification is suitable for changing over to the spare fuse automatically when the main fuse in the signaling system is blown. At every changeover Auto/Visual indication will appear</p> <p>The system covered under this system shall work on 110V AC. Alternatively supply of 24V DC can also be provided if required.</p> <p>The system shall be modular by design and each module of the system shall have capacity for monitoring either of the following</p> <p>TYPE-I: 32 nos. of external Non Deteriorating Type or „G' type fuses from 0.6 Amp to 4 Amp capacities which are in signaling circuits. System shall have 8 cards with monitoring arrangement of 4 fuses in one card.</p> <p>TYPE II: 24 no. of external Non Deteriorating Type or „G' type fuses from 4 A to 10 Amp capacities generally used for point operation circuits. Such a system shall have 6 cards with monitoring of 4 fuses in one card.</p> <p>All fuses being monitored by one card will be of the same supply having common ground. It should be possible to combine more than one such system for monitoring of more no. of such fuses in the entire installation</p> <p>The system shall be capable of monitoring fuses with system voltage of the fuse circuit as 12V, 24V, 60V or 110V DC/AC.</p> <p>Standby fuse shall come in circuit only after blowing off the main fuse and should be out of circuit when RESET switch is pressed after replacement of main fuse.</p> <p>WARRANTEE:</p> <p>The supplier shall give a warranty of 24 months from the date of supply for the equipment supplied under this specification.</p> <p>SCOPE OF SUPPLY</p> <p>The system shall be supplied along with all standby fuses placed in the system. In addition to it, spare quantities of 100% fuses of each type shall also be supplied along with the system. Extender fixing plates as per clause 1.1 of RDSO specifications shall also be supplied in case the system is to be installed in existing relay rack instead of a standard 19 inch rack</p>
1.17	<u>Specifications and Requirements for Auto change over Power Panels suitable to change over between three incoming Three phase 230V:-</u>
	<ul style="list-style-type: none"> Auto change over Power Panels suitable to change over between three incoming Three phase 230V supplies with signaling supply distribution arrangement, voltage sensing relays, MCB's, fuses & contactor Unit as per Drawing No. DRM/SG/743 or drawings issued by the Officer in charge of the work First of all load calculations shall be done and get it verified from Railway officials; accordingly designing of power panel shall be planned. All the contactor relays shall be of SIEMENS or reputed make. All the MCBs if used shall be of SIEMENS or LA GRAN. These MCBs shall be of self-restoring type i.e. restoring to initial position after normalisation of current to its normal value. All the fuses shall be D type fuses For a 4-6 line station all the wirings shall be carried out by min 25 sq-mm multi-strand

	<p>flexible copper wire. The neutral shall be wired by 25 sq mm multi-strand flexible copper wire. In addition to this off load requirements justify higher grade wiring, contractor shall be bound to provide as per the drawing issued to him at the time of supply.</p> <ul style="list-style-type: none"> All the wires shall be terminated with proper copper lugs on WAGO type terminals of proper size. <p>Note:-</p> <p>i). Items include supply of 10 spare fuses of each type, 1 contactor relay of each type & 1 MCB of each type used in the panel.</p> <p>ii). Program switches & wire to be supplied based on current requirement.</p> <p>iii). The cabinet of Auto changeover shall be powder coated & as compact in size as possible.</p>
1.18	Specifications and Requirements for Program switches:-
	Program switches, snap action, base mounting type along with acrylic cover and mounting bracket, 63A, 9 poles, and 3 positions make Siemens/Thakur or Similar..
1.19	Specifications and Requirements for Conventional Power supply equipments & Automatic Changeover unit:-
	<p>Transformer/ Rectifier as per IRS S-91/93 (Amdt-1) or latest for Points 230V AC/ 120V DC/40A. Transformer Rectifier set with output voltage 140-160V shall be provided for operation of points as per revise policy dtd 06.03.2023 for Point operation</p> <p>Transformer/ Rectifier as per IRS S-91/93 (Amdt-1) or latest for Relay Internal 230V AC/ 60V DC/ 60A</p> <p>Battery Charger For Railway S&T Installations IRS:S-86/2000 (Amd.4) or latest.</p> <p>SITEL Primary Cells (Dry, Lachlanche Type) For Railway S&T Installations IRS:S-95/96 (Amd. 1)</p> <p>Low Maintenance Lead Acid Stationary Secondary Cells For S&T Installations IRS:S-88/2001.</p> <p>TRANSFORMER 230v/110 V 1KVA to 5KVA IRS:S-72/88 (Amd.2)</p> <p>DC-DCC Converter For Railway S&T Installations IRS:S-96/2000.</p> <p>Inverter For Railway Signaling Installations For „On- Line' Applications IRS:S-82/92 (Amd. 2)</p> <p>Ferro Resonant Type Automatic AC Voltage Regulator For Railway signalling Installations IRS:S-74/89 (Amd. 6) or Latest amendment shall be applicable.</p>
1.20	Specifications and Requirements for Earth Leakage Detector:
	<p>Earth Leakage Detector as per RDSO/SPN/256/2002 with latest amendments.</p> <p>The basic detector unit shall comprise of 12 channels, for use on signalling circuits of 110V AC/DC and/or 60V/24V/12V DC as ordered by purchaser. If the detector is required for a smaller number of channels, dummy plates shall be provided. For additional requirements, an add-on /expendable cabinet may be used. The voltage specified shall be provided with +25% and - 10% tolerance.</p> <p>Audio alarm circuit of the detector shall be common to all the detecting circuits. Individual visual indication e.g., red light on the plug in units, shall be provided for each detecting circuit. The leakage detecting relay shall be individual for all detecting circuits.</p> <ul style="list-style-type: none"> Switches, knobs, push buttons, lamp indicators, metres terminals, resistances, capacitors, counters and other components shall be of industrial grade, LCSO/DOT approved to the extent feasible. Mounting of these components shall be elegant and easy for operation, adjustment and maintenance. All components and wirings shall be easily accessible for maintenance but no electrical conducting part shall be accessible externally. Arrangements for proper ventilation of all heat radiating components shall be provided. The transformers used in the detector shall conform to IS:6297. The cabinet of basic 4 channel ELD shall be suitable for mounting in 19" rack

1.21	Specifications and Requirements for Furniture:																																																																												
	<p>Model / Make and drawing if any may be got approved from Railway Engineer Incharge before supply of material</p> <ul style="list-style-type: none"> Office Chair makes Godrej CH-7B or similar of reputed brand. Office table with laminate top with three drawers on left hand side and one locker on the right hand side. Olive brown with duplicate keys. Make: Godrej Model T-9 or Similar of reputed brand. Steel Plain Almira with 4 adjustable shelves Size: 1980mm height, 915 mm width and 485 mm depth. Make: Godrej Storewell Plain Large or Similar of reputed brand. INDUSTRIAL LOCKER SIZE 78"H X 36"W X 19"D WITH 12 LOCKERS .LOCKER SIZE: 455MM H X 305MM D. Office Revolving Chair Godrej Make Model No. 9u02r Bravo Or Similar of reputed brand. 																																																																												
1.22	Specifications and Requirements for Fire extinguisher:																																																																												
	<p>BIS listed a semi automatic stainless steel fire extinguisher with UL./BIS approved clean gas with auto manual reverse stainless steel valve NASA 400 MAR having capacity 4Kg and made of stainless steel 304 grade with Indian railway logo on each unit as per specification attached. Make NASA or similar. Accepted Make "NASA" or similar</p>																																																																												
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		nderweight				
	25	ProductDimensions(HXWXD)	525X335X160mm			
	26	CleanGasShelf Life	10 Years			
	27	MAKE	MAKEININDIA			
10.23	Specifications and Requirements for MSDAC with MSDAC installation, Transportation, Testing and Commissioning					
10.23.1	Multi section digital Axle Counter (MSDAC) system shall comprise of Axle detectors, DAC field unit, mushroom housing for track side electronics, Central evaluator, MSDAC VDU as Reset unit, track clearance relay– unit for each track section, event logger, diagnostic terminal and line verification box confirming to RDSO specification no. RDSO/SPN/176/2013, Ver.3 or latest (Inspection by RDSO).					
10.23.2	For ease of maintenance, only one uniform make of MSDAC is to be supplied and installed in this Project. The vendor should be in the RDSO approved list of vendors. Details Breakup of Item “Supply of Material of MSDAC” to be given by successful tenderer.					
	Sr. No.	Description of items	Units	Qty.	Base Rate	Total Amount
	A	Main EISystem				
	(i)					
	(ii)					
	B	Supply of 10% Essential spare of the MSDAC equipments				
	(i)					
	(ii)					
		Total Amount (Awarded cost)				
	<u>NOTE: 1) The total amount must be equal to the awarded cost of MSDAC supply, 2) Spare of MSDAC shall be supplied after complete installation of MSDAC system and instruction of engineer in charge.</u>					
10.23.3	MSDAC evaluator to evaluator connectivity shall be capable to work on both Quad and OFC as per availability of communication link provided by the railways					
10.23.4	OEM supplied / certified Pre-fabricated Rack with power supply arrangement for Evaluator (inspection by RDSO) which is to be supplied along with the system as per RDSO specification no. RDSO/SPN/176/2013 Ver.3 or latest. Housing of Evaluator to be supplied as per station/ auto hut specific requirement as per RDSO specification.					
10.23.5	Manual resetting of MSDAC track shall be as per clause no 5.4 of RDSO/SPN/176/2013 ver 3.0. Industrial grade VDU based manual resetting system shall be used. VDU shall give a number of counts of manual resetting of MSDAC track sections. Alternatively, in extreme conditions, use of reset boxes can be permitted with specific approval of PCSTE. All reset boxes shall be provided in 19” standard 42U or suitable size rack of Rittal or similar make. Size of reset boxes can be modified to suit local requirements of availability of space in existing rooms. In this method, the electromechanical non-resettable counter on reset box shall indicate the manual reset of axle counter track section.					
10.23.6	OEM supplied Line Verification Boxes as per drawing no. RDSO/S/20002. (Inspection by RDSO). Adequate number of line verification boxes to be provided as per SIP and geographical					

	grouping of track sections based on operation and visibility.
1.23.7	One event logger shall be provided to give a count of Auto and manual resetting commands of MSDAC for each track section.
1.23.8	OEM supplied/ certified Mushroom cover/ Half apparatus case(s) (If required for installation for track-side equipment/each detection point housing (Inspection by RDSO for OEM supplied/ certified Mushroom cover; consignee for half apparatus case). Quantity of the Mushroom Cover/Half apparatus case shall be the same as that of detection points. However, if RDSO declines, it will be inspected by an authorised representative of the Railway's Engineer. Housing of track side electronics shall be as per RDSO specification. Due to space constraints between lines, track side electronics shall not be mounted in conventional location boxes used by Railways for cable terminations.
1.23.9	OEM recommended lightning and surge protection devices for all sub-systems as per RDSO specification no RDSO/SPN/144/2006. (Inspection by RDSO).
1.23.10	Housing of Evaluators, Connectors, DC-DC converters, fixtures, Ethernet switches, surge protection device, Timer, Q series Relays, all necessary cable and clamp set etc. and all other material required for VR relay pick up to be provided by the OEM.
1.23.11	Evaluators are to be kept at the station relay room.
1.23.12	<p><u>Supply of Event logger (In-Built) & diagnostic terminal with monitoring software</u></p> <p>Event logger Diagnostic PC (Inspection by consignee) - as per following specification:</p> <ul style="list-style-type: none"> ○ Processor: Intel Core i3, 3.1 GHz Processor or Higher ○ RAM: 8 GB RAM ○ HDD: 512 GB SSD (Minimum) ○ Ports- 2 USB-3.0, 2 PCI slot ○ Screen: 21" 1920x1080 LED or better. Network interface: Integrated 10/100/1000 GbE LAN ○ Wireless: 802.11a/b/g/n Wi-Fi and Bluetooth ○ Keyboard & Optical mouse ○ RS-232 Compatible in-built Modem ○ OS: Windows 10/11 with Antivirus for three years, with spare copy to cater system breakdown. ○ Warranty: 2 years' OEM warranty <p><u>NOTE: NMS software for MSDAC shall be provided for remote monitoring at CONTROL ROOM.</u></p> <p>Above mentioned is the basic minimum requirement; however, the system shall be as per actual requirement stated and approved by engineer in-charge prior to supply.</p>
1.23.13	10% spare equipment i.e. cards/modules/evaluator module/backplane/relays/TX/Rx coils/track side junction box etc. shall be supplied for each station / auto section. (Fraction to be rounded off to the higher whole number)
1.23.14	Materials, which are not in the list of RDSO, shall be inspected by the Consignee.
1.23.15	The warranty of the equipment should be 12 months after commissioning the system.
1.23.16	<p>Railway will supply the details of track sections and location of the evaluator(s) to the supplier. The supplier will submit the following documents along with the offer.</p> <ol style="list-style-type: none"> a. 6 quad cable lying plan b. Cable length of each track device shall be 5 metres/10 metres in the ratio of 50:50 (as per requirement at field).

1.23.17	<p>Supply of OEM toolkit (Three sets to be supplied)</p> <p>The toolkit should be supplied/certified by the OEM confirming to RDSO specification no. RDSO/SPN/176/2013 Ver.3 or latest.</p> <p>Note: 1.</p> <ol style="list-style-type: none"> One set consists of Digital multimeter, dummy wheel, sensor mounting tool, spanner, screw Drivers set, all tools for mounting and adjustment of track equipment, Marking Jig and dummy wheel with each 30 DPs and any other specialised tools and measuring instruments required for safe and reliable adjustment and all types of maintenance of equipment as suggested by the OEM. The list of tool kits shall be submitted by the OEM along with the offer.
1.23.18	<p>Supply of documents:</p> <p>Two copies of the following shall be supplied:</p> <ol style="list-style-type: none"> Instruction Manual. Installation & maintenance manual including Dos & Don'ts. Mechanical drawings of each sub-system/rack. Schematic block diagram showing mounting arrangement of various components & details of each type of assembled PCB. Troubleshooting procedures along with test voltages and waveforms at various test points in the PCBs. Pre-commissioning checklist. OEM audit inspection certificate.
1.23.19	<p>In addition to the documents supplied above following documents shall be submitted in Hard copy and soft copy in PDF format by the agency to the field unit for approval before commencement of actual work.</p> <ol style="list-style-type: none"> Quada location plan. DP plan and rack wise central evaluator allotment plan based on SIP provided by Railways. Evaluator summary, DP summary and evaluator communication summary. Wiring Diagram. MSDAC DP connection between CTRs. Resetting arrangement through MSDAC VDU. For each track section, relay drive evaluator, direct DP and indirect DP connected to the evaluator to be shown in a tabular format. <p>Pre-commissioning checklist, OEM audit inspection certificate and other technical information regarding MSDAC supplied (One copy for each evaluator)</p>
1.23.20	<p><u>Training Requirement:</u></p> <ol style="list-style-type: none"> Training on installations, maintenance & troubleshooting shall be imparted to Railway Personnel at site or at OEM's premises (10 man-days for 30 DPs or part thereof). Training shall be organised for OL and Project staff & officers through the OEM/agency before commencement of work and proper record shall be maintained. During programming, testing and commissioning one more round of training shall be organised for the OL staff to have a better understanding of the product going to be commissioned. <p>During the training each of the attendee shall be given a copy of the training manual and copies of the approved document without any exception.</p>
	<p>MSDAC Transportation, Installation, Testing and Commissioning</p>
1.23.21	<p>The installation of the supplied MSDAC equipment has to be carried out as per RDSO specifications, approved DP Plans and requirements of the Railways. The Railways</p>

	requirement regarding the installation activity is as follows:	
1.23.22	Transportation, Installation, Testing & Commissioning Multi-section digital Axle Counter (MSDAC) as per approved SIP with Reset unit, Relay unit, Evaluator(s), line verification boxes, Power supply, event loggers, diagnostic terminals, programming etc with supply of all necessary cable, connectors, fixture, clamps. All installation equipment to be transported safely in packed cover with sub components name and quantity mentioned on the cover.	
1.23.23	Installation of track device, at the markings provided by the OEM representative along with site engineer as per the approved DP plan.	
1.23.24	For laying of transmitter and receiver cable, digging of trench, track crossing, laying of anti – rodent, anti – oxidant and non – flame propagating type Double Walled Corrugated (DWC) pipe of 38mm inner dia and 50mm outer dia, and all other accessories as per site requirement. All materials to be supplied by the OEM.	
1.23.25	Cable connected to the Counting Head shall be suitably clamped with rail with sturdy clamp for protection against vibrations. Material of the clamp shall be suitable so as to protect against environmental hazards. Nuts and bolts shall be provided with lock seals to avoid them getting loose.	
1.23.26	Cable termination at the DP mushroom / location box/ EJB, as the case may be, to be done by the Contractor on both sides, track side as well as relay room side, with Contractor's own materials including terminals, if required.	
1.23.27	Deflector plates to be installed on both sides for protection of sensors.	
1.23.28	No power cable shall be provided by the Railways. The Railways will provide Quad cable between the proposed DP marking and the relay room CT rack, with Quad cable terminated on the terminals on the CT rack.	
1.23.29	It shall be capable of transmission of faxle counts, health status and other information between field units & central evaluator on a transmission link. The transmission link, in case of copper cable, shall be 1/2 quad telecom cable or 1 pair in PIJF cable or use 2 pairs of cable to reduce the track side electronics or one 2-wire voice channel in case of OFC. The rate of transmissions should be a minimum 1200 baud.	
1.23.30	The design of installation should strive to achieve maximum availability of signaling for train operation. As far as possible, line wise evaluation to be the norm for design, except in unavoidable situations. However evaluators of system 1 and system 2 must be separate.	
1.23.31	Contractor has to do installation of Central Evaluator in the relay room at , wiring from CT rack to Central Evaluator, installation and wiring of the MSDAC VDU, LV box (at stations, if required) and associated power supply wiring. All wiring material including for power supply to be supplied by the Contractor.	
1.23.32	Wiring from CT rack to evaluator rack to be done with shielded cable of minimum 0.9 sq mm dia, all supplied by the Contractor. Indoor wiring from Evaluator to the K rack / CT rack to be done normally on ladders, channels or in any other manner determined by the Authority's Engineer. The cables shall be neatly tied / laced. The cable supports shall be so spaced to avoid sagging.	
1.23.33	Power supply cable from Power Distribution Board to the Central Evaluator should not be less than 16 Sq mm PVC wire	
1.23.34	For each installation / location of the evaluator the supplier should give following information regarding power requirement.	
	S N	Supply voltage nominal with range
	1.	Load requirement in ampere
1.23.35	or MSDAC, Maintenance free earthing shall be provided at each EJB/DP irrespective of question of its requirement by OEMs of MSDAC. Armouring of quad cables shall be as per the	

	with this maintenance free earth. This includes supply & installation of maintenance free earth materials and exothermic bonding and other connecting cable etc. as per Railway practice (As per RDSO Spec no: RDSO/SPN/197 ver. 1 or Latest).
1.23.36	Track clearance relay to be picked up for each track section.
1.23.37	Installation of Event logger & diagnostic terminal with monitoring software at Maintainers room and connectivity from evaluator to Diagnostic terminal
1.23.38	Installation of Event logger & diagnostic terminal with monitoring software at Maintainers room and connectivity from evaluator to Diagnostic terminal
1.23.39	All empty slots in the card-file shall have dummy cards fitted to prevent entry of lizards, etc
1.23.40	All resetting to be preparatory type only.
1.23.41	Manual Reset through separate MSDAC VDU with Line verification. In case of failure of Auto RESET, manual resetting has to be carried out, which resets the failed track sections in the yard under consideration. Line verification (LV) box at station to be provided as per geographical grouping of track sections.
1.23.42	Painting and lettering of all the DPs/Mushrooms/EJBs, Evaluators, Reset Boxes, LV boxes etc installed in the Project. Safeguarding of the equipment till the issue of Provisional Certificate shall be the Contractor's responsibility.
1.23.43	Painting and lettering of all the DPs / Mushrooms / EJBs, Evaluators, Reset Boxes, LV boxes etc installed in the Project. Safeguarding of the equipment till the issue of Provisional Certificate shall be the Contractor's responsibility.
1.23.44	Safeguarding of the equipment till the issue of Provisional Certificate shall be the Contractor's responsibility.
1.23.45	QUALITY AUDIT OF INSTALLATIONS: The Contractor shall arrange for a quality audit of installation by authorised representative of manufacturer for Electronic Equipments AXLE COUNTERS, MUX, Data-logger, ELD etc. who will certify that the installation has been done as per OEM's specification & standard practices and pre-commissioning checklist/guidelines issued by RDSO from time to time. The Contractor should also submit a certificate issued by OEM Stating "That quality and integrity of the installation (Electronic Interlocking System) remain the complete responsibility of the OEM, Any deficiency pointed out later should be rectified free of cost by OEM."
1.24	<u>Specifications and Requirements for Electric point machine:</u>
1.24.1	Electric point machine, non-trailable type conforming to RDSO Spec no. IRS.S.24/2002 amendment no.1 or later with the following parts:- (a) 220mm throw with interlocking for operation of the point as per RDSO Drg.no.S-11000 with AC immunity of 160 volt (RMS), 50HZ. (b) Clamp point lock 60kg for BG as per RDSO Drg.no.S-3395A. (c) Switch extension Bracket (p brkt) and insulation plates as per RDSO Drg.no S- 3591, 3592 & 3593. (d) Detector rods (long & short) as per RDSO drgno.S-3594-95, Lock rods (long & short) as per RDSO drg no.S-3596-97. (e) Droplug as per RDSO drgno S-3598 including all insulation and accessories. NOTE:- <ul style="list-style-type: none"> The point machine shall be supplied with one junction box and two no. of telescopic pipes for each machine. One set of machine toolkits shall be supplied with every 8 no of machines. The point machines shall be supplied after receiving the Confirmation about the type of machines to be used in the section from the Officer in Charge of the work. It shall be kept in mind that the machines shall be so supplied that it should not require changing the track side

	arrangements in the holes and other assemblies of the point.
1.21.2	Point insulation Complete set as per RDSO specification IRS: S-40/84 for switch bracket, Split Stretcher bar & Gauge tie plate (52 Kg/ 60 KG as per site requirement)
1.21.3	Gauge Tie plate nylon insulation as per RDSO drg no. T-10372 Alt 2 T-10368 T 10371 Alt 2, T-15083/88/Alt-2 & T-11690/Alt-2 and to the spec IRS: S-40/84 with latest amendments as applicable
1.21.4	Ground connections, complete set suitable for IRS type / approved point Machine for ordinary turnout with tongue attachment insulation and other insulation as per RDSO Drg. S/3361@47>47@63 (for IRS type point machine) or RDSO Drg No. SA-9151/52 (for Siemens point machine) with latest amendments. However the ground connections shall be procured only after confirmation from Railway engineer as per site condition/type of machine/turnout.
1.25	<u>Specifications and Requirements for Laminated Ply Sheet:-</u>
	Phenolic laminated Sheet, grade P3 in standard size of 1220X 1220x10mm as per spec. No IS 2036 of 1995 or latest. Test report of manufacture to be supplied.
1.26	<u>Specifications and Requirements for Colour Light Signal Complete:-</u>
	<p>The signal post shall be supplied as per the specifications IRS: S6 & RDSO Drg. No. SA-24625 (Advance).</p> <p>The drawing for Signal base (140mm Tube) shall be As per IRS S-10 & RDSO Drg. No. 2011/M with latest assembly and the drawing for the Anchor bolts shall be SA-116A/M.</p> <p>Ladder Assembly, as per RDSO Drg. No. SA-23156</p> <p>In addition to the drawing the maintenance Platform shall also be supplied at the time of installation. All the MS structures like maintenance platform, bracket, ladder etc shall be of MS with thickness not less than 5mm.</p> <p>Signal Front Staging Complete Assembly for CLS Unit.(6). Signal back staging as per extent</p> <p>WR Practice Note: Height of the Post shall be 5.5 Mtr. Long</p> <p>Galvanization is providing this item before supply.</p>
1.27	<u>Specifications and Requirements for Offset Bracket:-</u>
	<p>Offset brackets for Main Signal, made of tubular steel, outer diameter 140 mm, thickness of pipe 1.5 mm. horizontal length of pipe 545 mm & vertical length of pipe 324 mm with fixing arrangement on Main Signal post as per Drawing No SW/554/G/R</p> <p>Offset brackets for Shunt Signal, made of tubular steel, outer diameter 89mm, thickness of pipe 1.5 mm.</p> <p>Galvanization is providing this item before supply.</p>
1.28	<u>Specifications and Requirements for Signal Units:-</u>
	<p>The signal units shall be supplied as per the RDSO specifications /drawing no. IRS: S-26-61. or DRM/SG/1021(I) latest with latest amendments. The RDSO drawings for the signal units are</p> <ol style="list-style-type: none"> Four aspect unit SA23001 (with SINGLE door) Two aspect unit SA 23003. <p>2 Asp. LED Signal housing made of SS-304 (1.5mm thick) duly powder coated in black with background plates, prewiring for LED signals, terminal strip, reflective strips on rear side, ventilation and pole mounting attachment the design shall be confirm to IP -54</p> <p>4 Asp. LED Signal housing made of SS-304 (1.5mm thick) duly powder coated in black with background plates, prewiring for LED signals, terminal strip, reflective strips on rear side, ventilation and pole mounting attachment the design shall be confirm to IP -54</p>
1.29	<u>Specifications and Requirements for Route Indicators:-</u>
	<p>All the Route Indicators shall be supplied as per the Specifications IRS (S) 66/84 (Amendment 1) AND AS PER THE FOLLOWING DRAWING or latest with latest amendments.</p> <p>1WAY Route Indicator-Drawing no. CSTE 6238</p> <p>2WAY Route Indicator-Drawing no. CSTE 6238</p>

	3 WAYRoute Indicator- Drawingno.SA 23403 4 WAYRoute Indicator- Drawingno.SA 23404 5 Multilamp Route Indicator as perdrawingno. SA 23761 Modificationofrouteindicatorfornopivot lamparrangementshallbethere beforesupply. Any discrepancies in drawing and specification, decision of Railways Engineer in charges will be final
1.32	<u>SpecificationsandRequirementsforCOUnit/A-sign Unit:</u>
	ThematerialshallbesuppliedaspertheRDSOdrawingno.SA-23840orlatestwithlatest amendments.
1.33	<u>SpecificationsandRequirementsforShuntSignal Unit:</u>
	Theshuntsignalunit,whetherwithCIbase/HoodorwithOffsetbracketshallbeprovidedaspertheRDSO drawingno.SA-23840 orlatest with latestamendments.
1.34	<u>SpecificationsandRequirementsforARA Terminals:</u>
	Thematerialshallbesuppliedasperdrawingno.23741AltIVAsperspecificationsno. IRS.S.75/2006(Rev.2)orlatestwithlatestamendments
1.35	<u>SpecificationsandRequirementsforLocationBoxes:</u>
	NERlyTypeSSlocationboxes(Full)ofSplGradeSS304ofsizesperdrg.No.DRM/SG/948 dt.26.01.2011
1.36	<u>SpecificationsandRequirementsforEarth Electrode:</u>
	ThenormalEarthelectrodeshallbesuppliedasperthedrawingno.CSTE-6091orlatestwith latestamendments
	TheMaintenancefreeearthelectrodeandBondingPractices,associatedcompoundsshallbe suppliedandexecutedaspertheRDSOspecificationsno.RDSO/SPN/197/2008.Allother materialsforMaintenancefreeearthshallbeprovidedasperRDSO/SPN/197/2008.Earthpit shall be made preferably of FRP material.
1.37	<u>SpecificationsandRequirementsforHalfroundRCC:</u>
	TheRCCpipealongwiththecollarshallbesuppliedasperISNo.458/2003ofNPtype.The tenderer shall submit an inspection/test report before supply for prior approval by the Engineer in charge.
1.38	<u>SpecificationsandRequirementsforCableJointingMaterial:</u>
	The cable jointing material for copper cable shall be supplied as Per the RDSO specificationsIRS.STC77/2012(rev3)orlatestwithlatestAmendments;andthecablejointingmaterialfor OFCshallbeSuppliedwithspecificationIRS.S.TC81/2000orlatestwithlatestAmendments.
1.39	<u>SpecificationsandRequirementsforPowerDistribution Board:</u>
	Specifications and Requirements for Power Distribution Board: Fabrication, supply, installation and wiring of power supply of board in IPS room/relay room as per instruction of site engineer and extension of the power supply from IPS to power supply board and from power supplyboard to MDF board. This includes fixing of ARA terminals, fuse bases, switches etc and termination of power wire/cables. This includes supply of all wiring and termination materialexcepttermination&fuses,power& UGcable/wire.Whereveroutdoor U/G cablesare tobelaidthatiscoversedseparately.Inspection:Site Engineer
	The10 mm Hylam boardshallbe supplied bythecontractor.
	This board shall befixed on arack supplied bytheRailway.
	Rackshallbeerectedbythecontractor.Thiserectionshallnotbecountedintherectionof relay/CTrack items.
	Thefuseswithbaseandcopperlugsofsizes(mayvaryfrom6-35sqmm)shallbesuppliedby the contractor.
	Allthefusesshallbeof D-type/Wagotype.
	Allother typesof linksexcept theARAterminals shallbesuppliedbythecontractor.

	Necessaryholes in theboard forthefuses, wires shall bedonebythecontractor.																																																																																								
	Theminimum materialwhich hasto besupplied inthis itemis as: <div><div>1. One10 mm thickP-IIIgradehylam board as per3.77-B above.</div><div>2. 6-16sq mmlugs,quantity100 no.</div><div>3. 25-35 sq mm lugs, quantity100 no.</div><div>4. D-type/Wagofuseswithbase2-25 A,quantity75in no.</div><div>5. D-type/Wagofuses withbase36-63A,quantity45in no.</div><div>6. 230VACpower supplyissuitableprotection fromtheAcrylicsheet</div><div>7. Anyothermiscellaneousmaterial.Finalquantityofabovetitemsshallbeaspersite incharge.</div></div>																																																																																								
1.40	SpecificationsandRequirementsforDWCPipes ThematerialshallbesuppliedaspertheRDSOSpecificationNo.RDSO/SPN/204/2011or latest Double Walled Corrugated (DWC) HDPE Pipe with associated collars etc.anti-rodent & anti-oxidant and non flame propagating type in 6 metres straight length and of size 120 mm outer die,& 103.5 mm inner dia.(The manufacturers, suppliers must produce a valid IS licence and should be certified under ISO 9000 and shall submit a copyof certificate). One of the following coupling arrangements should also be supplied with each pipe as per the site requirement. <div><div>1) Suitable snapfitcouplerwithrubber'O-Ring</div><div>2) Spacers</div><div>3) Tees</div><div>4) Bend,</div><div>5) End-cap</div></div> DWCpipeshallbemarkedatevery1mtrlengthinsuchawaythatmanufacturer'sname, vendernameandyearofmanufacturecanbeeasilyidentified.																																																																																								
1.41	TechnicalSpecificationsof ToolKit: <table><tr><th>SN</th><th>Description</th><th>Qty</th><th>Make</th></tr><tr><td>1</td><td>Insulatedflatplier150mm</td><td>2</td><td>Gedore/Jhalani/Tapia</td></tr><tr><td>2</td><td>Insulatedsidecuttingplier 200mm</td><td>2</td><td>-do -</td></tr><tr><td>3</td><td>Combinationplier200mm(Insulated)</td><td>2</td><td>-do -</td></tr><tr><td>4</td><td>Insulatedstrippingplier 150mm</td><td>2</td><td>-do -</td></tr><tr><td>5</td><td>Insulatednose-plier150mm</td><td>2</td><td>-do -</td></tr><tr><td>6</td><td>Screwdriver150x3mm</td><td>1</td><td>-do -</td></tr><tr><td>7</td><td>Screwdriver150x4mm</td><td>1</td><td>-do -</td></tr><tr><td>8</td><td>Screwdriver150x5mm)Insulated</td><td>1</td><td>-do -</td></tr><tr><td>9</td><td>Screwdriver150x 6mm)</td><td>1</td><td>-do -</td></tr><tr><td>10</td><td>Screwdriver150x 8mm)</td><td>1</td><td>-do -</td></tr><tr><td>11</td><td>Screwdriver250x 8mm)</td><td>1</td><td>-do -</td></tr><tr><td>12</td><td>Screwdriver250x 10mm)</td><td>1</td><td>-do -</td></tr><tr><td>13</td><td>Hammerwithhandle500 gms</td><td>1</td><td>Std.Makeavailable</td></tr><tr><td>14</td><td>Cableknife4"</td><td>1</td><td>Std.Makeavailable</td></tr><tr><td>15</td><td>Brassbrush</td><td>1</td><td>Std.Makeavailable</td></tr><tr><td>16</td><td>Nylonbrush</td><td>1</td><td>-do -</td></tr><tr><td>17</td><td>Steelmeasuringtape5M</td><td>1</td><td>Freeman</td></tr><tr><td>18</td><td>Adjustablescrew wrench6"</td><td>1</td><td>Gedore/Jhalani/Tapia</td></tr><tr><td>19</td><td>Adjustablescrew wrench8"</td><td>1</td><td>-do -</td></tr><tr><td>20</td><td>Adjustablescrew winch10"</td><td>1</td><td>-do -</td></tr><tr><td>21</td><td>SolderingIron220V,50W</td><td>1</td><td>Soldron</td></tr></table>	SN	Description	Qty	Make	1	Insulatedflatplier150mm	2	Gedore/Jhalani/Tapia	2	Insulatedsidecuttingplier 200mm	2	-do -	3	Combinationplier200mm(Insulated)	2	-do -	4	Insulatedstrippingplier 150mm	2	-do -	5	Insulatednose-plier150mm	2	-do -	6	Screwdriver150x3mm	1	-do -	7	Screwdriver150x4mm	1	-do -	8	Screwdriver150x5mm)Insulated	1	-do -	9	Screwdriver150x 6mm)	1	-do -	10	Screwdriver150x 8mm)	1	-do -	11	Screwdriver250x 8mm)	1	-do -	12	Screwdriver250x 10mm)	1	-do -	13	Hammerwithhandle500 gms	1	Std.Makeavailable	14	Cableknife4"	1	Std.Makeavailable	15	Brassbrush	1	Std.Makeavailable	16	Nylonbrush	1	-do -	17	Steelmeasuringtape5M	1	Freeman	18	Adjustablescrew wrench6"	1	Gedore/Jhalani/Tapia	19	Adjustablescrew wrench8"	1	-do -	20	Adjustablescrew winch10"	1	-do -	21	SolderingIron220V,50W	1	Soldron
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		22	Elementforabove	2	-do -	
		23	Bitsfor above	2	-do -	
		24	Solderingiron220V,25W	2	do -	
		25	Solderwire60/40,18 Swg,400gms	4 rolls	Bharti	
		26	Boxspanner5mm	1	Gedore/Jhalani/Taparia	
		27	Boxspanner6mm	1	-do -	
		28	Boxspanner7mm	1	-do -	
		29	Boxspanner8mm	1	-do -	
		30	Boxspanner9mm	1	-do -	
		31	Boxspanner10mm	1	-do -	
		32	ContinuityBuzzer	2	Std.Makeavailable	
		33	Screwdriversetconsistingof:-			
			Screwdriver Bits square head 10pcs.Conforming to IS 12168 Part II 1987:25mmand50mmsingleheadTypeSBP250,251,252,253, 500,501,502,503.oneNo.eachasapprovedbytheEngineerin- charge.			
			Flat head screwdriver bits conforming to IS 12168 Part I: 25mm SBF 253, 254,255,256,258,and50mm503,504,505,506,508.oneNo. eachas approvedbyEngineer in-charge.			
			BitDriver8.0x125mmBD125=2No.asapprovedbyEngineerin-charge.			
1.42	TechnicalSpecificationsof RDPMS-NA					
1.43	SpecificationsandRequirementsfor LEDSignalLighting unit:					
	LEDSignal LightingunitshouldbeasperRDSOSPNT53/2011withlatestAmd RED YELLOW/GREENSignalLightingunitformainsignalasperdrg.SA:23002:S23024/M LEDSignalLightingunitforRouteindicatorasperdrgno.SA:23401withlatestAmdand drg:S 23407 LEDSignalLightingunitforCallingONsignalasperdrg.SA:24352:S23463. LEDSignal LightingunitforPositionlightshuntsignalasperdrg.SA:23840:S 23841					
1.44	SpecificationsandRequirementsfortheInstallationofDataLogger System:					
A	Thedata loggersystem shall beinstalled at aplaceasdecided bytheOfficer in charge.					
B	AllthewiresshallbeterminatedinsidethedataloggerandatthedataloggertagblockatIDF bythecontractor ofthe data logger.					
C	TheRailwayshallterminatethedataloggercontactwirings(i.e.wiringsofpotentialfree contacts)up-tothedatalogger tagblockattheIDF rack.					
D	Allthesubsystemsandinterfacesrequiredtomonitorthedigitalandanaloginputsshallbe supplied bythecontractor.					
E	Thecontractorshallalsovalidateallthecontactsofdigitalinputsandalltheanalogsupplies beforethesigning ofRDSO'schecklistwiththeOEM.					
F	AllthenecessaryOperatingandApplicationsoftwareshallbeloadedinFailureAnalysis systemand Servers.					
G	Pre-commissioning checklist shall be jointly signed bythe Railway's and OEM's representative.					
1.45	Specificationsandrequirementsfortheerectionofrelayrackandcabletermination rack:					
A	Alltherelayracksshallbeinstalledaspertheschemeapprovedbytheengineerincharge.All therectionfittings shallbesupplied bythecontractorasa partofinstallation.					
B	Itistobensuredthatallthemajorgroupsshallbeinstalledwithproperguideplates.These					

	guideplates shall besupplied bythe contractor of its own.
C	Fullhylamboardshallbeusedforthecableterminationrackstofixthemulti-wayisolating blocks/wagoterminals.
D	Outdoor Cable supportingrack shall be supplied (in numbers) and erected in such a manner that allthecableshallbeterminatedpreferablyinonelayer.Theterminationcanbedoneina maximum of twolayers.
E	Allthecablesterminatedwiththecable supportingracks shallhavearmouryearthed.
F	The armoury shall be made exposed at a point and a copper flexible twisted wire (total area 1.5 sqmm)shallbewrappedaroundthearmouryatoneendandtotheGI/copperrodattheother end.
G	Allthearmories,whethersteelwiresorGIsheets,shallbe bentattheendwherecableis extractedso that it maynot damagethe cable conductors in the longrun.
H	Atthecablearmouryendthecopperwireshallbesolderedinsuchamannersuchthatitistied tightlyand is not loose.
I	Attheother endalsoalltheseearthwires shallbesolderedon thecopper/GIrod.
J	Allthese copper/GIrodsshallbefinallyconnectedtotheearthingterminalthrough25/16sq mmcopperwirethroughanARAterminal.
K	The25/16 sq mm copperwireshall be arranged bythe Railway.
L	Theearthingandlacingofallthecablesshallbedoneinsuchawaythateachandeverycable earth shall beseparatelyidentifiable.
M	Theareawhereallearthlingsofcablesareterminated(i.e.areabehindtheCTrack)shallbe filledwithsandatthecableentrypoint.Thesandshallbefilledjustuptobottomofcable terminations.Allthe earthingterminations shallbeoutsidethesand andshall beclearlyvisible.
N	Fullhylamboardsshallbefixedonthefrontsideof theCTrack.Thehylamboardsarecovered inthescheduleofsupply.Onthehylamboardtheholesshallbedonetosuitthefixingof wago/other terminals.
O	On the back side of the hylam board the cable conductors shall be supported by the string rodonwhichinsulationsleeveshavebeenprovided.Thestringrodswithinsulationsleevesshall notbecoveredinsupplyitemsseparately. Thestringrodswithinsulationsleevesshallbe supplied by the contractor as a part of installation of CT rack.
P	Sufficient spaceaspersitein-chargeshallbeleftbetweentworowsofcableterminationsso thatdescription-writingworkcanbefurnished.
Q	Allthetagblocks shall befixed on theRacks.
R	Normally20%spacein therelayrackand CTR should bekept freeforfutureexpansion.
1.46	<u>SpecificationsandrequirementsofRunningofIndoorcables,Jumpering,installationand testingandcommissioning:</u>
A	Bydefault (if notadvisedbytheRailways otherwise) thewiringshall be IDfbasedrackwiring.
B	Allthecables (60/40 core) shallbeneatlylaid from therelayrack to theIDF rack.
C	Thecablesupportingangleshouldbeofsufficientlength(min250mm)tosupportthecables suchthat thereis no pressureon the cablesduetothe short lengthof theangles.
D	Thetagblocks shallbeinstalledas perthe instructions of sitein-charge.
E	Thewiringonthebusbarshallbedoneinsuchamanner(inloopingway)thatafterbreakage from one side thesupplyshall beextended from theother side.
F	Allthecablesshallbedressedproperlyandtiedwiththedressingthreadonly.Itistobe mentionedthat cable wiresshall not in anycasebeusedforthedressingofcables.
G	Thecapacitors shall be of RESCONmadewith longlife features.
H	Beforestartingthe jumpering, jumpersheets shallbeprepared.
I	Allthejumper wiresshallbe dressedwiththe dressingthreads only.
J	Onthebusbarthepowerwiresfromthepowerroomshallbeterminatedwiththeproperlugs with soldering.

K	All the power wires shall be dressed above the Busbar terminal on L-shape angles with insulation sleeves.
L	The soldering material shall be as per clause 3.80 of chapter-III. However the soldering material shall be approved from the engineer in-charge before starting the soldering.
1.47	<u>Specifications and requirements of Running of Supply, Installation and commissioning of Universal fail safe Block interface:</u>
	Supply, Installation and commissioning of Universal fail safe Block interface as per RDSO Spec. IRS-S 104/2012 ver.0 with latest amdt, suitable to work on OFC-1/Quad cable as 16 input-16 output multiplexers for signaling including 68 Nos. of QN1 (8F/8B) relays for system commissioning.
	The commissioning should be done by OEM as per Pre-commissioning checklist
1.48	<u>SPECIFICATION OF 19" 9U RACK:</u>
	<p>The Rack shall be a standalone type of good quality 9U Rack and of D-Link, Val rack or WQ make or similar.</p> <ol style="list-style-type: none"> Wall mounted Rack shall be of Size-42 U The 19" Rack structure should be made of 1.6 mm thick Mild Steel. Rack should have 1-No Front- Glass- Door of 4 mm thick covering the entire length of the rack that should be fitted / pasted to Front -Door- Frame by using silicon sealant. The material thickness of the Front & Rear -Door Frame should not be less than 0.9 mm with capability of opening up to 180 degree approximately with locking arrangement detachable & interchangeable hinges. Front & Rear Door should have Poly Urithane Gasketing. Racks should have Locks on all sides, which can be unlocked and opened by a single key. The thickness of Top-Cover & Bottom- Base material should be at least 1.2 mm. The Top Cover should have Cable -Entry holes of size 40 mm in diameter with Rubber Rings and suitable Gland Closure Plates. The Side Panels of the Rack should be detachable having ventilated fins flush fitted with Air filters up to 1/3 rd height to avoid dust entry. Installation of the rack is to be done as per instructions of the Engineer & Supervisor in charge.
1.49	<u>Specifications and Requirements for the Crank Handle Relay Box:</u>
	<ol style="list-style-type: none"> The crank handle Relay shall be fixed in a 15U rack and shall be fixed inside the ASM office. The crank handle Relay box shall be made of plywood of thickness not less than 15mm. The box shall be provided with vinegar cover. All the CH relays shall be fixed inside the box as per the instructions of the engineer in charge. The necessary angles required to fix the box on the wall shall also be supplied by the contractor. These shall be of MS and of thickness not less than 5mm. One RED colour LED of 11 mm diameter shall be provided for each relay on the CH box. This LED shall also be supplied by the contractor. The pressing button shall also be supplied by the contractor. The pressing button shall be of L&T make. The supporting angles of MS shall be fixed on the wall and the wall shall be re-masoned with proper mixture of cement. All the contacts of CH relay shall be made parallel with spare contacts as per standard practice.
1.50	<u>Specifications and Requirements for the Panel cum Block Instrument table:</u>
	<ol style="list-style-type: none"> The block tables shall be provided as per the drawings and specifications of the concerned engineer in-charge. The block tables shall be made of 15mm plywood. The plywood shall be water proof and

	<p>termite proof.</p> <p>The block tables shall be provided with a cover of sunmica sheet or veneers sheet as per the approval of the engineer in charge.</p> <p>3. Hinges of Doors shall be of standard make with proper locking facility. All the cable entry points shall be properly sealed with sealant before commissioning of work.</p>
1.51	<p>Specifications and Requirements for the fixing and wiring of QNA1 relays for cutting-In purposes:</p> <ol style="list-style-type: none"> The relays shall be fixed in the locations in the TOP rows. The relays shall be fixed in a manner that there should be a gap of one relay after every two relays. The relays shall be fixed on square bars which shall be supplied by the contractor as apart of this item. For the wiring the flexible wires (16/0.2) shall be supplied by the contractor i.e. the contractor shall carry out the wiring with his own wires. All the contacts used shall be made parallel with one additional contact. The fixing material like square bars, nut/bolts etc shall be supplied by the contractor.
1.52	<p>Supply, Erection, Testing and Commissioning of Automatic fire alarm system (AFDS) as per RDSO Specification RDSO/SPN/NEW/2010 Version 3</p>
1.52.1	<p>Supply, installation, testing and commissioning of UL/FM/VDS/LPCB approved Microprocessor based networkable analogue addressable and modular type of Fire alarm control panel with display, in-built charging facilities and provision of GSM module suitable to send SMS to configured mobile no. The panel should be equipped with sufficient nos. of loops and provision of expandability as per RDSO specification no. RDSO/SPN/217/2021 or latest. The Control panel shall be the central processing unit of the system, receiving and analysing signals from probe type bimetallic heat detectors, UV IR flame detectors, heat and smoke multisensors, LHS/LHSD interface and manual call points, providing audible and visual information to the user. The panel shall have provision of connectivity of TCP/IP suitable for programming and remote monitoring. The panel shall have dedicated RS 232 serial port for direct PC or MODEM connection, for interfacing with existing data logger, optional remote printer As per RDSO specification no. RDSO/SPN/217/2018 ver 2.0 or latest. Note:- Spare to be supplied as per RDSO/SPN/217/2021 Ver 3.0 in include in this scope.</p>
1.52.2	<p>Supply, Installation, Testing & Commissioning of Analogue Addressable Multisensor Detector with multiple sensitivity (adjustable at site) levels, programmable for timed automatic sensitivity selection with base, and other accessories as required and Detectors shall be VdS listed. The Detectors shall comply with the RDSO/SPN/217/2019 Ver.3 or later. (Inspection by RDSO)</p>
1.52.3	<p>Supply, Installation, Testing & Commissioning of Manual call points, Push type & resettable with key, with In-built isolator. Shall be VDS compliant and shall comply with the RDSO/SPN/217/2021 or later. (Inspection by RDSO)</p>
1.52.4	<p>Supply, Installation, Testing & Commissioning of Resettable, Analogue Type Linear Heat Sensing (LHS) Cable complying to RDSO/SPN/217/2019 Ver.3 or later. (Inspection by RDSO). As it is the latest UL or FM or VDS or LPCB approved / listed.</p>
1.52.5	<p>Supply, Installation, Testing & Commissioning of LHS Interface Module with all accessories complying to RDSO/SPN/217/2019 Ver.3 or later. (Inspection by RDSO). As it is the latest UL or FM or VDS or LPCB approved / listed. Linear Heat Sensing (LHS) cable or Linear Heat Detection System will be essentially deployed along with its interface module in cable trays and vital cable bunches as per instructions of engineer in charge.</p>
1.52.6	<p>Supply, Installation, Testing & Commissioning of Analogue Addressable loop powered Control Module complying to RDSO/SPN/217/2021 Ver.3 or later.</p>
1.52.7	<p>Supply, Testing & Commissioning of Hooter cum Strobe complying to the RDSO</p>

	/SPN/217/2021 Ver.3 or later.
1.52.8	Supply, Testing & Commissioning of 2C1.5sqmm twisted shielded armoured copper cable (Per Meter) with accessories as per RDSO/SPN/217/2021 Ver.3 or later.
1.52.9	Supply, Testing & Commissioning of Isolator Device to isolate the circuit in case of short circuit, complying to the RDSO/SPN/217/2021 Ver.3 or later.
1.52.10	Supply, Testing and Commissioning of Auto Telephone Dialler (GSM) to send the pre-recorded message to multiple mobile numbers, programmed earlier, complying to the RDSO/SPN/217/2021 Ver.3 or later.
1.52.11	Supply of Aspiration (Air Sampling Type) Detection Unit with all accessories complying to RDSO/SPN/217/2019 Ver.3 or later. As it is the latest UL or FM or VDS or LPCB approved/ listed.
1.52.12	Supply, Installation, Testing & Commissioning of CPVC Pipe for Aspiration Detection System as per RDSO/SPN/217/2019 Ver.3 or later. and shall be as listed/ approved by UL or FM or Vds or LPCB or tested with appropriate equivalent standard.
1.52.13	Addressable systems with control panel and heat & smoke multi sensors with proper address shall be shown on the central panel.
1.52.14	NA
1.52.15	Typical Cable laying plan, placement of sensors plans shall be provided.
1.53	<u>Specifications and Requirements for the Installation of Power supply equipments:</u>
1.53.1	The IPS and other power equipment along with batteries shall be transported to the site.
1.53.2	Installation shall be done by OEM if specified by the purchaser. However, commissioning of IPS shall be done by the OEM only. OEM shall issue a certificate of fitness of installation before commissioning. For this, Zonal Railways and OEM shall ensure the compliance to Pre-commissioning checklist issued by RDSO.
1.53.3	From the IPS the power wire shall be dropped on ladders or other casing/ protection arrangements. The power wire shall be supplied by the contractor. The ladder or casing shall be supplied by the contractor as a part of installation.
1.53.4	All the power wire shall be terminated in the IPS through proper lugs. The lug shall be supplied by the contractor as a part of wiring.
1.53.5	All the power equipment including the ELDs shall be terminated by the contractor on proper lugs. The lugs shall be supplied by the contractor as a part of wiring. If the base stand is not provided by the OEM of ELD, then this shall be arranged at site. The clamp shall be supplied by the contractor and the Hylam board for the base shall be supplied by the Railway.
1.53.6	The wiring shall be terminated as per the wiring scheme approved by the Railways.
1.53.7	The power wire for the termination shall be supplied by the contractor.
1.53.8	Necessary termination details shall be painted on all the equipment.
1.53.9	All the masonry work required at site shall be done by the contractor with his own material as a part of installation.
1.53.10	The earthing of power supply equipments shall be connected to the system. The earthing wire (preferable 6/16 sq mm) shall be provided by the contractor.
1.53.11	Ladders as decided by site in charge shall be mounted to take supply to various boards / program switches.
1.53.12	The IPS and other power equipment along with batteries shall be transported to the site.
1.53.13	The IPS shall be installed by the IPS supplier, if not covered separately in schedule.
1.53.14	From the IPS the power wire shall be dropped on ladders or other casing/ protection arrangements. The power wires shall be supplied by the contractor. The ladder or casing shall be supplied by the contractor as a part of installation.
1.53.15	All the power wire shall be terminated in the IPS through proper lugs. The lug shall be supplied by the contractor as a part of wiring.

1.53.16	All the power equipment including the ELDs shall be terminated by the contractor on proper lugs.
1.54	The lugs shall be supplied by the contractor as a part of wiring. If the base stand is not provided by the OEM of ELD, then this shall be arranged at site. The clamps shall be supplied by the contractor and the Hylam board for the base shall be supplied by the Railway. Specifications and Requirements for the Installation of Fuse change over system:
1.55	Installation wiring testing and commissioning of Fuse change over system (FACS). This includes provision of common Buzzer & indication at ASM Room & ESM Duty Room and painting of fuse details. Installation of wiring diagram and validation report shall be submitted in proper template as similar with other documents. This also includes fabrication of frames for installation of FACS at Station/ LC gate where installation of relay racks is not feasible. Specifications and requirements for Digging of Trenches in the Soft Soils, Asphalted area and Track Crossings: (refer drawing no. CSTE-3644 (1-11))
1.55.1	All locations shall be erected with one coat of paint before trenching and laying of cables.
1.55.2	The contractor shall depute proper and competent supervisor for trenching and cable laying work.
1.55.3	Before starting the trenching foot by foot survey shall be done along with the Railway's representative.
1.55.4	The cable routes shall be jointly finalised by the contractor's and Railway's representatives.
1.55.5	The proposed cable route plans shall be submitted to the Railways and it shall be approved (also by the engineering and electrical branches).
1.55.6	In addition to the main cable plan, a track crossing plan shall also be approved before starting the work.
1.55.7	The cables shall be laid at the Railway's boundary (one metre inside the outermost boundary).
1.55.8	While trenching it shall be kept in mind the depth of the trench shall be 1 metre until and otherwise specified by the engineer in charge. All the payments shall be made in cubic metres accordingly.
1.55.9	While trenching the contractor shall clear the temporary obstructions like roots of trees if any, some foundation if any. If it is not feasible to clear the route the routes shall be diverted accordingly with the prior permission of the engineer in-charge.
1.55.10	All excavated earth shall be stacked by the contractor away from the track and not on ballast or shoulders.
1.55.11	In case digging is to be done in between tracks the excavated earth shall be carried manually beyond the adjacent track/ tracks and stacked completely outside. In case the trench gets filled up with water from the surrounding area due to rain etc, the Contractor shall have to make his own arrangement to pump it out without any extra charges payable for the same.
1.55.12	If during the trenching, any cable markers, obstruction such as pipes or cables or any bricks or warning covers which appear to be deliberately placed in the location is noticed, the digging should be stopped immediately and the Railway Supervisor should be called. Further excavation will be done in his presence very carefully with the help of wire claws and digging can be further resumed only with the permission of the Engineer/Supervisor-in-charge.
1.55.13	Where the cable route is on uneven ground, a reasonably long section of consistent grounding shall be dug, rather than following every undulation of the ground.
1.55.14	Before starting the trenching in the asphalted area the contractor shall get prior approval of competent authority.
1.55.15	During the trenching and cabling work in the asphalted area the contractor shall cordon off the area with proper means of barricading and warning board for the user of that area.

1.55.16	After the cabling or the laying of suitable pipes or ducts the asphalted area shall be restored back to its earlier state of surface by proper means.
1.55.17	While restoring back the contractor shall take care that the level of this area must match with the nearby areas.
1.55.18	Before the track crossing it shall be ensured that a commencement notice shall be given to the P-ways supervisor.
1.55.19	During trenching the muck in the form of soil or ballast shall be filled in gunny bags and kept away from the track area.
1.55.20	After the track crossing is done and the trench is refilled, the leftover muck shall be taken far from the track area.
1.55.21	No muck in any form like soil shall be left in the track areas.
1.55.22	The contractor shall keep one additional man to look for the trains while the trenching and cabling work is being done in track areas. The duties of this person shall be to look for the trains and warn the labours working in the track areas. Railway shall in any case not be responsible for any mis-happening on the track areas.
1.55.23	The contractor shall ensure that all safety features have been arranged for its labour.
1.55.24	The contractor shall also apply for and issue the ID card for its labour supervisor and associated labour.
1.55.25	Railway shall not be responsible for the staying facility of the labour during the work.
1.55.26	In case of any confusion between the drawing and instructions of between any two clauses of the tender document, the decision of the Engineer-in-Charge shall be final.
1.55.27	All signalling, quad cables can be laid in one trench for speedy execution and OFC shall be laid in 2 different paths. Signal cables and OFC ducts can be laid in the same trench.
1.55.28	In the cases where digging of trench up to the depth and width as mentioned in tender schedule is not possible, the depth can be reduced as per site conditions and directions of the Authority Engineer of the work. For trench depth less than 1 meter due to unavoidable site conditions, prior approval of authority to be taken. In this case, the lesser depth portion of the trench shall be concreted up to min 300mm over the RCC/DWC pipe for protection of the cable.
1.55.29	Guidelines issued by Railway Board vide letter no 2021/Tele/5(2)/3-Part(1)(3425647) Dtd 12.06.2023 for undertaking digging work in the vicinity of signalling, Electrical and Telecommunication cables, need to be followed during digging/trenching work in the vicinity of Railway tracks. Damage to the existing cable will attract penalty as mentioned in guidelines.
1.56	<u>Specifications and Requirements for placing of various pipes/RCC ducts in trenches (refer drawing no. CSTE-3644 (1-11):</u>
1.56.1	All the pipes/ducts to be placed in the trenches for laying of cables shall be transported to site by the contractor by its own means.
1.56.2	All the trenches shall be properly and thoroughly cleaned before laying the pipes/ducts.
1.56.3	While laying of ducts it shall be utterly cared that there is no damage to the duct due to mishandling.
1.56.4	If more than one pipe or duct is to be laid in the same trench then both should be laid side by side.
1.56.5	RCC pipe/half round RCC pipe with collar to be laid after laying of cables in trenches as per schedule.
1.57	First all the bridges shall be surveyed before commencing this item.
1.57.1	After surveying it shall be jointly finalised by the Railway's and contractor's representative as to what are the feasible spots where angles and channels can be provided.
1.57.2	The fixing of GI/RCC/PVC pipe (with contractor's on clamp) on culvert shall be as per Drg. No. CSTE/3644 Pg. 6.

1.57.3	As perscheduleitemalltheconcernedmaterialthatistheanglesandchannelsrequiredshallbe suppliedbythecontractors alongwith GIfittingbolts and nuts.
1.57.4	Alltheanglesandchannels shallnot be ofmaterial (MS)havingthicknessless than 5 mm.
1.57.5	TheshapeandsizeoftheanglesandchannelsshallbejointlyfinalisedbytheRailway'sand contractor'srepresentatives.
1.57.6	Itshouldbekeptinconsiderationwhilefinalisingthesizeofanglesandchannelsthatthere shouldbesufficient spaceextraafter providingthepipes.
1.57.7	Theplansanddrawing, tofitthechannelsandanglesonthebridge, shallalsobeapprovedby thebridgeorganisationoftheconcernedjurisdiction.
1.57.8	Whilelayingthecablesinthepipe/troughingthecornersofthebridgesshallbecoveredwith solidconcretingtoprevent anyaccess ofthe cablesto theunwanted outsiders.
1.57.9	Allthe pipesshall beproperlycoupledthroughcouplers.
1.57.10	Introughingthe Bitumen compoundshall befilled asperproper procedures.
1.57.11	Incaseofanyconfusionbetweenthedrawingandinstructionsofbetweenanytwoclausesof thetenderdocument, thedecisionofthe Engineer-in-Chargeshallbe final.
1.58	Specifications and Requirements for laying of Cables (refer drawing no. CSTE-3644 (1-11):
	Allthecables shallbetransported to the sitebythecontractorbyits ownmeans.
	Thecablesatsiteshallbestoredproperly, fullyprotectedagainstsharshenvironmental conditionslikereinsetc.
	Allthecables shallbemeggeredbefore layingofthecablesandaproperrecordshallbe handed overtotheRailway'sengineerincharge.
	Cable drums mounted on Jackscrew stand shall be used for cable laying to avoid any kinks orpressureonthecableduringcablelaying. Sufficientmanpowershouldbe arrangedbythe contractorto laythecable manuallyso that it doesnot rub on the ground.
	shallbe laidwithduecautionso asnot tocause anydamageduetorough handling.
	layingthecable, precautionsshall be taken toavoid anykind ofpressureonthe cable.
	TheCabledrumshouldbemountedonajackscrewstandandthecables shouldbepulled whilelaying. Duringthiscaremustbetakentosupportthecablemanuallysothatitdoesnot rubon the groundandalsoto avoidanytwist inthecable.
	Afterlayingofthecablesbeforetheterminationsinthelocationboxesitshallbeensuredthat allthecables arecoveredwith theinsulatingtape attheir ends.
	Allthecables shall betaken insidethelocation boxesmarked forthe concerned cables.
	Whileenteringthelocationboxesitshallbeensuredthatthepitnearthelocationboxisof sufficient size such that after burying the cable, the uppermost portion (top) of the cables is atleast 0.8 metre below the surface level.
	Asamatterofpractice, untilandotherwisespecified, notmorethan 1-2metresofcoilsareleft forallthe cablesasa loopafter consideringthelengthrequired forthe termination.
	Beforethebackfillingisdone, thecablemarkerswillbeprovidedinsuchawayastokeepthe topportionvisibleafter filling.
	Themarkers shouldbeso placedastobeclearlyvisibleandshallnotprojectabovetracklevelof thenearesttrackand shallnotbemorethan200mm fromthetop surfaceof groundlevel.
	There will be one cable route marker at every thirty metres interval in addition to additional cablemarkersto beprovided at bends and at such otherlocations which will beindicatedbythe supervisor-in-charge. TheRCCbasedcablemarkersshallbesuppliedaspertheRCILDrawing no4014/00/CC4 orlatestwithlatest Amendments.
	Onecableroutemarker shall beplacedat thepoint of divergence.
	Onecablemarkerateitherendsshallbeplacedateachtrack crossing.
	Onecablemarkerateachsideoftheculvert/bridgeetc.

	When Signaling and Main Telecom cables are laid in the same trench, a distance of 100 mm is to be maintained between them.
	When Signaling and L.T. or H.T. power cables are placed in the same trench, they must be separated by a row of bricks (any pipe RCC/DWC) between them.
	In case several cables of different Categories are laid in the same trench, they should be placed in the following order starting from the main track end, so that in case of accidents the maintenance staff may easily recognize the damaged cables from sight. 1 st Main Telecom cable. 2 nd Signalling Cable. 3 rd L.T. Power cable. 4 th H.T. Power cable.
	In case of any confusion between the drawing and instructions or between any two clauses of the tender document, the decision of the Engineer-in-Charge shall be final.
1.59	<u>Specifications and Requirements for Cable Laying and Fixing of Pipes and Troughing Bridges and Culverts (ISSpec should be followed for supplying & fixing of Troughing, channel).</u>
	<p>First all the bridges shall be surveyed before commencing this item. After surveying it shall be jointly finalised by the Railway's and contractor's representative as to what are the feasible spots where angles and channels can be provided.</p> <p>The fixing of GI/RCC/DWC pipe (with contractors on clamp) on culverts shall be as per Drg.No.CSTE/3644 Pg.6.</p> <p>Cable shall be laid on culverts inside G.I. pipes suitably clamped on the sleepers/pathways. Where necessary G.I. pipes shall be joined by means of G.I. collars or suitable G.I. Bend pipes (contractor's own). The G.I. pipes shall be secured on sleepers/pathways by means of clamps (to be provided by the contractor as approved by the Railway's Supervisor). Holes in the sleepers/pathways for fixing clamps shall be drilled by the contractor.</p> <p>Cables shall be laid in troughing on bridges.</p> <p>As per schedule item all the concerned material i.e. angles and channels required shall be supplied by the contractor along with GI fitting bolts and nuts.</p> <p>All the angles and channels shall be made MS having thickness not less than 5 mm (It should be as per IS spec). The shape and size of the clamps, angles and channels shall be jointly finalised by the Railway's and contractor's representatives. It should be kept in consideration while finalising the size of angles and channels that there should be sufficient space extra after providing the pipes. The plans and drawing, to fit the channels and angles on the bridge, shall also be approved by the bridge organisation of the concerned jurisdiction.</p> <p>While laying the cables in the pipe/troughing the corners of the bridges shall be covered with solid concreting to prevent any access of the cable to the unwanted outsiders. All the pipes shall be properly coupled through couplers. In troughing the bitumen compound shall be filled as per proper procedures.</p>
1.60	<u>Specifications and Requirements for Termination of the Cables:</u>
	As a practice until and otherwise specified by the engineer in charge, in a location not more than 20-25 cables shall be terminated.
	If the number of cables is more than 25, prior approval of the officer in charge shall be taken.
	All the cables shall be terminated on the Screwless terminal/ARA terminals as per engineer in charge

	While terminating the cables it shall be ensured that the cables incoming to the location from one side shall be taken and dressed in one side (i.e. LHS or RHS) in the back side of the location.
	The cables going out of the location shall be taken and dressed in the opposite side to the upper one in the back side of the location.
	All the cables shall be neatly dressed and terminated with help of proper support.
	It shall be ensured that the cable conductor shall be supported by string rods at each row of the cables in the back side.
	The string rods for the above shall be supplied by the contractor along with insulation sleeves.
	All the conductor of the cables shall be dressed by threads also.
	At the bottom of the location box, all the cables shall be dressed in one row only. No jumble of cable is allowed to be formed. Each and every cable should be separately identifiable.
	At the bottom side the armoury of all the cables shall be removed and bent outwards so that no sharp edge of the armoury is in direct contact of the cable.
	At the folded portion of the armoury at twisted copper wire (1.5 sq mm) shall be turned around and soldered (by brazing) to connect it to the earth points.
	All the set twisted copper wires shall be connected to the GI (bonding) wire at the other end and soldered there properly for earth connections.
	From that GI wire a min 6 sq mm copper flexible wire shall be connected and at the other end it shall be terminated on Screwless terminal/ARA terminals. The flexible wire and the ARA terminal shall be supplied by the Railways.
	These Screwless terminal/ARA terminal shall be connected to the external earth through a 12/6 core signaling cable. The signaling cable pieces shall be supplied by the Railways.
	After this the bottom portion of the location shall be filled with sand and a layer of PCC shall be done to prevent entry of rodents and reptiles.
	All the cable core shall be meggered at the time of termination. A report shall be submitted to the Railways in proper format of Railways.
	At the front side of the location, a sufficient gap should be left between two rows.
	In the gap, the detail of the cables shall be painted, which is a separately covered item in schedule.
	All the records about the cable laying and meggering shall be prepared and submitted as per CSTE-DRAWING NO. CSTE-3644 (1-11).
1.61	<u>Specifications and Requirements for the foundation for the signal post:</u>
	The foundation shall be made as per the standard drawing issued to the contractor. The drawings for reference are Foundation for Main Signal-CSTE-3122. Foundation for Shunt Signal-CSTE/6090
	Before starting the digging work for foundation the location of the foundation shall be jointly verified and signed by the representatives of Railways and Contractor.
	While finalising the location of foundation it must be taken care that the schedule of dimensions is strictly adhered to.
	It must be taken care that the foundation of signal shall not be in any case on the banking of the terrain.
	If it is not feasible at site for the foundation to be on the bank portion, the signal foundation should be shifted on the RHS of the concerned track.
	While shifting the signal foundation to the RHS of the concerned track, the schedule of dimensions must be strictly adhered to. The outermost portion/part of the complete signal shall be minimum 2.36 metre away from the centre of tracks of both sides.
	While erecting the signal foundation the GI bolts of proper size should be grouted.
	Item includes curing and plastering with 1:4 cement-sand mixture (Aggregate not exceeding 3:8 cm).

	Aggregate, cement, sand and holding down bolts, nut shall be supplied by the contractor.
	Due to local conditions in very special circumstances if the size of the foundation for all the above items required to be increased / decreased, the extra payment / deduction for variation of the CC work shall be calculated on volumetric basis and paid to the contractor from the schedule of cement concreting.
1.62	Specifications and Requirements for Installation of Signal Post & CLS Unit.
	<p>The item includes erection of colour light signal post with CI base, LED based colour light signal unit (CLS units suitable for LED Signal Lamps will be supplied by Railway), ladder with its base, ladder guards, platform and MS supporting bracket in the middle of the ladder, hoods, protective screens front staging for maintenance Platform, expanded metal cover on front. Also includes fixing of LED lighting units along with all accessories and arrangement of extra accessories for pinnacles, offset brackets. Junction type route indicators (if any) – 5 or 3 or 4 or 2 or 1 way etc. LED units & LED Signal Units will be supplied by Railways.</p> <p>The item also includes termination of cable and wiring inside the signal unit as per standard practice. The cable shall be inserted in such a way that it is not bent sharply. The armoury of the cable shall be peeled off at the base of the signal unit. After that all the conductors shall be terminated on the ARA terminals/Disconnecting terminal block connectors. From these terminals the colour coded flexible wires shall be taken to the respective LED unit/signal lamp. The flexible wire shall be provided by the Railways.</p> <p>Item also includes supply of number plates with photoluminescent paint/strips.</p> <p>Wire mesh covering Red and Yellow aspect as per standard practice on this railway and wherever if required the screen shall also be provided on the side of signal post /signal unit adjacent to the centenary. The fixing of the screen and its connection to the earth shall be done as per RE area standard.</p> <p>Height of the post 3.5 mtr. For loop line starters, advance starters, distance signals, 4.5 mtr for mainline starters and Home 5 mtr. for Home signal on curves. Decision of site in charge regarding height of posts as required by site in charge and fixing of CLS units on the existing posts with or without offset as required by Site In charge. (I) 2/3/4 aspect signal unit mounted directly on the signal post with an offset bracket.</p> <p>'X' arm to be provided by the contractor till the signals are introduced.</p> <p>Item includes supply and fixing of arrow on signal units for signals placed on the wrong side and blanking of ladder if so required by site in charge.</p> <p>All the clamps and angles shall be as per the drawings or as advised by the engineer in charge. The ladder should be grouted in the ground properly.</p> <p>Supply of colour light signal post tubular 140 mm dia complete with CI base, ladder with base, ladder guard platform, MS supporting bracket to support ladder, pinnacle with offset bracket etc. shall be IRS Specification no. S-6/81 (latest) and RDSO diagram No. SA-24625 (Advance) is covered under Schedule "A".</p>
1.63	Specifications and Requirements for the Installation of all types of apparatus Case:
	The apparatus case shall be first rubbed to remove the rust in a complete way both inside, outside and all the interiors and corners.

	The one coat of red oxide shall be painted on the complete body of the apparatus case including the base area.
	The apparatus case shall be fixed properly carefully without damaging it.
	Angles (drawing is mentioned in clause 5.24-D) shall be properly fixed for complete length of the apparatus case with the help of angles and clamps.
	One coat of silver paint on the outer side of the wall of the apparatus case and one coat of white/silver paint on the interior side shall be painted before fixing the hylam board/strips.
	Both E-type locks shall be fitted before the painting.
	The holder and location lighting switch shall be supplied and fixed on a piece of hylam sheet by the contractor. This piece of hylam sheet shall be supplied by the Railways.
1.64	<u>Specifications and Requirements for the Casting of CC foundation for apparatus case.</u>
	The foundations shall be made as per the standard drawing issued to the contractor. Before starting the digging work for foundation the location of the foundation shall be jointly verified and signed by the representatives of Railways and Contractor. While finalising the location of foundation it must be taken care that the schedule of dimensions and other provisions of SEM are strictly adhered to. The distance of the apparatus case with the door fully opened should be a minimum 2.36 metre from the centre of tracks on all sides. The foundation of the apparatus case shall not be on the banking of the terrain. If the foundation on the bank is unavoidable (only in exceptional circumstances) due to site conditions, necessary supports should be provided as approved by Engineer-in Charge. The pit around the apparatus case shall be dug so that the top of the cable is minimum 0.5 metre below the ground surface level i.e. the depth of the pit near the apparatus case shall be increased as per the site requirement. Once cables are put inside the location boxes, the bottom portion of the location shall be filled with sand and a layer of PCC shall be done to prevent entry of rodents and reptiles. In addition to this if the required depth is not available, then as per approved scheme by Engineer-in Charge; the contractor shall make a brick chamber like structure and fill the chamber with sand. The whole pit shall be covered with concreting. For this activity the concreting and brick work shall be paid by Railways as actual from the scheduled quantity of items. Foundation bolt of size 22 mm dia., 450 mm long with 2 flat spring washers & one nut is to be used.
1.65	<u>Supply, Fabrication and fixing of Phenolic laminated sheet:-</u>
	Fabrication and fixing of phenolic laminated sheet of size 10mm thick in location box by providing all fixtures as per Railway Drawing including fixing of PVC coated string rods at the back side for cable support with contractor's own materials. The work shall be done as per drawing and arrangement similar to SK 783-1/2. with latest alterations & as per instructions of the Railway engineer at site. Note:- Earthworks around apparatus case or other location as per instruction of Engineer in charge.
1.66	<u>Specifications and Requirements for Digging of cable pit:</u>
	The cable pit shall be dug near to the room where all the cables are entering the CT rack room.
	The cable pit shall be of dimensions (minimum 2x2x1 metre) as per schedule of material and works.
	Before concreting the cable pit shall be filled with sand.
	It shall be kept in consideration that the top of the cable coil shall be minimum one metre below the top of the concreting.
	The cables shall be coiled approximately five metres per cable.
1.67	<u>Specifications and Requirements for the various Boards/Markers and Number Plates:</u>

	All the boards, number plates and marker plates/boards shall be supplied as per the drawings and shall be fixed as per the drawing instructions and site in charge. Various drawings pertaining to this are as:
	For Good's warning board the referred drawings shall be RDSO DRG SA 2380(adv) or latest with latest amendments.
	The referred drawing for A marker is CSTE-6180.
	The referred drawing for the AG marker is CSTE-6181.
	The referred drawing for the P marker is CSTE-6182.
	The referred drawing for the ARROW marker is CSTE-6183.
	The referred drawing for the G marker is CSTE-6181.
	The referred drawing for the C marker is CSTE-6185.
	The referred drawing for SIGNAL NO. PLATE is CSTE-6185.
1.68	Specifications and Requirements for the Installation of the Point Machines:
	<p>Fixing of Electrical Point Machine on the extended sleepers at points as per std. practice and as per RDSO Drg No. SA 91 51-52 or 9710 or 9161 as per section of rails used. Items include fixing switch extension brackets, providing insulation for switch extension brackets, fixing ground connection, adjusting opening of the switches and adjusting the point machine with a crank handle.</p> <p>The item also includes :</p> <p>A. Complete material for installation like ground-connections, switch extension brackets, point insulation material, I pipes, wiring materials, various fixing nuts & bolts including castle nuts, spring washers.</p> <p>B. All smithy & fitting works required at site for complete installation.</p> <p>C. Installation of gaugetie plate & providing insulation for gaugetie plate.</p> <p>D. Wiring inside the point machine, insertion and termination of tail cable in point machine and junction boxes / location box / cable hut as per extent practice on WR and the instruction of Railway Engineer at site.</p> <p>E Supply and fixing of suitable size GI pipes with flange for taking cable into point machine.</p> <p>Note; Prior drawing and permissions should be taken from the Railways about the Ground Connection, ME-34 box modified P bracket and other items. Electrical Point Machine and M-6 /Screw less terminals will be supplied by Railways /covered in Schedule separately</p>
1.69	<u>Specifications and Requirements for the Installation of circuits: NA</u>
1.70	<u>Specifications and Requirements for the Wiring of DC track circuits: NA</u>
1.71	<u>Specifications requirements for GI troughing and channels</u>
	<p>1. All dimensions are in millimetres</p> <p>2. Trough to be fabricated out of galvanised steel sheet to IS: 277-1985 with following stipulations thickness : minimum 1.6 mm grade of zinc coating : 200</p> <p>3. No weldings shall be done on any component for fabrications.</p> <p>4. Cable trough to be fitted telescopically.</p> <p>5. After tightening nuts for fixing the strap the thread of the bolt may be buried to prevent theft.</p>

7	DISHWASHERFORSL5	4
8	PLAINWASHERFOR SL5	4

1.72 Specifications and Requirements for complete Painting, Varnishing and writing works

All the equipment which need painting shall be fixed/installed with coating of Red Oxide i.e. Red Oxide should be coated before fixing/installation. After fixing/installation one coat of

paint shall be applied on all the location boxes, signal units, signal posts etc. The final coat of paint shall be applied just before the commissioning.

The description writing work shall be carried out before the commissioning of the station. This description writing work includes writing the details in the Relay Room and Location boxes.

All the location boxes and the signal posts shall be painted with the distance of installation from the centre of the track.

The colour & painting scheme as per provisions of SEM and Western Railway practice should be adopted.

Lettering/ Numbering Termination particulars in Full & Half Apparatus case, equipment names etc., legibly and neatly inside location boxes. This includes supply of paints of Asian Paints/ Nerolac / Dulux / Berger make.

NOTE:- The paint and primer should be from Asian Paints/ Nerolac / Dulux / Berger. The primer / enamel paints (Aluminum synthetic, black enamel, brilliant white and yellow) will be as per (IS 5660 of 1970) / (IS 2932 of 1974)."" (vii) Point Machine with ground connections complete (Point Machine with Black enamel only outside and ground connections with Red Oxide)"

Note:- Guidelines regarding Signalling Gears Description Writing

1. Identification marker (Ferrules with printed letters / PVC sleeve with printed details of the core/Signalling function) to be provided on each cable conductor with Yellow sleeve and black description

2. The Row of Screwless Disconnect Terminal / M6 Terminal / ARA Terminal shall be serially numbered as A, B, C, D. from top and in each row, terminal shall also be serially numbered starting from 1.

3. After every cable terminated in a row, there should be a gap equivalent to 1-2 ARA terminal or minimum 06 Screwless Disconnect Terminals.

4. The Cable Termination Details of Location Box (Location Termination Particulars) shall be prepared in AutoCAD/ any suitable software. One copy of Cable Termination details shall be fixed in the respective location box duly printed on a board and another copy may also be kept in laminated sheet.

5. Inside the Location Box, minimum clearance of the bottom most terminal shall be 300mm from the base of the location box. The Centre to Centre Distance between two rows of Screwless Disconnect Terminal / ARA Terminal shall be 18 cm to 20cm.

6. Location Box shall be numbered from its front side as well as Back side and functions shall be written on the door with yellow on black background.

7. The cable armours and the Location Box shall be earthed using GI flat as shown in installation photographs given in IRSEM Appendix-II.

8. The Cables terminated on Location Box shall be identified by punched labels / Cable Identification Tag tied on each cable.


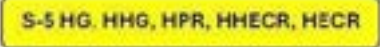

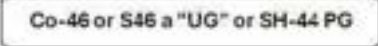
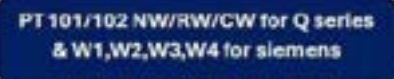
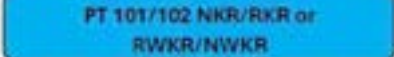
Policy Circular No.02/2024

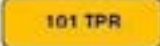

Function description & and writing work for signalling installation.

It is extremely important to write clear and accurate descriptions of the functions on outdoor location boxes and termination racks (CTR) in relay rooms, relay huts, and Goomries. This is necessary for the purposes of maintenance, testing, and attending to failures. Currently, both indoor and outdoor writing work is mostly done through manual painting. However, it has been observed that updating the writing or painting is difficult when transferring functions from defective cable conductors due to a lack of painters. Although updating function details on CTR and location boxes must be done permanently through manual painting for legibility, there is a need to implement better writing practices throughout the Western Railway to ensure accuracy, efficiency, and safety.

A. Indoor:**1. Colour Coding for Function:**

Function identification marker to be provided on each cable conductor. The coloured scheme for Ferrule and laminated tape for stickers/cable flaps at CTR and LOC boxes is as under:

SN	Name of function	Color coding of sticker/ Ferrule	Color of Writing	Sample
1.	Signal (RG & ICC)	Red	White	
2.	Signal (HG/ HHG & ICC)	Yellow	Black	
3.	Signal (DG & ICC)	Green	Black	
3.	Route, Co,"A" Sign & its ICC,LC, CH, slot & other circuit	White	Black	
4.	Point	Dark Navy blue for Operation	Operation - White	
		Light Blue for Detection	Detection - black	

SN	Name of function	Color coding of sticker/ Ferrule	Color of Writing	Sample
5.	Track/Axle counter (TPR &	Light orange	Black	 

3.1.2 Each row of Wago/ARA terminals should be numbered sequentially in capital letters i.e. A, B, C, D, and so on from top to bottom.

3.1.3 Each wago terminal in the block of 12 terminals (as clarified in para 3.1.3) shall be numbered as 1 to 12 from left to right. After no 12, adequate space shall be provided, and the next block shall be numbered from 13 to 24 and so on.

3.2 The Centre-to-Centre distance between two rows of wago/ARA terminals should be adequate. After each cable termination in a row, there should be a minimum gap equivalent to one terminal or two spacers/dummy terminals.

3.3 Screwless Disconnection Terminal or any other HDSC-approved terminal shall be used for cable termination.

3.4 The cables terminated on the CT rack shall be identified by punched labels or cable identification tags tied on each end of the cable for correct identification.

3.5 As per para 15.1.2. (c) of IRSEM, cables shall be provided line-wise and function-wise.

3.6 The minimum clearance of the bottommost terminal in the CT rack shall be normally 300mm from the ground.

3.7 CT Racks Particulars (i.e. Function wiring and termination details) shall be provided in a convenient way as per the number of K racks and availability of space on the wall. It shall be fixed in such a way that signal staff can refer to the same to view the CT rack in case of urgency. Some of the suggestions are given below,

- May be made in A3 size either using Vinyl Printing or Flex Printing on 300 GSM PVC banner roll. The same can be fixed on the wall through a suitable wooden/metallic frame (CT Board) adjacent to the CT rack. In case two sheets are to be displayed simultaneously, a sliding frame mechanism & multiple leaf mechanism can be utilized where two sheets can be displayed in the front and the remaining can be available in the back. Sheets in the back may be viewed by sliding the front frames.
- K-Rack details may be printed and laminated on separate A3 sheets and kept in a single U-Channel slot fixed on the nearest wall.

4. The process of shifting a defective cable core:

Please follow the instructions below to shift a defective cable core:

4.1 First, refer to the K-rack chart and locate row K, column A, S/12 RG core no. 7 and 8 of cable no. 1278 which is defective and shows low insulation.

4.2 Next, remove the defective conductor and attach a "Defective Tag" Ferrule on it.

4.3 Then, take appropriate lengths of jumper cable and attach them between cable no. 1278 and 1279.

4.4 Finally, label the tag with "From cable - 1278 (7,8) to 1279 (7,8)" to indicate the transfer from the defective core of cable no. 1278 to the core no. 7 and 8 of cable no. 1279.

Please make sure to label the function name on the K-Rack before leaving the relay room where the function has been transferred. (Ref pic- 4, *Please note that the jumpers must be provided behind the CT rack shown in the image)

4.5 It is important to conduct a cable test before transferring the cable conductor, even if there is a cable description tag present on it. After the transfer, a correspondence test should also be carried out before making the reconnection.

5. Periodical Verification & Validation: -

5.1 it is essential to conduct regular verification and validation of cable termination before the commencement of the monsoon season, particularly during cable meggering.

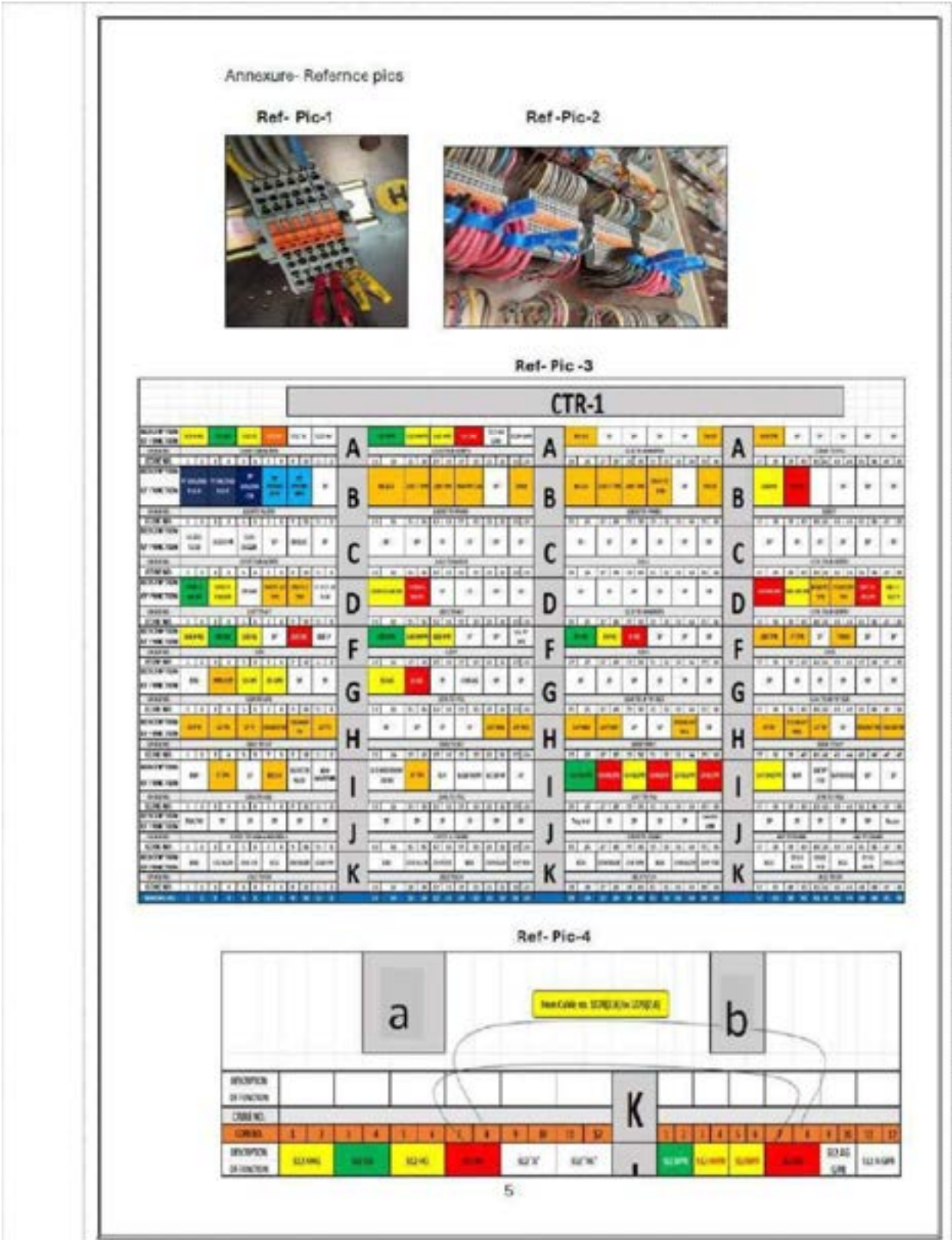
5.2 After the monsoon season, the person in charge of the SSE or Signal section should verify and update any changes in cable or wiring termination details. They should also replace or update the description boards accordingly.

This practice should be followed for all future installations and as much as possible in existing installations. This has been issued with the approval of the Board (Member/Infra).

If more than 10 corrections are made in the K-Rack chart, a fresh and updated chart must be provided in the relay room with updating date.

B. Outdoor:

1. Writing descriptions of functions on outdoor location boxes are the same as mentioned in indoor practices. If possible, like CT rack details, cable details chart kept or mounted in location boxes.
2. In the location boxes, all cable addresses must be tagged by providing a printed flip. The respective location/equipment names between laid cables must be printed on the flip. (Ref pic-5)
3. The cable termination details may be printed in color on suitable paper and kept in a plastic pack inside the location box.
4. The cable termination details are printed on a flex board or any board suitable for local weather conditions and mounted on the location box door with the same color coding as possible. (Ref- Pic-6)
5. To address the issue of cable failures, the conductors shall be transferred to healthy wires. It is recommended that all Sr. DSEs shall ensure to update the cable core chart on board. If there are 10 or more corrections made to the location chart, a fresh and updated chart should be provided in the location boxes.



1.73

Specifications and Requirements for Providing brick masonry work:
Providing brick masonry in ratio 1:6 cement and mortar including plastering with 1:4 cement

	andsandmixturebothsides,20mmthickeachwithcontractor'sownedclassIIbricks, includingexcavation,curing,grouting,boltingetc.wheneverrequired.Brickssandandcement to be supplied bythecontractor
1.74	<u>SpecificationsandRequirementsfor</u>Cementconcrete work:
	Cement concrete work for miscellaneous items in the ratio 1 : 3 : 6 . Items include excavation, ramming,curingandplasteringwithcement&sandmixture(aggregate not exceeding 3.8cm.) (Aggregate cement &sand to be supplied bythecontractor
1.75	<u>SpecificationsandRequirementsfor</u>Dismantling/ReleasingofexistingSignalingGears work:
	Dismantling/ReleasingofexistingSignalingGears.OneSignalling gearwillbeallpartsof one signal (consisting of CLS unit, Signal post along with base) or lever frame (5 levers set), or one point (consisting of all parts of a mechanical point, point machine, ground connections etc.) or one track circuits (consistingof batterybox &otherparts of DC Track circuit / AFTC /DAC) or one Block instruments etc. This includes the cost of transportation of release materials to the storedepotorasdecidedbytheconsigneeincharge.Thisworktobedonebycontractorswith hisown vehicleand labour
1.76	<u>SpecificationsandRequirementsfor</u>DismantlingofConcretefoundation/Demolishing RCC/CC/Stoneet cwork:
	DismantlingofConcretefoundation/DemolishingRCC/CC/Stonework/CuttingTarcarpenting/ CC Flooring/ Precast concrete slab/ Brick work including leading the debris inside Railway limitoroutsideRailwaylimitasdirectedbysiteincharge.Thisworktobedonebycontractors withhisown vehicleandlabour
1.77	<u>SpecificationsandRequirementsfor</u>RemovingMuck,ballastanddebriswork:
	RemovingMuck,ballastanddebrisfromRailwaypremisesreleasedtocuttingofplatforms& excavationoftrenchesbytrucksto thenearest municipal site.
1.78	<u>IndependentChecking/Verification/ValidationofLogic-Circuit/wiringDiagrams:</u>
	<p>4. A Logic-Circuit diagram for EI is generally supplied by the EI executing contractor. Once these Logic-Circuitdiagrams arereceived,theseshallbesupplied/issuedtothecontractorof this work.</p> <p>5. The contractor shall study and analyse the Logic-Circuit and wiring diagrams based on the approved SIP and Tables of Controls keeping in mind all the policies issued and practices adopted by the concerned zonal Railway.</p> <p>6. The Logic-Circuit and wiring Diagrams shall be checked/verified and validated to suit the interlocking requirements by IRSE License Holders.</p> <p>7. Thesechecked/Verified diagramswillbesubmittedtotheDesignofficeforfinalapproval.</p> <p>8. Till the time the Logic-Circuit and wiring Diagrams are under finalisation, all the drawings shall be submitted on good quality standard papers.</p> <p>9. When the Logic-Circuit and wiring Diagrams is provisionally approved by the Design office, the Logic-Circuit and wiring Diagrams shall be submitted on the final tracing.</p> <p>10. Once the Logic-Circuit and wiring Diagrams are approved bythe Design office, the activity of checking/verification and validation of Logic-Circuit and wiring Diagrams for that particular station/installation is considered to be complete.</p> <p>11. Logic/Wiring Diagrams should be checked and strived for so as to have near zero mistakes. It is prerogative of concern licence holders to acquaint themselves with latest policycirculars and practices followed by zonal railway. In case of mistakes in logic, per route deduction will be made for each mistake.</p> <p>12. Logic/Wiring Diagram shall be provided to concern licence holders for two level checks, only after C-FAT has been successfully conducted by OEM.</p> <p>13. A Matrix of functions and selections therein viz. Point detections, Signals, Track circuits, Controls,CHsettobeforemdeforeachrelay,circuits.ISAshallsubmitthesechecked</p>

	circuits as verified duly signed and authenticated with additions, deletions, modifications in the submitted circuits with reasons with the difference report thereof in the physical paper sheets to be submitted to IR. This to be incorporated in the Technical Specification of the Tender Documents
1.78.1	<p><u>Guidelines Regarding Signaling Gears Description Writing</u></p> <p>Western Railway HQ policy No. 02/2024 dated -29/02/2024. to be strictly followed which is attached with the tender document.</p> <p>Description Writing in Outdoor Location Boxes and Cable Termination Particulars of CTR in Relay Room / Relay Huts / Goonies plays a very vital role during Maintenance & Testing and during attending failures</p> <ol style="list-style-type: none"> 1. Identification marker (Ferrules with printed letters / PVC sleeve with printed details of the core / Signalling function) to be provided on each cable conductor with Yellow sleeve and black description. 2. The Rows of Screwless Disconnect Terminal / ARA Terminal shall be serially numbered as A, B, C, D. and in each row, terminals shall also be serially numbered starting from 1. 3. The Centre to Centre Distance between two rows of Screwless Disconnect Terminal/ARA Terminal shall be 18 cm to 20cm. After every cable terminated in a row, there should be a gap equivalent to 1 ARA terminal or 02 spacers / dummy Screwless Disconnect Terminals. 4. Screwless Disconnection Terminal/ARA Terminal or any other terminal approved by RDSO shall be used for termination of cables. 5. The Cables terminated on CT rack shall be identified by punched labels/ Cable Identification Tag tied on each cable. 6. Line wise and if necessary, function wise cables shall be provided as per para 15.1.2.(c) of IRSEM 7. Minimum clearance of bottom most terminal in CT rack shall be 300mm from ground. 8. The Cable Armours and CT Rack shall be earthed using GI flat as shown in installation photographs in IRSEM Appendix-II. 9. Busbar power cable shall be terminated at the top of the CT rack. 10. CT Racks Particulars (i.e., wiring and termination) made using Vinyl Printing or Flex Printing on 300 GSM PVC banner roll of suitable size and it shall be fixed on wall through suitable wooden/metallic frame (CT Beard) adjacent to CT rack such that signal staff can view both CT rack and CT Board simultaneously.
1.79	<p><u>Telecom TECHNICAL REQUIREMENTS & SPECIFICATIONS</u></p> <p>The scope of work essentially includes supply and installation of materials and proper installation, trenching, blowing, splicing and testing of OFC cables and proper trenching and laying of quad cables and provision of OFC and quad equipment and associated materials for connectivity.</p> <p>Installations configuration commission of IP MPLS Routers, Switches and other network devices.</p>
1.79.1	<p><u>SPECIFICATION OF 16 PORT E1 CARDS ALONG WITH PATCH PANEL / KRONE MODULE AND WIRING FOR ROUTERS WITH ALL ACCESSORIES ETC.</u></p> <p>Supply and installation of 16 Port E1 Card (2x8 port) for the LER Routers along with patch panel / kron module and wiring for Routers with all accessories etc. as per RDSO Document No. STT/TAN/IP-MPLS/2020 Version 2.0 or latest.</p>

1.79.2	SPECIFICATION OF STANDARD 19" RACK MOUNTABLE LER (Label Edge Router)
	<p>(It shall be as Per RDSO Document No. STT/TAN/IP-MPLS/2020 Version 2.0 or latest) Router shall have IP-MPLS interoperability with routers of other multiple OEMs.</p> <p>A. General Requirement IP- MPLS Router with Redundant DC power feed-48V DC nominal, equipped with interfaces: 2x 10G (optical) SFP+ Ports along with 2 Nos Single Mode Bi-directional SFP of 40Kms 10G SFP+ LC Modules, 4 x 1Gb E (Optical) interface along with 4 Nos of 1GbE Single SFP Module 10km and 4 x 1GbE (Copper) interfaces & Modules and slot for 16 x E1 (G.703), {supply of 16 E1 card is not included in this item and is catered in separate item}, Mounting kit with all necessary accessories & Software, Perpetual Licence.</p> <p>B. Requirement for LER It should also be equipped with additional interfaces: 2 x 10G (optical) SFP+ Ports along with 2 Nos Single Mode Bi-directional SFP of 40Kms 10G SFP+ LC Modules. It should be capable of equipping additional control cards, redundant to take full load even with failure of one control card.</p> <p>Chassis for above point 1 & 2 shall fit into a standard sized 19-inch rack mounting. Router should have redundant DC power feeds: -48VDC nominal. Router should be temperature hardened as it normally placed at field locations without any air conditioning arrangement. External cabinet solutions would be over and above this solution. The routers shall provide a non-blocked switching matrix up to system capacity. The router shall be equipped with above mentioned minimum interfaces. All interfaces should be modular. The routers shall support following Timing ports – TODin, TODout, SYNC/BITS interface/similar timing protocol required for LTE network. The routers should have an external Alarm Option. Fan tray, controller cards, interface cards should be hot-swappable and Field Replaceable Unit (FRU). Must have out-of-band Management port. Must have a console port.</p> <p>C. Protocol supported Routers should support unicast IPv4 & IPv6 routing protocols (BGP, OSPF, IS-IS, OSPFv3, Segment Routing and Circuit emulation). Routers shall support LDP, MPLS-TE with FRR, Segment Routing for sub 50msec protection. Router must support Traffic Engineering for node and link protection. Routers shall support aggregation of links. Minimum 8 links should be supported as part of single aggregation on a network side. Routers shall support multi-chassis LAG for aggregation of links across two chassis. Router shall support performance monitoring for Layer-2 and layer-3 services (Y.1731/Y.1564, TWAMP, SAA or equivalent). Routers shall support IPV4 and IPV6, IGMP, MLD, and PIM-SM & SSM, ECMP, NGMVPN. Router shall support 6PE and 6VPE mode for IPV6 transport over IPV4. BGP Prefix independent control (EDGE and Core). Routers shall support BFD with an interval of 10ms or less</p>

Routers should support RFC 3107 of Carrying Label Information in BGP-4.
 Routers should support Point-to-Point and Point-to-Multipoint LSP for Unicast and Multicast traffic.
 Routers shall support layer 3 and layer 2 MPLS VPN, VPLS and EVPN.
 The routers shall support Internet Group Management Protocol (IGMP) v1, v2 and v3. The router shall support Protocol Independent Multicast - PIM-SM and SSM.
 The switch/routers shall support Multicast troubleshooting tools like Mtrace and mfibping.
 IEEE 1588v2 Precision Timing Protocol (PTP) and Synchronous Ethernet support for network synchronisation.

D. Quality Of Service

The switch/router shall provide per-service, per-forwarding class queuing and shaping features.
 The routers shall provide following QoS features: classification and hierarchical scheduling, WRR, strict priority (SP), profiled scheduling and multi-tier policing and shaping.
 Router shall support 3 level HQOS on all kinds of Ethernet interface with minimum 8K hardware queues.
 Similar QoS shall be supported for all types of interface including Bundled interfaces.
 IP Application Mapping. The list of IP match criteria should include Source IP address and mask, Destination IP address and mask, IP protocol, UDP source port, TCP source port, UDP destination port, TCP destination port.
 VLAN CoS preservation: the IEEE 802.1p priority bits.
 VLAN CoS differentiation: appropriate service differentiation must be applied according to the 802.1p bits. This will require the mapping of the 802.1p bits to DSCP values and EXP-bits in the MPLS header when the service is offered over a (partially) MPLS-enabled network.
 End-to-end delay budgets are strictly enforced to support critical applications SCADA, VOICE, Video.

E. Security

Security forms an integral part of a network design to protect both the end-customers and the network infrastructure. The solution that the vendor proposes shall have the necessary provisions to implement the necessary security measures.
 Support Access Control List to filter traffic based on Source & Destination IP Subnet, Source & Destination Port, Protocol Type (IP, UDP, TCP, ICMP etc) and Port Range etc. Should Support SNMP v1/v2/V3.
 Blackhole filtering: dropping of traffic destined for a specific prefix at wire speed.
 Ingress and egress packet filtering based on L2-L4 criteria at wire speed. The possibility to log the actions on individual filter rules shall be supported.
 Protection of local services (http, small udp/tcp servers, dhcp, telnet, ssh) based on L2-L4 criteria.
 AAA support – Accounting, Authorization and Authentication of users and commands. Support for local authentication, TACACS+ and Radius.
 Authentication of routing protocol updates: IS-IS, OSPF, BGP. SSH support
 Should support hardware-based in-build IPsec encryption and stateful firewall function natively.

F. Performance

Routers shall support non-blocking throughput capacity of 60 Gbps half duplex / 30 Gbps full duplex or higher as per site requirement.
 Routers shall support 10K IPv4 & 5K IPv6 routes Multicast routes 1K Router shall support 100 multicast groups.

Minimum 100 MPLS Layer-3 VPNs.
 Minimum 64 MPLS VPLS.
 Minimum 500 MPLS Layer-2 PWs.
 Routers shall support min 64 BFD sessions.

G. Certificates and environment standards

Should comply with NEBS Level 3 specifications./Equivalent TEC QM 333 or latest specification
 Safety: IEC/EN 60825-1 or IEC/EN 60825-2.
 Storage: EN 300 019-2-1 class 1.2 / GR-63-CORE and GR-1089- CORE / Equivalent TEC QM 333 or latest specification
 Transport: EN 300 019-2-2 class 2.3/GR-63-CORE and GR-1089-CORE/Equivalent TEC QM 333 or latest specification
 In service: EN 300 019-2-3 class 3.2/GR-63-CORE and GR-1089-CORE
 Relative humidity: 5 to 85% (non-condensing).
 Operating temperature: -15°C to +60°C.
 The router must be MEF CE 2.0/3.0 Compliant.

Specification of Single Mode 10Gbi-directional SFP+(40km)

S/N	Description
1	SFP+ modules should comply with multi-source agreement (MSA)
2	Should have LC type connector or as per field requirement
3	Should be provided in Pair (BXU & D). One Router should have BX-U other should be BX-D
4	Should support up to 40km optical distance as per Telcordia/ITU target distance
5	Should have 10 Gigabit Ethernet capacities on single mode single fibre
6	Should support DDM/DOM features
7	Should be RoHS compliant
8	BX-U should support TX: 1270nm, RX: 1330nm wavelengths; BX-D should support TX: 1330 nm, RX: 1270 nm wavelengths
9	Should comply to following optical specifications: Link Budget (dB) of 21.2 dBm Launch Power (max) 5dBm Launch Power (min) 0dBm Receiver Power (max) -9 dBm Receiver Power (min) -21.2dBm
10	The SFPs to be accepted by the Router OEM.

1.79.3 INSTALLATION, COMMISSIONING & TESTING OF LER & LSR IP MPLS ROUTERS

Installation, Commissioning & Testing of LER & LSR IP MPLS Routers including supply & Installation of all the accessories like Power cable, Earthing Cable, Optical Patch Cords of 3 m - 6 Nos. for LERs & 10 Nos. for LSRs, Cat 6 Patch Cords of 1 m - 4 Nos, one 6A MCB for each LER and LSR, wiring etc. as required for Router's installation. All routers should be configured in all respects as per site requirement and site in charge.

1.79.4	SPECIFICATION FOR LC-SC/SC-SC/LC-LC/FC-LC PATCH CORD 3.0 MTR. LENGTH REPUTED MAKE		
	It shall be of good quality and of reputed make. Samples shall be approved from Consignee/ Engineer Incharge before supply.		
	Parameter	Unit	Measurement
	Insertion loss (IL)	dB	<=0.2
	Return loss (RL)	dB	>=50
	Repeatability	dB	<=0.2
	Changeability	dB	<=0.2
	Operating temperature	°C	-35 to +70
	Storage temperature	°C	-35 to +70
	Fibre type		G657(A1/A2)/G652D
	Fibre diameter	um	SM-9
1.79.5	<u>SPECIFICATION OF LAYER 2, 24 PORT AGGREGATE MANAGED SWITCH</u>		
	Supply and its standard installation of Aggregates switch as per RDSO specification No. RDSO/SPN/TC/65/2019 Rev. 5.0 or latest. It shall be of reputed Make. Samples shall be approved from Consignee/Engineer Incharge before supply.		
1.79.6	<u>TECHNICAL SPECIFICATIONS AND REQUIREMENTS OF LAYER-2, 24 PORT LAYER 2, 24 PORT</u>		
	The switch should be populated and supplied with all the modules (Fully loaded with SFP Modules), connectors, and interfaces etc Non-POE, 24 GE 10/100/1000 Base BaseX Ethernet port. The switch should be as per RDSO Specification No. RDSO/SPN/TC/83/2020 Rev 2 or latest. Switches shall be of reputed Tejas, CISCO, Extreme, Juniper, Allied Telesis or HP or better. Minimum With 03 Years Warranty. Switch should support Surge Protection on power input and on Ethernet ports as per EN 61000-4-5 standard and suitable for SP and SSP (25 KV Environment). Samples shall be approved from Consignee/Engineer Incharge before supply. All Switches to be installed in Racks and configuration and commissioning of switches as to be done as per requirement of site Incharge and Engineer Incharge.		
1.79.7	<u>SPECIFICATIONS OF 8 PORT L2 MANAGEABLE PoE SWITCH</u>		
	8 port L-2 manageable switch ((Fully loaded 02 SFP Modules) as per RDSO specification No. RDSO/SPN/83/2014, Ver.1.0, Amendment-1 or latest. It shall be of good quality to make HFCL, Tejas, CISCO, Extreme, Juniper, Allied Telesis HP, Netgear or better. Minimum with 03 Years Warranty. Samples shall be approved from Consignee/Engineer Incharge before supply. All Switches to be installed in Racks and configuration and commissioning of switches as to be done as per requirement of site In charge and Engineer In charge.		
1.79.8	<u>LAYING OF 6 CORE OFC CABLE</u>		

	<p>Laying of 6 Core OFC Cable shall be through PVC casing capping /PVC rigid pipes. Fixing/Laying material shall be arranged by the contractor in the offered cost as per site requirement, as per officer incharge and site incharge.</p> <p>Fixing, termination and splicing of OFC cable in LIU and FDMS as per site requirement as per Site Engineer incharge and as per Officer incharge.</p>
1.79.9	<p><u>SPECIFICATION OF 24 PORT RACK MOUNTABLE LIU ALONG WITH ALL ACCESSORIES & ITS INSTALLATION</u></p> <p>LIU shall be of reputed make.</p> <p>Samples shall be approved from Consignee/Engineer Incharge before supply. LIU shall be fitted in 19" Rack.</p> <p>LIU shall have sufficient numbers of splicing Tray and other accessories as per requirement Nos. of fibre to be terminated. Minimum 24 fibres.</p> <p>Splicing and termination of OFC in LIU box should be done with pigtail of 1 Metre length with LC type connectors and required 24 nos. of LC to LC patch cords of 1 mtr. Length for connecting LIU to switch of same make of LIU.</p>
1.79.10	<p><u>SPECIFICATION OF FXS GATEWAY (48 PORT)</u></p> <ul style="list-style-type: none"> ● Should be possible to mount it on a standard 19" rack and 600mm x 600mm. All mounting hardware for the same shall be supplied. ● Should have at least 48 FXS ports for connecting analog phones. ● Should support SIP as per RFC 3261. ● Should support T.38 Fax Pass through over IP. ● It should support voice codecs: G.711 (a-law/p-law), G.723.1, G.729a, G.726. ● Should support IPv4 and IPv6. ● Should have one Gigabit Ethernet port to connect to LAN. ● Should support IEEE 802.1q based VLAN tagging. ● Should support caller ID presentation on the analog phones when working with the SIP server provided. ● Should support comfort noise generation for comfortable telephony. ● Should support SIP registration with at least two SIP servers - primary and secondary and should have the capability to use the secondary SIP server in case primary SIP server is not available. ● Subscribers connected to FXS gateway should be able to dial each other in case connectivity to SIP servers is lost (fall back feature). ● Should have inbuilt dial planner for simple call routing capabilities. ● Should have a Telco connector to terminate the FXS ports on an IDF for further wiring. ● Should be possible to configure the gateway using telnet/SSH/HTTP. ● Should support Configuration Backup/Restore. ● Should support SNMP management. ● Should support remote logging through syslog server.

	<ul style="list-style-type: none"> • TheFXSportsshallsupportuptoadistanceof5km(minimum)overP1JF copper cable of 0.5mm dia. • Ltshouldwork on230VACP power supply. • OEMshouldbe ISO9001:2015andISO14001:2015certified. • Shouldhaveregulatorycomplianceof UL/FCC/CE/TEC. • Should have EMC certification from any NABL accredited lab which is designated by TEC for safety testing of Telecom & IT products.
1.79.11	<u>SPECIFICATION OF CONTROL IP TELEPHONES WITH HANDS FREE AND GOOSENECK MIC</u>
	Supply and installation of control IP telephones with hands free and gooseneck operation for wayside stations as per clause 11 of RDSO/SPN/TC/99/2012 rev.2 or latest.
1.79.12	<u>SPECIFICATION OF 4 PORT GATEWAY</u>
	Supply, installation and commissioning for 4 port Gateway to support 4 port concurrent emergency communication at HQ/Way station to support 4 wire ports/ 4 port Gateway with built in 2 wire to 4 wire hybrid convertor to support 4 wire output as per clause 13 of RDSO/SPN/TC/99/2012 rev.2 or latest.
1.79.13	<u>SPECIFICATION OF IP PHONE</u>
	<p>It should work on SIP technology as per RFC 3261.</p> <p>It should have Dual Gigabit ethernet port with integrated PoE so that the PC can be connected to the SIP phone for normal data service.</p> <p>Option for external power supply should also be available.</p> <p>However, external adaptors are not required to be supplied unless asked for separately. It should support voice codec's G.711(a-law/p-law), G.723.1, G.729a, G.726.</p> <p>Phones should support DTMF in audio, RFC 2833, SIP INFO.</p> <p>Phones should be required with at least two line display systems so that information like incoming calls etc. is displayed on the same.</p> <p>Phones should have minimum 4 physical programmable keys to be used for speed dialling as well as monitor in go for extension status of extension.</p> <p>These LEDs shall have the following behaviour:</p> <p>Extension idle: OFF</p> <p>Extension ringing: BLINK</p> <p>Extension busy: ON</p> <p>Phones should have at least 2 user accounts.</p> <p>Pre-Moulded Cat 6 Ethernet patch cord of at least 2 metres should be supplied along with the phone.</p> <p>Phones should support class ½ PoE for it to be environment friendly and use less power.</p> <p>This is required for ensuring that the phones are powered using the existing switches. Phones should support VLAN tagging of voice packets so that data and voice packets use different VLANs.</p> <p>Phones should be IPv4 and IPv6 compliant.</p> <p>The phones should support auto-provisioning through DHCP and HTTP using normal text based files.</p> <p>The format for this text file shall be provided by the firm.</p> <p>Should support NTP and SNTP for time synchronisation.</p> <p>OEM should be ISO 9001:2015 and ISO 14001:2015 certified.</p> <p>Should have regulatory compliance of UL/FCC/CE/TEC.</p> <p>Should have EMC certification from any NABL accredited lab which is designated by TEC for safety testing of Telecom & IT products.</p>

	It shall be of reputed make. Note: Prior approval must be taken before the supply.
1.79.14	<u>SPECIFICATION OF ELECTRONIC PUSH BUTTON TELEPHONE (CLI)</u>
	<p>The electronic push button telephone should have the following main features.</p> <ul style="list-style-type: none"> • Pulse or Tonedialling, temporary switch over possible. • Redial button. • Last number redial. • Ring volume adjustable. • Telephone instruments shall be compatible with the existing Digital exchanges. • It shall have a CLI (Caller Line Identification) facility. • Electronic Push Button Telephone Instrument should be of Panasonic, Beetel or BPL make or better. <p>Note: Prior approval must be taken before the supply.</p>
1.79.15	<u>SPECIFICATION OF 1KVA ONLINE UPS</u>
	<p>A. This UPS shall be pure sine wave online UPS of 1KVA capacity based on IGBT based B. switching device. C.</p> <p>D. UPS shall work with the input of normal Indian power supply i.e. Single phase with 160V-270V at 50Hz (40-60Hz). The output shall be single phase, 50Hz & 230V AC. Power factor shall be 0.8. There shall be an electromechanical bypass facility in case of the UPS failure due to any reason.</p> <p>E.</p> <p>F. Protection like overvoltage, short circuit and overload at UPS output terminal, under G. Voltage at the battery terminal is a must. Necessary surge protection devices need to be H. available in the UPS. I.</p> <p>J. The UPS shall be supplied with maintenance free batteries (Reputed make) to provide a back-up of at least 60 Mins. at full load of 1KVA. Charging system of the UPS shall be such that in future backup time can be increased by adding more batteries.</p> <p>K.</p> <p>L. The UPS should have a proper LCD display & indications to show voltages, currents, frequency and various status of working of the UPS. Minimum indication of i) Mains ON ii) Load on Battery iii) Battery on Charge & iv) Battery Low shall be available.</p> <p>M.</p> <p>N. It shall be possible to monitor the UPS from a remote location through the LAN network.</p> <p>O.</p> <p>P. UPS along with its battery shall be housed in a suitable Rack. This rack shall be provided by the contractor.</p> <p>Q.</p> <p>R. Make of the UPS shall be APC/Delta/Emerson or better. S.</p> <p>T. Note: Prior approval must be taken before the supply.</p>
1.79.16	<u>SINGLE POLE DCMCB 6 AMPERE</u>
	Supply of Single Pole DCMCB 6 Ampere 'C' Curve. Make Havells, HPL, L&T or better as per Instruction of Engineer Incharge.
1.79.17	<u>SPECIFICATION OF CAT-6 CABLE.</u>
	It shall be of reputed make like Molex, AMP or D-Link

	Type	UnshieldedTwistedPair, Category6,ANSI/TIA-568-C.2 complied
	Conductors	23AWG solid bare copper
	Insulation	Polyethylene
	Separator	Crossshapedseparatorbetweenpairs.
	Jacket	FlameRetardant PVC- Must forSafetyCompliance
	Approvals	UL Listed
		ETLverified to ANSI/ TIA568-C.2 Cat6
	Packing	Box of305 metres
	Note: SupplyofCAT-6enhancedcablewithidentificationmarks/Ferrules etc.as per InstructionofEngineer Incharge.	
1.79.18	<u>SUPPLYOFSIMBASED4GWIRELESSROUTERWITHDONGLE WITH ANTENNA</u>	
	Cellular:SupportforStaticorDynamic IPAddresses.	
	Cellular Network	
	LTEFDD:B1/B3/B5/B8	
	LTETDD:B34/B38/B39/B40/B41 WCDMA:	
	B1/B8	
	GSM: 900/1800MHz	
	SIMCard	
	DualSIM.Push -PushSIMcardholderswithSealingfacility	
	Ethernet Ports:	
	ConfigurableFour LAN Port-10/100Base-Tper IEEE802.3andOptionalOneWAN Ethernet	
	NetworkProtocols	
	ARP,DHCP, IPv4, IPv6,ICMP,TCP,UDP,HTTP,HTTPS,SSH,NTP,BGP, OSPF, IPsec,GRE,OpenVPN, ZeroTier,TLS,NAT	
	Security:	
	AccessControlRules,Firewalltrafficrules,IPSECVPN,SSH1&2,NAT-T,Port Forwarding, NAT	
	IPSECFeatureswith IKEV1&V2	
	Encryption:DES,3DESandAES128,192,256	
	Authentication:MD5, SHA1, SHA2	
	Supportfor IPsecVPNMultiplepeers-UptoMinimum2Peersper Tunnel	
	Shouldbeabletobuild IPsectunnelsdynamically,pointtopointandpointto multipoint.	
	Theroutershould supportGRE,Open VPN,IPsecVPN,ZeroTier	
	Management:	
	CLIConsole, SSH,HTTP, HTTPs,SNMP v1/v2/v3	
	StatusMonitoring: ICMPtomultipledestinationsforKeep Alive&Self Heal.	
	RemoteFirmwareUpgradethroughHTTP,SCP,TFTP	
	ScheduledRebooting-DeviceshouldbecapabletoprogramAutoRebootingas per configured schedule and time	
	shallprovidencentralisedmanagementsoftwarewithSecure tunnelcommunicationto remote devices (Optional)	

	ICMPping&Traceroute
	LED Indications:
	Shall have suitable Visual Indicators for diagnostics and healthy/unhealthy status of Portssuch as PWR, SQ, SIM1, SIM2, and LAN/WAN. Also should indicate status of Fast Ethernet LAN Port
	Operating Temperature -0C to 55C
	Power
	12/24VDC Operation with reverse polarity protection and External Power Supply adapter with 230VAC
	Accessories
	Ethernet Cable-1 No. & Suitable antenna-1 No.
	Certification-IEC
	IEC:61000-4-2
	IEC:61000-4-3
	IEC:61000-4-4
	IEC:61000-4-5
	IEC:61000-4-6
	IEC 62368-1:2018
	Regulatory Compliance
	Bidders shall confirm that offered product is MTCTE Approved as per (DOT/TEC) DEPARTMENT OF TELECOMMUNICATION, GOVERNMENT OF INDIA
	Bidders shall share and submit the IEC & MTCTE Compliance Certificate for the same
1.79.19	<u>SUPPLY OF 5 PAIR 0.5 MM COPPER CONDUCTOR:</u>
	It shall be of annealed copper conductor, PVC insulated switchboard telephone cable as per Specification No. G/WR-06/03 Mar 2002 or latest. It shall be of good quality to make Delton, Finolex, Usha or better.
1.79.20	<u>SUPPLY OF HDPE DUCT</u>
	Supply of HDPE duct 40/33 mm as per RDSO/SPN/TC/45/2013/Rev 2.0 with latest amendments as available. For each Km of HDPE duct following items are to be supplied a) End Plugs - 2 no. b) Cable sealing plugs - 2 no. c) Plastic couplers slip fit/push fit type - 2 no. d) End plugs to be provided along with drum - 2 nos.
1.79.21	<u>TRANSPORTATION AND LAYING OF HDPE PIPE:</u>
	Transportation and Laying of HDPE pipe as per approved cable route plan in the excavated trench, taking due care while transporting and laying the same in the trenches or other protective works. Both the end of the ducts should be sealed with end plugs before relaying and should.
1.79.22	<u>BLOWING OF OFC THROUGH HDPE DUCT:</u>
	Blowing of OFC through HDPE duct & protective work. Where it is not feasible to blow OFC due to curves, road/track crossings, bridges or for any other reason, OFC shall be drawn or laid manually as per the standard procedure. All the equipment and machinery required shall be arranged by the contractor at his own cost.
1.79.23	<u>SPECIFICATION OF SPLICING OF FCC CABLE AND MAKING THE SPLICE JOINT</u>
	Splicing of laid under above items OFC cable and making the splice joint in dust free

	environment with contractor's own equipment and labour, Straight joint enclosure (SJC) is covered under schedule „A' remaining all required materials, tools, plants shall be arranged by the contractor. Splicing shall be started from one end and each splicing shall be monitored after splicing and after closing the enclosure for all the fibres from one central location by contractor's engineer with his own OTDR and optic Talk set with railway engineer, trace for the fibres shall be taken and signed jointly, if any fibre splice shows high loss / lossy event, the same shall be redone before completion of splicing work. The splice loss shall be as per the policy/ technical circulars issued by the railway from time to time.
1.79.24	<u>UPPLY OF OFC JOINTING</u>
	Supply of OFC jointing pit size 0.6m X 0.8m X 1m. The material shall be supplied as per engineer in charge.
1.79.25	<u>SPECIFICATION OF STRAIGHT JOINT ENCLOSURE</u>
	2X24 fibre optic fibres splice straight joint enclosure (SJC) complete with all accessories as per RDSO/SPN/TC/68/2014, Rev.3 or latest specs for 24 fibre OFC cable with latest amendment.
1.79.26	<u>LAYING OF PVC CABLE / CAT6 CABLE</u>
	Laying PVC Cable / CAT6 cable in through casing-capping on wall including laying material like 3 way / 4 way junction box T-Joint etc. and as per instruction of supervisor in charge.
1.79.27	<u>SUPPLY OF 48V, 50 AMP BATTERY CHARGER</u>
	Supply, installation, testing and commissioning of 48 V. 50 amps battery charger for telecom use as per No. RDSO/SPN/TL/23/99 (ver.4) or latest in N+1 configuration i.e. using 3 modules of 25 amps with automatic switching between the modules for two sets of 200 AH battery. It shall be equipped with surge and lightning protection of class 'B' and 'C' the configurations shall be decided as per site requirement.
1.79.28	<u>SPECIFICATION OF 19" 42U RACK</u>
	Floor Standing Rack shall be of Size – 42U.
1.79.29	The 19" Rack structure width 60mm and depth 800mm for housings should be made of 1.6mm thick Mild Steel A. Each Rack should have 1-No Front-Glass-Door of 4mm thick covering the entire length of the rack that should be fitted / pasted to Front-Door-Frame by using silicon sealant. The material thickness of the Front & Rear – Door Frames should not be less than 0.9mm with a capability of opening up to 180 degree approximately with locking arrangement, detachable & interchangeable hinges. Front & Rear Door should have Polyurethane Gasketing. Racks should have Locks on all sides, which can be unlocked and opened by a single key. Cable manager, 24 port RJ45 patch panel (CAT6) and equipment trays as per site requirement. B. The thickness of Top-Cover & Bottom-Base material should be at least 1.2mm. The Top Covers should have Cable-Entry holes of size 40mm in diameter with Rubber Rings and suitable Gland Closure Plates. C. The Side Panels of the Rack should be detachable having ventilated fins flush fitted with Air filters up to 1/3rd height to avoid dust entry. D. The Power Distribution Channel (AC) should have 4 Nos. in 42U with switch of 5 Pin Type and 5 Amps capacity with common Fuse and Indicator. All the Sockets must be Industrial quality either LEGUARD or CRABTREE or ANCHOR or ZODIAC Make. Suitable capacity Mains 3 Core Cable of 3 Mts. Length with 15 Amp Mains Plug must be given with this box. Total quantity for this item is 2-Nos. per Rack. The Socket should be mounted vertically on a PVC base at the back side of the Rack. E. Each Rack should have Heavy Duty Castor except 42U consisting of 2-Nos. with Brake and 2-Nos. without Brake. The castors are to be mounted on a separate Plate.

	F.EachRackshouldhave4-Nos.CoolingFansofHicoolMakeorsuperiorof230VAC MainsRatingwith supplyCable and Plug, fitteddirectlyinsidetheTop Cover.																											
	G.PVC CableChannel ofsize45 (H)X800(W)mmoffull rack length, in 42U.OneNoof 19” Cable Manager with 5-Hooks for Power Cable is required with each Rack. Cable Guides,CableTies,tiesHolderscableMarkersshouldbesuppliedforeasy identificationandlacingofCable.																											
	H.1-NoCopperEarthing- Bar/StripwithTinPlatingofCrossSection1”X¼”tobeprovidedhorizontallyontherearsideoft herackfulllengthof19”Widthwithsuitable tappingto be suppliedwith each Rack.																											
	I. TheRackstructureshouldbefullyPowderCoatedwithacombinationofDark&Light Greyshade. Doors-Framesshould bein lightGreyshade.																											
	J. FrontPanelMountingHardware(Onesetconsistingof1NoCupWasher,1-NoCage Nut,and 1-No M6Screw) set, 20-Nos.per Rack is required.																											
	K.MCBPanel(withoutMCB)forhousingofminimum10MCBshallbeavailableatthe topof theRack,with +ve and –vebus bar forprovision ofDCPower Supply.																											
	L.TheRackshould beValrack /Vero president/ Rattleor better.																											
1.79.30	SPECIFICATIONFORLC-SC/SC-SC/LC-LC/FC-LCOFCPATCHCORD10.0MTR.																											
	LENGTH																											
	Itshallbeofgoodqualityandofreputedmake.SampleshallbeapprovedfromConsignee/ EngineerInChargebefore supply.																											
	<table><tr><th>Parameter</th><th>Unit</th><th>Measurement</th></tr><tr><td>Insertionloss(IL)</td><td>dB</td><td><=0.2</td></tr><tr><td>Returnloss (RL)</td><td>dB</td><td>>=50</td></tr><tr><td>Repeatability</td><td>dB</td><td><=0.2</td></tr><tr><td>Changeability</td><td>dB</td><td><=0.2</td></tr><tr><td>Operatingtemperature</td><td>°C</td><td>-35to +70</td></tr><tr><td>Storagetemperature</td><td>°C</td><td>-35to +70</td></tr><tr><td>Fibre type</td><td></td><td>G657(A1/A2)/G652D</td></tr><tr><td>Fibrediameter</td><td>um</td><td>SM-9</td></tr></table>	Parameter	Unit	Measurement	Insertionloss(IL)	dB	<=0.2	Returnloss (RL)	dB	>=50	Repeatability	dB	<=0.2	Changeability	dB	<=0.2	Operatingtemperature	°C	-35to +70	Storagetemperature	°C	-35to +70	Fibre type		G657(A1/A2)/G652D	Fibrediameter	um	SM-9
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1.79.31	SPECIFICATIONFORINSTALLATIONOFMATERIALCONSISTINGDCDB,DC																											
	DISTRIBUTIONARRANGEMENT																											
	<table><tr><th>S N</th><th>Description</th><th>Unit</th><th>Qty</th></tr><tr><td>1</td><td>100 pair IDC (disconnection)typetagblockcompletewith 10 no. of 10 pair disconnection modules with Label holder & Back mount frame, Plug number and dust cover with, drain wires to an earth contact without soldering (similar to model STG2C210PU and69011006-00make3MormodelLSAplusmakeADC Krone)</td><td>No.</td><td>3</td></tr><tr><td></td><td>i. TestCord 2/2, 2 poleopenended with 1 plug2/2 ii. TestCord 2/4, 4poleopen endedwith 1 plug2/4 iii. ConnectionCord2/2 2polewith Plugs iv. TestCord 2/4,4 polewith 4bananaPlugs v. DisconnectionPlug1 pair15No. (red) Make3MormodelLSA plusmakeADC Krone)</td><td></td><td></td></tr><tr><td>2</td><td>DistributionBox(DB-48VDCandDB+48V DC) DCPower–DistributionArrangement:-Eachcrossconnect Rack shall be fitted at the top of the Rack with 2 numbers (oneeachfor+veand–veleads)ofDistributionBlockshaving8</td><td>No.</td><td>2</td></tr></table>	S N	Description	Unit	Qty	1	100 pair IDC (disconnection)typetagblockcompletewith 10 no. of 10 pair disconnection modules with Label holder & Back mount frame, Plug number and dust cover with, drain wires to an earth contact without soldering (similar to model STG2C210PU and69011006-00make3MormodelLSAplusmakeADC Krone)	No.	3		i. TestCord 2/2, 2 poleopenended with 1 plug2/2 ii. TestCord 2/4, 4poleopen endedwith 1 plug2/4 iii. ConnectionCord2/2 2polewith Plugs iv. TestCord 2/4,4 polewith 4bananaPlugs v. DisconnectionPlug1 pair15No. (red) Make3MormodelLSA plusmakeADC Krone)			2	DistributionBox(DB-48VDCandDB+48V DC) DCPower–DistributionArrangement:-Eachcrossconnect Rack shall be fitted at the top of the Rack with 2 numbers (oneeachfor+veand–veleads)ofDistributionBlockshaving8	No.	2											
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	outputs for terminating the DC input supply from Power room and its distribution upto 8 outputs. The outputs shall then be terminated to individual DC MCBs of required ratings for feeding power to the individual equipment. These MCBs shall also be mounted at the top of the Rack by the side of the Distribution Blocks. Din Rail Mounted Terminal Blocks shall be used for Distribution of 48V DC Supply which are standard modular terminal blocks to sector specific connecting terminal blocks. The Complete unit shall be offered with screw connection / rising cage clamp connection, spring cage technology based standard din rail terminal blocks, fuse blocks disconnect blocks, panel mount blocks, feed through blocks, multi-tier blocks and initiator/actuator blocks, Rail, End Covers, Label Block etc.		
3	i) MCBs 6 Amp single pole (Ratings shall be advised at the time of supply by Engineer In-charge)	No.	8
	ii) MCBs box for 8 MCBs make L&T or similar		
4	Battery cable 10 Sq.mm multi strand copper wire conforming to IS 694-1990 for each OFC shelter between battery load and charger		
	i) Battery wire Red colour	Mtr	30
	ii) Battery wire Black colour	Mtr	30
	iii) Battery wire Yellow colour	Mtr	30
5	Battery cable 6 Sq mm between DC DB to STM-I and PDMux		
	i) Battery wire Red colour	Mtr	10
	ii) Battery wire Black colour	Mtr	10
	iii) Battery wire Yellow colour	Mtr	10
6	Lug for 10 Sq mm cable	No.	50
7	Lug for 6 Sq mm cable	No.	20
8	HRC fuse		
	i) 20 Amp HRC fuse cartridge	No.	6
	ii) 20 Amp HRC fuse (Male-Female housing)	No.	6
	iii) Wooden box 2 no.	No.	2
9	4 No. of 12 ways screw type terminal block suitable for single strand conductor of (0.4 to 0.9 mm dia) 2X6 quad cable termination on termination blocks.	No.	4
10	Rotary switch 1 pole 3 way make before break makes L&T at least 40 Amp.	No.	1
11	Box for Rotary switch metallic	No.	1
12	25mm X 6mm X 600mm copper earth strip	No.	1
13	Jumper wire (0.5 mm Conductor dia) as per TEC specification no. GR/WR-10/03 Sep. 2006	Mtr	200

1.79.33 SPECIFICATION FOR INSTALLATION OF CLASS B, C & D TYPE LIGHTNING PROTECTION
Technical Specification and requirements for Surge Arrester (Class B & Class C) as RDSO Specs. RDSO/SPN/TC/98/2011 Ver. 0 or latest amendment.

Specification	
Parameters	Limits

		Line to Neutral	Neutral to Earth
1	Nominal Voltage, Un	230V	230V
2	Maximum Continuous AC Voltage, Uc	>300V	>255V
3	Nominal discharge current 8/20 μ s. (In)	>3KA	>3A
4	Maximum Discharge Current (8/20) μ s) Imax	>5KA	5A
5	Voltage Protection Level Up	>1.5KA	>1.5KA
6	Operating temperature/RH	-10°C to +60°C/95%	-10°C to +60°C/95 %
7	Indication	Mandatory	Optional
8	Degree of protection	IP20	IP20
9	Housing	Fire Retardant as per UL 94	Fire Retardant as per UL 94

For protection of power supply port of telecom devices working on 230V AC and kept in users premises like yard masters room, ASM room etc,

1. This device shall be housed to provide Min 3 Nos of 3 pin Indian style sockets.
2. It shall be provided with indication regarding faulty/healthy conditions.
3. It shall have following characteristics and features.

1.79.34 SPECIFICATION OF INSTALLATION OF FIBRE DISTRIBUTION MANAGEMENT SYSTEM

Transportation and Installation of Fiber Management System and splicing, and termination 2 X 24 optic fibre cable of the both ends as per site requirements, complete with all required materials, Fittings, and accessories at contractors own cost.

1.79.35 150MM WIDTH X 50MM DEPTH X 1.6MM THICK SIZE PERFORATED GI Cable tray

Supply and Installation of 150mm width x 50mm depth x 1.6mm thick size perforated GI cable tray including horizontal and vertical reducers, tees, cross members and other accessories as required and duly suspended from the ceiling with GI suspenders. All installation work will be completed the instruction of Engineering supervisor of the work

1.81 HDPE 125 (OD), PN8, PE100 with thickness (7.4MM to 8.2 MM):-

1. High Density Polyethylene) pipe specification is required for Use with special installation techniques like horizontal directional drilling
2. HDPE pipe is Manufactured as per IS standards
3. AVAILABLE SIZES, TYPES & PRESSURE Class:- 125 Outer diameter, PN8 (For PE 100).
4. Working temperature from -40°C to +45°C.
5. Chemically inert as well as excellent corrosion and abrasion resistance
6. High Durability and Excellent Service Life of more than 25 years
7. Leak proof Joint and suitable with different HDPE joining Methods
8. High Impact Strength, high toughness and excellent crush Resistance
9. Excellent performance in aggressive climatic conditions having superior UV and low temperature resistance with antimicrobial properties
10. Smooth inner walls enhancing high flow with less friction loss and superior water hammer

	resistance
	11. HDPE pipe shall be marked at every 1 mtr length in such a way that manufacturer's name, vender name can be easily identified.
	12. One of the following coupling arrangements should also be supplied with each pipe as per the site requirement. Suitable snap fit coupler with rubber 'O-Ring/Spacers/Tees/Bend/End-cap
	13. Coillengthshall beasper instructionofengineer.

Deputy Chief Signal & Telecom Engineer (Con.)
Western Railway, Vadodara-390004
For and on behalf of the President of India

5852210/2024/O/o Sr DSTE/W/S&T/MMCT/WR

2613



भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
(रेलवे बोर्ड Railway Board)



No. 2024/CE-I/CAO(C)Workshop/part-2

New Delhi, dated: 03.06.2024

The Principal Chief Engineers
All Indian Railways.

Sub: Instructions for incorporating the JPO, Circular etc. Provisions in the Tender Document for all works requiring digging work close to Railway signaling, telecommunication, electrical etc. Cables. .

Ref: (i) Board's letter No. 2021/Tele/5(2)/3-Part(1)(3425647) dated 12.06.2023

Board vide letter under reference (i) "Telecom Circular No. 09/2023" has issue a Joint Procedure Order (JPO) on the subject 'procedure for undertaking digging work in the vicinity of Signaling, Electrical and Telecommunication cables'. (Copy enclosed)

In regard to lodging FIR with RPF in cases of work being executed by authorised contractors who have been duly permitted to execute the works, Zonal Railways are requested to ensure strict compliance of para 9 containing in Board's letter under reference (i) "Telecom Circular No. 09/2023" which is reiterated as under:-

'Para-9:- Railway will not lodge FIR with RPF in cases of works being executed by authorized contractors of Railways who has been duly permitted to execute the works'.

DA:- As above.

03.06.24
(गौरव)

निदेशक सिविल इंजीनियरिंग(जी)

रेलवे बोर्ड

[Phone: 030-47598(Rly) : 011-23307598(MTNL)]
Email address: dceg@rb.railnet.gov.in;

Signature Not
Verified
Digitally signed by
YOGESH KUMAR
Date: 2024.06.25
10:43:45
Reason: PGPS-CRIS
Location: New Delhi

5852210/2024/O/o Sr DSTE/W/S&T/MMCT/WR



भारत सरकार Government of India
रेल मंत्रालय Ministry of Railways
रेलवे बोर्ड (Railway Board)



Telecom Circular No.09/2023

सं.2021/Tele/S(2)/3-Part(1)(3425647)

नई दिल्ली, दिनांक: 12.06.2023

The GM/CMD/MD/PCAO/CAO,
All Indian Railways, KRCL, PUs, CORE, COFMOW
(As per standard list)

The DGs/Directors
RDSO, NAIR, All CTIs

Sub.: Procedure for undertaking digging work in the vicinity of Signalling, Electrical and Telecommunication cables

Ref.: JPO issued vide Board's letter No.2003/Tele/RCIL/1Pt.IX dated 24.06.2013 (Telecom Circular No.17/2013)

A Joint Procedure Order (JPO) for undertaking digging work in the vicinity of underground Signalling, Electrical and Telecommunication cables was issued last vide Board's letter No.2003/Tele/RCIL/1Pt.IX dated 24.06.2013 (Telecom Circular No.17/2013). Notwithstanding the provisions contained in the JPO for protection of cables, a significant number of cable-cut incidents and practical difficulties in implementation of certain provisions of the said JPO were reported.

Board, therefore, constituted a committee of SAG officers to revisit the JPO. Based on the recommendations of the committee, Board (MI) has approved broad guidelines for procedure to be adopted by Zonal Railways for protection of cables while undertaking digging work in their vicinity (Annexure). These guidelines are in supersession of JPO issued vide reference above.

Zonal Railways are requested to issue local instructions/guidelines/JPO implementing these broad guidelines within a month of issue of this letter. Zonal Railways may also ensure that these local instructions/guidelines/JPO are also made part of all tenders for works in the vicinity of cables in accordance with the instructions issued by Civil Engineering Dte of Railway Board vide letter No.2023/CE-I/EDCE(G)/Misc. Dated 18.04.2023.

DA: As above

09/6
24/6/23
(राकेश रंजन)

कार्यकारी निदेशक (दूरसंचार विकास)

दूरभाष: 011-47843012, 030-43012

ई.मेल: edtd@rb.railnet.gov.in

Copy to:

1. PSO to M(I) for kind information of Member/Infra

2. ED/SD, ED/EM, ED/CE/G, ED/GS/C-II for information & ensuring implementation of guidelines in letter & spirit

3. PCSTE, PCE & PCEE, All Indian Railways

कमरा सं.103-ए, रेल भवन, रायसीना रोड, नई दिल्ली - 110001

5852210/2024/O/o Sr.DSTE/W/S&T/IMMCT/WR

(Annexure to letter No. 2021/Tele/S(2)/3-Part(1)(3425647) dated 12.06.2023)

Annexure**Guidelines for protection of cables while doing work its vicinity**

1. Cable route marking for all types of cable must be made available block section wise on Railnet.
2. Before allowing the contractor to work near the tracks, the work executing agency (like SrDSTE/SrDEN/SrDEE or DyCSTE/DyCEE/DyCE etc.) shall ensure that the permission has been granted by the division to the contractor in accordance with the local instructions / JPO to work in the vicinity of the cables. Zonal railways shall devise suitable mechanism and timelines for the obtaining/granting such permission.
3. In case of works being taken up by the State Government, National Highway Authority etc., zonal railways shall devise mechanism for shifting the cables or for proper protection of cables before granting permission to work.
4. The engineering control shall keep all the information regarding any works being done near the track. S&T and electrical control shall obtain this information from engineering control. These controls shall coordinate among themselves to ensure that no work is done in the vicinity of the track without proper permission.
5. The concerned SE/P.Way/SE/Works/SE/Sig/SE/Tele SE/Electrical (TRD or G) or RailTel supervisors supervising the work of the contractor shall ensure that the existing emergency sockets are not damaged due to their importance in providing communication during accident/emergency.
6. For all new works, cable shifting should be a mandatory part of DPR and estimate. For ongoing works, Zonal Railways may sanction works for cable shifting if necessary through contingency/supplementary/revised estimate where provision does not exist. However, in case zonal railways decide not to shift cables (due to any reason) then protection of cable shall be ensured by the zonal railways during execution of the work.
7. Penalty to be imposed for damages to cable shall be as under:

Cable damaged	Penalty per location
Only Quad cable or Signaling cable	₹ 1.0 Lakh
Only OFC	₹ 1.25 Lakh
Both OFC & Quad	₹ 1.5 Lakh
Electrical Cable	₹ 1.0 Lakh





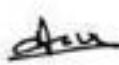

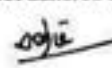




852210/2024/O/o Sr DSTE/W/S&T/MMCT/WR

461

8. Penalty should be levied on the contractor when they work without permission or resort to careless working without making arrangements for protecting cables and other utilities. Based upon the local conditions and practices, zonal railway shall devise its own conditions for examining and levying penalty. For each cable cut, a joint report at the level of supervisors should be prepared on the same day and it should become the basis for levying penalty and fixing responsibility. Joint note should be forwarded by SrDSTE/SrDEE to the executive in-charge of the work. The executive in-charge of the work should act and decide on the cable cut case within 15 days under information to SrDSTE/SrDEE as the case may be. There should be provision of appeal by contractors within one month of notice for levying penalty at ADRM level. Decision of ADRM shall be final and binding upon both parties.
9. Railways will not lodge FIR with RPF in cases of works being executed by authorized contractors of Railways who have been duly permitted to execute the works.
10. Zonal Railways shall issue local instructions/JPO for protection of cables while undertaking works in the vicinity of railway tracks in line with this guideline. Zonal Railways shall also ensure that such instructions become part of their tender document within one month of the issue of the local instructions. Suitable action against erring officials shall also be incorporated in these instructions if the same is not adhered to.

5852219/2024/O/o Sr.DSTE/S/MMCT/WR

2681

पश्चिमरेलवे
प्रमुख मुख्य संचालक एवं दूरसंचार
इंजीनियर का कार्यालय,
5वीं मंजिल, स्टेशन भवन, चर्चगेट,
मुंबई-400 020



Western Railway
Office of the
Principal Chief Signal & Telecom
Engineer,
5th Floor, Station Building Churchgate,
Mumbai-400 020.

No. SG 217/9(Computer No- 433074)

Dt: 08.01.2024.

CSTE/C-I, CSTE/C-II

Sr.DSTE/Co-MMCT, BRC, RTM

Sr.DSTE/S/MMCT, Sr.DSTE/N/MMCT, Sr.DSTE/N/BRC, Sr.DSTE/ADI

Sr.DSTE/Sig/ADI, Sr.DSTE/W/RTM, Sr.DSTE-RJT, Sr.DSTE-BVP

(POLICY NO-01/2024)

Sub: - Shifting and Laying of Signal & Telecom Cable in new doubling
works

In recent past there have been many cases in various Divisions where doubling works or other activity is going on. There is massive cut of Signaling and Telecom cables during the course of earth work or preparatory works. In the current year total 417 cable cut cases have taken place.

Such cuts lead to heavy detention to train traffic and movement of trains by piloting of PLC for hours together.

Therefore, following policy is to be adopted for construction works to avoid cable cuts:

- (i) No work of cable trenching should be carried out without site survey and prior intimation to avoid signal and telecom cable cutting and resulting detention to train traffic.
- (ii) For sections which are targeted for commissioning in the present financial year. Adequate planning for identification (Cable route tracing) and rectification should be done in ongoing contracts along with provision of restoration by trenching, cable laying, jointing etc. to be executed through ongoing works or if required by operating NS items in existing contracts. This may be planned by separate works if decided by construction units.
- (iii) Objective is to obviate and minimize cable cuts of signal and telecom cable and if despite of efforts cable gets cut to achieve the restoration in shortest possible time.
- (iv) For doubling works which are not targeted in the current year S&T Construction Unit should immediately plan works of relocating all the cables in infringement and which are falling under the plan earth work site. In case of

152279/2024/O/o S. BANDOPADHYAY CSE (HAG)/WR/CCG

258

multi tracking, where such relocation is inescapable, the new cable should laid out of all the toe line.

- (v) Sufficient provision in existing contract or new contract in schedule items should be made for restoration of damaged cables. Cable trenching, laying and suitable protection (as per policy of Board) etc. to avoid cable cuts and early restoration in case inadvertent happens.

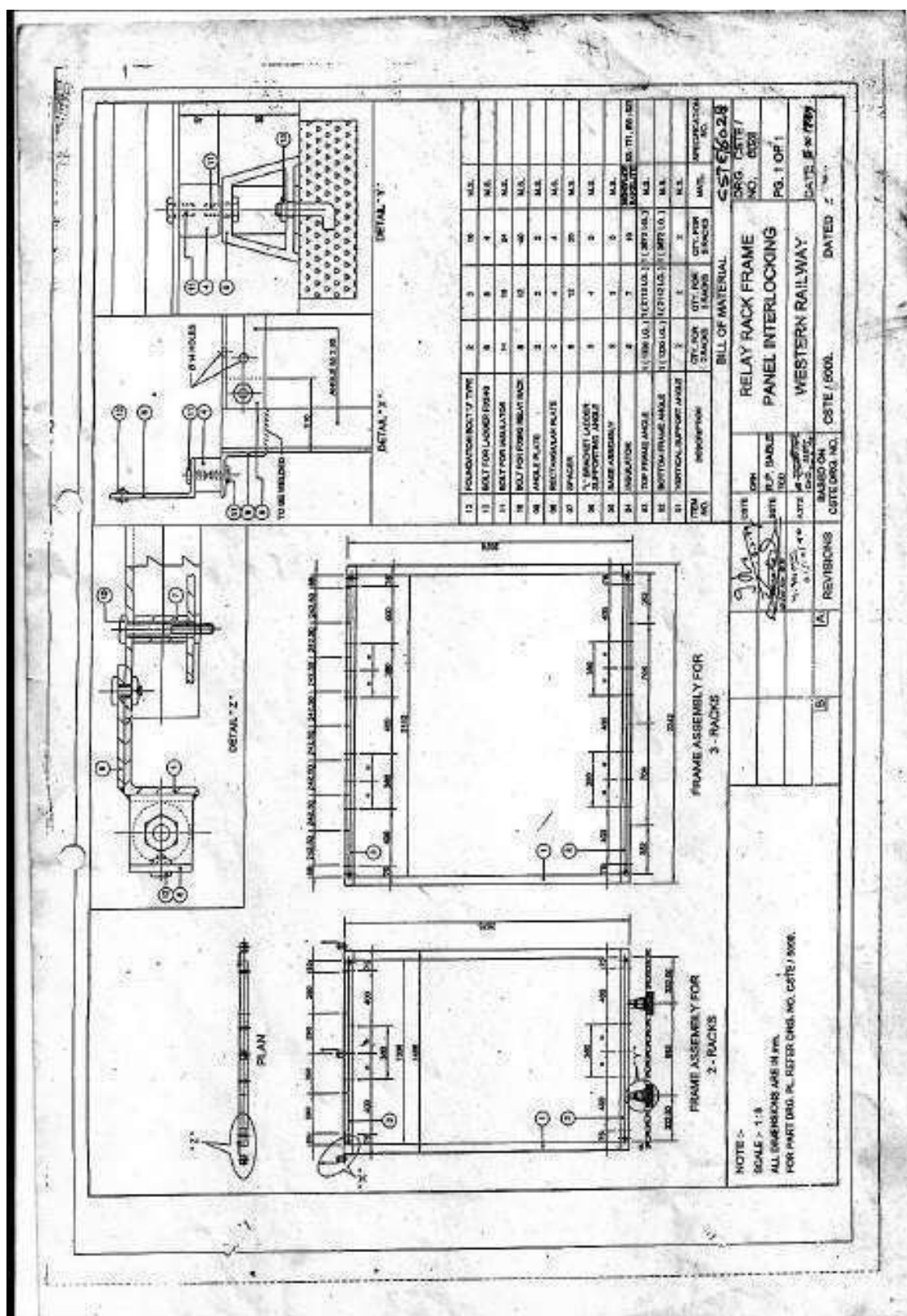
This has the approval of PCSTE/WR.

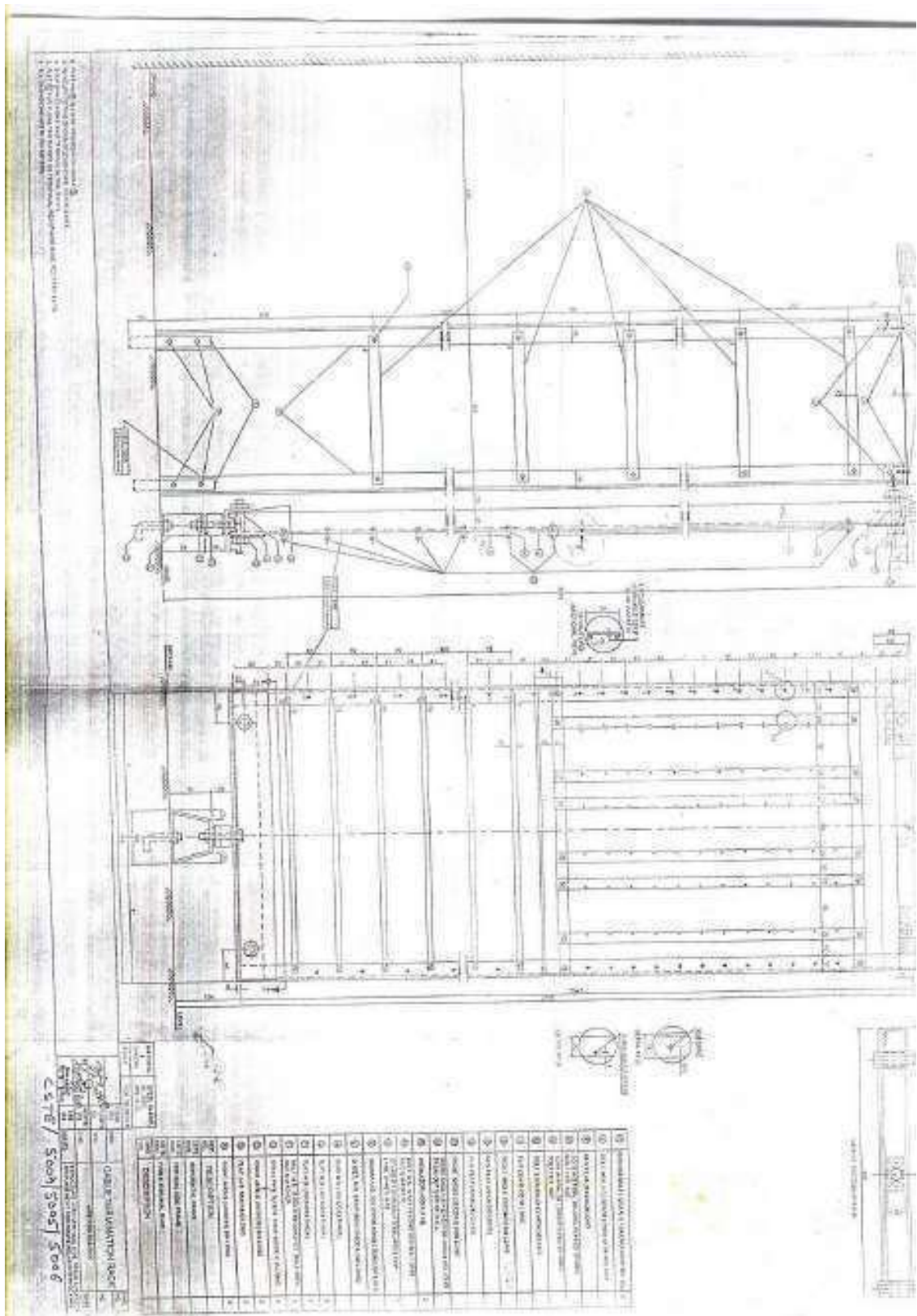

(S. Bandopadhyay)
CSE (HAG)/WR/CCG

Drawings

These drawings are given here for reference, although any deviation or amendment may be taken place as per policy guideline or approval of CSTE C-II-CCG.

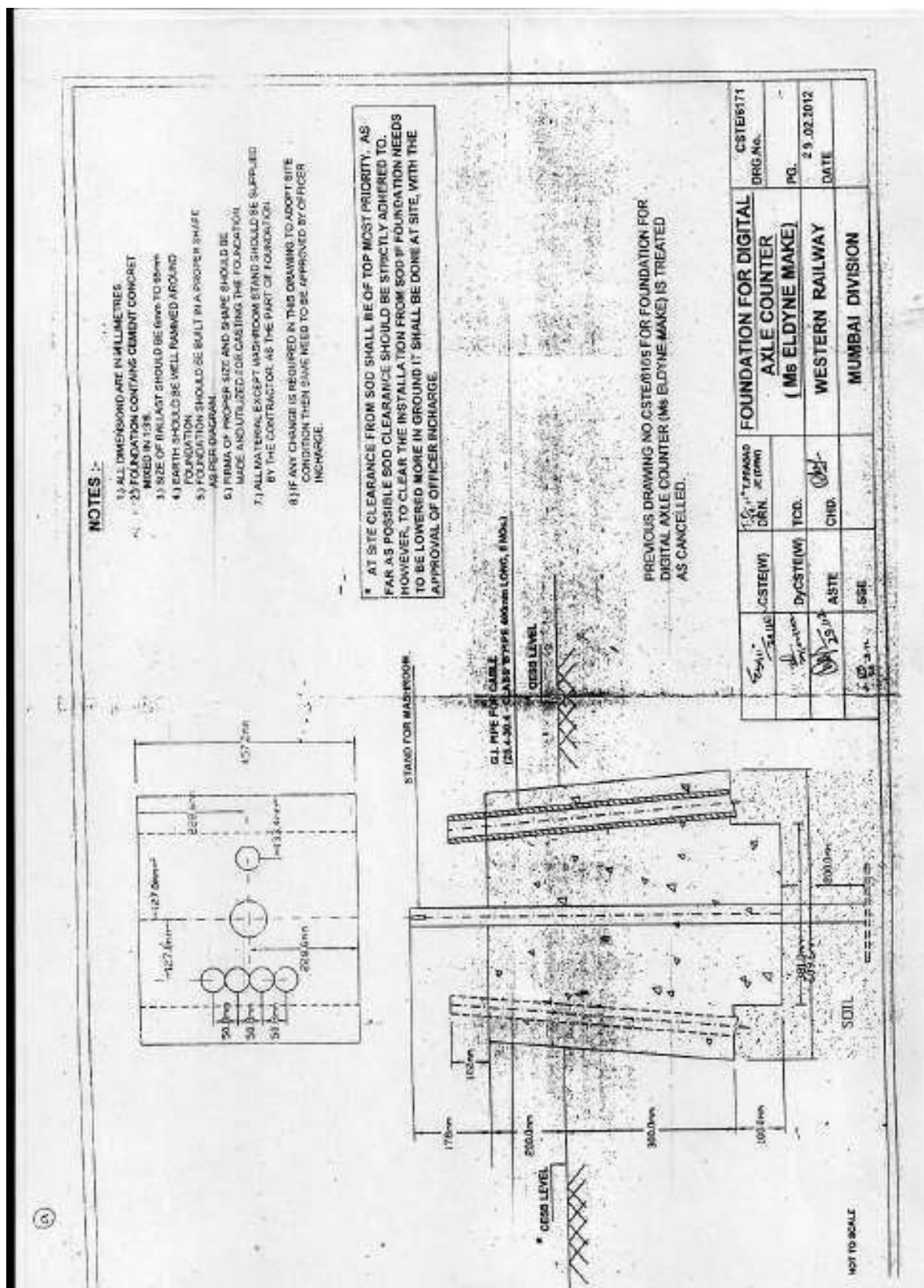
For various standard specifications and drawings pertaining to RDSO, please refer RDSO website.

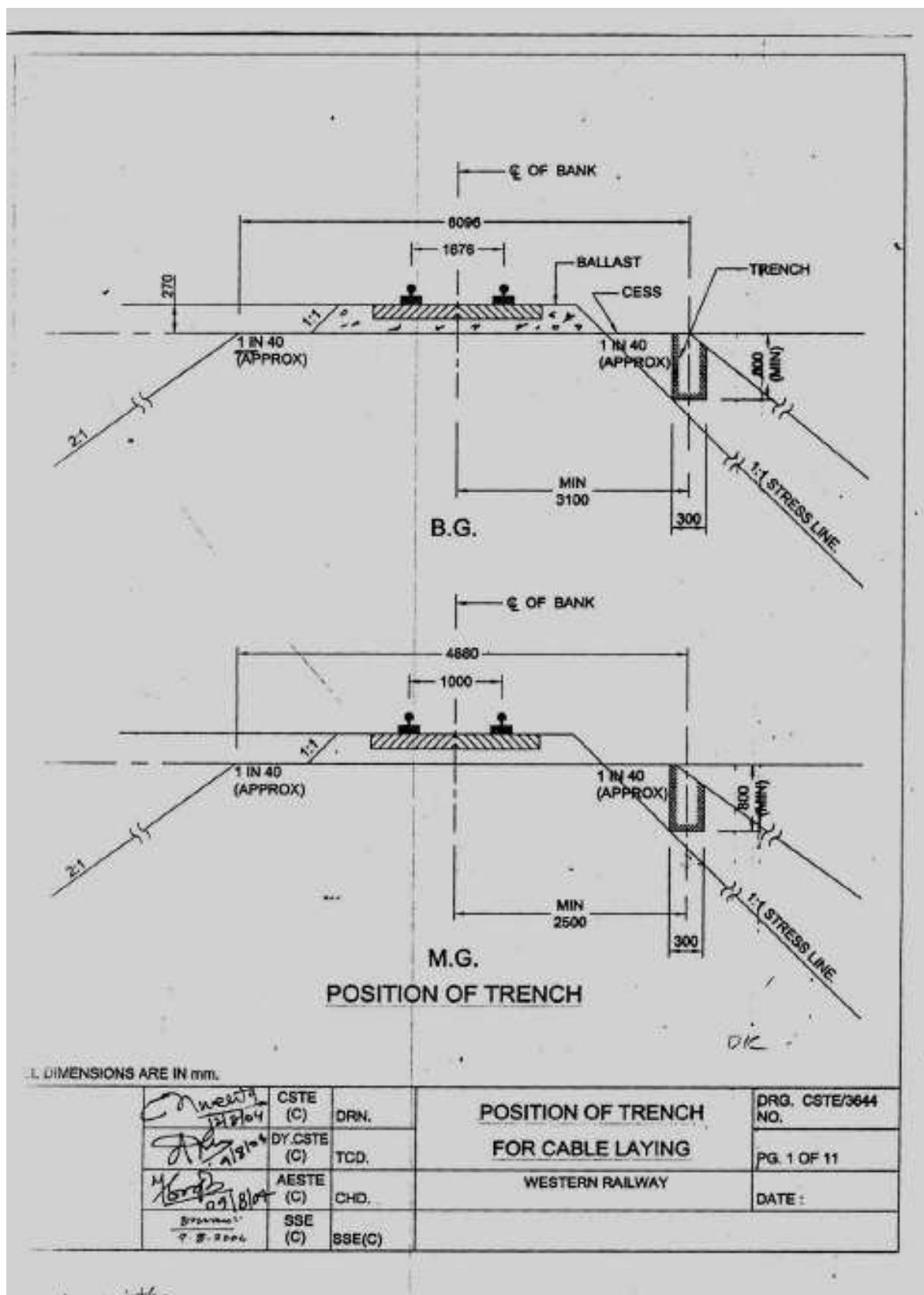


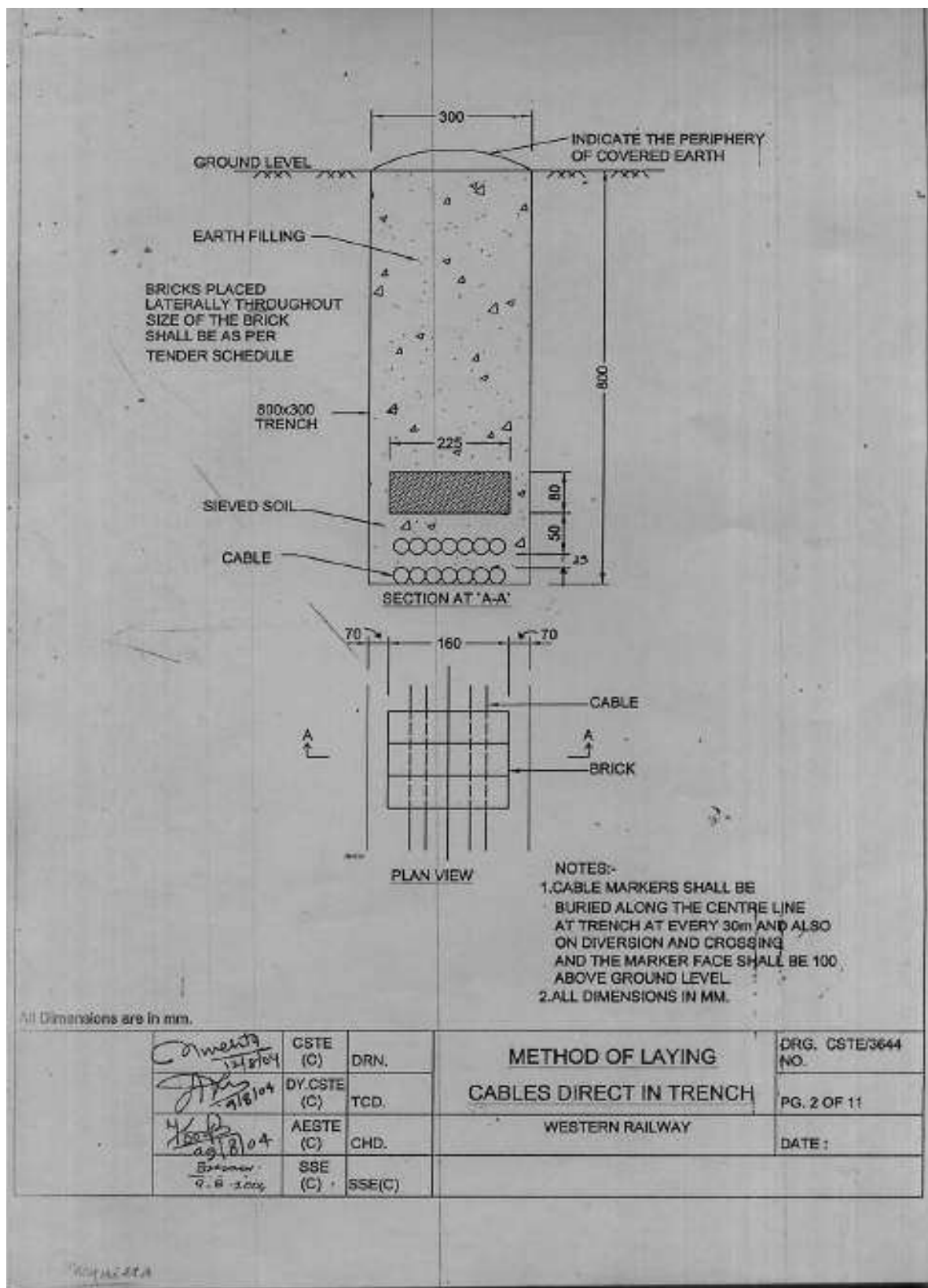


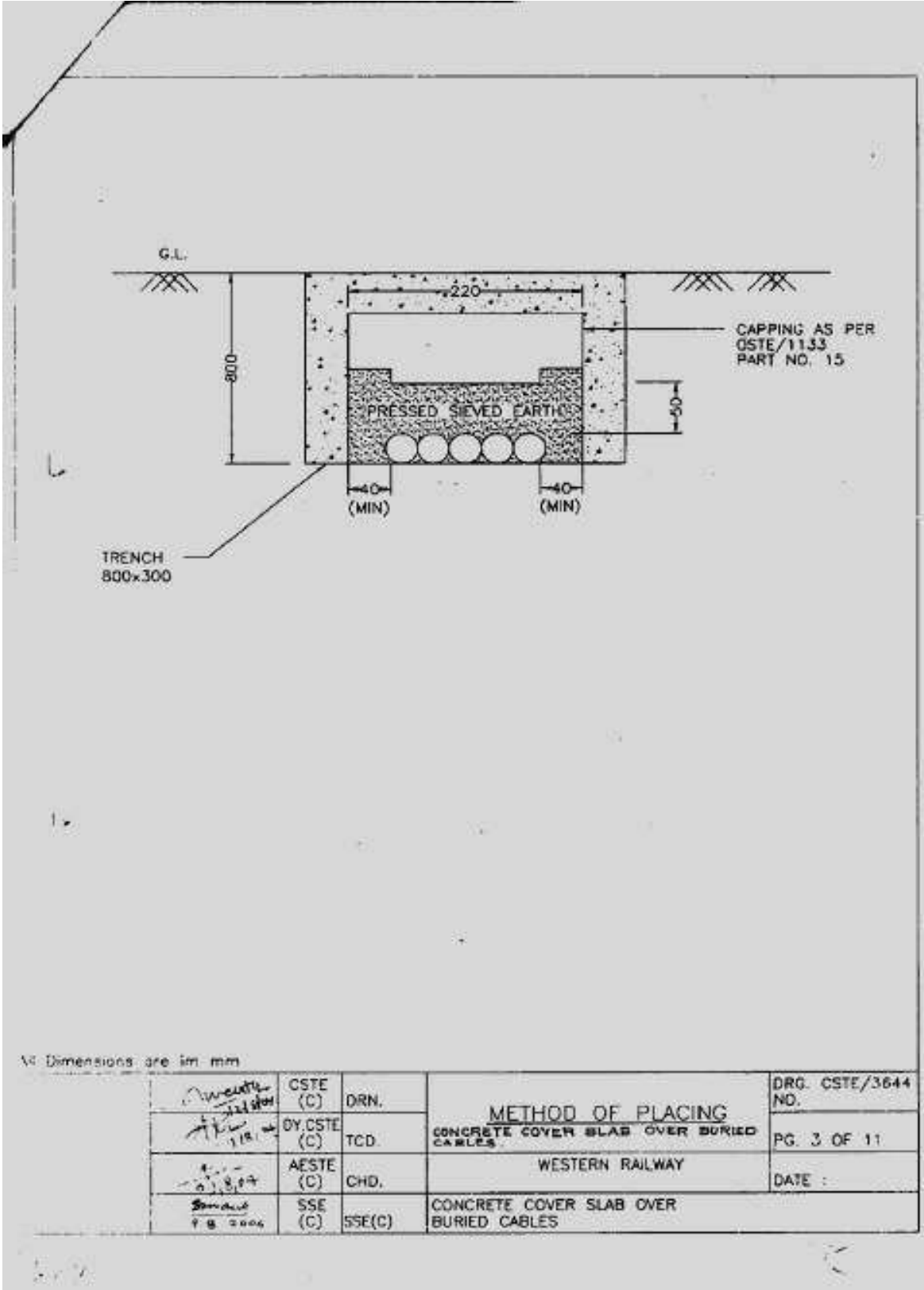


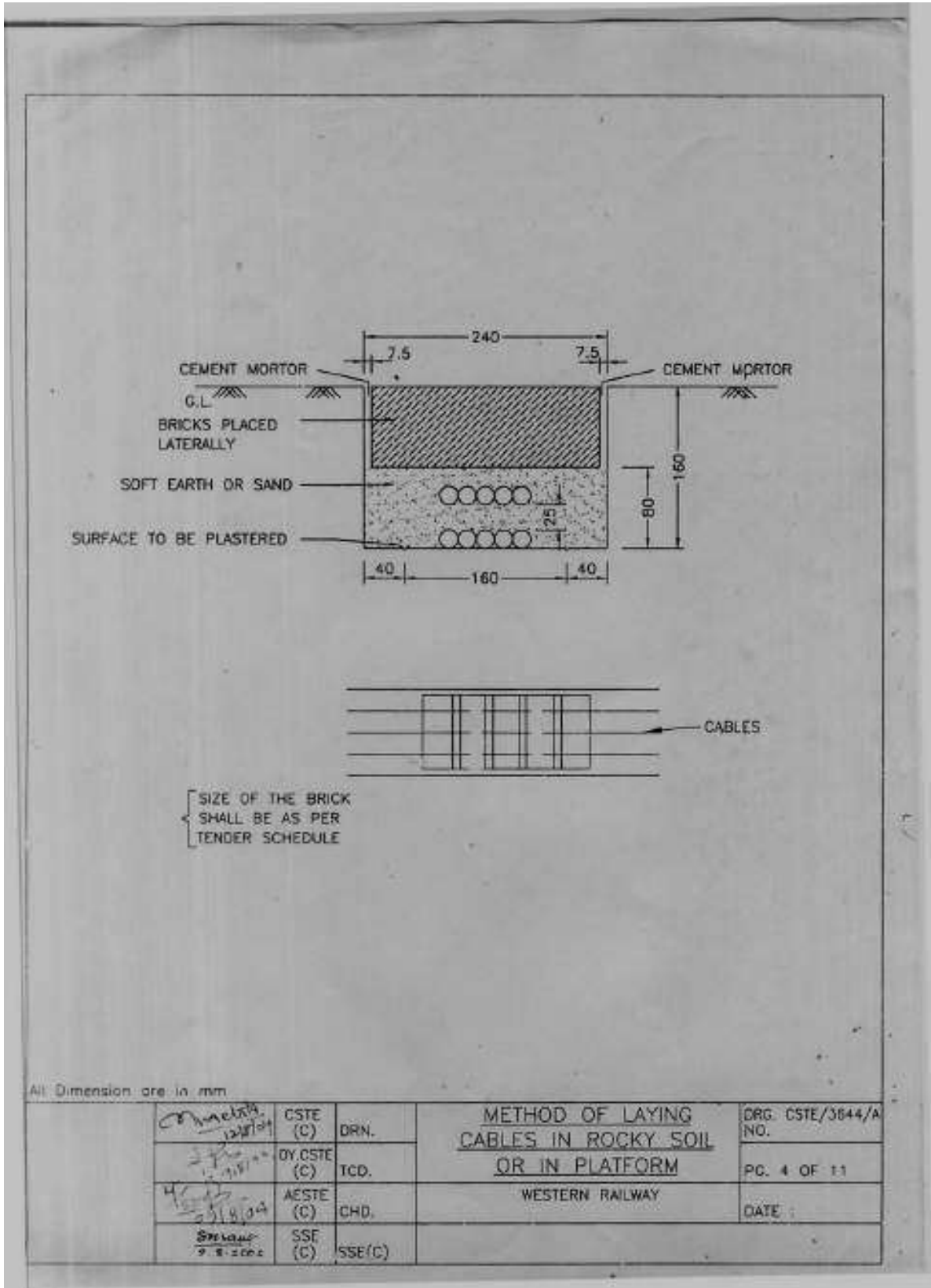


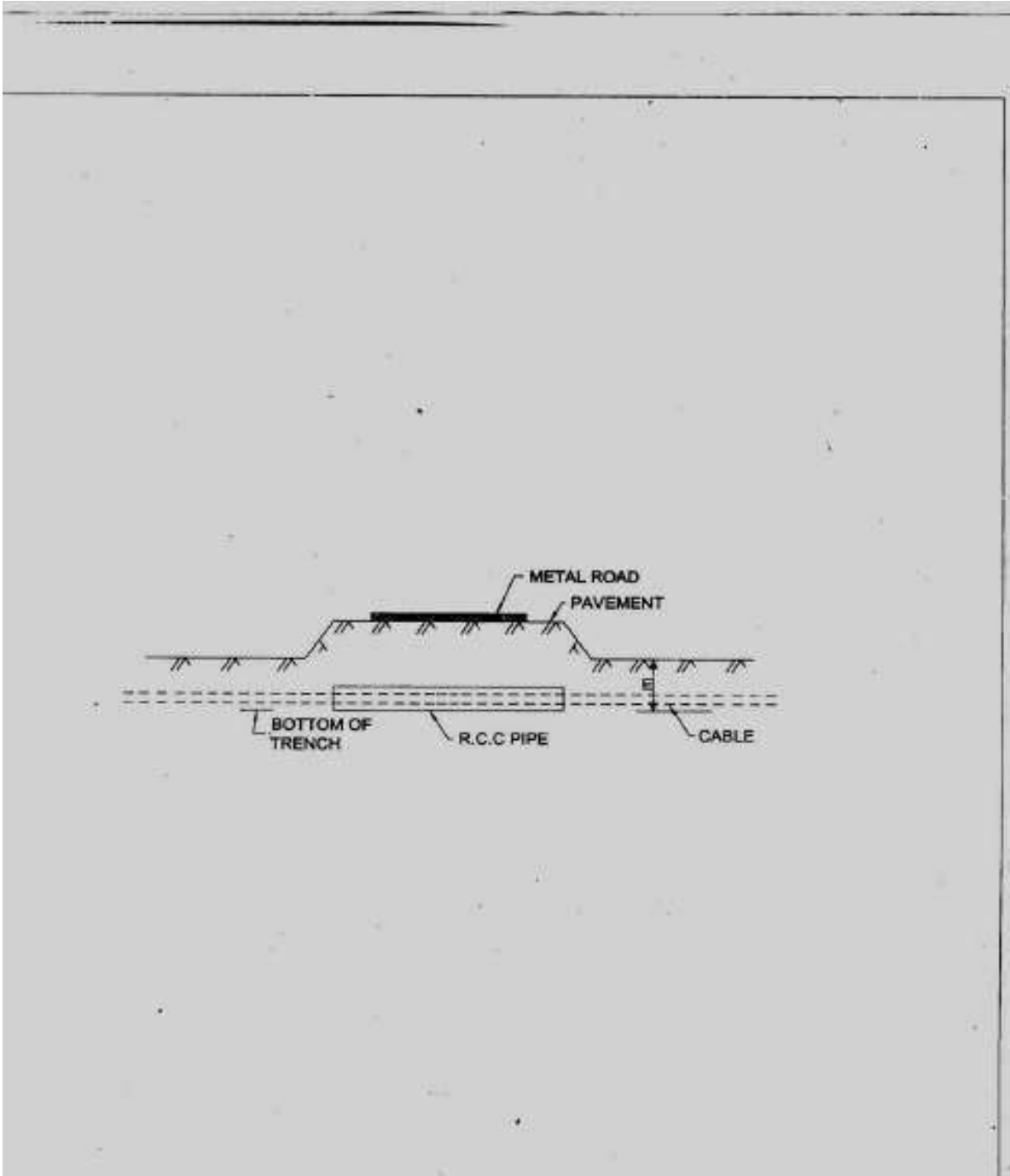






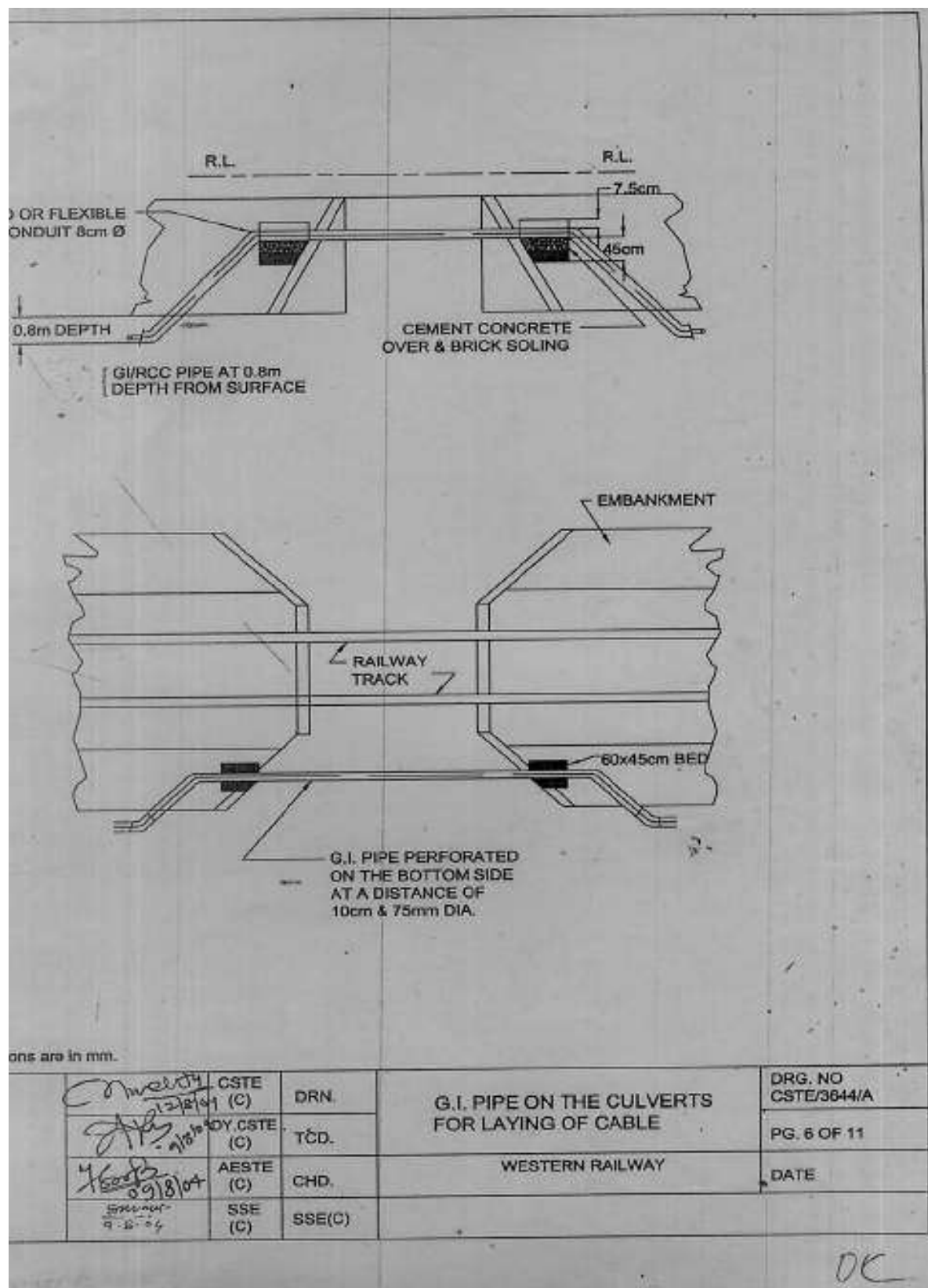


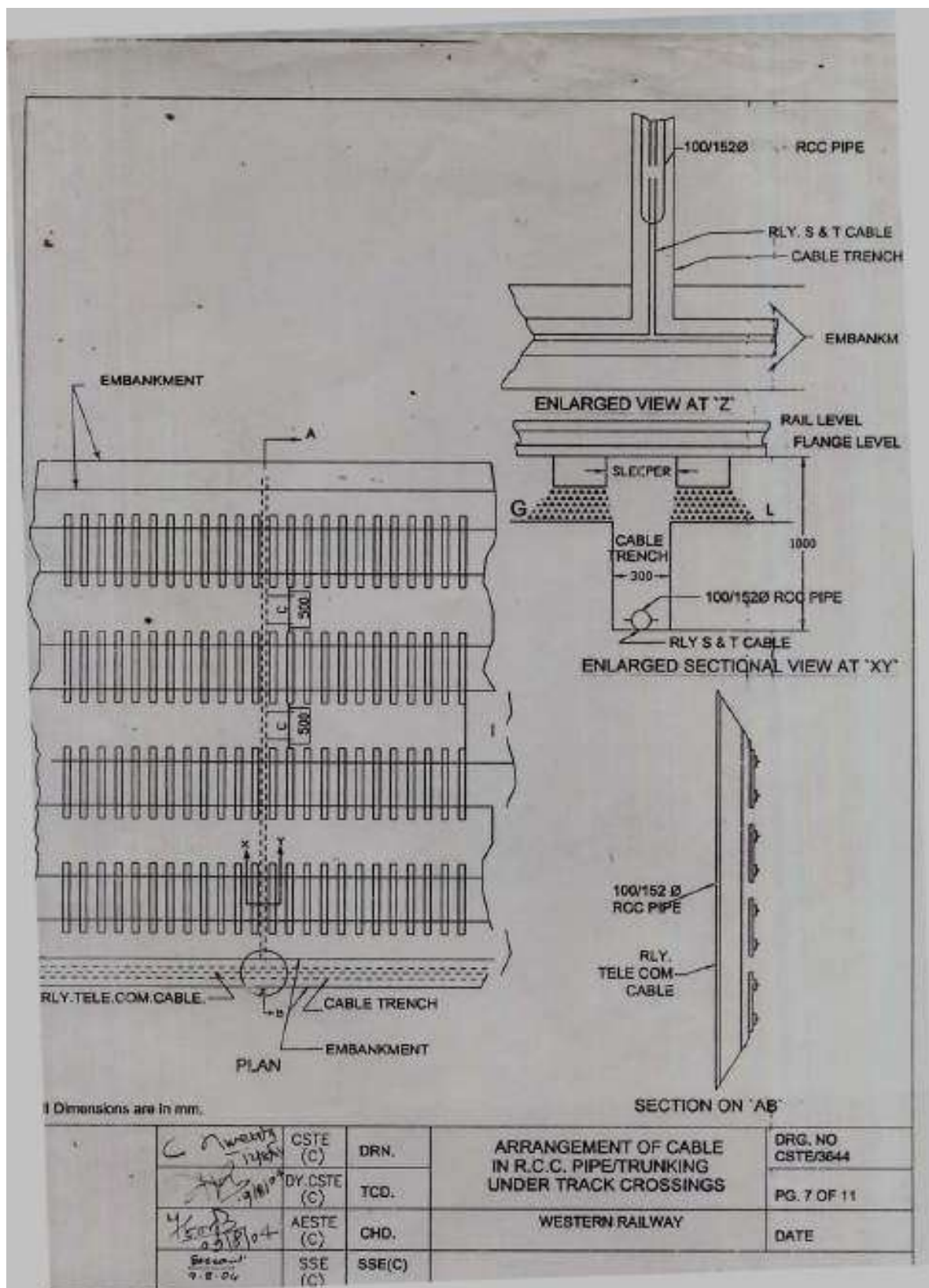


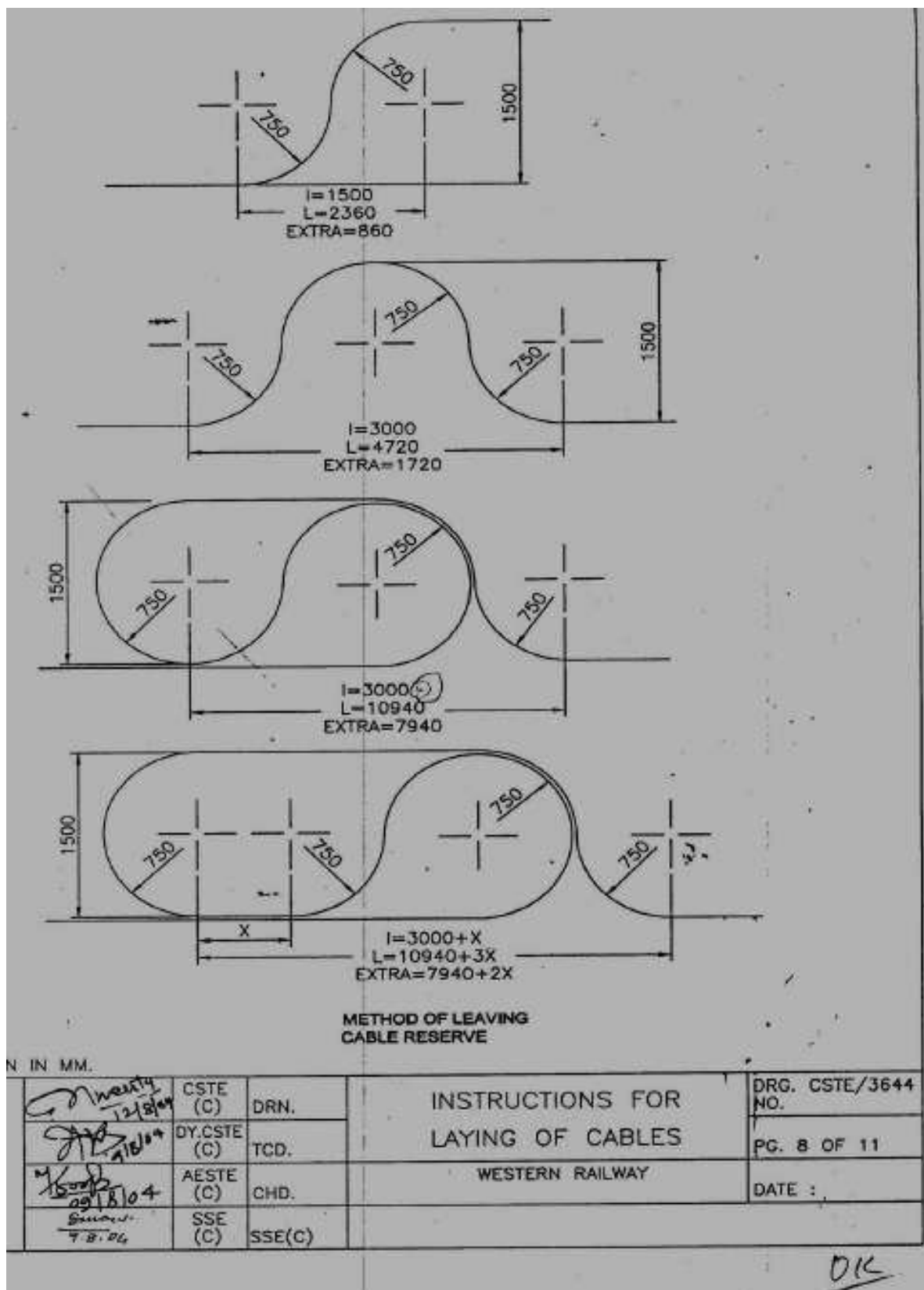


Dimensions are in mm.

<div>12/07/24</div> <div>AS</div> <div>29/08/24</div> <div>9.8.24</div>	CSTE (C)	DRN.	ARRANGEMENT OF RCC PIPE/ TRUNKING UNDER METAL ROAD FOR LAYING OF CABLE	DRG. NO CSTE/3644
	DY.CSTE (C)	TCD.		PG. 5 OF 11
	AESTE (C)	CHD.	WESTERN RAILWAY	DATE
	SSE (C)	SSE(C)		





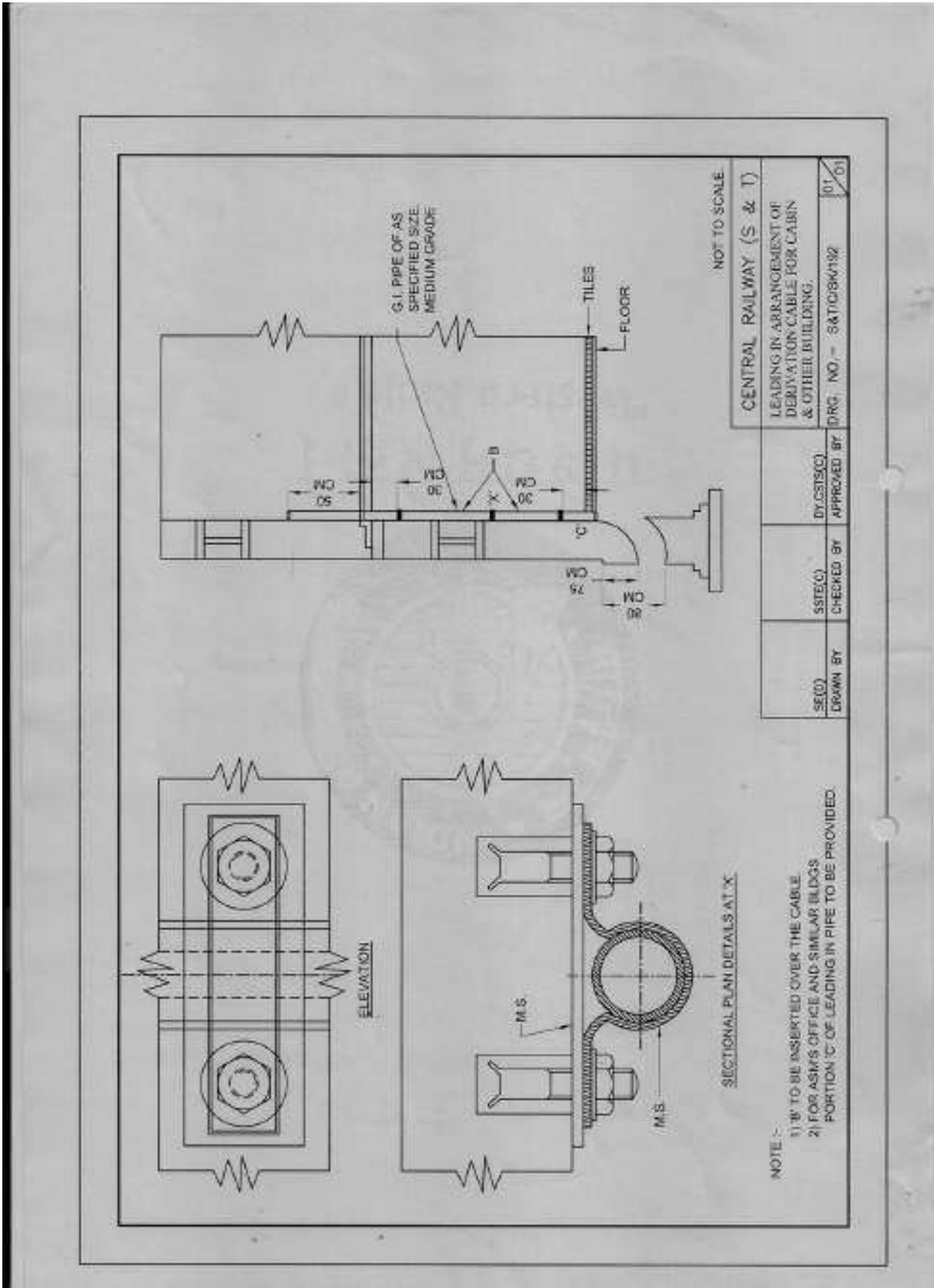


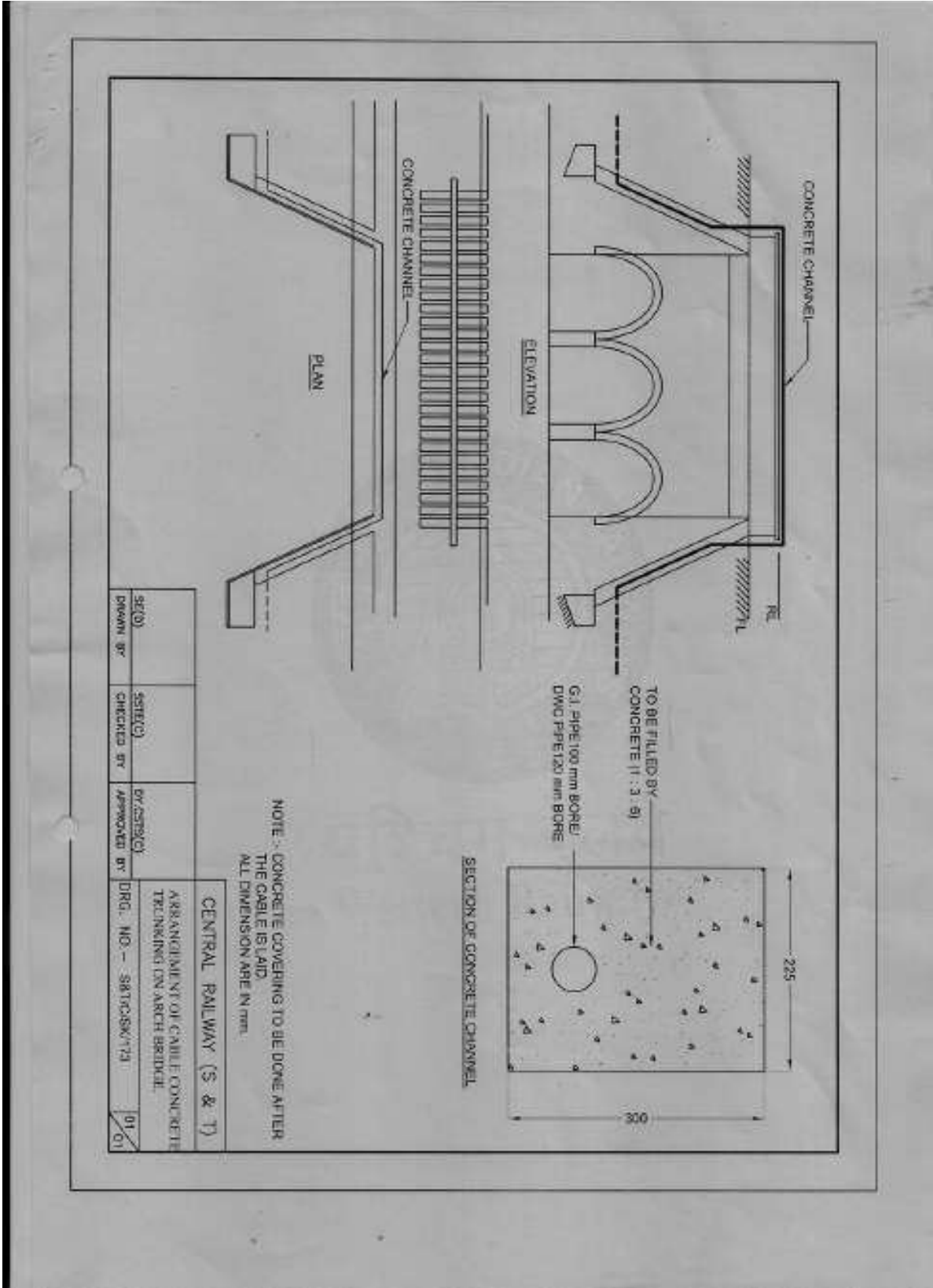
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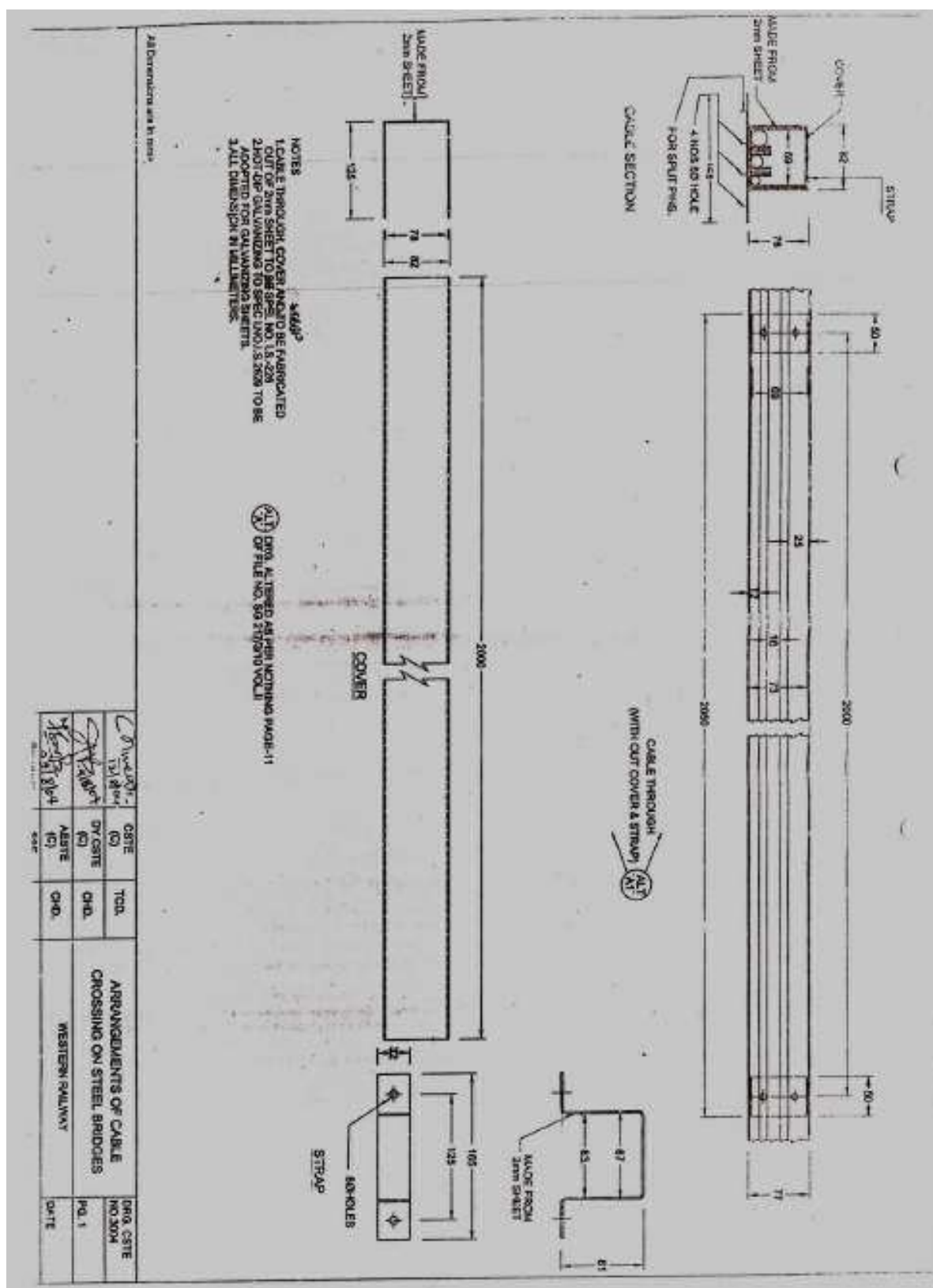
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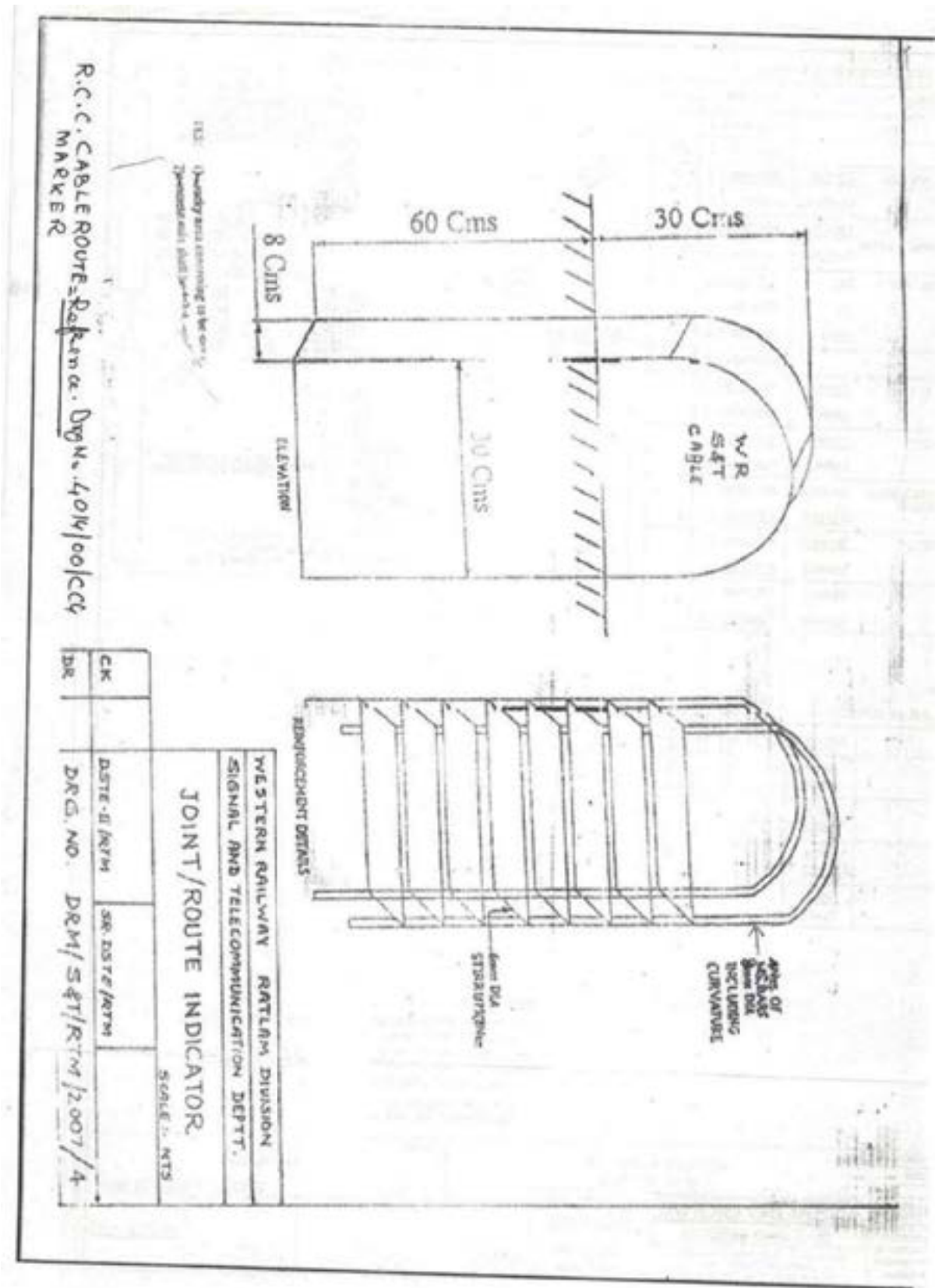
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<div> <div> [Signature] 2/15/04 </div> <div> DY.CSTE (C) </div> <div> TCD. </div> </div>	<div> STATION, ROUTE PLAN NO. </div>	<div> PG. 11 OF 11 </div>
<div> <div> 4/6/04 2/18/04 </div> <div> AESTE (C) </div> <div> CHD. </div> </div>	<div> WESTERN RAILWAY </div>	<div> DATE : </div>
<div> <div> [Signature] 2/2/04 </div> <div> SSE (C) </div> <div> SSE(C) </div> </div>		

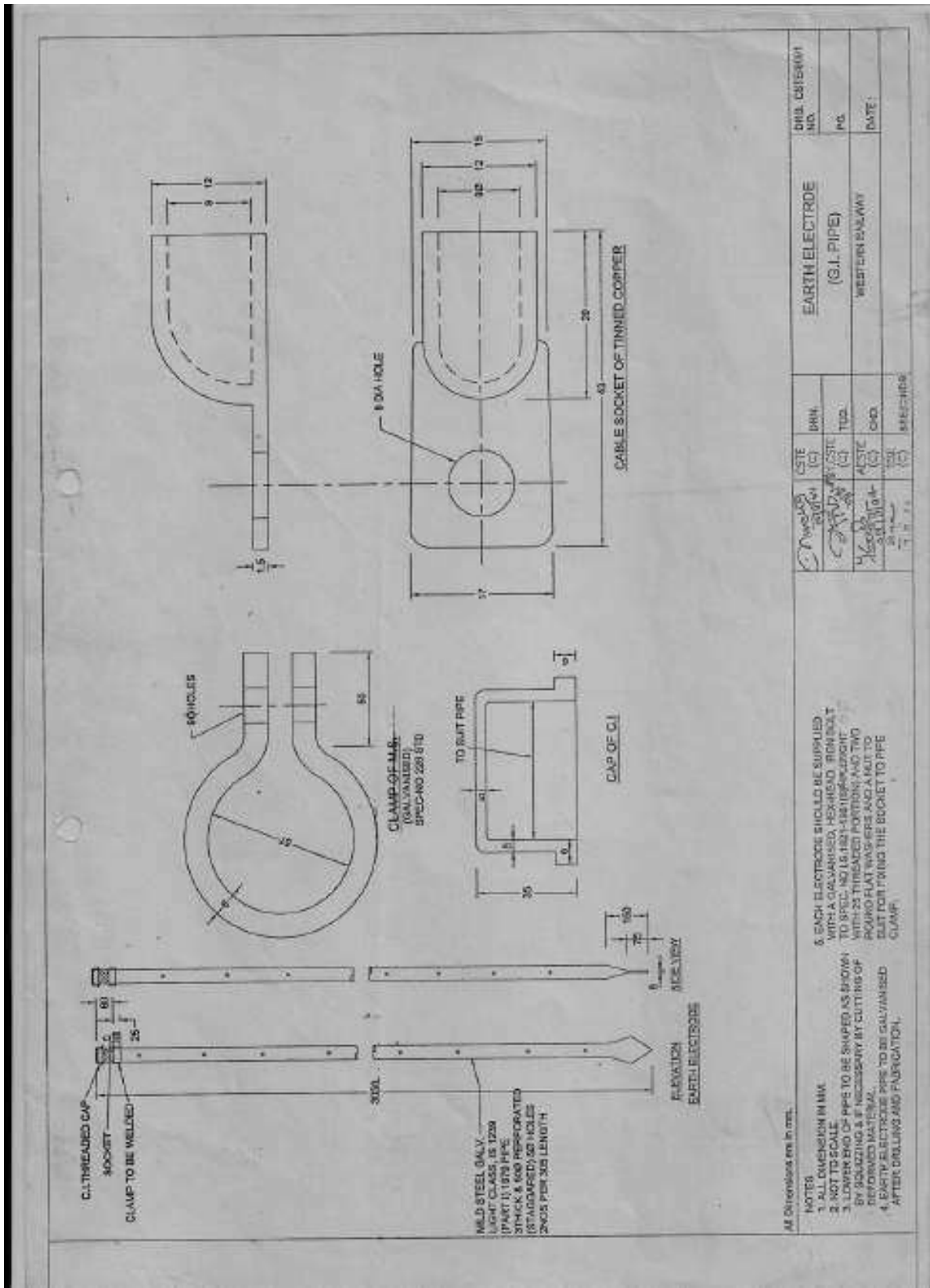
DK



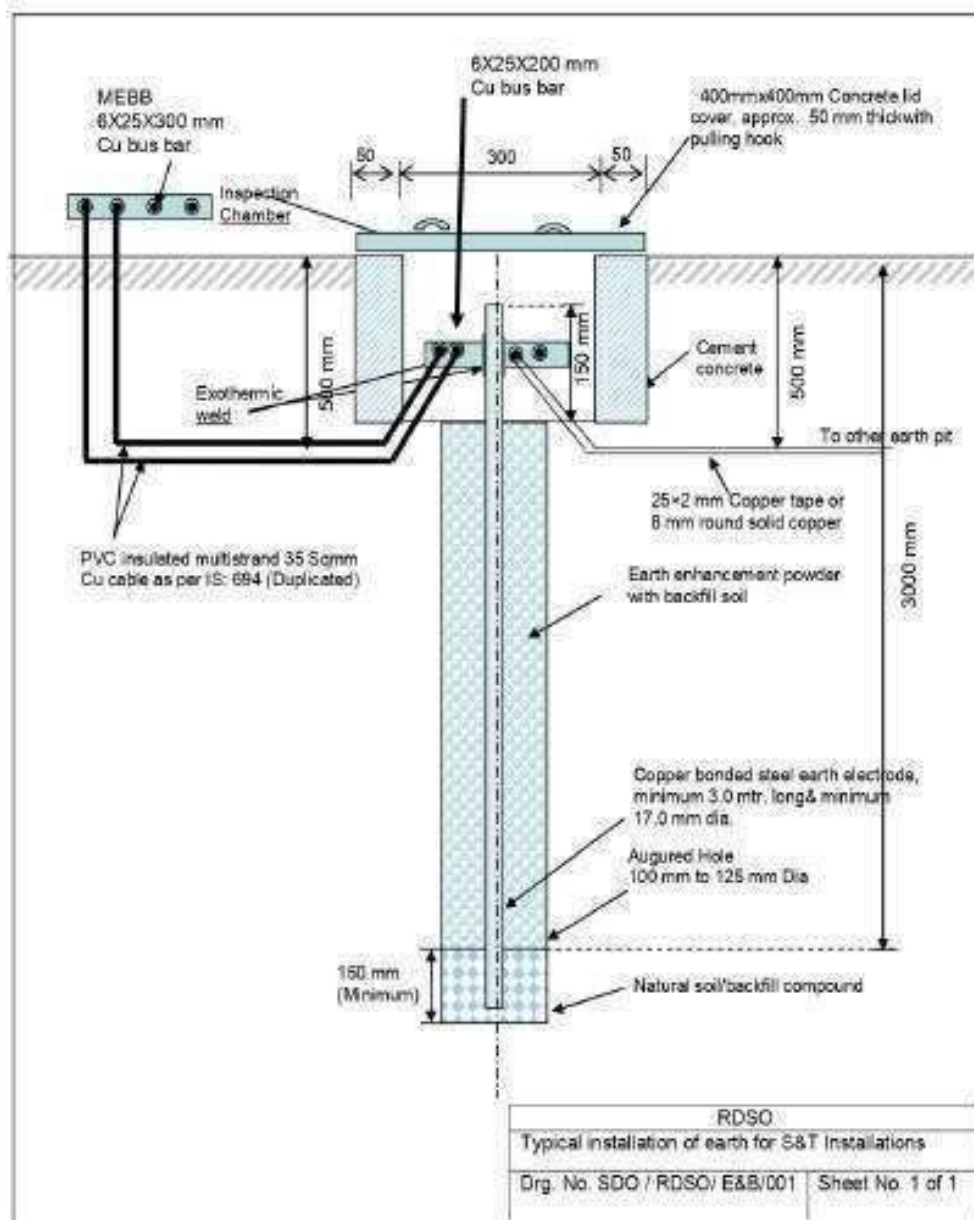




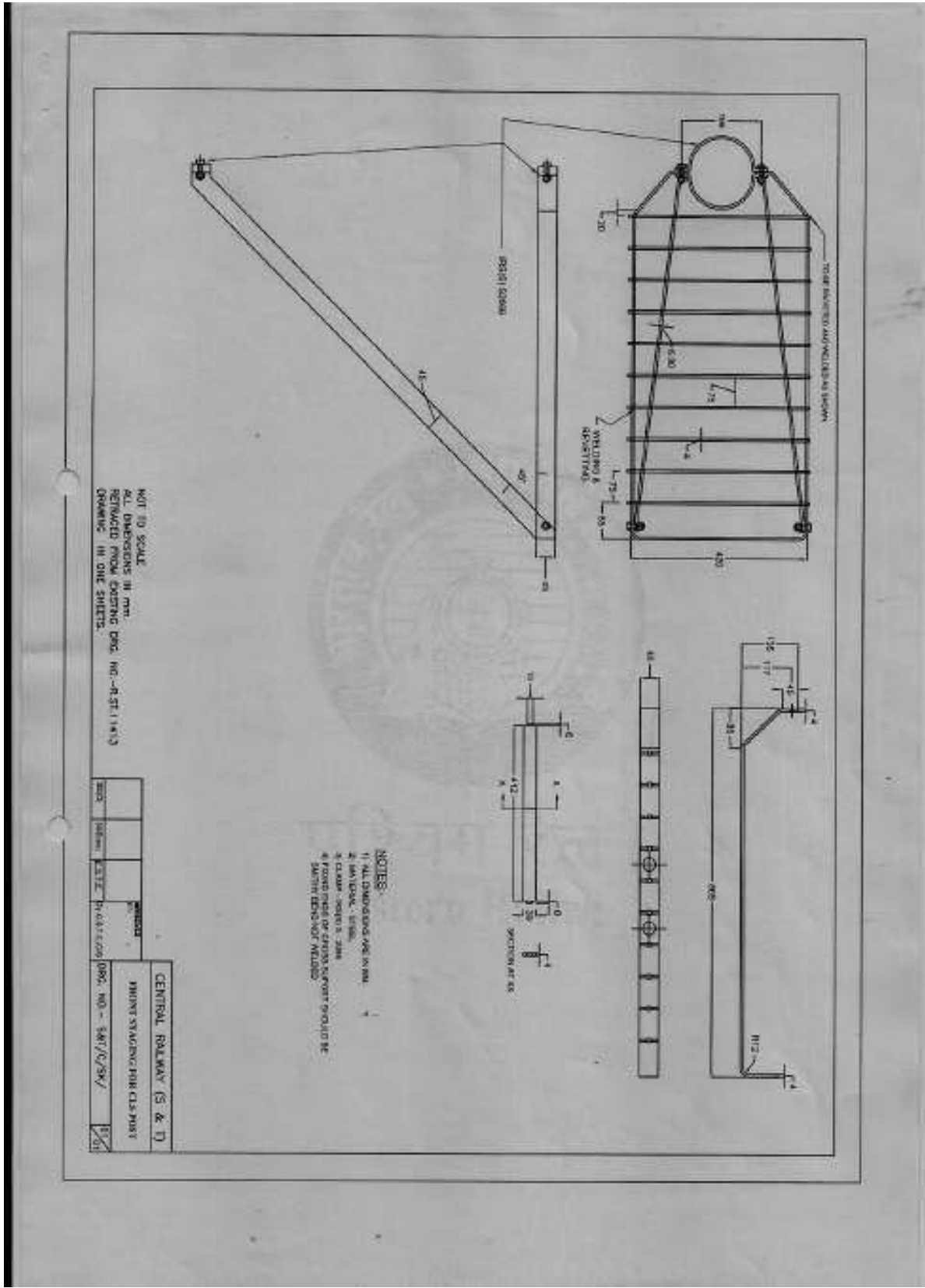


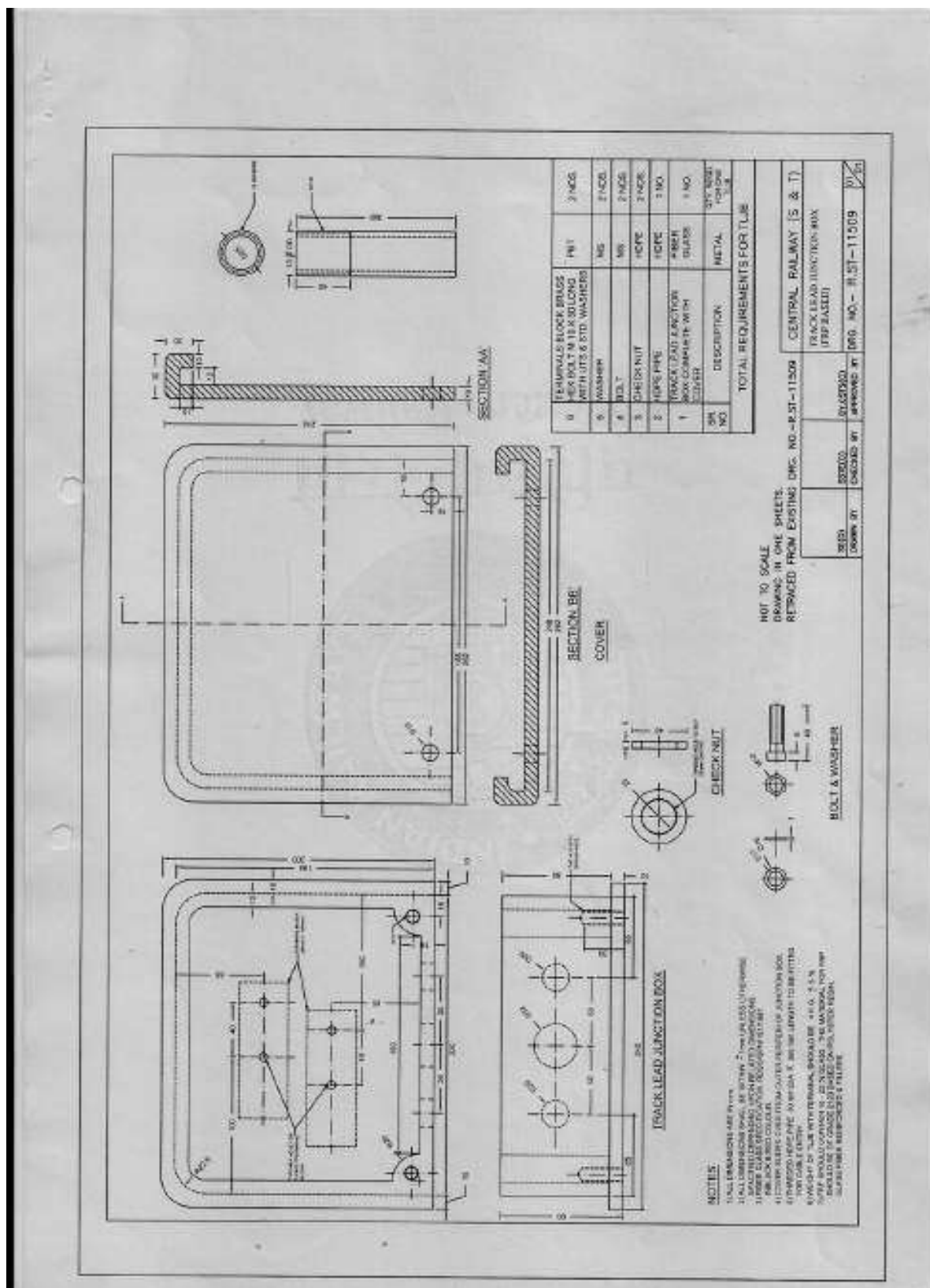


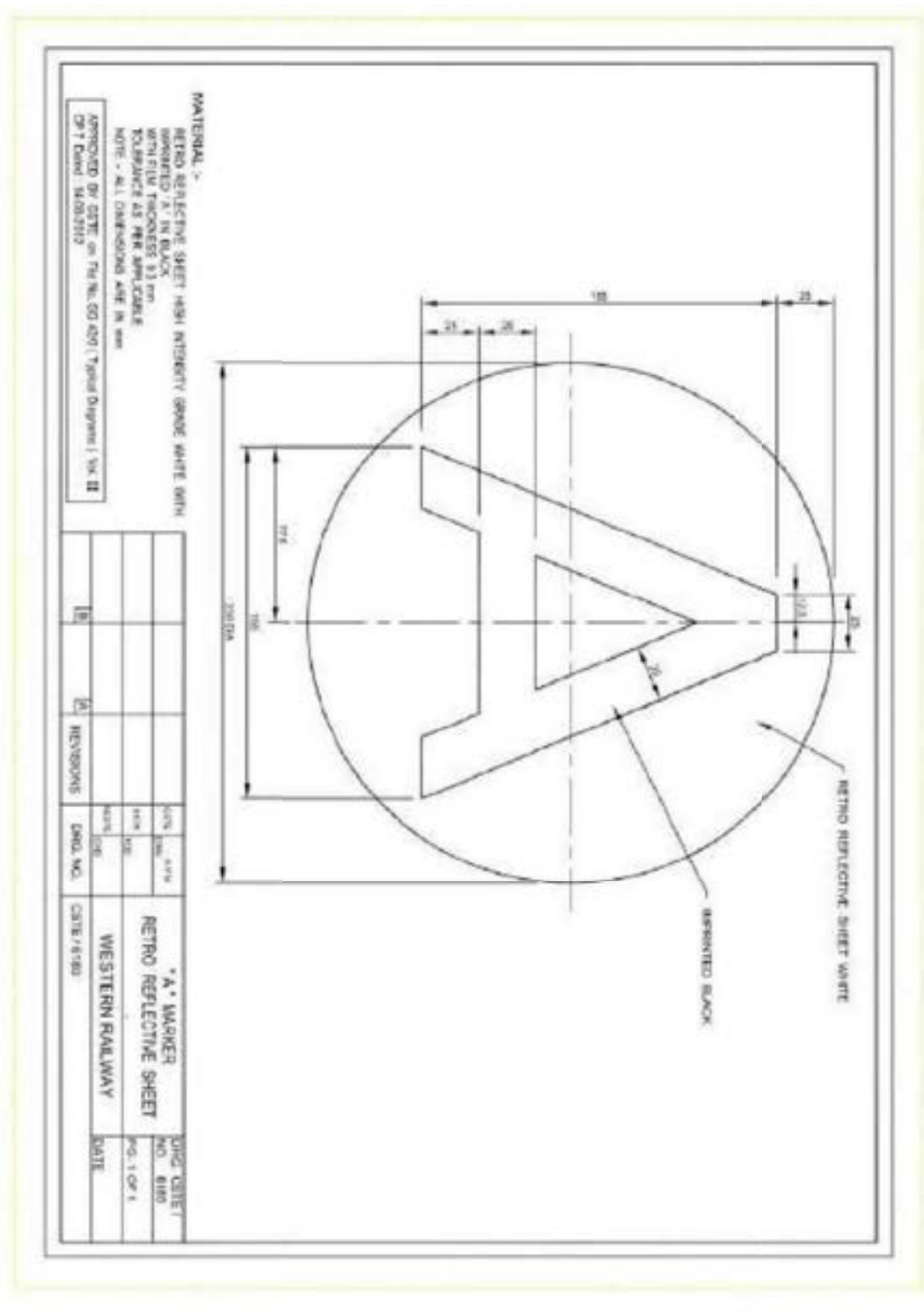
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Document Title: Specification for Code of practice for Earthing & Bonding system for signaling equipments			



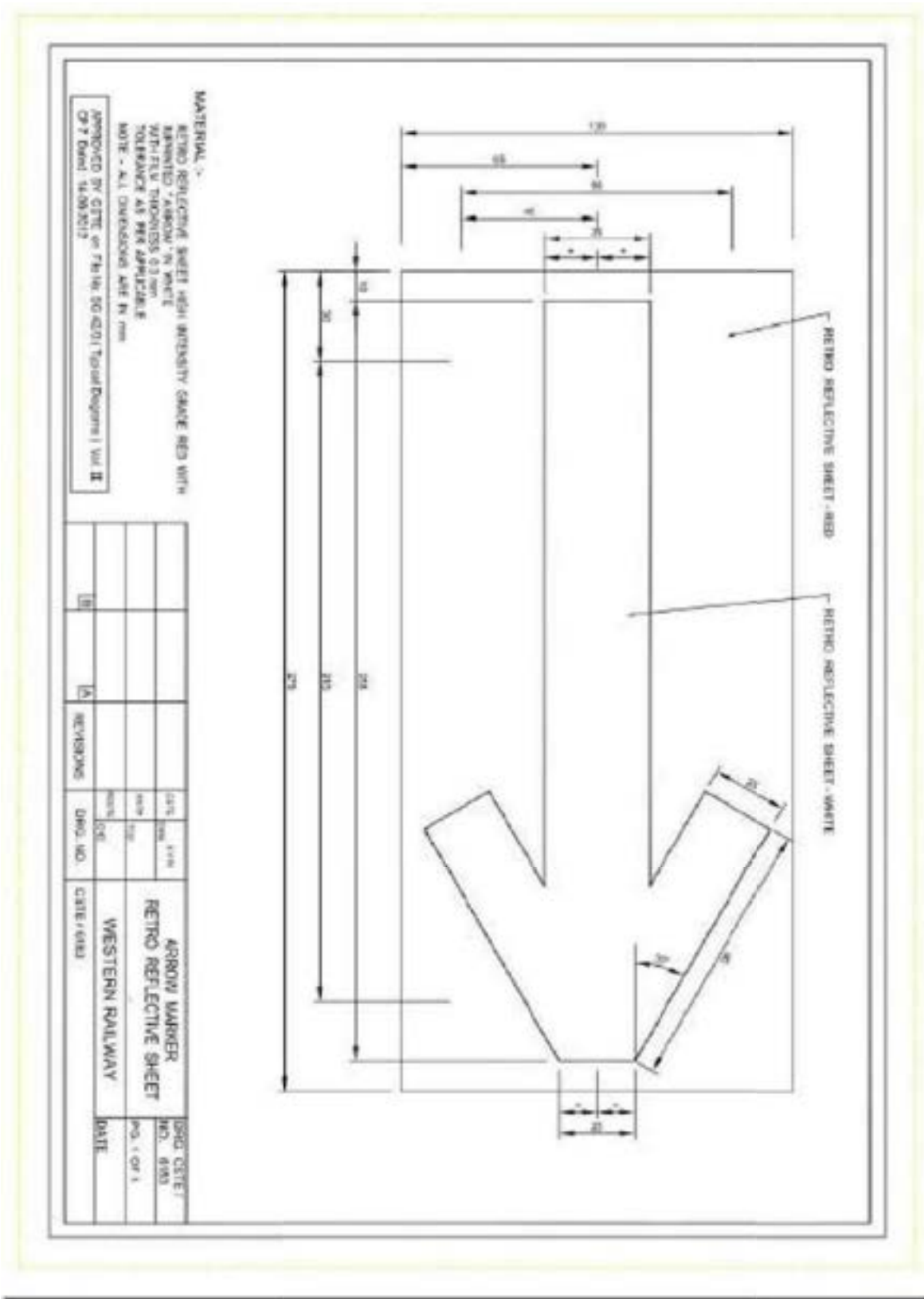
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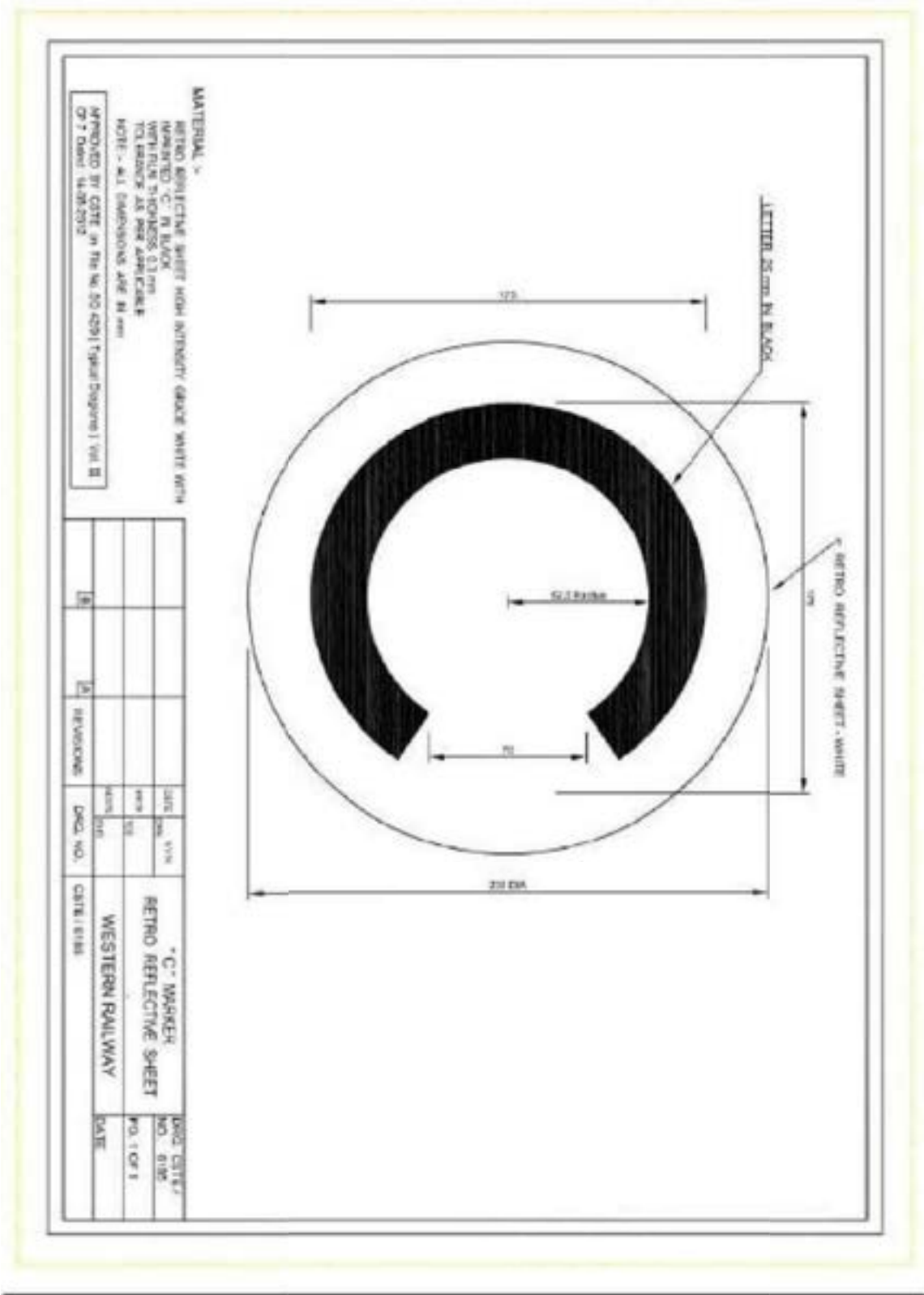




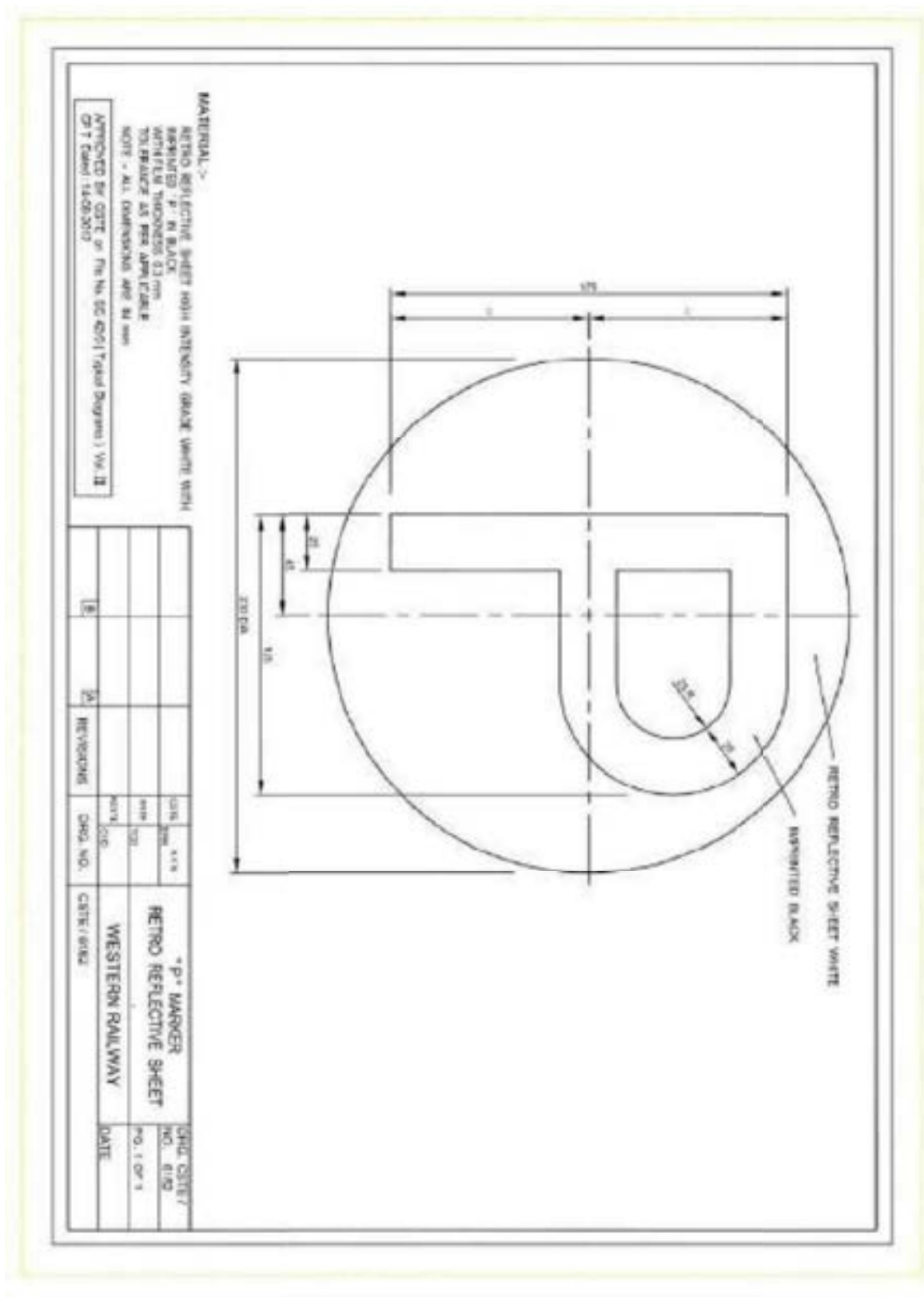


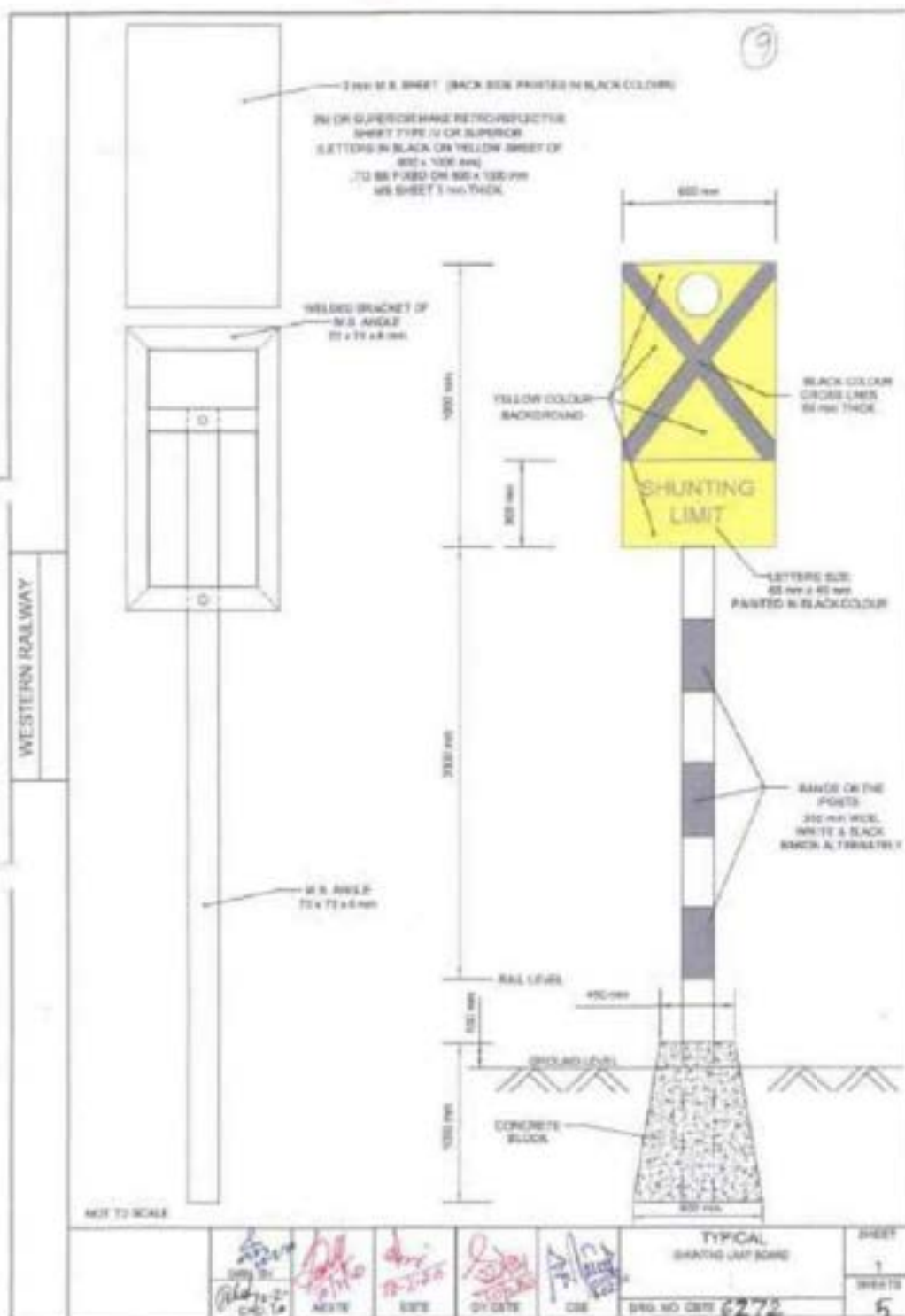


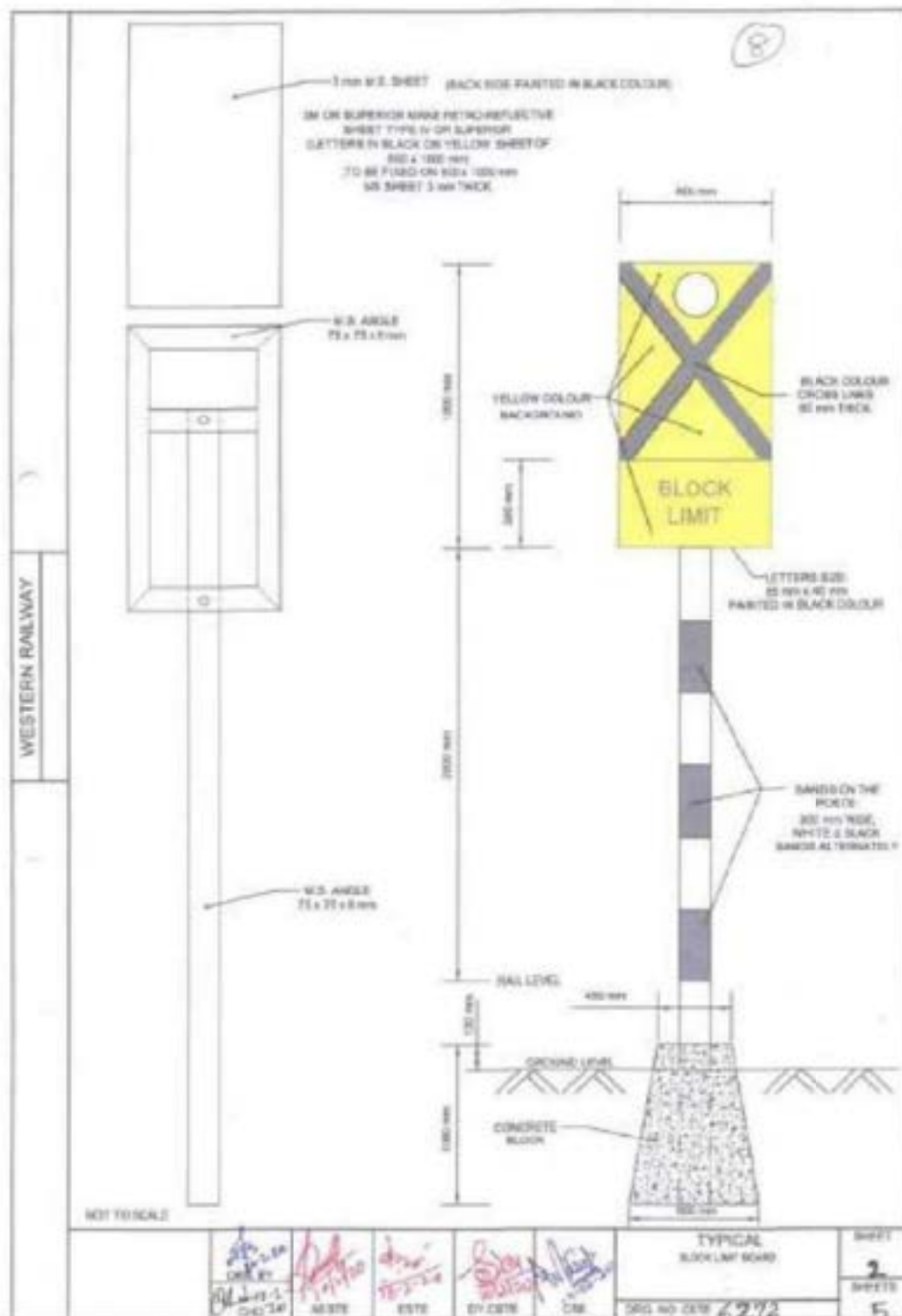


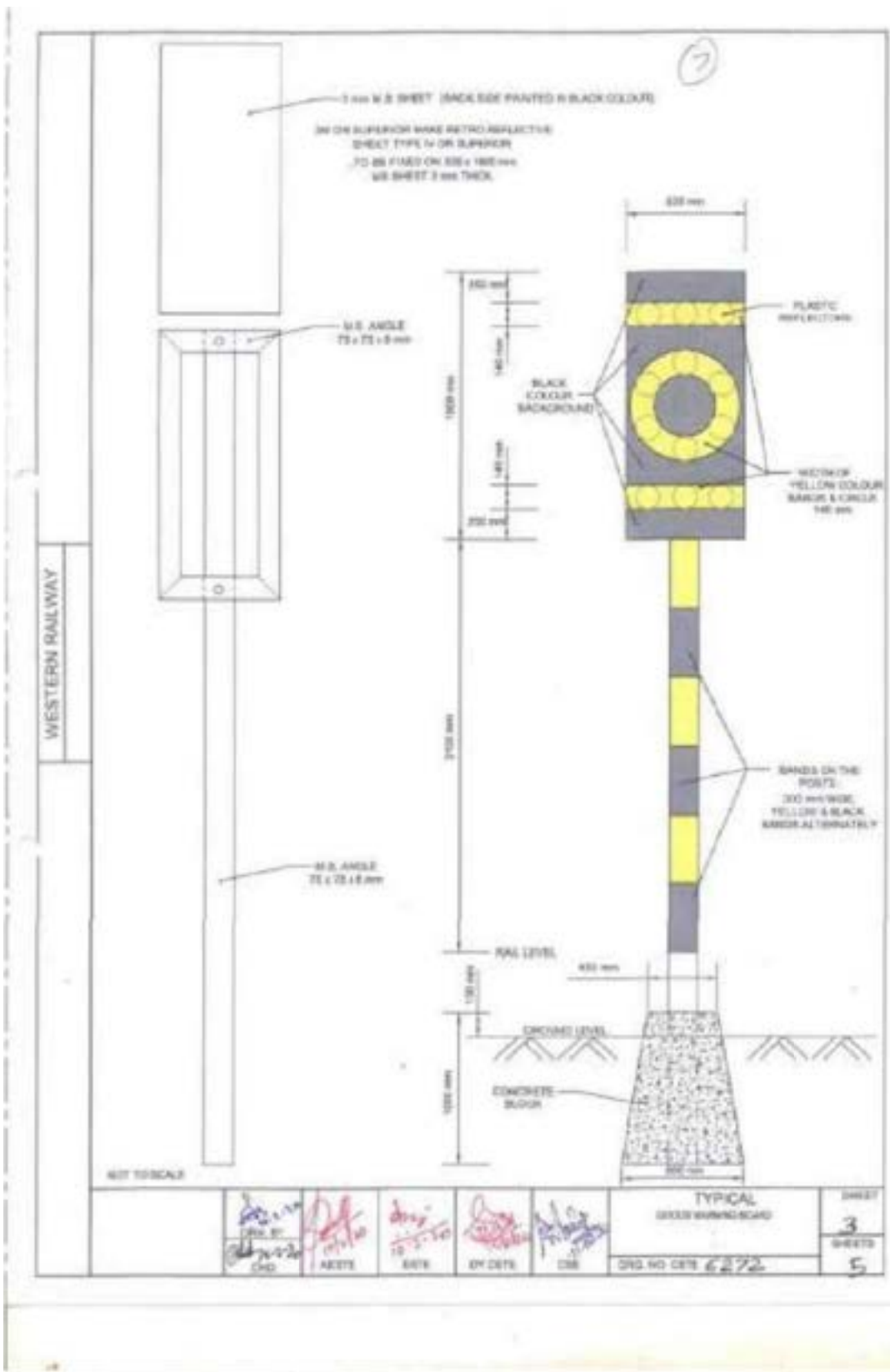


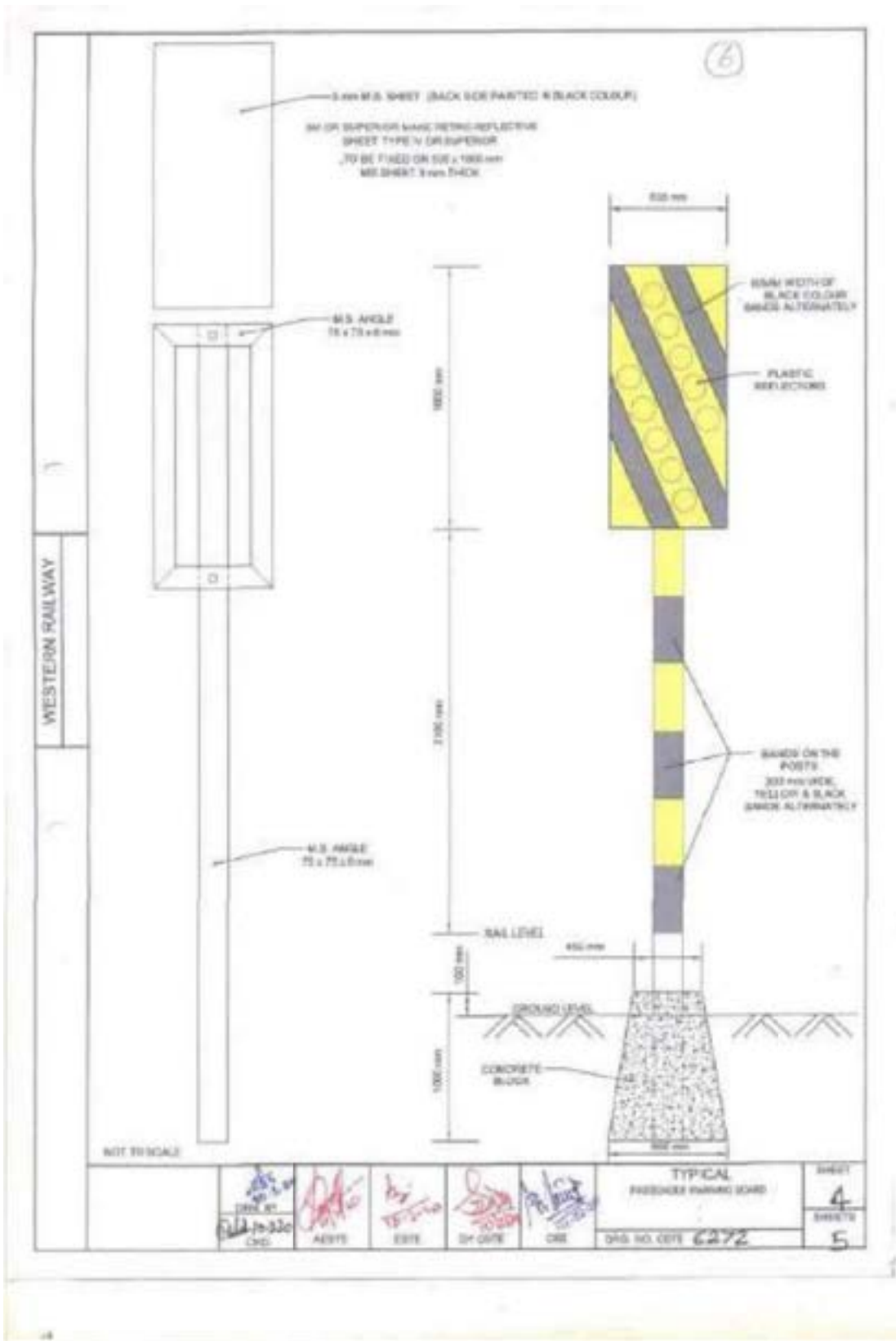


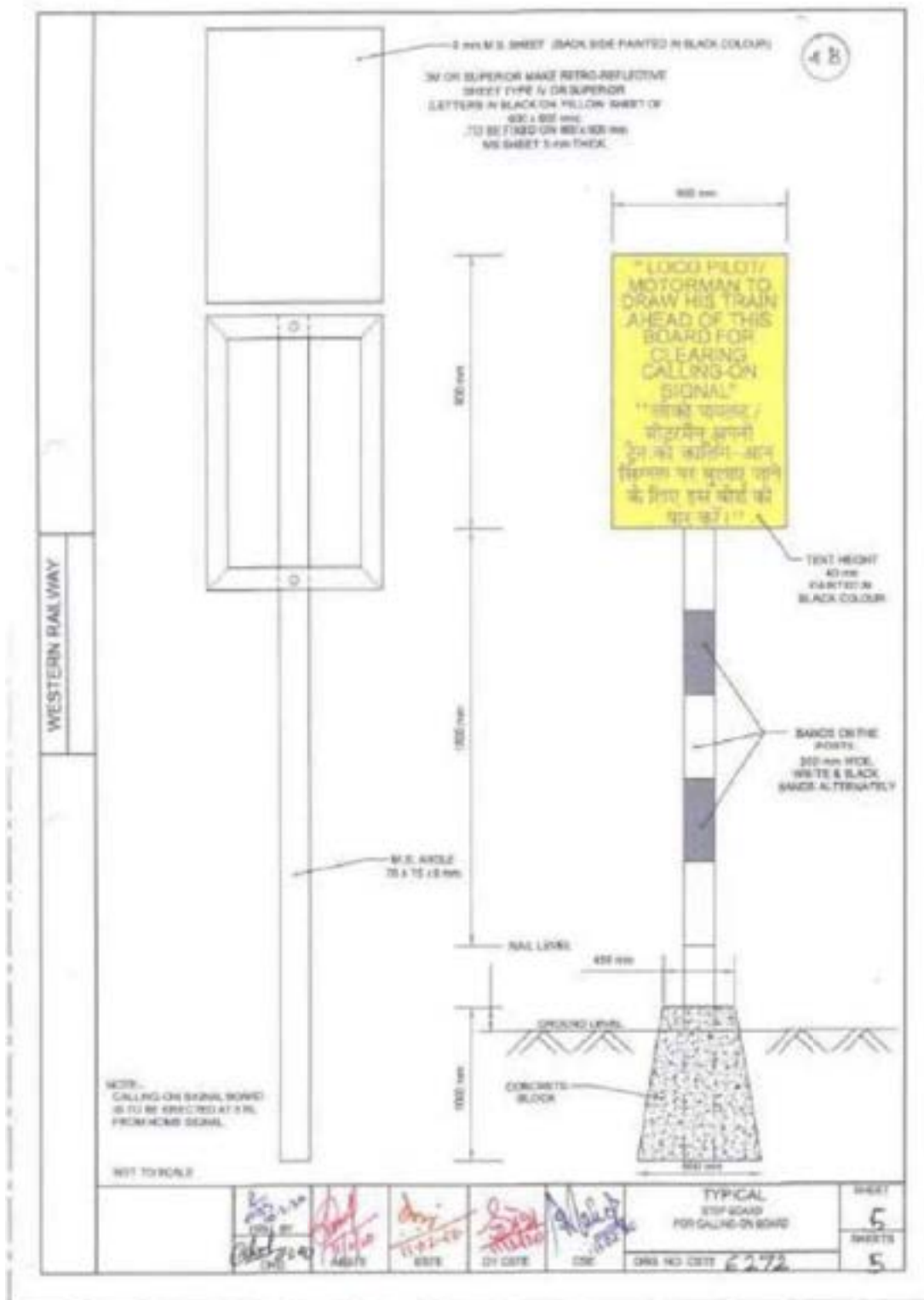


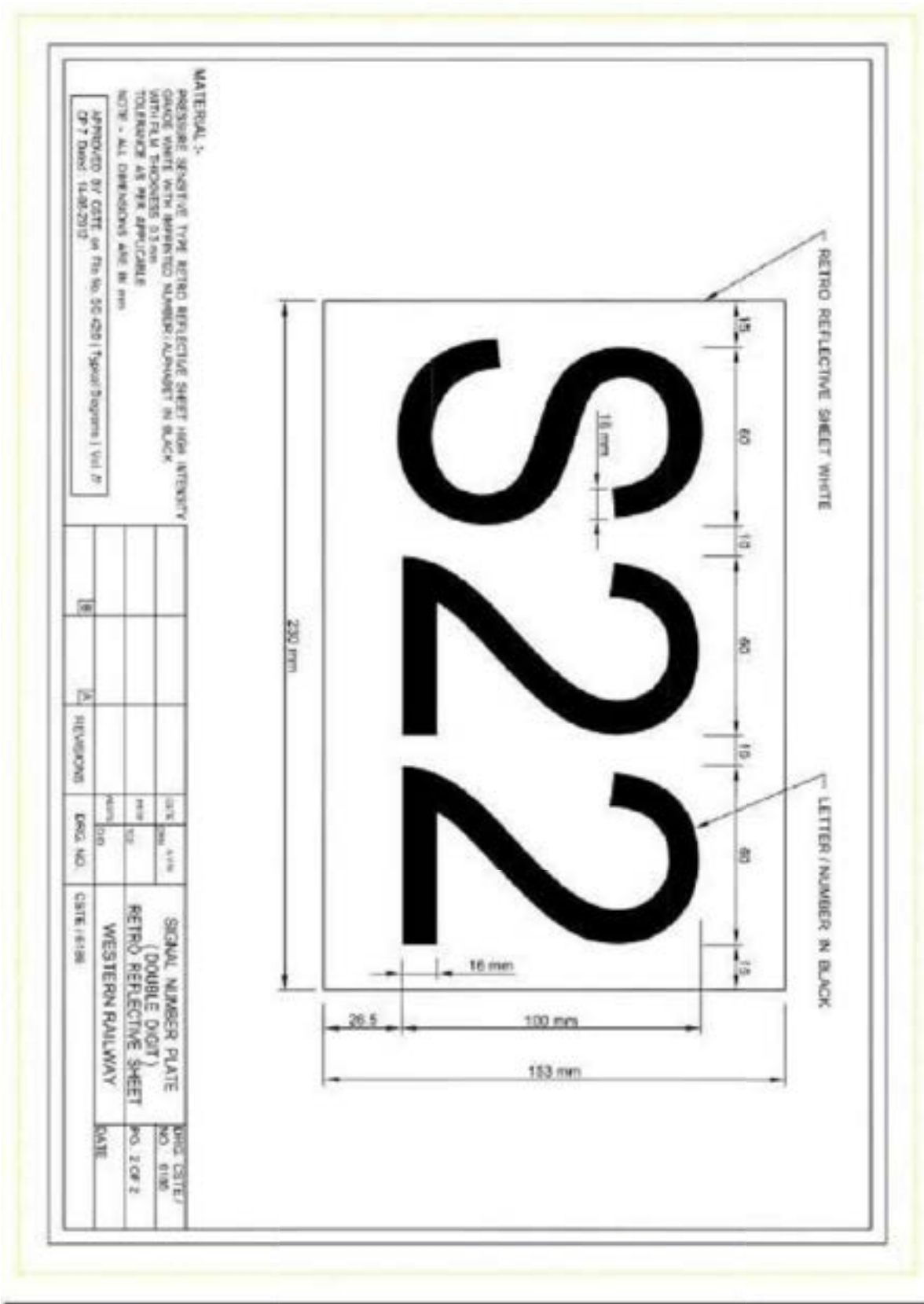












Appendix

Table of Contents:

Appendix	Page No.
Appendix 1, Annexure A :	Summary of Technical Bid 195
Appendix 1, Annexure B : TENDER FORM (First Sheet)	200
Appendix 1, Annexure C :	Format for certificate to be submitted by tenderer alongwith the bid 21
Appendix 1, Annexure D :	List of eligible similar works for TECHNICAL Eligibility Criteria 203
Appendix 1, Annexure E :	List of eligible Financial Credential 204
Appendix 1, Annexure F1	Bid Capacity Calculation Certificate 205
Appendix 1, Annexure F2	Performa I: To calculate Value of A in Bid Capacity Calculation 206
Appendix 1, Annexure F3	Performa II: Details of works in hand and pending liabilities/balance value of works 207
Appendix 1, Annexure G	MEMORANDUM OF UNDERSTANDING (MOU) by JV 208
Appendix 1, Annexure H	certificate by attorney/authorized signatory/each member of partnership firm/ joint venture (JV)/ Hindu undivided Family(HUF)/Limited liability partnership(LLP) etc.) 211
Appendix 1, Annexure I	STATEMENT OF DEVIATIONS 212
Appendix 1, Annexure J	SITE SURVEY DECLARATION 213
Appendix 1, Annexure K	Declaration Certificate for Local Content 214
Appendix 1, Annexure L1	DECLARATION FORM FOR RELATIVE 215
Appendix 1, Annexure L2:	Declaration form for Employment/Partnership with Retired Railway Employee 216
Appendix 1, Annexure M	Format for Bid Security Bank Guarantee 217
Appendix 1, Annexure N	Clause wise Compliance on specific Technical specification 219
Appendix 1, Annexure O	Clause wise Compliance on MOU/Undertaking with RDSO approved OEMs/Suppliers/Designers(Ref Clause 10.4.1) 220
Appendix 1, Annexure P :	TENDERER'S CREDENTIALS (BID CAPACITY) 223
Appendix 1, Annexure Q :	Proforma for Undertaking/MOU/Certification for Non RDSO approved Vender (Ref Clause 10.4.2)
Appendix 2, Annexure 1	Scope of Work and definition of Similar Nature work 223
Appendix 2, Annexure 2:	Technical Capability of Bidder:
Appendix 2, Annexure 3:	Employment of Key Personnel
Appendix 2, Annexure 4:	STANDING INDEMNITY BOND
Appendix 2, Annexure 5:	FORM OF BANK GUARANTEE BOND FOR PERFORMANCE GUARANTEE
Appendix 2, Annexure 6:	NO CLAIM CERTIFICATE
Appendix 2, Annexure 7:	PROFORMA FOR TIME EXTENSION
Appendix 2, Annexure 8:	OEM's Site Installation Certificate

Appendix 1, Annexure A

Summary of Technical Bid (To be filled up by Bidder)

NAME OF THE WORK: - -----

Tender No :-----

(Note: To be submitted along with an offer for evaluation of Bids by Railways in pdf (unlocked) format. Generally, this information is sufficient to judge Qualifications, Hence, it must be filled up carefully. Any wrong information may lead to rejection of Bid)

1. Details of Bidder or Bidder's profile

(Please fill relevant details pertains to Bidder, cut which is not pertains to type of Bidder)

S.N	Item	Data to be filled	Support documents to be submitted.	Status of documents
1.	Type of Bidder	Bidder details: Sole Proprietorship Firm / HUF / Partnership firm / JV firm/ Companies registered under companies Act/ LLP/ Registered society & trusts/others	Sole Proprietorship Firm / HUF / Partnership firm / JV firm/ Companies registered under companies Act/ LLP/ Registered society & trusts	
1.1	Details if bidder is proprietorship firm or HUF	Name of firm Name of Proprietor /Karta(HUF) signing authority PAN No. GST No.	PAN/GST of Prop. Firm/ Karta declaration of HUF	
1.2	Details if bidder is Partnership firm	Name of Partners: Date of partnership deed Name of Authorized Partner for signing Bid:	1. Partnership Deed. 2. Authorisation for signing tender doc & entering in liability.	
1.3	Details of LLP Bidders	Name of Bidder : Date of incorporation : Name of Authorized partner signing tender Document Date & details of Power of Attorney:	1. Certificate of Incorporation. 2. LLP agreement 3. Power of Attorney	
1.4	Details if Bidder is Company registered under companies Act	Name of Co. Date of Incorporation- Name of Authorized person signing tender doc. Date & details of Power of Attorney: Board resolution details for issuing POA : Details of Info to Board regarding sub delegation of power as per MOA/AOA.	1. Certificate of Incorporation. 2. MOA /& AOA copies 3. Power of Attorney issued by Co. Board resolution Authorisation for POA or any other conditions given in AOA of Co.	
1.5	Details if Bidder is JV Bidders	1. Name of JV 2. Authorized person of JV to sign Tender Document. 3. Authorized person of individual JV entity. 4. Details of JV agreement	JV Agreement & MOU Power of Attorney Other doc. As per GCC clause 17./EPC documents.	

		5. Power of Attorney details with respective Board resolution & sub delegation powers.		
2	Communication Details of Bidder	Name, Mobile No., Email address of Authorized Person signing the Bid documents.	Signing of documents & uploading digital signature shall be the same person or duly Authorized person.	

2. Bid Security details:

Bidder Name	Amount Rs	Mode of Payment	IREPS Ref Id/ Bank Trans Id/Date	If BG, original BG submission details

3. List of Documents submitted:

SN	DESCRIPTION	Ref.Appendix 1/ Annexure.	SUBMITTED / COMPLIED/NOT APPLICABLE
1.	Tender Form (pl refer Annexure-I of TD/GCC)	B	
2	Bidder Certificate /Affidavit [MANDATORY] as per Annexure V of GCC	C	
3	Technical Eligibility supporting docs. a)List of eligible similar works.	D	
	b) User work completion certificate	To be attached along with the bid.	
4	Financial eligibility criteria supporting documents. a. CA certified Average Annual contractual payment details.	E	
	b. Audited Balance sheets for last 3 financial years	To be attached alongwith bid.	
	c. Declaration by CA if Audited Balance sheets not prepared for last year.	To be attached Alongwith bid, if applicable.	

5	Bid capacity documents (<i>Applicable for tender value more than 20 CR.</i>) a. CA certificated calculations as per Annexure VI of GCC.	F1	
	Details of works completed & contractual payments received in last 3 fin. Years+current year as per proforma I	F2	
	c) Details of works in hand and pending liabilities /balance value of works as per Proforma-II.	F3	
6	For JV Bidders: MEMORANDUM OF UNDERSTANDING (<i>FOR JV FIRM</i>)	G	
7.	For JV Bidders: Certificate by Each JV Member (Ref: Annexure V&VA of GCC	H	
8.	STATEMENT OF DEVIATIONS on ITT, SCC & Tech spec.	I	
9	PERFORMA SITE SURVEY DECLARATION	J	
10	Declaration Certificate for Local Content	K	
11	DECLARATION FORM OF RELATIVE	L1	
12	Declaration form for Employment/Partnership with Retired Railway Employee	L2	
13	BANK GUARANTEE FORMAT FOR BID SECURITY	M	

14	Statement of clause wise Compliance on specific Technical specification.(if specifically asked in eligibility criteria in para 10.4)	N	
15	Statement of clause wise Compliance MOU with OEMs/Suppliers/Designers.(if specifically asked in eligibility criteria in para 10.4)	O	
16	compliance for procurement of price sensitive Equipment that quoted rates for schedule(Schedule-B) are within permissible limit.	Complied/Not Complied	

4) Details of technical Eligibility fulfillment:

Sl. N	Name of work & CA number, Date of LOA,	Clients' name/ Designation	CA value original/ revised	Contractual payment received till date	Present status/ Completed on/ substantially Completed (%)
1					
2					
3					

5. Details of Financial Eligibility criteria fulfillment:

Year	Contractual payments Receipt	Turnover/contractual payment received as per Audited Balance sheets	Remarks if any
Average Annual Turnover of last 3 years			

6. Details of Bid Capacity Eligibility criteria fulfillment:

Name of Bidder	A-Maximum value of Construction works Executed and payment Received in anyone Financial year during The current and last Three financial years(In Crores	N=Number of years prescribed for Completion of Work : in year	B=Value of existing commitments And balance Amount of ongoing works with the Tenderer to be Completed in next 'N' year (In Crores)	Bid capacity = (A xNx2) – 0.33xNx B (In Crores)	Criteria qualified or not

--	--	--	--	--	--

7. Other Eligibility related documents for judging responsiveness of Bids:

Details of make & OEMs/their Indian Representative of equipment, MOUs, performance certificates and other conditions as per clause 10.4 of chapter-II of tender document.

Condition clause	Conditions details	Details of submission of required documents	Remarks
1	MOU with OEM/Indian Representative of specific equipment	MOU with Bidder	
	Quoted make of specific equipment	Make/model	
	Compliance statement on technical specification related to specific Equipment		
	Performance certificate of equipment For working in the Railway Environment from users.		
	Undertaking that Hardware/software Should not have malicious code	Undertaking by OEMs/rep	

(Note: please add details for different specific equipment asked in the tender in above format.)

8. Details of Local contents of tender

value.(Mandatory in case any imported items or foreign performance certificates are quoted in Bid.)

Local content % quoted on IREPS portal	Local contents as per certificate issued by CA	Copy of CA certificate for local content	Remarks

I hereby declare that the information given above is true. If any of the information given above is found to be wrong at any time, my tender will be liable to be rejected.

Signature of Authorized Person
Seal & Date

Appendix 1, AnnexureB
(Ref:Annexure-I of Part I of GCC)

WESTERN RAILWAY
TENDER FORM(First

Sheet) Tender No. _____

Name of Work __

To

The President of India

Acting through the _____Railway

I/We _____ have read the various conditions to tender attached hereto and agree to abide by the said conditions. I/We also agree to keep this offer open for acceptance for a period of _____days from the date fixed for closing of the tender and in default there of, I/We will be liable for forfeiture of my/our "BidSecurity". I/We offer to do the work for _____Railway, at the rates quoted in the attached bill(s) of quantities and hereby bind myself/ourselves to complete the work in all respects within _____months from the date of issue of letter of acceptance of the tender.

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

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

i. I/We do not submit the Performance Guarantee within the time specified in the Tender document;

ii. 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.(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 BidSecurity.

d. We are a Labour Cooperative Society and our Registration No.is with

... and hence required to deposit only 50% of Bid Security.

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

Signature Of Witnesses:

1. _____ Signature of Tenderer(s)

2. _____ Date ____

Address of the Tenderer(s)

Appendix 1, Annexure C

(Ref:Annexure– V of Part I of GCC)

FORMAT FOR CERTIFICATE TO BE UPLOADED BY TENDERER ALONG WITH THE TENDER DOCUMENTS.

(It is mandatory to submit this certificate with bid for all tenders, otherwise bid will be summarily rejected)

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

1. I/We the tenderer(s), am/are signing this document after carefully reading the contents.
2. I/We the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/We hereby declare that I/We have downloaded the tender documents from Indian Railway website www.ireps.gov.in. 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 alongwith the offer and the 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 I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfill all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

Place:

SEAL AND SIGNATURE

Dated:

OF THE TENDERER

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

This certificate is to be given by each member of JV or partners of partnership firm/LLP/ectc

Note:- Clause no. 7 of this format is not applicable for tender value upto 50 Lakh.

Appendix 1, AnnexureD

TECHNICAL Eligibility Criteria:

(a)List of eligible similar works:(pl refer tender condition 10.1)

Instruction:
Each Bidder or each member of a JV must fill details in this form separately.
Details of eligible 1 or 2 or 3 similar works Completed in the last 7 years shall only be given.
ProformaTech Eligibility
Name of Work:.....
Tender No :.....

S I N	Name of work & CA number, Date of LOA,	Clients name/ Designation	CA value original/ revised	Contractual payment received till date	Present status/ Completed On / substantially completed(%)
1					
2					
3					

NOTE: Certificate issued by Competent Authority should be attached in support of above information for valuation of Similar Work, otherwise the **Tender Offer will be summarily rejected.**

SEAL AND SIGNATURE OF THE BIDDER

Appendix 1, AnnexureE
(Ref:Annexure-VI B of Part-I of GCC)

FINANCIAL Eligibility:

Instruction:
Each Bidder or each member of a JV must fill details in this form separately.
Details of Average Annual contractual Turnover for previous ¾ years shall only be given.

Name of Work:.....
Tender No :.....
NAME OF BIDDER/JV PARTNER:.....

Annual Contractual Turnover Data for the Previous ¾ Years (Contractual Payment only)

Year	Contractual Receipt (Currency)	Exchange rate	Gross Contractual Receipt In Rupees
Average Annual Turnover of 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 the 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 the Auditor's reports.____

(Signature of Chartered Accountant)Name of CA:
__Registration No: _____
(Seal)

NOTE: Certificate issued by Competent Authority should be attached for valuation of Financial Credentials, otherwise **Tender Offer will be summarily rejected.**

Appendix1, AnnexureF1

Bid Capacity Calculation Certificate:(Ref:Annexure VI of PartI GCC)

Name of Work:.....

Tender No :.....

Instructions: To be submitted for Bidder /each member of JV separately.)

For tenders having advertised value more than Rs 20 crore wherein eligibility criteria includes bid capacity also, the tenderer will be qualified only if its available bid capacity is equal to or more than the total bid value of the present tender.

The available bid capacity shall be calculated as under:

Available Bid Capacity=[AxNx2]-0.33xNx 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.

Amount of A.....(As calculated in Appendix1, Annexure F2)

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

Value of N

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

Value of B(As calculated in Appendix1, Annexure F3)

Available Bid

Capacity:.....

Certificate of Chartered Accountant:

Certified that above Bid Capacity is correct as per available records.

[Signatures of the Chartered Accountant]

Seal, Name & Address

Declaration by theTenderer:

I hereby declare that the information given above is true and the copy of the certificate enclosed is also genuine. If any of the information given above is found to be wrong at any time, my tender will be liable to be rejected.

Name and signature of Tenderer

Along with Seal.

(Note: If declaration is not given in format, putting signature by CA and Bidder will be treated as non-compliance of certificate/declaration by respective agencies.)

Appendix1, Annexure F2

*Instructions:**Not Applicable for value less than 20Cr.**Each Bidder or each member of a JV must fill details in this form separately.*

Performa I: To calculate Value of A: Total contractual payment received

For evaluation of Bid Capacity (Maximum value of Contractual payment received in any one year during the last three years and current financial year will be taken as Value A)

Name and style of the Tenderer with address [present tenderer or Each member of JV]

Part-A1

Year	Amount of Contractual Payments received		Référence/ Remarks
Current financial year	Rs.....	FY/.....	
3rd Previous Financial year	Rs.....	FY/.....	
2 nd Previous financial year	Rs.....	FY/.....	
1st Previous Financial year	Rs.....	FY/.....	
Value of A			

PartA2: Detailed break up in support of Value A. (Details of work where contractual payments received)

Note: Value Should match with value given Part 1

S N	Name of work with CA no. and date	Name /address of Employer	Contract value (inRs.) Original/Revised	Total payment received/ value of work executed (Rs.)	Date of completion Original/revised and actual complete d	Payment received in last 3 years plus current year				remarque s
						19- 20	20- 21	21- 22	22- 23	
1										
2										
3										
Total Value of A										

Certificate of Chartered Accountant:

Certified that above contractual payments are correct as per the Audited Balance Sheets

[Signatures of the Chartered Accountant]

Seal, Name & Address

Declaration by the Tenderer:

I hereby declare that the information given above is true and the copy of the certificate enclosed is also genuine. If any of the information given above is found to be wrong at any time, my tender will be liable to be rejected.

Name and signature of Tenderer

Along with Seal.

(Note: If declaration is not given in format, putting signature by CA and Bidder will be treated as non-compliance of certificate/declaration by respective agencies.)

Appendix 1, Annexure F3

Performa II: Details of works in hand and pending liabilities/balance value of works

S N	Name of work	Date of LOA	CA No and Date	Name/ address of Employer	Contract value (in Rs.) Original/ Revised	Date of completion Original/ revised	Total payment received (Rs.)	Balance value of work In Hand.
1	2	3	4	5	6	7	8	9
1								
2								
3								
4	Total Value of B (Value of balance works)							

Certificate Of Chartered Accountant:

Certified that above contractual Balance payments are correct as per available records.

[Signatures of the Chartered Accountant]

Seal, Name & Address

Declaration by the Tenderer:

I hereby declare that the information given above is true and the copy of the certificate enclosed is also genuine. If any of the information given above is found to be wrong at any time, my tender will be liable to be rejected.

Name and signature of Tenderer

Along with Seal.

(Note: If declaration is not given in format, putting signature by CA and Bidder will be treated as non-compliance of certificate/declaration by respective agencies.)

Appendix 1, Annexure G

NON JUDICIAL STAMP
MEMORANDUM OF UNDERSTANDING (MOU)

ENTERED INTO AT..... (place) THIS....DAY OF....(Month) Year

1. _____(name of firm) having its registered office at____(full address) (hereinafter referred to as _____(say X, short form of firm)) acting as the Lead Member of the first part.

And
2. _____(name of firm) having its registered office at____(full address) (hereinafter referred to as _____(say Y, short form of firm)) in the capacity of first Joint Member of the other party.

And
3. _____(name of firm) having its registered office at____(Full address) (hereinafter referred to as _____(say Z, short form of firm)) in the capacity of 2nd Joint Member Of the other part.

The expressions of X, Y & Z shall wherever the context admits, mean and include their respective legal representatives, successors-in-interest and assigns and shall collectively be referred to as “the Parties” and individually as “the Party”.

WHEREAS the parties hereto have agreed to enter into a Joint Venture for the purpose of participation in Tender in respect of the project work of “------(complete name of work to furnish)---- “(hereinafter referred to as “The Work”) mentioned in Tender Notice No.and Tender Noinvited by Dy CSTE (Works), Ratlam (hereinafter referred to as “Employer”).

Whereas in the event of the Joint Venture being successful in its bid the parties have agreed to perform the contract in accordance with the agreed terms and conditions and thereof and in the spirit of mutual cooperation to achieve the objective of this Joint Venture to the full satisfaction of the Employer.

Nowthereforefor and in considerations and covenants here in after set forth the parties hereby agree as follows:

1. The following documents shall be deemed to form and be read and construed as an integral part of this Joint Venture.
 - i. Tender Notice and
 - ii. Tender Document
 - iii. Any Amendment/ Corrigendum issued by “theEmployer”The tender submitted on our behalf jointly by the JV.
2. The “Parties” have studied the documents and have agreed to participate in submitting a tender jointly under the name “X-Y-Z (JV)” (Name ofJV to furnish).

3. X.....(Name of lead Member) shall be the lead member of the JV for all intents and purposes and shall represent the Joint Venture in its dealing with the Employer. For this purpose of submission of bid proposals, the parties agree to nominate Shri.....(name with designation) of (name of the parties to which he belongs) as the leader duly authorized to sign and submit all documents and subsequent clarifications, if any, to the Employer. However, Shri.....(name with designation) shall not submit any such proposals, clarifications or commitments before securing the written clearance of the other Members, which shall be expeditiously given by X, Y, Z to A (to be decided internally by the JV member).

4. The "Parties" have resolved that the share of interest / participation in the Joint Venture shall be as under:

- a. Lead Member (Who has to be an Indian Firm): at least 51%.
- b. Other Joint Members I: Not less than 20% in case of JV Firm with up to 3 (three) Members and not less than 10% each of JV Firm with more than 3 (three) Members.

5. JOINT AND SEVERAL RESPONSIBILITIES

The Parties undertake that they shall be jointly and severally legally liable to the Employer in the discharge of all the obligations and liabilities as per the contract with the Employer and for execution of project in accordance with General and Special Conditions of the Contract if the work is awarded to their JV. The parties shall be jointly and severally liable & responsible for fulfilling the obligations of the tender/tender document.

The parties shall also be liable jointly and severally for the loss, damages caused to the Railway during the course of execution of the contract or due to non-execution of the contract or part thereof.

6. ASSIGNMENT AND THIRD PARTIES.

The parties shall cooperate throughout the entire period of this JV on the basis of exclusivity and neither of the Parties shall make arrangement or enter into agreement either directly or indirectly with any other party or group of parties on matters relating to the Present work.

7. EXECUTIVE AUTHORITY

The said Joint Venture Firm through its authorized representative shall receive instructions, payments from the Employer. The management structure for the project shall be prepared by Mutual consultations to enable completion of project to quality requirements within permitted cost and time.

8. GUARANTEES AND BONDS.

The Bank Guarantees, Bid Security Deposit etc and other Bond shall be furnished jointly by all the parties in the name of Joint Venture Firm and that shall be legally binding on all the partners of the Joint Venture.

9. BID SUBMISSION.

Each Party shall bear its own cost and expenses for preparation and submission of the bid and all costs until conclusion of a contract with the Employer for the Project.

10. INDEMNITY

Each Party hereto agree to indemnify the other party against its respective parts in case of breach/ default of the respective party of the contract works of any liabilities sustained by the Joint Venture.

11. For the execution of the respective portions of works, the parties shall make their own arrangements as per mutual agreement/understanding between them from time to time to bring the required finance, plants and equipment, materials, manpower and other resources.

12. VALIDITY

This MOU shall remain in force till the occurrence of the earliest to occur of the following, unless by mutual consent, the Parties agree in writing to extend the validity for a further period,

The bid submitted by the Joint Venture is declared unsuccessful, or Cancellation/ shelving of the Project by the Employer for any reasons prior to award of work. Execution of detailed JV agreement by the parties, setting out detailed terms after award of work by the Employer.

13. The parties undertake not to make any modification/ alteration/ termination the MOU of Joint Venture during the validity of the tender.

14. The parties undertake not to make any changes in this Joint Venture or terminate this Joint Venture, after submission of the tender bid except when modification becomes inevitable due to successive laws etc., without prior written consent of the Employer. The parties further undertake that in any case Lead Member shall continue to be the Lead Member of the JV.

15. All the members of the JV Firm (name of Joint Venture Firm) certify that the parties are not black listed or debarred by Railways or any other Ministry /Department/ PSU(Public Sector Undertaking) of the Govt. of India /State Govt. from participation in tenders/ contract on the date of opening of bids either in their individual capacity or as a member of the JV Firm in which they were/are members.

16. This JV shall be construed under the laws of India.

Between Now the parties have joined hand to form the Joint Venture (MOU) on this ___day of _(month) two thousand ____ (Year) with reference to and in confirmation of their discussions and understanding brought on record on(Day).

Lead Member First Joint Member Second Joint Member

(Name of signatory with designation and name of firm should be furnished) IN WITNESS WHEREOF THE PARTIES, have executed this JV the day, month and year first before written.
Witness 1.

2.

3.

Appendix 1,Annexure H

(Ref:Annexure–V(A)of Part I of GCC)

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

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

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

SEAL AND SIGNATURE OF THE CONSTITUENT
FIRM/CONSTITUENT PARTNER

Place:

Dated:

Note: Non submission of above certificate(s) by the bidder shall result in summarily rejection of his/their bid.

Name of Work:.....
Tender No :.....

Appendix 1, Annexure I

STATEMENT OF DEVIATIONS

1. Instruction to tenderer(s):		
Clause &SubClause NO.	Deviation	Clarification & justification

2. General Condition of Contract.		
Clause & Sub Clause NO.	Deviation	Clarification & justification

3. Special conditions of Contract.		
Clause & Sub Clause NO.	Deviation	Clarification & justification

4. Technical Specification

Technical specification No.	Deviation	Clarification & justification

NOTE: "If required attach additional sheet with the heading attachment to Appendix 1, Annexure - I".

SEAL AND SIGNATURE OF THE BIDDER
Appendix 1, Annexure J

PERFORMA
SITE SURVEY DECLARATION

Name of Work:.....

Tender No :.....

I/We hereby solemnly declare that I/We visited the site of the work (as on topsheet) and have made myself/ourselves fully conversant of the conditions therein and particular the following: -

1. Topography of area.
2. Soil strata at site of work.
3. Sources and availability of construction materials.
4. Feasibility for movement of vehicle for carrying material at site.
5. If any boundary/fencing or structure is altered/removed for the work execution purpose, the same will be restored to its original position at my cost.
6. Rates for construction of material, water, electricity including all local taxes, royalties, octroi etc.
7. Availability of local labor (both skilled and unskilled) and relevant labor rates and labor laws.
8. The existing roads and approaches to the site of work and requirements for further service roads/approaches to be constructed by me/us.
9. The availability and rates of private land etc. that shall be required by me/us for various purposes.
10. Climatic conditions and availability of working days.
11. I have sent my Authorised Representative Shri _____
Designation to site.

I/We have quoted my/our rates for various items in the schedule of items, quantities and rates taking into account all the above factors also.

Signatures of the Tenderer/s

Appendix1, Annexure K

Declaration Certificate for Local Content

Subject: Public Procurement (Preferably to make in India) References: Preference to Make in India including counter offering will be as per the Public Procurement (Preference to Make in India), Order 2017.

We hereby declare with reference to the above subject that M/s "*<insert your firm name>*" "class-I/II/III supplier" meeting the requirement of local content *<insert minimum percentage or range of percentage as case may be>* defined in the above government notification for the goods and services.

We also understand that the false declaration will be in breach of the code of Integrity under rule 175(1)(i)(h) of the General Finance Rules for which a bidder or its successors can be debarred for up to two years as per the Rule(iii) of the General Financial Rules along with such other actions as may be permissible under law.

Place: Date:Authorized signature (seal)

Appendix 1, Annexure L1

DECLARATION FORM FOR RELATIVE
Certificate of no relative being an employee of Western Railway

I/We the undersigned hereby solemnly declare and certify that I/ We do not have any of our relative/relatives employed in the western railway (Signal and Telecom department) except the names mentioned herein under:

- 1
- 2
- 3
- and so on

Note:- Names , Designation , Name of office, Headquarter of the tenderer’s relative in western railway (Signal and Telecom Department) to be mentioned by the tenderer/ tenderers in 1,2, 3 and so on above.

Signature of Tenderer / Tenderers

Appendix1,

Annexure L2

Certificate of Information regarding Employment/Partnership etc. of Retired Railway
Employees with the tenderer
TABLE-A

S No.	Information Sought	Whether 'Yes' or ' No'
1.	Is any retired Railway Engineer/Gazetted officer associated with the firm as detailed vide para 16(a) of GCC, April- 2022.	

Note: If the answer is 'Yes' above, comply the condition as per para 16(a) of part I of GCC,
April- 2022 as per Table-'B' below. I the space is left blank in Table "A" it will presumed as
'NO' by Default.

TABLE-B

Sl.No	Name	Type of association with the tenderer	Date of Retirement from the service	Post held at the time of retirement	Particulars of permission taken for association with the tenderer	Any other information linked with para 16(a) of part I of GCC, April- 2022

If the answer is 'Yes' in Table 'A', details at Table-'B; is not entered, the tender offer shall be
rejected.

SIGNATURE OF TENDERER WITH STAMP.....

Appendix1, Annexure M
(Ref:Annexure-VI A of Part I of GCC)

(Bid Security)

Bank Guarantee Bond from any scheduled commercial bank of India

(On non-judicial stamp paper, which should be in the name of the Executing Bank).

Name of the Bank: -----

President of India,

Acting through

Sr. Divisional Finance Manager,

Mumbai Central ,Mumbai-400 008.

Western Railway

Beneficiary:Western Railway

Date:.....

Bank Guarantee Bond No.:

Date:-----

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

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

AND

WHEREAS,[*Insert Name of the Bank*], with its Branch[*Insert Address*] having its Headquarters office at..... [*Insert Address*], hereinafter called the Bank, acting through [*Insert Name and Designation of the authorized persons of the Bank*], have, at the request of the Bidder, agreed to give guarantee for Bid Security as hereinafter contained, in favor of the Railway:

1. KNOW ALL MEN that by these present that I/We the undersigned [*Insert name(s) of authorized representatives of the Bank*], being fully authorized to sign and incur obligations for and on behalf of the Bank, confirm that the Bank, hereby, unconditionally and irrevocably guarantee to pay to the Railway full amount in the sum of [*Insert required Value of Bid Security*] as above stated.
2. The Bank undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Bank shall be final, conclusive and binding, absolute and unequivocal on the Bank notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.
3. The Bank shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the Bidder and without the Railway being required to show grounds or give reasons for its demand of the amount so demanded.
4. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.
5. The Bank agrees that no change, addition, modifications to the terms of the Bid document or to any documents, which have been or may be made between the Railway and the Bidder, will in any way absolve the Bank from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification made by Railway at any time.

6. This guarantee will remain valid and effective from[insert date of issue]till.....[insert date, which should be minimum 90 days beyond the expiry of validity of Bid]. Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security.

7. The Bank Guarantee is unconditional and irrevocable.

8. The expressions Bank and Railway herein before used shall include their respective successors and assigns.

9. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the Railway. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No.758.

10. The Bank hereby confirms that it is on the SFMS (Structured Financial Messaging System) and shall invariably send the advice of this Bank Guarantee to the following bank details: - (Specimen as given below)

IFSC CODE	SBIN00RAIL
IFSC TYPE	BRANCH
BANK NAME	STATE BANK OF INDIA
BRANCH NAME	RAIL
CITY NAME	NAVI MUMBAI
ADDRESS	SECTOR-11, CBD BELAPUR, NAVI MUMBAI
DISTRICT	NAVI MUMBAI
STATE	MAHARASHTRA
BG ENABLED	YES

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

Date

Place.....

.....

Bank's Seal and authorized signature(s)

[Name in Block letters]

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

[P/Attorney] No.

Witness:

1 Signature, Name & Address & Seal

2 Signature, Name& address & Seal

Bank's Seal

[P/Attorney]No.

Note: All italicized text is for guidance on how to prepare this bank guarantee and shall be deleted from the final document.

Name of Work:.....

Tender No :.....

Clause wise Compliance on specific Technical specification (If any) :

SN	Clause No of Tender Document	Clause	Compliance

Signature of Tenderer / Tenderers

Appendix 1, Annexure O

Name of Work:.....

Tender No :.....

Clause wise Compliance on MOU/Undertaking with RDSO approved OEMs/Suppliers/Designers(Ref Clause10.4.1)

SN	Clause No of TD	Clause	Compliance
1	10.4(1)(a)	The successful bidder shall submit an undertaking from RDSO-approved EI OEM, within 21 days from issue of LoA or at last with submission of PG, to confirm compliance with extant RDSO guidelines and to meet specific requirements and to provide after-sales support required during the warranty period and beyond the warranty period, failing which the contract is liable to be terminated.	
2	10.4(1)(b)	The successful bidder shall submit authorized breakup of cards / modules, with complete details of EI system i.e detail of all modules, cards and accessories, full details of quantities (station/OC wise) & unit base rate item wise, including spares, in proforma provided with this tender, before supply of material.	
3	10.4(2)(a)	The successful bidder shall submit an undertaking from RDSO-approved MSDAC OEM, within 21 days from issue of LoA or at ast with submission of PG, to confirm compliance with extant RDSO guidelines and to meet specific requirements and to provide after-sales support required during the warranty period and beyond the warranty period, failing which the contract is liable to be terminated.	
4	10.4(2)(b)	The successful bidder shall submit authorised breakup of Material, with complete details of MSDAC system i.e detail of all modules, cards and accessories, full details of quantities (station/OC wise) & unit base rate item wise, including spares, in proforma provided with this tender, before supply of material.	

Appendix1,Annexure P

(Ref:Annexure–VI Part I of GCC)

TENDERER'S CREDENTIALS (BID CAPACITY)

____RAILWAY

For tenders having advertised value more than Rs 20 crore wherein eligibility criteria includes bid capacity also, the tenderer will be qualified only if its available bid capacity is equal to or more than the total bid value of the present tender. The available bid capacity shall be calculated as under:

Available Bid Capacity=[$A \times N \times 2$]- $0.33 \times N \times B$ Where,

A=Maximum value of construction works executed and pay received in any one of the

Previous three financial years or the current financial year(upto 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 have been invited.

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

Note:

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

The submitted details for(i)and(ii) above should be duly verified byChartered Accountant.
- iii. Incase if a bidder is JV, the tenderer(s) must furnish the details ofMaximum value of construction works executed and payment received in any one of the previous three financial years or the current financial year (up to date of inviting tender) by each member of JV for calculating A, and

- iv. Existing commitments and balance amount of ongoing works with each member of JV either in individual capacity or as a member of other JV as per the prescribed proforma of Railway for statement of all works in progress and also the works which are awarded to each member of JV either in individual capacity or as a member of other JV but yet not started upto the date of inviting of tender for calculating B. Incase 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. Value of a completed work/ work in progress/ work awarded but yet not started for a member in an earlier JV shall be reckoned only to the extent of the concerned member's share in thatJV for the purpose of satisfying his/her compliance to the above-mentioned bid capacity in the tender under consideration.
- c. The arithmetic sum of individual "bidcapacity "of all the members shall be taken as JV's"bid capacity".
- d. In case, the tenderer/s failed to submit the above statement along with the offer, their/his offer shall be considered as incomplete and will be rejected summarily.
- e. 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 requirements.

Appendix 1, Annexure Q

Proforma for Undertaking/MOU/Certification for
Non RDSO approved Vender (Ref Clause 10.4.2)
Not Applicable

Appendix 2, Annexure 1

Scope of Work and definition of Similar Nature work

Name of work: “Design, Supply, Installation, Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPAC proving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling Systems in Jambusar and samni Section in connection of provision of Gauge Conversion Work under Dy. CSTE Construction, Vadodara, Gujarat (Western Railway)

7) ”

Similar nature of work (For Filling Appendix 1 related to ITT): “Any Relay Interlocking (RI) or Electronic Interlocking (EI) or Color Light Signaling using Lever Frame (CLS) or Automatic Block Signalling (ABS) or Intermediate Block Signalling (IBS) work involving Indoor and Outdoor work (Cable laying & termination). Brief description of Work:

The Scope of work essentially consists of Design, Supply, Installation, Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPAC proving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling Systems in Jambusar and samni Section in connection of provision of Gauge Conversion Work under Dy. CSTE Construction, Vadodara, Gujarat (Western Railway)

, as per schedule of work and technical requirements and specifications.

Scope Of The Work:	
1.	Contractors Brief Scope
(i)	
A	Design, Supply, Installation, Programming, Testing and Commissioning of New Hot Standby Electronic Interlocking System at JAMBUSAR and SAMNI Stations with BPAC proving with Axle Counter, along with Supply, Installation, Testing and Commissioning of various Indoor and Outdoor Signaling Systems in Jambusar and samni Section in connection of provision of Gauge Conversion Work under Dy. CSTE Construction, Vadodara, Gujarat (Western Railway)
B	<p>This work is of highly technical nature involving latest technology & hence the contractor has to submit following:</p> <p>1. EI system details: - Make, model and detail specification shall be submitted with breakup cost of each individual parts/components and its accessories with spare list as per RDSO specification.</p>

	2. Undertaking to be submitted by bidder stating, Equipment of EI shall be procured from same RDSO approved sources for which breakup is submitted. Further, Supervision of installation, testing and commissioning of EI shall also be done from the same source, including after sales support required during the warranty period, as per para 10.4.1 of tender document
C	Table of Control (TOC) will be designed by the contractor on the basis of approved SIP, which will be provided by the railway. After approval of TOC by Railways, application logic circuits, interface circuits and VDU layout (based on approved SIP) will be designed by the contractor and submitted to the Railways for approval.
D	Table of Control (TOC) and Application logic circuits are required to be independently checked, verified and approved by IRSE / IRSTELO license holder(s) before submission to Railways for approval. IRSE / IRSTELO license holders as Principle Signal Designer and Verifier should certify about the correctness of the logic circuits before submission to Railways for approval. If error is found in the design of either TOC or logic circuit, then action will be initiated as per IRSE / IRSTELO conditions for cancellation of license. Dy. CSTE (D&D) CCG, acting on behalf of Railway, shall be the deciding authority regarding this.
G	Arranging for Factory Acceptance Test (FAT) at OEM premises / any other place as desired by Railway and Site Acceptance Test (SAT) of the interlocking design by Railway officials. FAT testing shall include (i) EI logic to be tested as per approved TOC. (ii) Square Sheet testing. (iii) Mismatch logic testing / Auto resetting logic of DAC. (iv) TMS interface logic testing. (v) Supervisory circuit logic testing if provided.
H	The EI system including its equipment and subsystems (Item no. 1 of A2 Schedule) shall be under warranty of one year from the date of commissioning of Station. During the Warranty period of the system with standby must be maintained in such a manner that the system shall be available normally. For other than EI system / its subsystems, the warranty shall be of 12 months from the date of completion as per completion certificate issued by Railway.
K	Provision of separate Key cum counter box to be provided in SM office as per standard WR practice. For details, refer to the Chapter Technical Specification and Requirements.
L	Maintenance terminal with Event Logger (of EI) and other accessories for logging of indoor and outdoor parameters as per RDSO specifications/ guideline for EI. The system shall have facility for automatic serial data transfer to a central monitoring unit through data logger. The protocol for this communication shall be as per Data Logger specification No. IRS: S-99/2006 (Amdt-3) or latest. Event loggers of EI's supplied against this tender are to be networked and should be interfaced with the existing data logger system. The number of potential free relay contacts should be provided in such a way that there is no problem in Report generation as per RDSO report on Data-logger. The required interface cards for monitoring the status of digital input / output relays should also be supplied with EI by the contractor of this tender.
M	The Earthing arrangement required for the EI system and other indoor signaling equipment (IPS, data-loggers etc.) shall be done by Contractor as per recommended value of earth resistance specified by the manufacturer/RDSO. The Earthing shall be done as per RDSO specification No. RDSO/SPN/197/2008 Version 1.0 or latest (With latest amendment) for "Code of Practice for Earthing and Bonding System for Signaling Equipments) and as per Western Railway Practice. To supply and provide equipment / devices to protect EI systems supplied from power supply surges/lightning surges, as per latest specification.
N	Training of Railway's staff/officers in all aspects of software & hardware to enable understanding and maintenance of the EI system.
	Any other activity defined by Officer In Charge of the work mutually agreed by the contractor.
O	Contractor has to carry out complete indoor wiring work right from the Cable Termination rack where outgoing Signaling cables will be terminated with their own supply of indoor cables and jumper wires. The indoor cables and jumpers must be as per RDSO specifications and should be procured from RDSO approved sources only.
P	The work is to be carried out in accordance with approved Signaling/ Interlocking Plans for the stations, approved and issued by the Railways. Any minor variation/ alteration may take place during the course of execution. The tenderer should be ready to carry out correction/ alterations/ additions in design of circuits and other works arising out of these changes without any additional cost. The Railway's decision in this regard will be final and binding.

Q	The installation practices of all signaling gears should be as per the Signal Engineering Manual (SEM) Part I & II of Indian Railways and to suit latest relevant correction slips and Western Railway practices.
R	Contractor has to ensure that systems are installed and commissioned under supervision of an engineer of an RDSO approved manufacturer and the pre-commissioning check list is signed by representatives of the RDSO approved manufacturer, contractor and Railways.
S	Scope of work is detailed in "Schedule of Materials and Works" and as per "Technical requirement & specification". Work is to be carried out in compliance to the tender conditions and specifications. Work will be carried out in accordance with the technical Specification & Requirements of the Tender Document. Wherever Specifications are not indicated, work will be carried out as per standard practice on this Railway and instructions of Engineer in charge.
T	During testing and commissioning of the installation, the contractor's engineers will be available at site for testing and commissioning and also for doing any wiring alterations which will be required during testing and commissioning.
U	Fluorescent jackets must be provided by the contractor to his labor / staff working on the track, failing which they will not be allowed to work near the track. Contractor will be solely responsible for delay in work, if work is stopped by the Railway due to such circumstances.
V	All work shall be compatible with the existing Western Railway indoor & outdoor S&T practice.
W	All the works shall be executed confirming to the specifications, drawings as per practiced and Latest Policy in western railway.
(ii)	All the relevant clauses which are applicable to the items of schedule of material and works shall be adhered to. Axle Counter
	Multi section digital Axle Counter (MSDAC) system shall comprise of Axle detectors, DAC field unit, mushroom housing for track side electronics, Central evaluator, MSDAC VDU as Reset unit, track clearance relay- unit for each track section, event logger, diagnostic terminal and line verification box confirming to RDSO specification no. RDSO/SPN/176/2013, Ver.3 or latest (Inspection by RDSO). A. Complete yard to be provided with dual axle counter as per SIP. Both main and dual axle counter systems shall be fully redundant and shall work independently. B. Power supply of both the dual tracks shall be completely separated. C. DP foundation, installation of DP, its earthing will be done by Contractor D. Trenching / track crossing / cabling required for installation of DP / track device will be done by Contractor. E. Track device fitting/ installation, Evaluator (in case of MSDAC) will be installed by Contractor. F. Earthing of the Evaluator will be done by contractor. G. Indoor wiring from Evaluator to the K rack will be done by contractor. H. Physical VR relay of each track section will be picked by the contractor. I. Testing of picking and dropping of VR relay will be done by Railway. J. The activity of extending power supply from Power board to the evaluator K. Contact of VR relay will be taken to the relay rack and / or into the interlocking system by the contractor. L. Trenching / track crossing / cabling / Termination from K rack (including termination at the K rack) up to the DP will be done by the contractor, as per the cable route plan, core chart and location plan approved by Railway. M. Cable termination at the DP both sides, i.e. track side as well as prior location side will be done by Contractor. N. Auto resetting of dual axle counter tracks in parallel shall be provided as per extant practice of WR. O. Manual resetting of axle counter tracks shall be provided through separate MSDAC VDU in SM room. P. Failure Status of main and dual track shall be shown on the VDU in different colors.
(iii)	INDOOR WORK:
A	Design, supply, Installation, Programming, Testing and Commissioning of EI system as per the technical specifications and schedule of materials and works.
B	Erection of Relay racks and Wiring of the Relay room as per the approved circuits.
C	Power Wiring of Bus Bars from the Power Distribution panel for all the DC and AC supplies.
D	Wiring and supply of simulation panel as per site requirements with contractor's own material.

E	Testing of wired circuits for 1 wire/2 wire and bell test, selection table test and Square sheet test.
F	Extending the cables and Wiring and installation of Telecom equipment like control phones, other telephones, PA system etc.
G	Wiring and installation of other miscellaneous items like KLCRs, Block bell units etc as per Railways instructions.
H	Any other activity defined by Officer In Charge of the work mutually agreed by the contractor.
I	Indoor work related to the Axle counter as mentioned earlier.
J	Indoor work related to Fire alarm system
K	Indoor work related to FACS system
L	Indoor work related to conventional power supply and IPS.
M	Point machine current shall be shown via suitable Current Reference device.
(iv)	OUTDOOR WORK:
A	Supply of material as per schedule of materials and works.
B	Preparation of foundations for Location Boxes, Signals as per the approved drawings.
C	Erection of location boxes and signal posts, signal units etc.
D	Excavation of Trenches in soft soil, asphalted areas and platform cutting etc.
E	Laying of RCC pipes, DWC pipes, GI pipes and other material.
F	Laying of cables in the pipes or other materials.
G	Termination of cables.
H	Earthing of cables.
I	Meggering of cables and painting of details.
J	Wiring of and installations of Track circuits, Point machines and signal units, L.C. Gates etc. as per Railways" Instructions.
K	The contractor shall submit all the details/drawings before, during and after the commissioning of the installation as mentioned in the para
L	Any other activity defined by Officer In Charge of the work mutually agreed by the contractor.
M	Any other work not indicated in "Works to be done by Railways" heading as per statement given above shall be carried out by the contractor himself for which no extra payment will be made, so as to achieve the final objective of commissioning of the system as per technical specifications and as per tender requirement.
N	Outdoor work related to the Axle counter as mentioned earlier.
(v)	SUBMISSION OF DRAWINGS AND RECORDS:
A	The contractor shall submit all the details/drawings for all items pertaining to this work before, during and after the commissioning of the installation.
B	Details of test accessories, test and measuring instruments required. Test facilities required for the installation, testing & commissioning maintenance of the system along with a write-up of testing and troubleshooting procedures.
	NOTE:-All diagrams required to be submitted to WR HQ shall be routed through Executing authority.
(vi)	TECHNICAL DOCUMENTS TO BE PROVIDED BY CONTRACTOR:
A	All the Documents and Drawing to be prepared submitted by contractor as mentioned in technical specifications chapter.
C	Details of test accessories, test and measuring instruments required. Test facilities required for the installation, testing & commissioning maintenance of the system along with a write-up of testing and troubleshooting procedures.
D	Fault diagnostic Chart: Important aspect of trouble shooting & adjustments along with parameters & its range shall be prepared in colored A1 size in glossy paper & framed to be displayed in SSE/SE/ESM duty room. Above chart shall be provided in the SSE/SE /ESM duty room at least one day in advance of commissioning. Contractor shall obtain the approval of Railways before supplying the same. Five copies of the charts shall be submitted for

	each station.
(vii)	The required test reports as per Technical specification chapter to be made available after testing of the Signaling Installation before commissioning of the system :
(viii)	MATERIALS AND WORKMANSHIP <p>A. The Electrical Signaling& Telecom materials, to be supplied by the Tenderer as per RDSO's Specification/ Drawing will have to be procured from RDSO approved firms only.</p> <p>B. Materials/ Equipments for which RDSO approved sources exist should be taken from RDSO approved sources only.</p> <p>C. Material should not be procured from any sources banned for business dealing with Railways under any circumstances.</p> <p>D. All the items shall be procured from RDSO approved firms to IRS/RDSO specifications and shall be inspected by RDSO. In case the total value of a particular item is less than Rs. 5 lakh (Vide RB letter no. 2000/RS(G)/379/2 dt. 6.09.2017), the same shall be inspected by Consignee, subject to supplies being from sources approved by RDSO. However the following critical items will be essentially inspected by RDSO irrespective of the cost:</p> <ol style="list-style-type: none"> All types of signaling relays. Bloc instruments. Axle counter equipment. Signal machines. Point machine. Color light signal transformers. Electrical signal lamps. Voltage stabilizers and other power supply equipment. Electrical signal reversers. Signal roundels and lenses. Electric lever lock and circuit controller. Circuit controller. Electric key transmitter. Fuses, fuse blocks and terminal blocks (PBT type). Electric point and lock detector. <p>E. Further items which do not have RDSO specification for which RDSO has not approved any suppliers, inspection shall be carried out by RITES/authorized Railway representatives (In this case material shall be accepted against the firm's guarantee certificate).</p> <p>F. Material shall be in accordance with specifications and drawings specified or approved by the Railway with latest amendments.</p> <p>G. Material for which no detailed specification/ drawing is given in tender document should be procured from reputed manufacturer/ authorized agents and proof of purchase/ dispatch shall be furnished to consignee.</p> <p>H. Material should be in properly packed condition and the consignee reserves the right to reject the material even though it was passed by RDSO.</p> <p>I. All the materials and workmanship used in this work shall be of extremely good quality and high class in every respect and is expected to give trouble free service.</p> <p>J. The personnel deputed for soldering should have adequate soldering skills and competency certificates issued by ITIs / reputed institutions.</p>
(viii)	Pre commissioning checklist jointly signed by Railways and OEM's representative and Contractor's representative.
(ix)	After commissioning of the station, six sets of Documents/drawings along with two copies of tracings, four sets of soft copy in CD/ pen drive shall be submitted within 15 days.
(x)	All the drawings shall be supplied in a good quality folder for each station. During installation, a folder containing all the drawings, testing procedures, commissioning procedures shall be kept at the stations.
(xi)	Fault Diagnostic Chart: Important aspect of trouble shooting & adjustments along with parameters & its range shall be prepared in colored A1 size in glossy paper & framed to be displayed in the Relay room. Above chart shall be provided in the Relay room & SI/ESM duty room at least one day in advance of commissioning.

	Contractor shall obtain the approval of Railways before supplying the same. 5 copies of the charts shall be submitted for each station. (Same is applicable for K-rack details.)
(xi)	For all type of electronic system like EI, DAC, IPS, Data-logger, FAS, Fuse Monitoring & change over system, Earth Leakage Detector etc. following documents shall essentially be provided in six copies
(xii)	Manual for installation, Testing, Commissioning and maintenance of the system for Technicians/Jr. Engineers (Installation & Maintenance level), both in hard and soft copy.
(xiii)	Technical & system module for diagnostic & troubleshooting for repair center (Engineers level), both in hard and soft copy.
(xiv)	Functioning and system overview, Manufacturer's System Manual in soft and Hard copy. (Higher management level). Detailed technical description and design of the systems offered Detailed Operating Instructions of the systems offered.
(xv)	For the EI system the AS MADE Documents shall be provided as follows:
(xvi)	Before testing and commissioning of the entire installation, eight copies of final 'as made' details as hereunder shall have to be supplied duly incorporating all particulars for the station. All „As made“ shall be prepared by the contractor in Auto-cad 2000 and submitted in compact discs in duplicate. All 'As made' documents/plans shall be made by the contractor as per Western Railway practice only and shall be handed over to the Railways, duly signed.
(xvii)	'As made' circuit diagram
(xviii)	'As made' power supply layout diagram
(xix)	'As made' contact analysis chart
(xx)	'As made' relay disposition chart
xxi	Transportation of all types of materials required for commissioning of works from the Railway's stores within division at contractor's own cost.
2)	<u>Railways Brief Scope:</u>
A	Approved Signaling Plan.
B	Building for the Installations if not covered in the schedule of materials and work.
C	Provision of single phase 230V AC un-stabilized Power Supply.
D	Statutory Testing of installation/equipment (as per SEM) shall be done under Supervision of Railway officials or by Railway officials themselves, once the contractor offers installation is ready commissioning in all respects. The electric supply for this purpose will be provided by the Railways. However, for any installation activities like drilling, soldering etc., contractor if so desires, to use tools/ machines, electric power supply (230V AC) can be arranged by Railways as per extant procedure.
E	All types of outdoor cables if not covered in the schedule of materials and works.
	Note:- Transportation of all types of materials required for commissioning of works from the Railway's stores within division at contractor's own cost.
3)	<u>Mandatory Technical Requirement</u>
	The EI system should be as per RDSO Spec. RDSO/SPN/192/2019 Ver. 2 or latest (with latest amendment)
A	The System Configuration, Route Control Table, Route Release Table, Square/Cross Sheet, all required interlocking/Logic diagrams and other documents required for designing of the system shall be prepared by the contractor on the template of Western Railway and shall be approved by Railways. RDSO Technical Advisory Note (TAN) No. STS/E/TAN/3012 Ver 3.0 dtd 28.06.2021 will be referred to and with the latest correction.
B	At least 15% spare bit in each card and overall to be provisioned during initial installation. The system shall have provision for accommodating an additional 15 % of I/O in future
C	The EI supplier shall share protocol for direct interfacing with future technology of Kavach, CTC/TMS

	& Data logger, whenever required. Failing to provide this protocol with Railways will result in a penalty of Rs. 10 lakhs per EI supplied against said project.
D	All spare I/O ports of EI need to be wired and extended up to the termination rack. The CPU of Operator VDU should be fixed in such a way that all its ports are easily accessible.
E	For MSDAC, Maintenance free earthing shall be provided at each EJB/DP irrespective of the question of its requirement by OEMs of MSDAC. Armouring of quad cable shall be earthed with this maintenance free earth.

Consignee Détails:

Materials' are required to be supplied in the office/depot of SSE/Sig/Store/BRC. Consignee would be SSE/Sig/Store/BRC. However Railway reserves full right to change consignee (stores), supervisor site in-charge and officer- in-charge whenever need arises.

Appendix 2, Annexure 2**Technical Capability of Bidder:***Instructions:*

This information is only for assessing the capacity of Bidder to complete work within the completion period. Non submission of this information may affect project execution at a later stage. This information can also be submitted with 30 days of issue of LOA)

List of tools, Plants, equipment and machinery available with the tenderer along with their value

Name, qualifications of the technical Supervisors and staff under the employment of the tenderer and organization on hand and proposed to be engaged for the subject work

SN	Name	Technical qualification(s)	Position with the tenderer	Commencement of present employment	Total experience	Emoluments
1	2	3	4	5	6	7

i. Other facilities available with the tenderer not covered hither to:

1. Tenderer(s) knowledge from actual personal investigation of the resources of the region or District(s) in which he offers to work:

2. Any other details that the tenderer may like to furnish to substantiate their financial and technical ability to undertake this work and complete the same within the stipulated period of completion.

Signature of Tenderer(s)/Contractor(s)NB:

1. If any one or more of the detailed information furnished in the tenders Documents is proved to be false at any stage, the contractor/ firm will be debarred then and there, from all the commitments connected with the tender and his/their tender/contract will be rejected/terminated and further action will be taken as per extant rules.
2. Separate sheet may be used for furnishing the above information, if necessary.

Appendix 2, Annexure 3

(Employment of Key Personnel)

Instructions: Information can be submitted within 30 days of issue of LOA.

S N	Name	Minimum Qualification	Qualification	Experience in Similar Works
PROJECT MANAGER (minimum 01 Nos.)				
1				
SITE MANAGER (minimum 01 Nos.)				
2				
3				
Other Personals				

The contractor shall employ the minimum key personnel other than Technical manpower (Detail is in Tender Document) during the execution of the Contracted work.

The Biodata (Name, Qualification, Years of experience etc.) of the key personnel as mentioned above, who are proposed to be deployed, shall be furnished in the tender offer. It will be essential to retain the same key personnel for continuity of the project. However in case a situation arises to replace the key personnel for whatever reason, the same will be done in consultation with the Railways.

The PROJECT MANAGER/SITE MANAGER should be available at site whenever required by the Engineer to take instructions. Incase the Contractor fails to employ the aforesaid key personnel or the Key person is not available at Site whenever required by Engineer, he shall be liable to pay a reasonable amount not exceeding a sum of Rs. 40,000/- for each month or part thereof of default in case of Project Manager and Rs. 25000/-for each month or part thereof of default in case of Site Manager.

Signature of Tenderer(s)/Contractor(s)

Appendix 2, Annexure 4

STANDING INDEMNITY BOND

INDEMNITY BOND

Indemnity Bond for safe custody of Railway material to be supplied to
M/s. _____ under _____ Tender
no. _____

We, M/s. _____ (hereinafter called the Contractor) do hereby undertake that we shall hold in our custody for and on behalf of the President of India acting in the premises through the General Manager, Western Railway or for him all Railway materials which have been handed over to us against the contract for Tender no. _____ dtd. _____ for the work _____ of _____
“ _____ ” by the Railway for the purpose of execution of the said contract until such time the materials are duly installed and/or erected or otherwise handed over to the Railway.

We shall be entirely responsible for the safe custody and protection of the said materials against all risk till they are duly delivered as installed and/or erected equipment to the Railway or as directed otherwise and shall indemnify the Railway against any loss, damage or deterioration whatsoever in respect of the said materials. Any Officer authorized by the General Manager, Western Railway or his nominee shall at all time open the said materials to Inspection.

Should any loss, damage or deterioration of materials occur or surplus materials disposed off and a refund becomes due, the Railway shall be entitled to recover from us the full cost and compensation determined in terms of the contract for such loss or damage, if any, along with the amount to be refunded without prejudice to any other remedies available to him by deduction from any sum due or any sum which at any time thereafter becomes due to us under the said or any other contract.

In the event of any loss or damage as aforesaid the assessment of such loss or damage and the assessment of the compensation there for would be made by the President of India acting through the General Manager, Western Railway or his authorized nominee shall be final and binding upon us.

Signed at _____
on this day of _____
Signature of Witness: _____
for or on behalf of _____
M/s. _____

Name of Witness in

BLOCK LETTERS

ADDRESS:

Appendix 2, Annexure 5

FORM OF BANK GUARANTEE BOND FOR PERFORMANCE GUARANTEE

The President of India,
Acting Through the
Sr. Divisional Finance Manager,
Mumbai Central, Mumbai-400 008.
Western Railway

1. In consideration of the President of India (hereinafter called "the Government") having agreed to accept from (hereinafter called "the said contractor/s"), under the terms and conditions of an Agreement/Acceptance letter dated made between and (hereinafter called "the said Agreement") the Performances Guarantee for the due fulfillment by the Contractor/s of the terms and conditions in the said Agreement on production of Bank Guarantee for Rs.....(Rupees..... only) we,.....(indicate the name of Bank thereafter referred to as "the Bank") at the request ofcontractor/s do hereby undertake to pay the government an amount not exceeding Rs.....against any loss or damage caused to or suffered by or would be caused to or suffered by the Government by reason of any branch 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 amounts due and payable under this guarantee without any demur, merely on demand from the Government stating that the amount claimed is by way of loss or damage caused to or suffered by the Government by reason of breach by the said contractor/s of any of the terms or conditions contained in the said agreement or by reason of the contractor/s failure to perform the Agreement , any such demand made on the bank shall be conclusive as regards the amount due and payable to the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs.....
3. We undertake to pay to the Government any money so demanded notwithstanding any dispute or dispute raised by the contractor/s/supplier(s) in any suit or proceeding pending before any Court or Tribunal relating thereto liability under this present being absolute and unequivocal. The payment made by us under this bond shall be a valid discharge of our liability for payment thereunder and the contractor(s)/supplier(s) shall have no claim against us for making such payments.
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, including Maintenance/Warranty Period, and that it shall continue to be enforceable till the dues of the Government under or by virtue of the said agreement have been fully paid and its claims satisfied or discharge or till office/Department. Ministry of Railway certifies that the terms and conditions of the Agreement have been fully and property carried out by the said Contractor(s) and accordingly discharged this guarantee, unless a demand or claim under this guarantee is made on us in writing on or before thewe shall discharge from all liability under this guarantee thereafter.
5. We,.....(indicate the name of the bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of 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 from any time or from time to time any of the powers exercisable by the Government against the said contract and to forebear 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, extension being granted to the contractor/s for any forbearance act or commission on the part of the Government or indulgence by the Government to the said contractor/s or such any 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 discharge due to the change in the constitution of the bank or the Contractor(s)/Suppliers(s)
7. We,..... (Indicate the name of Bank).....undertake not to revoke this guarantee during its currency except with the previous consent of the Government in writing.
Date this.....day of.....2020.

For
(Indicate the name of Bank)

Signature of Tenderer
For Divisional Railway Manager (S&T)
Mumbai Central, Mumbai-400008
For and on behalf of President of India

Appendix 2, Annexure 6

NO CLAIM CERTIFICATE

I/We__hereby certify that I / We have no claims outstanding against the Western Railway, either for work done or for labor supplied or for materials supplied or on any other account on the

_____District__ Sub-Division. No.

_____Zone__, and that I/We have been paid in full and in final settlement and satisfaction of all my/our claims.

Witness of Signature to contractor Date:

(Signature of the Contractor) Date:__

Stamp:

Appendix 2, Annexure 7

PROFORMA FOR TIME EXTENSION

No. _____ Dated: _____

Sub: (i) _____(name of work).

(ii) Acceptance letter no. _____

(iii) Understanding/Agreement no. _____

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

Dear Sir,

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

2. Expecting that you may be able to complete the work if some more time is given, the competent authority, although not bound to do so, hereby extends the time for completion from _____ to _____.
3. Please note that an amount equal to the liquidated damages for delay in the completion of the work after the expiry of _____ (*give here the stipulated date for completion with/without any liquidated damage fixed earlier*) will be recovered from you as mentioned in Clause 17B of the Standard General Conditions of Contract for the extended period, notwithstanding the grant of this extension. You may proceed with the work accordingly.
4. The above extension of the completion date will also be subject to the further condition that no increase in rates on any account will be payable to you.
5. Please intimate within a week of the receipt of this letter your acceptance of the extension of the conditions stated above.
6. Please note that in the event of your declining to accept the extension on the above said conditions or in the event of your failure after accepting or acting upto this extension to complete the work by _____ (*here mention the extended date*), further action will be taken in terms of Clause 62 of the Standard General Conditions of Contract.

Yours faithfully

For and on behalf of the President of India

Appendix 2, Annexure 8

OEM's Site Installation Certificate

(For EI, SSDAC/MSDAC, UFSBI/BPAC, IPS, Data logger only)

To,
DY.CSTE/C/BRC
Vadodara,
Western Railway

This is to certify that verification of system installation (details given below) has been completed by undersigned (OEM representative) and all necessary arrangements like earthing, surge protection, power supply, power & communication cables, and equipment wiring meet the required standards of engineering for trouble free working of installed systems.

1. System being commissioned :
2. Station / Section :
3. Division :
4. Date of commissioning :

.....
Name of RDSO approved Original Equipment Manufacturer:

.....

Name of OEM representative with Designation:

.....

Signature of OEM representative with Date

6792512/2025/O/o DY CSTE/C/BRC/WR

6686104/2025/O/o DY CSTE/C/BRC/WR

OpenE-Tender

End of Document