



**SOUTH CENTRAL RAILWAY  
ELECTRICAL CONSTRUCTION  
VIJAYAWADA**

**TENDER BOOKLET**

**NAME OF THE WORK**

**Electrical Construction/GTL: Guntakal Division: - Guntakal Division:  
- Shifting/Modification of existing power line crossings of 33 kV, 11  
kV HT and LT lines, shifting of DTRs, and modification of parallel  
lines at various locations between CHELLUR and PUDI stations in  
connection with the construction of the new bypass line between  
Yerpedu and Pudi stations.**

**03-2026-2027-E-GS-CN-GTL**

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Vijayawada**

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## **CHAPTER-I**

### **INSTRUCTIONS TO TENDERERS & CONDITIONS OF TENDERING**

1. In these Instructions to Tenderers, the following terms shall have the meaning assigned hereunder except where the context otherwise requires:
  - a) "Railway" shall mean the President of the Republic of India or the administrative officers of the South Central Railway or Successor Railway authorized to deal with any matter, which these presents are concerned on his behalf.
  - b) "General Manager" shall mean the Officer-in-charge of the general superintendence and control of the South Central Railway and shall also include Addl. General Manager, General Manager (Construction) and shall mean and include their successors of the Successor Railway.
  - c) "Chief Engineer" shall mean the Officer-in-Charge of the Engineering Department of South Central Railway and shall also include Chief Engineer (Construction), Chief Electrical Engineer, Chief Electrical Engineer (Construction), Chief Signal & Telecom Engineer, Chief Signal & Telecom Engineer (Construction), Chief Mechanical Engineer and shall mean and include their successors of the Successor Railway.
  - d) "Divisional Railway Manager" shall mean the Officer-in-charge of a Division of South Central Railway and shall mean and include Divisional Railway Manager of the Successor Railway.
  - e) "Engineer" shall mean the Divisional Engineer or Executive Engineer, Divisional Signal & Telecom Engineer, Divisional Electrical Engineer, Divisional Mechanical Engineer in executive charge of the works and shall include the superior officers of both Open Line and Construction Organisations on the South Central Railway of Engineering, Signal & Telecom, Mechanical and Electrical Departments, i.e. the Senior Divisional Engineer/Deputy Chief Engineer, Senior Divisional Signal & Telecom Engineer/Deputy Chief Signal & Telecom Engineer, Senior Divisional Electrical Engineer/Deputy Chief Electrical Engineer, Senior Divisional Mechanical Engineer and shall mean & include the Engineers of the Successor Railway.
  - f) "Engineer's Representative" shall mean the Assistant Engineer, Assistant Signal & Telecommunication Engineer and Assistant Electrical Engineer, Assistant Mechanical Engineer in direct charge of the works and shall include any Sr. Section/Junior Engineer of Civil Engineering/Signal and Telecommunication Engineering/Mechanical Engineering/Electrical Engineering Departments appointed by the Railway and shall mean and include the Engineer's Representative of the Successor Railway.
  - g) "Tenderer" shall mean the person/firm/co-operative or company whether incorporated or not who tenders for the works with a view to execute the works on contract with the Railway and shall include their representatives, successors and permitted assigns.
  - h) "Limited Tenders" shall mean tenders invited from all or some contractors on the approved or select list of contractors with the Railway.
  - i) "Open Tenders" shall mean tenders invited in open and public manner and with adequate notice.
  - j) "Contractor" shall mean the Person/Firm/LLP/Trust/Co-operative Society or Company whether incorporated or not who enters into the contract with the Railway and shall include their executors, administrators, successors and permitted assigns.
  - k) "Contract" shall mean and include the Agreement, the Work Order, the accepted Bill(s) of Quantities or Chapter(s) of Standard Schedule of Rates (SSOR) of the Railway modified by the tender percentage for items of works quantified, or not quantified, the Standard General Conditions of Contract, the Special Conditions of Contracts, if any; the Drawing, the Specifications, the Special Specifications, if any and Tender Forms, if any.
  - l) "Works" shall mean the works contemplated in the drawings and Bill(s) of Quantities set forth in the tender forms and required to be executed according to the specifications.
  - m) "Specifications" shall mean the Specifications for Materials and Works of the South Central Railway as specified under the authority of the Ministry of Railways or Chief Electrical Engineer or as amplified, added to or superseded by special specifications if any, appended to the Tender Forms.

- n) Standard Schedule of Rates (SSOR) shall mean the schedule of Rates adopted by the South Central Railway, which includes-
1. "Unified Standard Schedule of Rates of the Railway (USSOR)" i.e. the Standard Schedule of Rates of the South Central Railway issued under the authority of the Chief Engineer from time to time, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents;
  2. "Delhi Schedule Of Rates (DSR)" i.e. the Standard Schedule of Rates published by Director General/Central Public Works Department, Government of India, New Delhi, as adopted and modified by the South Central Railway under the authority of the Chief Engineer from time to time, updated with correction slips issued up to date of inviting tender or as otherwise specified in the tender documents.
- o) "Drawing" shall mean the maps, drawings, plans and tracings or prints thereof annexed to the Tender Forms.
- p) "Constructional Plant" shall mean all appliances or things of whatsoever nature required for the execution, completion or maintenance of the works or temporary works (as hereinafter defined) but does not include materials or other things intended to form or forming part of the permanent work.
- q) "Temporary Works" shall mean all temporary works of every kind required for the execution completion and/or maintenance of the works.
- r) "Site" shall mean the lands and other places on, under, in or through which the works are to be carried out and any other lands or places provided by the Railway for the purpose of the contract.
- s) "Period of Maintenance" shall mean the specified period of maintenance from the date of completion of the works, as certified by the Engineer.
- t) "Contractor's authorized Engineer" shall mean a graduate engineer or equivalent, having more than 3 years experience in the relevant field of construction work involved in the contract, duly approved by the Engineer.
- u) Date of inviting tender shall be the date of publishing tender notice on IREPS website if tender is published on website or the date of publication in newspaper in case tender is not published on website.
- v) "Bill of Quantities" shall mean Schedule of Item(s) included in the tender document along with respective quantities and rates accepted by the Railway.
2. Words importing the singular number shall also include the plural vice versa where the context requires.
3. **Omissions & Discrepancies:** Should a tenderer find discrepancies in or omissions from the drawings or any of the Tender Forms or should he be in doubt as to their meaning, he should at once notify the authority inviting tenders. The tender inviting authority may, if deemed necessary, clarify the same to all tenderers. It shall be understood that every endeavour has been made to avoid any error which can materially affect the basis of tender and successful tenderer shall take upon himself and provide for the risk of any error which may subsequently be discovered and shall make no subsequent claim on account thereof.

#### 4. Bid Security:

1.

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

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

**Note:**

- (i) The Bid Security shall be rounded off to the nearest ₹100. This Bid Security shall be applicable for all modes of tendering.
  - (ii) Any firm recognized by Department of Industrial Policy and Promotion (DIPP) as 'Startups' shall be exempted from payment of Bid Security detailed above.
  - (iii) Labour Cooperative Societies shall submit only 50% of above Bid Security detailed above.
- b) It shall be understood that the tender documents have been issued to the tenderer and the tenderer is permitted to tender in consideration of stipulation on his part, that after submitting his tender he will not resile from his offer or modify the terms and conditions thereof in a manner not acceptable to the Engineer. Should the tenderer fail to observe or comply with the said stipulation, the aforesaid amount shall be liable to be forfeited to the Railway.
- c) If his tender is accepted this Bid Security mentioned in sub para (a) above will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract. The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation that may happen thereto while in their possession, nor be liable to pay interest thereon.
2. The Bid Security shall be deposited either in cash through e-payment gateway or submitted as Bank Guarantee bond from a scheduled commercial bank of India or as mentioned in tender documents. The Bank Guarantee bond shall be as per Annexure-VIA and shall be valid for a period of 90 days beyond the bid validity period.
3. In case, submission of Bid Security in the form of Bank Guarantee, following shall be ensured:
- (i) A scanned copy of the Bank Guarantee shall be uploaded on e-Procurement Portal (IREPS) while applying to the tender.
  - (ii) The original Bank Guarantee should be delivered in person to the official nominated as indicated in the tender document before closing date for submission of bids **(i.e. excluding the last date of submission of bids)**.
  - (iii) Non submission of scanned copy of Bank Guarantee with the bid on e-tendering portal (IREPS) and/or non submission of original Bank Guarantee within the specified period shall lead to summary rejection of bid.
  - (iv) The Tender Security shall remain valid for a period of 90 days beyond the validity period for the Tender.
  - (v) The details of the BG, physically submitted should match with the details available in the scanned copy and the data entered during bid submission time, failing which the bid will be rejected.
  - (vi) The Bank Guarantee shall be placed in an envelope, which shall be sealed. The envelope shall clearly bear the identification **"Bid for the \*\*\*\*\* Project"** and shall clearly indicate the name and address of the Bidder. In addition, the Bid Due Date should be indicated on the right hand top corner of the envelope.
  - (vii) The envelope shall be addressed to the officer and address as mentioned in the tender document.

- (viii) If the envelope is not sealed and marked as instructed above, the Railway assumes no responsibility for the misplacement or premature opening of the contents of the Bid submitted and consequent losses, if any, suffered by the Bidder.

## 5. Care in Submission of Tenders:

a)

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

Wrong/incorrect invoices issued by Contractor;

No-filing of GST returns;

Non-payment of GST collected from Indian Railways to the authorities;

Any other non-compliance done by Contractor;

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

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

- b) When work is tendered for by a firm or company, the tender shall be signed by the individual legally authorized to enter into commitments on their behalf.
- c) The Railway will not be bound by any power of attorney granted by the tenderer or by changes in the composition of the firm made subsequent to the execution of the contract. It may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.

6. The tenderers shall submit a copy of certificate stating that all their statements/documents submitted along with bid are true and factual. Standard format of certificate to be submitted by the bidder is enclosed as **Annexure-V**. In addition to Annexure-V, in case of other than Company/Proprietary firm, **Annexure-V(A)** shall also be submitted by the each member of a Partnership Firm/ Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc. as the case may be. Non-submission of above certificate(s) by the bidder shall result in **summarily** rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self attested/digitally signed by which they/he is qualifying the Qualifying Criteria mentioned in the Tender Document.

### **CONSIDERATION OF TENDERS**

7. **Right of Railway to Deal with Tenders:** The Railway reserves the right of not to invite tenders for any of Railway work or works or to invite open or limited tenders and when tenders are called to accept a tender in whole or in part or reject any tender or all tenders without assigning reasons for any such action. In case if tender is accepted in part by Railway administration, Letter of Acceptance shall be issued as counter offer to the Tenderer, which shall be subject to acceptance by the Tenderer.
- 7A. Two Packets System of Tendering:** With a view to assess the tenders technically without being influenced by the financial bids, 'Two Packets System of tendering' shall be adopted wherein tender documents provide for the same.
- 7B. Pre Bid Conference:** Intenders having advertised value more than Rs 50 Crore or as mentioned in the tender document, Railway shall conduct Pre Bid Conference(s) with the prospective bidders.
- 7C. Make in India Policy:** Provisions of Make in India Policy 2017 issued by Govt. of India, as amended from time to time, shall be followed for consideration of tenders.
- 7D. Permission to Bid for a bidder from a country which shares Land boundary with India:** Any bidder from the countries sharing a land border with India will be eligible to bid in any procurement of works (including turnkey projects) only if the bidder is registered with the Competent Authority. The Competent Authority for registration will be the Registration Committee constituted by the Department for Promotion of Industry and Internal Trade (DPIIT), Government of India. For interpretation of this para, Department of Expenditure, Ministry of Finance, Government of India letter F.No.6/18/2019-PPD dated 23/07/2020 shall be referred.
- 7E. Clarification of Bids:** To assist in the examination, evaluation & comparison and pre-qualification of the Tender, the Railway may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Railway shall not be entertained or considered. The Railway request for clarification and the response of the bidder in this regard shall be in writing.
- However, if a Bidder does not provide clarification of its bid by the date and time communicated in the Railway request for clarification, the bid shall be evaluated as per the documents submitted along with the bid.
8. **Execution of Contract Document:** The Tenderer whose tender is accepted shall be required to appear in person at the office of General Manager/General Manager (Construction), Chief Administrative Officer (Construction), Divisional Railway Manager or concerned Engineer, as the case may be, or if tenderer is a firm or corporation, a duly authorized representative shall appear (there would be no need for appear in person if agreement is signed digitally) and execute the contract agreement within seven days of notice from Railways that the Contract Agreement is ready. Failure to do so shall constitute a breach of the agreement affected by the acceptance of the tender. The Contract Agreement shall be entered into by Railway only after submission of valid Performance Guarantee by the Contractor. In such cases the Railway may determine that such tenderer has abandoned the contract and there upon his tender and acceptance thereof shall be treated as cancelled and the Railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The failed Contractor shall be debarred from participating in the re-tender for that work.
9. **Form of Contract Document:** Every contract shall be complete in respect of the document it shall so constitute. Not less than 2 copies of the contract document shall be signed by the competent

authority and the Contractor and one copy given to the Contractor (there would be no need of signing two copies if agreement is signed digitally).

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

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



**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 thereof, I/We will be liable for forfeiture of my/our "Bid Security". 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.

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

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

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

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

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

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

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

Date \_\_\_\_\_

Address of the Tenderer(s)

\_\_\_\_\_

**TENDER FORM (Second Sheet)**

1. **Instructions to Tenderers and Conditions of Tender:** The following documents form part of Tender / Contract:
  - (a) Tender Forms – First Sheet and Second Sheet
  - (b) Special Conditions/Specifications (enclosed)
  - (c) Bill(s) of quantities (enclosed)
  - (d) Standard General Conditions of Contract and Standard Specifications (Works and Materials) of Indian Railways as amended/corrected upto latest correction slips, copies of which can be seen in the office of \_\_\_\_\_ or obtained from the office of the Chief Engineer, \_\_\_\_\_ Railway on payment of prescribed charges.
  - (e) Standard Schedule of Rates (SSOR) as amended / corrected upto latest correction slips, copies of which can be seen in the office of \_\_\_\_\_ or obtained from the office of the Chief Engineer, \_\_\_\_\_ Railway on payment of prescribed charges.
  - (f) All general and detailed drawings pertaining to this work which will be issued by the Engineer or his representatives (from time to time) with all changes and modifications.
2. Drawings for the Work: The Drawing for the work can be seen in the office of the \_\_\_\_\_ and / or Chief Engineer, \_\_\_\_\_ Railway at any time during the office hours. The drawings are only for the guidance of Tenderer(s). Detailed working drawings (if required) based generally on the drawing mentioned above, will be given by the Engineer or his representative from time to time.
3. The Tenderer(s) shall quote his / their rates as a percentage above or below the Standard Schedule of Rates (SSOR) of \_\_\_\_\_ Railway as applicable to \_\_\_\_\_ Division except where he/they are required to quote item rates and must tender for all the items shown in the Bill(s) of Quantities attached. The quantities shown in the attached Bill(s) of Quantities are given as a guide and are approximate only and are subject to variation according to the needs of the Railway. The Railway does not guarantee work under each item of the Bill(s) of Quantities. The tenderer(s) shall quote rates / rebates only at specified place in Tender Form supplied by Railway. Any revision of rates / rebates submitted (quoted) through a separate letter whether enclosed with the bid (Tender Form) or submitted separately or mentioned elsewhere in the document other than specified place shall be summarily ignored and will not be considered.
4. Tenders containing erasures and / or alterations of tender documents are liable to be rejected. Any correction made by tender(s) in his/their entries must be attested by him / them.
5. The works are required to be completed within a period of \_\_\_\_\_ months from the date of issue of acceptance letter.
6. **Bid Security:**
  - a) Subject to exemptions provided under para 5(1) (a) of Part-1 (ITT) of GCC April 2022 document, the tender must be accompanied by a Bid Security as mentioned in tender documents, failing which the tender shall be summarily rejected.
  - b) The Tenderer(s) shall keep the offer open for a minimum period of 60 days (in case of two packet system of tendering 90 days) from the date of closing of the Tender. It is understood that the tender documents have been issued to the Tenderer(s) and the Tenderer(s), is/are permitted to tender in consideration of the stipulation on his/their part that after submitting his/their tender subject to the period being extended further, if required by mutual agreement from time to time, he will not resale from his offer or modify the terms and conditions thereof in a manner not acceptable to South Central Railway. Should the tenderer fail to observe or comply with the foregoing stipulation, the amount deposited or Bank guarantee bond submitted as Bid Security for the due performance of the above stipulation, shall be forfeited to the Railway.
  - c) If his tender is accepted,
    - (i) The Bid Security mentioned in sub para (a) above deposited in cash through e-payment gateway will be retained as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract;
    - (ii) The Bid Security mentioned in sub para(a) above submitted as Bank guarantee bond, will be encashed as part security for the due and faithful fulfillment of the contract in terms of Clause 16 of the Standard General Conditions of Contract.

- (iii) The Bid Security of other Tenderers shall, save as herein before provided, be returned to them, but the Railway shall not be responsible for any loss or depreciation to the Bid Security that may happen thereto while in their possession, nor be liable to pay interest thereon.
- (iv) In case Contractor submits the Term Deposit Receipt/Bank Guarantee Bond towards either the Full Security Depositor the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security so retained as per sub para(c) above, to the Contractor.

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

8. If the tenderer(s) deliberately gives/give wrong information in his/their tender or creates/create circumstances for the acceptance of his/their tender, the Railway reserves the right to reject such tender at any stage.

9. If any partner(s) of a partnership firm expires after the submission of its tender or after the acceptance of its tender, the Railway shall deem such tender as cancelled/contract as terminated under clause 61 of the Standard General Conditions of Contract, unless the firm retains its character as per partnership agreement. If a sole proprietor expires after the submission of tender or after the acceptance of tender, the Railway shall deem such tender as cancelled/contract as terminated under clause 61 of the Standard General Conditions of Contract.

## **10. Eligibility Criteria:**

### **1. Technical Eligibility Criteria:**

- a) The tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:
  - (i) Three similar works each costing not less than the amount equal to 30% of advertised value of the tender, or
  - (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of the tender, or
  - (iii) One similar work costing not less than the amount equal to 60% of advertised value of the tender.

b)

- 1. In case of tenders for composite works (e.g. works involving more than one distinct component, such as Civil Engineering works, S&T works, Electrical works, OHE works etc. and in the case of major bridges – substructure, superstructure etc.), tenderer must have successfully completed or substantially completed any one of the following categories of work(s) during last 07 (seven) years, ending last day of month previous to the one in which tender is invited:
  - (i) Three similar works each costing not less than the amount equal to 30% of advertised value of each component of tender, or
  - (ii) Two similar works each costing not less than the amount equal to 40% of advertised value of each component of tender, or
  - (iii) One similar work costing not less than the amount equal to 60% of advertised value of each component of tender.

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

- 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.
- 3. To evaluate the technical eligibility of tenderer, only components of work as stipulated in tender documents for evaluation of technical eligibility, shall be considered. The scope of

work covered in other remaining components shall be either executed by tenderer himself if he has work experience as mentioned in clause 7 of the Standard General Conditions of Contract or through subcontractor fulfilling the requirements as per clause 7 of Part-II of the Standard General Conditions of Contract or jointly i.e., partly himself and remaining through subcontractor, with prior approval of Chief Engineer in writing.

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

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

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

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

**Note for Item 10 (1):**

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

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

V = Advertised value of the tender in crores of Rupees

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

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

The tenderers shall submit requisite information as per Annexure-VIB 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 with 18-digit UDIN on any CA's certificate/statement.

3. **Bid Capacity:** The tender/technical bid will be evaluated based on bid capacity formula detailed as Annexure-VI of the Standard General Conditions of Contract.
4. No Technical and Financial credentials are required for tenders having advertised value up to Rs. 50 lakh.

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

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

*[Explanation for para 10 of the Tender Form (Second Sheet) including Para 10.0 to 10.5 - Eligibility Criteria of GCC 2022:]*

1. *Substantially Completed Work means an ongoing work in which payment equal to or more than 90% of the present contract value (excluding the payment made for adjustment of Price variation (PVC), if any) has been made to the contractor in that ongoing contract and no proceedings of termination of contract on Contractor's default has been initiated. The credential certificate in this regard should have been issued not prior to 60 days of date of invitation of present tender.*
2. *In case a work is started prior to 07 (seven) years, ending last day of month previous to the one in which tender is invited, but completed in last 07 (seven) years, ending last day of month previous to the one in which tender is invited, the completed work shall be considered for fulfillment of credentials.*
3. *If a work is physically completed and completion certificate to this extent is issued by the concerned organization but final bill is pending, such work shall be considered for fulfillment of credentials.*
4. *In case of completed work, the value of final bill (gross amount) including the PVC amount (if paid) shall be considered as the completion cost of work. In case final bill is pending, only the total gross amount already paid including the PVC amount (if paid) shall be considered as the completion cost of work.*

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

5. *If a bidder has successfully completed a work as subcontractor and the work experience certificate has been issued for such work to the subcontractor by a Govt. Organization or public listed company as defined in Note for Item 10.1 Para 10 of the Tender Form (Second Sheet) of GCC 2022, the same shall be considered for the purpose of fulfillment of credentials.*
6. *In case a work is considered similar in nature for fulfillment of technical credentials, the overall cost including the PVC amount (if paid) of that completed work or substantially completed work, shall be considered and no separate evaluation for each component of that work shall be made to decide eligibility.*
7. *In case of newly formed partnership firm, the credentials of individual partners from previous propriety firm(s) or dissolved previous partnership firm(s) or split previous partnership firm(s), shall be considered only to the extent of their share in previous entity on the date of dissolution / split and their share in newly formed partnership firm. For example, a partner A had 30% share in previous entity and his share in present partnership firm is 20%. In the present tender under consideration, the credentials of partner A will be considered to the extent of  $0.3 \times 0.2 \times \text{value of the work done in the previous entity}$ . For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc.*

8. *In case of existing partnership firm, if any one or more partners quit the partnership firm, the credentials of remaining partnership firm shall be re-worked out i.e., the quitting partner(s) shall take away his credentials to the extent of his share on the date of quitting the partnership firm (e.g. in a partnership firm of partners A, B & C having share 30%, 30% & 40% respectively and credentials of Rs. 10 crore; in case partner C quits the firm, the credentials of this partnership firm shall remain as Rs 6 crore). For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deed(s), dissolution deed(s) and proof of surrender of PAN No.(s) in case of dissolution of partnership firm(s) etc.*
9. *In case of existing partnership firm if any new partner(s) joins the firm without any modification in the name and PAN/TAN no. of the firm, the credentials of partnership firm shall get enhanced to the extent of credentials of newly added partner(s) on the same principles as mentioned in item 6 above. For this purpose, the tenderer shall submit along with his bid all the relevant documents which include copy of previous partnership deeds, dissolution/splitting deeds and proof of surrender of PAN No.(s) in case of dissolution of partnership firm etc.*
10. *Any partner in a partnership firm cannot use or claim his credentials in any other firm without leaving the partnership firm i.e., In a partnership firm of A&B partners, A or B partner cannot use credentials of partnership firm of A&B partners in any other partnership firm or propriety firm without leaving partnership firm of A&B partners.*
11. *In case a partner in a partnership firm is replaced due to succession as per succession law, the proportion of credentials of the previous partner will be passed on to the successor.*
12. *If the percentage share among partners of a partnership firm is changed, but the partners remain the same, the credentials of the firm before such modification in the share will continue to be considered for the firm as it is without any change in their value. Further, in case a partner of partnership firm retires without taking away any credentials from the firm, the credentials of partnership firm shall remain the same as it is without any change in their value.*
13. *In a partnership firm "AB" of A&B partners, in case A also works as propriety firm "P" or partner in some other partnership firm "AX", credentials of A in propriety firm "P" or in other partnership firm "AX" earned after the date of becoming a partner of the firm AB shall not be added in partnership firm AB.*
14. *In case a tenderer is LLP, the credentials of tenderer shall be worked out on above lines similar to a partnership firm.*
15. *In case company A is merged with company B, then company B would get the credentials of company A also.]*

**11. Tenderer Credentials:**

- (i) Certificates and testimonials regarding contracting experience for the type of job for which tender is invited with list of works carried out in the past.
- (ii) Audited Balance Sheet duly certified by the Chartered Accountant regarding contractual payments received in the past.
- (iii) The list of personnel / organization on hand and proposed to be engaged for the tendered work. Similarly list of Plant & Machinery available on hand and proposed to be inducted and hired for the tendered work.
- (iv) A copy of certificate stating that they are not liable to be disqualified and all their statements/documents submitted along with bid are true and factual. Standard format of the certificate to be submitted by the bidder is enclosed as Annexure-V. In addition to Annexure-V, in case of other than Company/Proprietary firm, Annexure-V(A) shall also be submitted by the each member of a Partnership Firm/ Joint Venture (JV) / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc. as the case may be. Non submission of a copy of certificate by the bidder shall result in summarily rejection of his/their bid. It shall be mandatorily incumbent upon the tenderer to identify, state and submit the supporting documents duly self attested / digitally

signed by which they/he are/is qualifying the Qualifying Criteria mentioned in the Tender Document.

- (v) The Railway reserves the right to verify all statements, information and documents submitted by the bidder in his tender offer, and the bidder shall, when so required by the Railway, make available all such information, evidence and documents as may be necessary for such verification. Any such verification or lack of such verification, by the Railway shall not relieve the bidder of its obligations or liabilities hereunder nor will it affect any rights of the Railway there under.
  - (vi) (a) In case of any information submitted by tenderer is found to be false, forged or incorrect at any time during process for evaluation of tenders, it shall lead to forfeiture of the tender Bid Security besides banning of business for a period of upto two years.  
(b) In case of any information submitted by tenderer is found to be false, forged or incorrect after the award of contract, the contract shall be terminated. Bid Security, Performance Guarantee and Security Deposit available with the railway shall be forfeited. In addition, other dues of the contractor, if any, under this contract shall be forfeited and agency shall be banned for doing business for a period of upto two years.
12. Non-compliance with any of the conditions set forth therein above is liable to result in the tender being rejected.
13. **Execution of Contract Documents:** The successful Tenderer(s) shall be required to execute an agreement with the President of India acting through the Executive Electrical Engineer, South Central Railway for carrying out the work according to the Standard General Conditions of Contract, Special Conditions / Specifications annexed to the tender and Standard Specifications (Works and Materials) of Railway as amended/corrected upto latest correction slips, mentioned in tender form (First Sheet).
14. **Documents to be Submitted Along with Tender:**
- i) The tenderer shall clearly specify whether the tender is submitted on his own (Proprietary Firm) or on behalf of a Partnership Firm / Company / Joint Venture (JV) / Registered Society / Registered Trust / Hindu Undivided Family (HUF) / Limited Liability Partnership (LLP) etc. The tenderer(s) shall enclose the attested copies of the constitution of their concern, and copy of PAN Card along with their tender. Tender Documents in such cases are to be signed by such persons as may be legally competent to sign them on behalf of the firm, company, association, trust or society, as the case may be.
  - ii) Following documents shall be submitted by the tenderer:
    - a) **Sole Proprietorship Firm:**
      - i) All documents in terms of Para 10 of the Tender Form (Second Sheet) of GCC 2022.
    - 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) of GCC 2022.
    - c) **Partnership Firm:**
      - i) All documents as mentioned in para 18 of the Tender Form (Second Sheet) of GCC 2022.
    - d) **Joint Venture (JV):** All documents as mentioned in para 17 of the Tender Form (Second Sheet) of GCC 2022.
    - 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) of GCC 2022.
- 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 Govt. of India from participation in tender / contracts as on the date of submission of bids, either in 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 General Conditions of Contract.
  - v) All other documents in terms of Para 10 of the Tender Form (Second Sheet) of GCC 2022.
- g) **Registered Society & Registered Trust: The tenderer shall submit:**
  - i) A copy of the Certificate of Registration
  - ii) A copy of Memorandum of Association of Society/Trust Deed
  - iii) A copy of Power of Attorney in favour of the individual to sign the tender documents and create liability against the Society/Trust.
  - iv) A copy of the Rules & Regulations of the Society
  - v) All other documents in terms of Para 10 of the Tender Form (Second Sheet) of GCC 2022.
- iii) If it is NOT mentioned in the submitted tender that tender is being submitted on behalf of a Sole Proprietorship firm / Partnership firm / Joint Venture / Registered Company etc., then the tender shall be treated as having been submitted by the individual who has signed the tender.
- iv) After opening of the tender, any document pertaining to the constitution of Sole Proprietorship Firm/Partnership Firm/Registered Company/Registered Trust/Registered Society/HUF/LLP etc. shall be neither asked nor considered, if submitted. Further, no suo moto cognizance of any document available in public domain (i.e. on internet etc.) or in Railway's record/office files etc. will be taken for consideration of the tender, if no such mention is available in tender offer submitted.
- v) A tender from JV shall be considered only where permissible as per the tender conditions.
- vi) The Railway will not be bound by any change of power of attorney or in the composition of the firm made subsequent to the submission of tender. Railway may, however, recognize such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the Contractor.
- 15. The tenderer whether sole proprietor / a company or a partnership firm / registered society / registered trust / HUF / LLP etc. if they want to act through agent or individual partner(s), should submit along with the tender, a copy of power of attorney duly stamped and authenticated by a Notary Public or by Magistrate in favour of the specific person whether he/they be partner(s) of the firm or any other person specifically authorizing him/them to sign the tender, submit the tender and further to deal with the Tender/Contract up to the stage of signing the agreement except in case where such specific person is authorized for above purposes through a provision made in the partnership deed / Memorandum of Understanding / Article of Association / Board resolution, failing which tender shall be summarily rejected.

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

*Note: A Power of Attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague*



*Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.*

16. **Employment/Partnership etc. of Retired Railway Employees:**

a) **Should a tenderer**

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

AND

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

THEN

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

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

**Note:** If information as required as per 20. a), b), c) above has not been furnished, contract is liable to be dealt in accordance with provision of clause 62 of Standard General Condition of contract.

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

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

- 1. Separate identity/name shall be given to the Joint Venture.
- 2. Number of members in a JV shall not be more than three, if the work involves only one department (say Civil or S&T or Electrical or Mechanical) and shall not be more than five, if the work involves more than one Department. One of the members of the JV shall be its Lead Member who shall have a majority (at least 51%) share of interest in the JV. The other members shall have a share of not less than 20% each in case of JV with upto three members and not less

- than 10% each in case of JV with more than three members. In case of JV with foreign member(s), the Lead Member has to be an Indian firm/company with a minimum share of 51%.
3. A member of JV shall not be permitted to participate either in individual capacity or as a member of another JV in the same tender.
  4. The tender form shall be purchased and submitted only in the name of the JV and not in the name of any constituent member. The tender form can however be submitted by JV or any of its constituent member or any person authorized by JV through Power of Attorney to submit tender.
  5. Bid Security shall be submitted by JV or authorized person of JV either as:
    - (i) Cash through e-payment gateway or as mentioned in tender document, or
    - (ii) Bank Guarantee bond either in the name of JV, or in the name of all members of JV as per MOU irrespective of their share in the JV if the JV has not been constituted legally till the date of submission of tender.
  6. A copy of Memorandum of Understanding (MoU) duly executed by the JV members on a stamp paper, shall be submitted by the JV along with the tender. The complete details of the members of the JV, their share and responsibility in the JV etc. particularly with reference to financial, technical and other obligations shall be furnished in the MoU.
  7. Once the tender is submitted, the MoU shall not normally be modified / altered / terminated during the validity of the tender. In case the tenderer fails to observe/comply with this stipulation, the full Bid Security shall be liable to be forfeited.
  8. Approval for change of constitution of JV shall be at the sole discretion of the Railway. The constitution of the JV shall not normally be allowed to be modified after submission of the bid by the JV, except when modification becomes inevitable due to succession laws etc., provided further that there is no change in qualification of minimum eligibility criteria by JV after change of composition. However, the Lead Member shall continue to be the Lead Member of the JV. Failure to observe this requirement would render the offer invalid.
  9. Similarly, after the contract is awarded, the constitution of JV shall not be normally allowed to be altered during the currency of contract except when modification become inevitable due to succession laws etc. and minimum eligibility criteria should not get vitiated. Failure to observe this stipulation shall be deemed to be breach of contract with all consequential penal action as per contract conditions.
  10. On award of contract to a JV, a single Performance Guarantee shall be submitted by the JV as per tender conditions. All the Guarantees like Performance Guarantee, Bank Guarantee for Mobilization Advance, Machinery Advance etc. shall be accepted only in the name of the JV and no splitting of guarantees amongst the members of the JV shall be permitted.
  11. On issue of LOA (Letter of Acceptance), the JV entity to whom the work has been awarded, with the same shareholding pattern as was declared in the MOU/JV Agreement submitted along with the tender, shall be got registered before the Registrar of the Companies under 'The Companies Act -2013' (in case JV entity is to be registered as Company) or before the Registrar/Sub-Registrar under the 'The Indian Partnership Act, 1932' (in case JV entity is to be registered as Partnership Firm) or under 'The LLP Act 2008' (in case JV entity is to be registered as LLP). A separate PAN shall be obtained for this entity. The documents pertaining to this entity including its PAN shall be furnished to the Railways before signing the contract agreement for the work. In case the tenderer fails to observe/comply with this stipulation within 60 days of issue of LOA, contract is liable to be terminated. In case contract is terminated railway shall be entitled to forfeit the full amount of the Bid Security and other dues payable to the Contractor under this contract. The entity so registered, in the registered documents, shall have, inter-alia, following Clauses:
    - i) Joint And Several Liability - Members of the entity to which the contract is awarded, shall be jointly and severally liable to the Railway for execution of the project in accordance with General and Special Conditions of Contract. The members of the entity shall also be liable jointly and severally for the loss, damages caused to the Railways during the course of execution of the contract or due to non-execution of the contract or part thereof.

- ii) Duration of the Registered Entity - It shall be valid during the entire currency of the contract including the period of extension, if any and the maintenance period after the work is completed.
  - iii) Governing Laws - The Registered Entity shall in all respect be governed by and interpreted in accordance with Indian Laws.
12. Authorized Member - Joint Venture members in the JV MoU shall authorize Lead member on behalf of the Joint Venture to deal with the Contract, sign the agreement or enter into contract in respect of the said tender, to receive payment, to witness joint measurement of work done, to sign measurement books and similar such action in respect of the said tender/contract. All notices/correspondences with respect to the contract would be sent only to this authorized member of the JV.
13. No member of the Joint Venture shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other members and that of the Railway in respect of the said tender/contract.
14. Documents to be enclosed by the JV along with the tender:
- 1. In case one or more of the members of the JV is/are partnership firm(s), following documents shall be submitted:
    - i) A notarized copy of the Partnership Deed or a copy of the Partnership deed registered with the Registrar.
    - ii) A copy of consent of all the partners or individual authorized by partnership firm, to enter into the Joint Venture Agreement on a stamp paper,
    - iii) A notarized or registered copy of Power of Attorney in favour of the individual to sign the MOU/JV Agreement on behalf of the partnership firm and create liability against the firm.
    - iv) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.
  - 2. In case one or more members is/are Proprietary Firm or HUF, the following documents shall be enclosed:
    - i) A copy of notarized affidavit on Stamp Paper declaring his Concern is a proprietary Concern and he is sole proprietor of the Concern OR he who is signing the affidavit on behalf of HUF is in the position of 'Karta' of Hindu Undivided Family (HUF) and he has the authority, power and consent given by other members to act on behalf of HUF.
  - 3. In case one or more members of the JV is/are companies, the following documents shall be submitted:
    - i) A copy of resolutions of the Directors of the Company, permitting the company to enter into a JV agreement,
    - ii) The copies of MOA (Memorandum of Association) / AOA (Articles of Association) of the company
    - iii) A copy of Certificate of Incorporation
    - iv) A copy of Authorization/copy of Power of Attorney issued by the Company (backed by the resolution of Board of Directors) in favour of the individual, to sign the tender, sign MOU/JV Agreement on behalf of the company and create liability against the company
  - 4. In case one or more members of the JV is/are LLP firm/s, the following documents shall be submitted:
    - i) A copy of LLP Agreement

- ii) A copy of Certificate of Incorporation of LLP
  - iii) A copy of resolution passed by partners of LLP firm, permitting the Firm to enter into a JV agreement
  - iv) A copy of Authorization /copy of Power of Attorney issued by the LLP firm (backed by resolution passed by the Partners) in favour of the individual, to sign the tender and/or sign the MOU/ JV agreement on behalf of the LLP and create liability against the LLP.
  - v) An undertaking by all partners of the LLP that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP or JV in which they were / are partners/members. Any Concealment / wrong information in regard to above shall make the contract liable for determination under Clause 62 of the Standard General Conditions of Contract.
5. In case one or more members of the JV is/are Society/s or Trust/s, the following documents shall be submitted:
- i) A copy of Certificate of Registration
  - ii) A copy of Memorandum of Association of Society/Trust Deed
  - iii) A copy of Rules & Regulations of the Society
  - iv) A copy of Power of Attorney, in favour of the individual to sign the tender documents and create liability against the Society/Trust.
6. All other documents in terms of Para 10 of the Tender Form (Second Sheet) of GCC 2022.
7. *A power of attorney executed and issued overseas, the document will also have to be legalized by the Indian Embassy and notarized in the jurisdiction where the Power of Attorney is being issued. However, the Power of Attorney provided by Bidders from countries that have signed the Hague Legislation Convention 1961 are not required to be legalized by the Indian Embassy if it carries a conforming Apostille certificate.*
15. **Credentials & Qualifying Criteria:** Technical, financial eligibility and Bid capacity of the JV shall be adjudged based on satisfactory fulfillment of the following criteria:
1. **Technical Eligibility Criteria ('a' or 'b' mentioned hereunder):**
- a) **For Works without composite components**  
 The technical eligibility for the work as per para 14 (1) above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV'  
 Each other (non-lead) member(s) of JV, who is/are not satisfying the technical eligibility for the work as para 14 (1) above, shall have technical capacity of minimum 10% of the cost of work i.e., each non-lead member of JV member must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 10% of advertised value of the tender.
  - b) **For works with composite components**  
 The technical eligibility for major component of work as per para 14 (1) above, shall be satisfied by either the 'JV in its own name & style' or 'Lead member of the JV' and technical eligibility for other component(s) of work as per para 14 (1) above, shall be satisfied by either the 'JV in its own name & style' or 'any member of the JV'.  
 Each other (non-lead) member(s) of JV, who is/ are not satisfying the technical eligibility for any component of the work as per para 14 (1) above, shall have technical capacity of minimum 10% of the cost of any component of work mentioned in technical eligibility criteria. i.e., each other (non-lead) member of must have satisfactorily completed or substantially completed during the last 07 (seven) years, ending last day of month previous to the one in which tender is invited, one similar single work for a minimum of 10% of cost of any component of work mentioned in technical eligibility criteria.

**Note for Para 21.15.1:**

- a) *The Major component of the work for this purpose shall be the component of work having highest value. In cases where value of two or more component of work is same, any one work can be classified as Major component of work.*
- b) *Value of a completed work done by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying his/her compliance to the above mentioned technical eligibility criteria in the tender under consideration.*

## 2. **Financial Eligibility Criteria**

The JV shall satisfy the requirement of "Financial Eligibility" mentioned at para 14 (2) above. The "financial capacity" of the lead partner of JV shall not be less than 51% of the financial eligibility criteria mentioned at para 14 (2) above.

The arithmetic sum of individual "financial capacity" of all the members shall be taken as JV's "financial capacity" to satisfy this requirement.

Note: Contractual payment received by a Member in an earlier JV shall be reckoned only to the extent of the concerned member's share in that JV for the purpose of satisfying compliance of the above mentioned financial eligibility criteria in the tender under consideration.

## 3. **Bid Capacity**

The JV shall satisfy the requirement of "Bid Capacity" requirement mentioned at para 14 (3) above. The arithmetic sum of individual "Bid capacity" of all the members shall be taken as JV's "Bid capacity" to satisfy this requirement.

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

1. The Partnership Firms participating in the tender should be legally valid under the provisions of the Indian Partnership Act.
2. The partnership firm should have been in existence or should have been formed prior to submission of tender. Partnership firm should have either been registered with the Registrar or the partnership deed should have been notarized as per the Indian Partnership Act, prior to submission of tender.
3. Separate identity/name should be given to the partnership firm. The partnership firm should have PAN / TAN number in its own name and PAN / TAN number in the name of any of the constituent partners shall not be considered. The valid constituents of the firm shall be called partners.
4. Once the tender has been submitted, the constitution of the firm shall not normally be allowed to be modified / altered / terminated during the validity of the tender as well as the currency of the contract except when modification becomes inevitable due to succession laws etc., in which case prior permission should be taken from Railway and in any case the minimum eligibility criteria should not get vitiated. The re-constitution of firm in such cases should be followed by a notary certified Supplementary Deed. The approval for change of constitution of the firm, in any case, shall be at the sole discretion of the Railways and the tenderer shall have no claims what-so-ever. Any change in the constitution of Partnership firm after submission of tender shall be with the consent of all partners and with the signatures of all partners as that in the Partnership Deed. Failure to observe this requirement shall render the offer invalid and full Bid Security shall be forfeited.

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

5. A partner of the firm shall not be permitted to participate either in his individual capacity or as a partner of any other firm in the same tender.
6. The tender form shall be submitted only in the name of partnership firm. The Bid Security shall be submitted by partnership firm. The Bid Security submitted in the name of any individual partner or in the name of authorized partner (s) shall not be considered.
7. On issue of Letter of Acceptance (LOA) to the partnership firm, all the guarantees like Performance Guarantee, Guarantee for various Advances to the Contractor shall be submitted only in the name of the partnership firm and no splitting of guarantees among the partners shall be acceptable.
8. On issue of Letter of Acceptance (LOA), contract agreement with partnership firm shall be executed in the name of the firm only and not in the name of any individual partner.
9. In case the Letter of Acceptance (LOA) is issued to a partnership firm, the following undertakings shall be furnished by all the partners through a notarized affidavit, before signing of contract agreement.
  - a) Joint and several liabilities:  
The partners of the firm to which the Letter of Acceptance (LOA) is issued, shall be jointly and severally liable to the Railway for execution of the contract in accordance with General and Special Conditions of the Contract. The partners shall also be liable jointly and severally for the loss, damages caused to the Railway during the course of execution of the contract or due to non-execution of the contract or part thereof.
  - b) Duration of the partnership deed and partnership firm agreement:  
The partnership deed/partnership firm agreement shall normally not be modified/altered/terminated during the currency of contract and the maintenance period after the work is completed as contemplated in the conditions of the contract. Any change carried out by partners in the constitution of the firm without permission of Railway, shall constitute a breach of the contract, liable for determination of the contract under Clause 62 of the Standard General Conditions of Contract.
  - c) Governing laws: The partnership firm agreement shall in all respect be governed by and interpreted in accordance with the Indian laws.
  - d) No partner of the firm shall have the right to assign or transfer the interest right or liability in the contract without the written consent of the other partner/s and that of the Railway.
10. The tenderer shall clearly specify that the tender is submitted on behalf of a partnership firm. The following documents shall be submitted by the partnership firm, with the tender:
  - i) A notarized copy of Partnership deed or a copy of the Partnership deed registered with the Registrar.
  - ii) A notarized or registered copy of Power of Attorney in favour of the individual to tender for the work, sign the agreement etc. and create liability against the firm.
  - iii) An undertaking by all partners of the partnership firm that they are not blacklisted or debarred by Railways or any other Ministry / Department of the Govt. of India from participation in tenders / contracts as on the date of submission of bids, either in their individual capacity or in any firm/LLP in which they were / are partners / members. Any Concealment / wrong information in regard to above shall make the bid ineligible or the contract shall be determined under Clause 62 of the Standard General Conditions of Contract.
  - iv) All other documents in terms of Para 10 of the Tender Form (Second Sheet) of GCC 2022.
11. **Evaluation of eligibility of a partnership firm:**  
Technical and financial eligibility of the firm shall be adjudged based on satisfactory fulfillment of the eligibility criteria laid down in Para 10 of the Tender Form (Second Sheet) of GCC 2022.
19. **Additional Documents to be submitted along with the Tender:**

1. List of Personal Organization available on hand and proposed to be engaged for the subject work these to lists should be given separately and signed by tenderer and are to be submitted in the proforma given in the **Annexure-'A'**.
2. List of Plant & Machinery available on hand (own) and proposed to be inducted (own & hired to be given separately) for the subject work and this list shall be signed by the tenderer and is to submitted in the proforma given in the **Annexure-'B'**.
3. List of Completed works in the last three Financial Years giving description of work, organization for whom executed, approximate value of contract at the time of award, date of award and date of scheduled completion of work, date of actual start, actual completion and final value of contract should also be given in the **Annexure-'C'**.
4. List of works on Hand indicating name of work, contract value, bill amount paid so far; due date of completion etc. to be furnished by Contractor in **Annexure-'D'** and this Certificate is to be signed by Contractor.

## CHAPTER-II

### CONDITIONS OF CONTRACT

1. Documents (duly updated and corrected upto the date Dismantlement of tender opening) which are deemed to be part of this contract document are:
  - i) General Conditions of Contract
  - ii) Contract Act
  - iii) South Central Railway Specifications
  - iv) Indian Electricity Rules & National Electric Code
  - v) Various drawings required in the schedule and agreement
  - vi) IR manual for Power Supply Works
  - vii) CPWD Specifications
  - viii) ECBC & NBC Codes
2. **Electrical License:** The tenderer shall possess a valid Electrical Contractor License, issued by any State Government or Union Territory Administration, authorizing execution of electrical works up to 33 kV. The contractor shall have in his employment or shall engage a person holding a valid certificate of competency issued by any State Government or Union Territory Administration for supervision of electrical works up to 33 kV. Offers not accompanied by a valid Electrical Contractor License and requisite Supervisor competency for works up to 33 kV shall be summarily rejected.
3. Where provisions of these special conditions are at variance with General Conditions of Contract, special conditions shall prevail.
4. **Security Deposit:**
  1. The **Security Deposit shall be 5% of the contract value.** The Bid Security submitted by the Contractor with his tender will be retained/encashed by the Railways as part of security for the due and faithful fulfillment of the contract by the Contractor. Provided further that, if Contractor submits the Cash or Term Deposit Receipt issued from a Scheduled commercial bank of India or irrevocable Bank Guarantee Bond from a Scheduled commercial bank of India, either towards the Full Security Depositor the Part Security Deposit equal to or more than Bid Security, the Railway shall return the Bid Security, to the Contractor.

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

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

**Note:** Security Deposit deposited in cash by the Contractor or recovered from the running bills of a Contractor or submitted by contractor as Term Deposit Receipt(s) can be refunded/returned to the contractor, in lieu of irrevocable Bank Guarantee bond issued from scheduled commercial bank of India, to be submitted by him, for an amount equal to or more than the already available Security Deposit, provided however that, in a contract of value less than Rs. 50 Crore, such refund/ return of the already available Security Deposit is permitted up to two times and in a contract of value equal to or more than Rs. 50 Crore, such refund / return of the already available Security Deposit is permitted up to three times.
  2. **(i) Refund of Security Deposit:** Security Deposit mentioned in sub clause (1) above shall be returned to the Contractor along with or after, the following:
    - (a) Final Payment of the Contract as per clause 51 (1) and



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

**(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.

- 3. No interest shall be payable upon the Bid Security and Security Deposit or amounts payable to the Contractor under the Contract, but Government Securities deposited in terms of Sub-Clause 16 (4)(b) of GCC will be payable with interest accrued thereon.
- 4. **Performance Guarantee:** The procedure for obtaining Performance Guarantee is outlined below:

- a) The Successful bidder shall have to submit a Performance Guarantee (PG) within 21 (Twenty One) days from the date of issue of Letter of Acceptance (LOA). Extension of time for submission of PG beyond 21 (Twenty One) days and up to 60 (sixty) days from the date of issue of LOA may be given by the Authority who is competent to sign the contract agreement. However, a penal interest of 12% per annum shall be charged for the delay beyond 21 (Twenty One) days i.e. from 22<sup>nd</sup> day after the date of issue of LOA. Further, if the 60<sup>th</sup> day happens to be a declared Holiday in the concerned office of the Railway, submission of PG can be accepted on the next working day.

In all other cases, if the contractor fails to submit the requisite PG even after 60 days from the date of issue of LOA, the contract is liable to be terminated. In case contract is terminated Railway shall be entitled to forfeit Bid Security and other dues payable to the contractor against that particular contract, subject to maximum of PG amount. In case a tenderer has not submitted Bid Security on the strength of their registration as a Startup recognized by Department of Industrial Policy and Promotion (DIPP) under Ministry of Commerce and Industry, DIPP shall be informed to this effect.

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

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

**c)**

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

**Note:**

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

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

- xii) Unit Trust Certificates at 5% below market value or at the face value whichever is less. Also, FDR in favour of **FA&CAO/C/S.C. Railway/Secunderabad** (free from any encumbrance) may be accepted.
- d) 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 PG shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case, the time for completion of work gets extended, the contractor shall get the validity of PG extended to cover such extended time for completion of work plus 60 days.
- e) 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.
- f) The Performance Guarantee (PG) shall be released after physical completion of the work based on the 'Completion Certificate' issued by the competent authority stating that the contractor has completed the work in all respects satisfactorily.
- g) Whenever the contract is rescinded, the Performance Guarantee already submitted for the contract shall be encashed.
- h) The Engineer shall not make a claim under the Performance Guarantee except for amounts to which the President of India is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:
1. 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.
  2. Failure by the contractor to pay President of India any amount due, either as agreed by the Contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer.
  3. The contract being determined or rescinded under clause 62 of GCC.

(h) If a tender is accepted on the quoted rates of bidder which is below the advertised tender value, an additional performance security shall be submitted by the bidder as below:	
Bid quoted in % of advertised cost	Additional Performance Guarantee (%)
Below 0 - 5% (inclusive)	Nil
Below 5%	5%

## GENERAL OBLIGATIONS

5. **(1) Execution Co-Relation and Intent of Contract Documents:** The contract documents shall be signed in triplicate by the Railway and the Contractor. The contract documents are complementary and what is called for by anyone shall be as binding as if called for by all, the intention of the documents is to include all labour and materials, equipments and transportation necessary for proper execution of work. Materials or works not covered by or properly inferable from any heading or class of the specifications shall not be supplied by the Railway to the Contractors unless distinctly specified in the contract documents. Materials or works described in words which so applied have a well-known technical or trade meaning, shall be held to refer to such recognized standards.
- (2)** If a work is transferred from the jurisdiction of one Railway to another Railway or to a Project authority or vice versa while contract is in subsistence, the contract shall be binding on the Contractor and the Successor Railway/Project in the same manner & take effect in all respects as if the Contractor and the Successor Railway/Project were parties thereto from the inception and the corresponding officer or the Competent Authority in the Successor Railway/Project will exercise the

same powers and enjoy the same authority as conferred to the Predecessor Railway/Project under the original contract/agreement entered into.

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

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

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

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

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

8. **Service of Notices on Contractors:** The Contractor shall furnish to the Engineer the name, designation and address of his authorized agent and all complaints, notices, communications and references shall be deemed to have been duly given to the Contractor, if delivered to the Contractor or his authorized agent or left at or posted to the address so given and shall be deemed to have been so given in the case of posting on day on which they would have reached such address in the ordinary course of post/ e-mail or on the day on which they were so delivered or left. In the case of contract by partners, any change in the constitution of the firm shall be forthwith notified by the Contractor to the Engineer.

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

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

In case Contractor intends to subcontract part of work, he shall submit a proposal in writing seeking permission of Chief Engineer for the same. While submitting the proposal to railway, Contractor shall ensure the following:

(a)

- (i) The Contractor shall not sub- contract the Works comprising more than 40% (forty per cent) of the Contract Price and shall carry out Works for at least 60% (sixty per cent) of the total Contract Price directly under its own supervision and through its own personnel. The Parties expressly agree that for the purposes of computing the value of sub-contracts under this Clause 3.2.1, the Contract Price shall exclude any sub-contract for the procurement of goods and equipment like [rails, sleepers and track fittings, signaling and telecommunication & Power supply equipment). The Parties agree that all obligations and liabilities under this Agreement for the entire Railway Project shall at all time remain with the Contractor. {The Parties agree that works equal to at least 30% (thirty per cent) of the Contract Price shall be discharged solely by the Lead MemberJ\$
- (ii) Procurement of material, hire of equipment or engagement of labour by prime contractor or procuring entity will not mean sub-contracting. \$ May be deleted if the Contractor is not a Consortium/Joint Venture.

- (iii) The subcontractor shall have successfully completed at least one work similar to work proposed for subcontract in last 5 years, ending date of submission of proposal by Contractor to Railway, costing not less than 35% value of work to be subletted, through a works contract. For fulfilment of above, Work Experience Certificate issued by a Govt. Department/Organisation shall be considered. Further, Work Experience Certificate issued by a Public listed company shall be considered provided the company is having average annual turnover of Rs. 500 crore and above in last 3 financial years excluding the current financial year, listed on National Stock Exchange or Bombay Stock Exchange, registered at least 5 years back from the date of submission of proposal by Contractor to Railway and work experience certificate issued by a person authorised by the Public Listed Company to issue such certificates.

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

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

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

- (h) In addition to issuance of work experience certificate to Contractor, the Engineer, when, based on documents, is satisfied that subcontracted work has been carried out by subcontractor, shall issue work experience certificate to the subcontractor also for the portion of work subcontracted and successfully completed by the sub-contractor.

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

- (i) The responsibility of successful completion of work by subcontractor shall lie with Contractor. Subcontracting will in no way relieve the Contractor to execute the work as per terms of the Contract.
- (j) Further, in case Engineer is of the view that subcontractor's performance is not satisfactory, he may instruct the Contractor to remove the subcontractor from the work and Contractor has to comply with the above instructions with due promptness. Contractor shall intimate the actual date of discontinuation of subcontract to Engineer. No claim of Contractor whatsoever on this account shall be entertained by the Railway and this shall be deemed as 'excepted matter' (matter not arbitrable).
- (k) The permitted subcontracting of work by the Contractor shall not establish any contractual relationship between the sub-contractor and the Railway and shall not relieve the Contractor of any responsibility under the Contract.

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

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

- (i) **Extension due to Modification:** If any modifications have been ordered which in the opinion of the Engineer have materially increased the magnitude of the work, then such extension of the contracted date of completion may be granted as shall appear to the Engineer to be reasonable in the circumstances, provided moreover that the Contractor shall be responsible for requesting such extension of the date as may be considered necessary as soon as the cause thereof shall arise.
- (ii) **Extension for Delay not due to Railway or Contractor:** If in the opinion of the

Engineer, the progress of work has any time been delayed by any act or neglect of Railway's employees or by other Contractor employed by the Railway under Sub-Clause (4) of Clause 20 of GCC or in executing the work not forming part of the contract but on which Contractor's performance necessarily depends or by reason of proceeding taken or threatened by or dispute with adjoining or to neighbouring owners or public authority arising otherwise through the Contractor's own default etc. or by the delay authorized by the Engineer pending arbitration or in consequences of the Contractor not having received in due time necessary instructions from the Railway for which he shall have specially applied in writing to the Engineer or his authorized representative then upon happening of any such event causing delay, the Contractor shall immediately give notice thereof in writing to the Engineer within 15 days of such happening, but shall nevertheless make constantly his best endeavours to bring down or make good the delay and shall do all that may be reasonably required of him to the satisfaction of the Engineer to proceed with the works. The Contractor may also indicate the period for which the work is likely to be delayed and shall be bound to ask for necessary extension of time.

- (iii) **Extension for Delay due to Railways:** In the event of any failure or delay by the Railway to hand over the Contractor possession of the lands necessary for the execution of the works or to give the necessary notice to commence the works or to provide the necessary drawings or instructions or any other delay caused by the Railway due to any other cause whatsoever, then such failure or delay shall in no way affect or vitiate the contract or alter the character thereof or entitle the Contractor to damages or compensation therefor, but in any such case, the Railway may grant such extension or extensions of the completion date as may be considered reasonable.

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

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

- B. **Extension of Time with Liquidated Damages (LD) for delay due to Contractor:** The time for the execution of the work or part of the works specified in the contract documents shall be deemed to be the essence of the contract and the works must be completed not later than the date(s) as specified in the contract. If the Contractor fails to complete the works within the time as specified in the contract for the reasons other than the reasons specified in Clause 17 and 17A, the Railway may, if satisfied that the works can be completed by the Contractor within reasonable short time thereafter, allow the Contractor for further extension of time (Proforma at Annexure-VII) as the Engineer may decide. On such extension the Railway will be entitled without prejudice to any other right and remedy available on that behalf, to recover from the Contractor as agreed damages and not by way of penalty for each week or part of the week, a sum calculated at the rate of Liquidated Damages as decided by Engineer, between 0.05% to 0.30% of contract value of the works for each week or part of the week.

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

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

**NOTE:**

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

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

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

- 1) "Corrupt practice": making offers, solicitation or acceptance of bribe, rewards or gifts or any material benefit, in exchange for an unfair advantage in the procurement process or to otherwise influence the procurement process or contract execution;
- 2) "Fraudulent practice": any omission or misrepresentation that may mislead or attempt to mislead so that financial or other benefits may be obtained or an obligation avoided. This includes making false declaration or providing false information for participation in a tender process or to secure a contract or in execution of the contract;
- 3) "Anti-competitive practice": any collusion, bid rigging or anti-competitive arrangement, or any other practice coming under the purview of The Competition Act, 2002, between two or more bidders, with or without the knowledge of the procuring entity, that may impair the transparency, fairness and the progress of the procurement process or to establish bid prices at artificial, non-competitive levels;
- 4) "Coercive practice": any coercion or any threat to impair or harm, directly or indirectly, any party or its property to influence the procurement process or affect the execution of a contract;
- 5) "Conflict of interest" (COI): any personal, financial, or business relationship between the bidder and any personnel of the procuring entity who are directly or indirectly related to the procurement or execution process of the contract, which can affect the decision of the procuring entity directly or indirectly;
- 6) "Undue Advantage": improper use of information obtained by the bidder from the procuring entity with an intent to gain an unfair advantage in the procurement process or for personal gain. This also includes if the bidder (or his allied firm) provided services for the need assessment/ procurement planning of the tender process in which he is participating;
- 7) "Obstructive practice": materially impede the procuring entity's investigation of a procurement process either by deliberately destroying, falsifying, altering; or by concealing of evidence material to the investigation; or by making false statements or by threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to such investigation or from pursuing the investigation; or by impeding the procuring entity's rights of audit or access to information;

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

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

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

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

### EXECUTION OF WORKS

13. **(1) Contractor's understanding:** It is understood and agreed that the Contractor has, by careful examination, satisfied himself as to the nature and location of the work, the conformation of the ground, the character, quality and quantity of the materials to be encountered, the character of equipment and facilities needed preliminary to and during the progress of the works, the general and local conditions, the labour conditions prevailing therein and all other matters which can in any way affect the works under the contract.
- (2) Commencement of Works:** The Contractor shall commence the works within 15 days after the receipt by him of an order in writing to this effect from the Engineer and shall proceed with the same with due expedition and without delay
- (3) Accepted Programme of Work:** The Contractor who has been awarded the work shall as soon as possible but not later than 30 days after the date of receipt of the acceptance letter in respect of contracts with initial completion period of two years or less or not later than 90 days for other contracts have to submit the detailed programme of work indicating the time schedule of various items of works in the form of Bar Chart/PERT/CPM. He shall also submit the details of organisation (in terms of labour and supervisors), plant and machinery that he intends to utilize (from time to time) for execution of the work within stipulated date of completion. The programme of work amended as necessary by discussions with the Engineer, shall be treated as the agreed programme of the work for the purpose of this contract and the Contractor shall endeavor to fulfill this programme of work. The progress of work will be watched accordingly and the liquidated damages will be with reference to the overall completion date. Nothing stated herein shall preclude



the Contractor in achieving earlier completion of item or whole of the works than indicated in the programme.

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

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

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

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

Unless the Engineer, within 21 days after receiving a programme, gives notice to the Contractor stating the extent to which it does not comply with the Contract, the Contractor shall proceed in accordance with the programme, subject to his other obligations under the Contract. The Engineer shall be entitled to rely upon the programme when planning their activities.

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

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

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

#### **DEDUCTIONS THAT SHALL BE MADE FROM CONTRACTOR'S BILLS**

##### **14. TAXES:**

###### **1.**

- i) The tenderer shall quote the rate by taking into account all the statutory duties/taxes applicable to the work upto the date of opening of tender.
- ii) Any new impost or revision in the duties/taxes/cess during the original currency of the contract will be to the Railway's account subject to production of Government notification and documentary evidence. This will also be applicable for the work done during the extended period, if such extension is on Railway account.

- iii) However, if the extension of contract period is on account of failure of contractor, no compensation shall be made towards upward revision or imposition of any new taxes.
- iv) Any benefit on account of downward revision of duty either in original contract period or during the extended contract period shall be passed on by the contractor to the Railways.

**1.1 (a) Compliance with the GST Act, 2017 – Part-I of IRSGCC, July 2022:**

- i) Before submitting a tender, the tenderer will be deemed to have satisfied himself by actual inspection of the site and locality of the works, that all conditions liable to be encountered during the execution of the works are taken into account and that the rates he enters in the tender forms are adequate and all inclusive to accord with the provisions in Clause-37 of the Standard General Conditions of Contract for the completion of works of the entire satisfaction of the Engineer.
- ii) Tenderer 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.
- iii) The Successful tenderer who is liable to be registered under CGST/IGST/UTGST/SGST Act shall submit GSTIN along with other details required under CGST/IGST/UTGST/SGST Act to Railway immediately after the award of contract, without which no payment shall be released to the Contractor. The Contractor shall be responsible for deposition of applicable GST to the concerned authority.
- iv) In case the successful tenderer is not liable to be registered under CGST/IGST/UTGST/SGST Act, the Railway shall deduct the applicable GST from his/their bills under reverse charge mechanism (RCM) and deposit the same to the concerned authority.

2. **DEDUCTION OF INCOME TAX AT SOURCE:** In terms of new Section 194 inserted by the Finance Act, 1972, in the Income Tax Act, 1961, the Railway shall, at the time of arranging payments to the contractor under the contract, be entitled to deduct Income Tax at source on income comprised in the sum of such payment.

The deductions towards income tax to be made at source from the payment due to non-residents shall continue to be governed by Section 195 of the Income Tax Act 1961.

3. The tenderer shall submit the particulars of Service Tax Registration i.e. Service Tax Registration number within 60 days from the date of issue of LOA or before submission of CC1 bill, whichever is earlier.

Actual service tax (without interest) as applicable, if any, will be reimbursed subject to production of authentic documentary evidence of this tax having been actually paid to the Government of India by the contractor during execution of work or before passing of final bill.

The documentary evidence must include the receipt/challan in proof of payment of service tax and a self certified statement with details of contract i.e. agreement No./Acceptance letter No. along with name of the work duly indicating the amount of service tax actually paid by the contractor to the Govt., which should tally with the e-challan (as per the Annexure enclosed)

**Annexure**

<b>Name of Agency</b>	<b>Service Tax Registration No.</b>			
<b>Tax Type: Service Tax</b>				
<b>Period: 01-01-2016 to 31-03-2016</b>				

D a t e	P a r t y N a m e	C o n t r a c t N o. & D a t e	B i l l N o. & d a t e	D i v i s i o n B i l l R e f	B a s i c S e r v i c e V a l u e	S e r v i c e T a x @ 1 4 %	S w a c h B h a r a t c e s s @ 0.5%	K r i s h K a l y a n T a x	T o t a l S e r v i c e T a x	G r o s s V a l u e	D a t e o f p a y m e n t	C h a l l a n N o .	R e m a r k s
					<b>Total Service Tax</b>								
					<b>Less: Service Tax Credit</b>								
					<b>Tax Payable/Paid</b>								

4. **Provisions of "The Building and Other Construction Workers (Regulation of Employment and Conditions of Service) Act, 1996" and "The Building and Other Construction Workers' Welfare Cess Act, 1996":** The tenderers, for carrying out any construction work, shall get themselves registered with the Registering Officer under section-7 of the Building and Other Construction Workers Act, 1996 and rules made there to by the concerned State Govt. and submit Certificate of Registration issued by Registering Officer of the concerned State Govt. (Labour Dept.). As per this Act, the tenderer shall be levied a cess @ 1% of cost of construction work, which would be deducted from each bill.
5. **WATER CHARGES:** The contractor should make his own arrangements for water required for the work. The rates will be deemed to be inclusive of all such charges.
6. **SUPPLY OF ELECTRIC POWER:** The Contractor shall be responsible for the arrangements to obtain supply of electric power necessary for the work. He should preferably arrange his own electric generating set, especially in view of unreliable electric supply.

The contractor shall abide by the Indian Electricity Act and the India Electricity Rules as amended from time to time.

On request of Contractor, Railway will forward the Contractor's application for getting electric supply to local authorities.

## 7. RECOVERIES FROM CONTRACTOR BILLS:

### a) SEIGNIORAGE CHARGES RECOVERABLE FROM BILLS:

- i) Seigniorage charges/fee for supply of earth, moorum, sand and other minerals as fixed by the state Govt. and payable to them as revised from time to time during the currency of the contract will be recovered by Railway from the contractors, in "on account" and "final bill" and remitted to the State Govt. The rates quoted by the tenderer shall be inclusive of these charges. Claims regarding revision of seigniorage charges and consequent enhancement of the accepted rate will not be entertained. However, no seigniorage charges/fee shall be recovered from the bills of the contractor, if the contractor produces documentary evidence e.g. "Transit pass" issued by the state Govt. officials in token of having paid seigniorage fee. In such case, the genuineness of such documentary evidence produced along with proof of payment of seigniorage charges, shall be got verified by the Railway from the concerned mining and Geology Dept.

## 15. EMPLOYMENT OF ELECTRICAL ENGINEERING GRADUATES/DIPLOMA HOLDERS:

- a) The contractor shall employ the following technical staff during the execution of this work:

S. No.	Technical Staff	Cost of work executed
1	One Qualified Diploma/ Graduate Engineer	When cost of work to be executed is more than Rs. 50 Lakhs and less than Rs. 500 Lakhs
2	One Qualified Graduate Engineer	When the cost of work executed is Rs. 500 Lakhs and above.

"Technical staff should be available at site to take instructions of Engineer in-Charge and to supervise the work in progress"

- b) In case the contractor fails to employ the technical staff as aforesaid, he shall be liable to pay a reasonable amount not exceeding a sum of **Rs. 50,000/-** (Rupees Fifty Thousands only) for each month or part thereof for the default period in case of Qualified Graduate Engineer and **Rs. 35,000/-** (Rupees Thirty Five Thousands only) for each month or part thereof for the default period in case of Qualified Diploma/Graduate Engineer.
- c) **Insurance:** The Contractor shall take out and keep in force a policy or policies of insurance against all liabilities of the Contractor or the Purchaser at common law or under any statute in respect of accidents to persons who shall be employed by the Contractor in or about the site of work or the Contractor's offices for the purpose of carrying out the works on the site.
- d) The decision of the Engineer in-charge as to the period for which the required technical staff was not employed by the contractor and as to the reasonableness of the amount to be deducted on this amount shall be final and binding on the contractor.

## 16. A. PROVISION OF CONTRACT LABOUR (Regulation and Abolition) ACT, 1970:

1. The Contractor shall comply with the provision of the contract labour (Regulation and Abolition) Act, 1970 and the Contract labour (Regulation and Abolition) Central Rules 1971 as modified from time to time, wherever applicable and shall also indemnify the Railway from and against any claims under the aforesaid Act and the Rules.
2. The Contractor shall obtain a valid license under the aforesaid Act as modified from time to time before the commencement of the work and continue to have a valid license until the completion of the work. Any failure to fulfill the requirement shall attract the penal provision of the Act.
3. The Contractor shall pay to the labour employed by him directly or through subcontractors the wages as per provision of the aforesaid Act and the Rules wherever applicable. The Contractor shall notwithstanding the provisions of the contract to the contrary, cause to be paid the wages to labour, indirectly engaged on the works including any engaged by subcontractors in connection with the said work, as if the labour had been immediately employed by him.
4. In respect of all labour directly or indirectly employed in the work for performance of the Contractor's part of the contract, the Contractor shall comply with or cause to be complied with the provisions of the aforesaid Act and Rules wherever applicable.

5. In every case in which, by virtue of the provisions of the aforesaid Act or the rules, the Railway is obliged to pay any amount of wages to a workman employed by the Contractor or his sub-contractor in execution of the work or to incur any expenditure on account of the contingent, liability of the Railway due to the Contractor's failure to fulfill his statutory obligations under the aforesaid Act or the rules, the Railway will recover from the Contractor, the amount of wages so paid or the amount of expenditure so incurred and without prejudice to the rights of the Railway under the Section 20, Sub-Section (2) and Section 2, Sub-Section (4) of the aforesaid Act, the Railway shall be at liberty to recover such amount or part thereof from Contractor's bills/Security Deposit or any other dues of Contractor with the Government of India. The Railway shall not be bound to contest any claim made against it under Sub-Section (1) of Section 20 and Sub-Section (4) of Section 21 of the aforesaid Act except on the written request of the Contractor and upon his giving to the Railway full security for all costs for which the Railway might become liable in contesting such claim. The decision of the Chief Engineer regarding the amount actually recoverable from the Contractor as stated above shall be final and binding on the Contractor.
  6. No child labour (below 18 years of age) will be allowed to work in any of the work under this contract.
- B. Provisions of Employees Provident Fund and Miscellaneous Provisions Act, 1952:** The Contractor shall comply with the provisions of Para 30 & 36-B of the Employees Provident Fund Scheme, 1952; Para 3 & 4 of Employees' Pension Scheme, 1995; and Para 7 & 8 of Employees Deposit Linked Insurance Scheme, 1976; as modified from time to time through enactment of "Employees Provident Fund & Miscellaneous Provisions Act, 1952", wherever applicable and shall also indemnify the Railway from and against any claims under the aforesaid Act and the Rules.
- C.** (i) Contractor is to abide by the provisions of various labour laws in terms of above clause 54, 55, 55-A and 55-B of Indian Railways Standard General Conditions of Contract. In order to ensure the same, an application has been developed and hosted on website 'www.shramikkalyan.indianrailways.gov.in'. Contractor shall register his firm/company etc. and upload requisite details of labour and their payment in this portal. These details shall be available in public domain. The registration / updation in Portal shall be done as under:
- (a) Contractor shall apply for onetime registration of his company/firm etc. in the Shramikkalyan portal with requisite details subsequent to issue of Letter of Acceptance. Engineer shall approve the contractor's registration in the portal within 7 days of receipt of such request.
  - (b) Contractor once approved by any Engineer, can create password with login ID (PAN No.) for subsequent use of portal for all Letter of Acceptances (LoAs) issued in his favour.
  - (c) The contractor once registered on the portal, shall provide details of his Letter of Acceptances (LoAs) / Contract Agreements on shramikkalyan portal within 15 days of issue of any LoA for approval of concerned Engineer. Engineer shall update (if required) and approve the details of LoA filled by contractor within 7 days of receipt of such request.
  - (d) After approval of LoA by Engineer, contractor shall fill the salient details of contract labours engaged in the contract and ensure updating of each wage payment to them on shramikkalyan portal on monthly basis.
  - (e) It shall be mandatory upon the contractor to ensure correct and prompt uploading of all salient details of engaged contractual labour & payments made thereof after each wage period.
- (ii) While processing payment of any 'On Account Bill' or 'Final Bill' or release of 'Advances' or 'Performance Guarantee / Security deposit', contractor shall submit a certificate to the Engineer or Engineer's representatives that "I have uploaded the correct details of contract labours engaged in connection with this contract and payments made to them during the wage period in Railway's Shramikkalyan portal at 'www.shramikkalyan.indianrailways.gov.in' till \_\_\_\_Month, \_\_\_\_Year."

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

### 17. Conciliation of Disputes:

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

1. **Matters Finally Determined by the Railway:** All disputes and differences of any kind whatsoever arising out of or in connection with the contract, whether during the progress of the work or after its completion and whether before or after the determination of the contract, shall be referred by the Contractor to the GM and the GM shall, within 120 days after receipt of the Contractor's representation, make and notify decisions on all matters referred to by the Contractor in writing provided that matters for which provision has been made in Clauses 7(j), 8, 18, 22(5), 39.1, 39.2, 40A, 43(2), 45(i)(a), 55, 55-A(5), 57, 57A, 61(1), 61(2), 62(1), 63(iv) and 63.2.11 of the Standard General Conditions of Contract or in any Clause (stated as excepted matter) of the Special Conditions of the Contract, shall be deemed as 'excepted matters' (matters not arbitrable) and decisions of the Railway authority, thereon shall be final and binding on the Contractor; provided further that 'excepted matters' shall stand specifically excluded from the purview of the Dispute Adjudication Board (DAB) and Arbitration.

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

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

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

- 2. The appointment of DAB shall be effectuated by way of a tri-partite agreement among the Railway, Contractor and the respective DAB members. The terms of the remuneration of each member shall be as fixed by Ministry of Railways from time to time. Each party shall be responsible for paying one-half of this remuneration.
- 3. If one or more of the members appointed refuses to act as DAB member, or is unable or unwilling to perform his functions as DAB member for any reason whatsoever or dies or in the opinion of the Chief Engineer fails to act without undue delay, the parties shall

terminate the mandate of such DAB member and thereupon new DAB member shall be appointed in the same manner, as the outgoing DAB member had been appointed.

4. The appointment of any member may be terminated by mutual agreement of both Parties, but not by the Railway or the Contractor acting alone. Unless otherwise agreed by both the Parties, the appointment of the DAB (including each member) shall expire upon expiry of this Contract Agreement.
5. Before start of DAB proceedings, each DAB member shall give the following certificate to the Railway and the Contractor:  
*"I have no any past or present relationship in relation to the subject matter in dispute, whether financial, business, professional or other kind. Further, I have no any past or present relationship with or interest in any of the parties whether financial, business, professional or other kind, which is likely to give rise to justifiable doubts as to my independence or impartiality."*
6. DAB proceedings shall be conducted as decided by the DAB. The DAB shall give its decision within 90 days of a Dispute referred to it by any of the Parties, duly recording the reasons before arriving at the decision. The DAB shall decide the issue within terms and conditions of the contract. This time limit shall be extendable subject to the Parties mutual agreement.
7. The DAB decision shall not be binding on both the Parties. In case any party is not satisfied by the decision of DAB, then the aggrieved party may approach Arbitral Tribunal for arbitration proceedings.
8. No dispute shall be referred to Arbitral Tribunal unless the same has been referred to DAB for adjudication. However, in case DAB is not formed due to any reason, the disputes can be directly referred to Arbitral Tribunal to adjudicate the dispute.
9. In the specific cases of any misconduct by any of the members of the DAB, the parties shall have the right to specifically bring it to the notice of the DAB such conduct, through a statement filed with necessary documents in proof of such misconduct and the DAB, after taking NOTICE of such conduct initiate the replacement of the member concerned, in the same manner the member to be replaced was appointed.
10. Once the decision is given by DAB, DAB cannot review the decision at its own or on the request of one party, unless both parties agree for review of decision by DAB.
11. In case DAB decision is not challenged by either party within 180 days of receipt of decision of DAB, the decision shall be considered as final and parties would be barred for referring the same to Arbitral Tribunal for adjudication.
12. The obligation of the Railway and the Contractor shall not be altered by reasons of issue being or under reference to DAB.
13. The DAB shall conduct the proceedings at any convenient venue which shall be decided by DAB in consultations with parties.
14. It is a term of this contract that the Parties shall not approach any Court of Law for settlement of such disputes or differences unless an attempt has first been made by the parties to settle such disputes or differences through DAB and Arbitral Tribunal.

18. **Demand for Arbitration:**

(1)

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

claim on disputed matters shall demand in writing that the dispute or difference be referred to arbitration.

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

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

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

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

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

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

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

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

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

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

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

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

## 19. **SERVICE ROADS:**

1. The contractor will be permitted to make use of existing service roads if any free of cost. New service roads required by the contractor in connection with the work either near the work site or elsewhere within or outside Railway limits for carriage of materials or for any other purpose what so ever will have to be constructed and maintained by the contractor at his cost. For the purpose construction of service roads on Railway land, permission will be given to the contractor at Railway's discretion free of any charges.



2. If any land other than Railway land is necessary to be acquired or to be entered upon for the purpose, such land acquisition or permission to enter upon the land have to be arranged for by the contractor at his cost. The contractor will however indemnify the Railway against all claims for all damages whatsoever in this account. Railway however reserves the right to make use of such service roads without any charges.
20. **ROYALTIES AND PATENT RIGHTS:**
1. The contractor shall defray the cost of all royalties, fees and other payments in respect of patents, patent rights and licenses which may be payable to patentee, licensee or other person or corporation and shall obtain all necessary licenses. In case of any breach (whether willfully or advertantly) by the contractor of this provision, the contractor shall indemnify the Railway and its officers, servants, representatives, against all claims proceedings, damages, cost, charges, loss and liabilities which they or any of them, may sustain incur or be put to by reason or in consequence of directly or indirectly of any such breach and against payment of any royalties damages and other monies which the Railway may have to make to any person or paid in total to patent rights in respect of the users of any machine, instrument process, article matter or thing constructed, manufactured, supplied or delivered by the contractor to his order under this contract.
21. **STORAGE OF PETROLEUM:**
1. No petroleum, spirit within the meaning of the Indian petroleum act shall be stored at site or adjacent to it until the approval of the Railway and necessary license under the act has been obtained by the contractor.
22. **CONTROLLED AND IMPORTED COMMODITIES:**
1. The Railway will not supply from its own quota to the contractor, controlled or imported commodities. The Railway will, however, render assistance to the contractor by recommending to the appropriate authorities on the contractor's application for issue of import license or release of controlled commodities if the Engineer is satisfied that the materials are actually required by the contractor for carrying out the work and the materials proposed to be imported are not available indigenously. When any materials for execution of contract are procured with the assistance of the Government either by issue from Government stocks or purchase under arrangements made or permit or license issued by the Government. The contractor shall hold the said materials as trustee and use such material economically and solely for the purpose of the contract against which they are issued, and shall not dispose them off without the permission of the Government and shall return if required by the Government all surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever, on his being paid such price as the Government may fix with due regard to the condition of the material. The freight charges for the return of the materials according to the directions of the railway shall be borne by the contractor, in the event of the contract being cancelled for any default on his part. The decision of the Government shall be final and conclusive. In the event of any breach of the aforesaid conditions, the contractor, shall in addition to throwing himself open to action for contravention of terms of the license or the permits and/or for criminal reach of trust, be liable to account to Government for all monies, advantages, or profits resulting or which in the usual course would have resulted by reason of such breach.
23. **TIME OF COMPLETION:**
1. Time is the essence of the contract. All works included in the contract should be completed within the period of **12 (Twelve)** months inclusive of the intervening monsoon period from the date of issue of acceptance letter. **The Tenderer/Contractor would be expected to adhere to the progress of work as per each milestone. In case they fail in achieving the first 2 mile stones, the contract would be liable for termination under clause 62 of the GCC.**
  2. Extension of time of completion will be governed by clause 17 of General Conditions of Contract. However, while granting the extension of time under clause 17B of GCC, a token penalty as

deemed fit based on the circumstances of the case can be imposed on the contractor without prejudice to other rights of Railway Administration as provided under GCC.

24. **MAINTENANCE AND GUARANTEE:**

1. The contractor shall guarantee and maintenance satisfactory working of the installation and erected by him, the supply portion of work contract the Warranty/guarantee should be covered for a minimum period of 24/30 months i.e. 24 months from date of commissioning/30 months from date of supply whichever is earlier and for work portion the warranty/guarantee should be covered for minimum period of 24/30 months i.e. 24 months from date of commissioning/30 months from the date of installation whichever is earlier OR the period as per approved specification in case it is higher than above. During the period of guarantee and maintenance the contractor shall replace free of cost any parts which may be found defective in the equipment whether such equipments be of his own manufacture or of his contractors, whether arising from faulty design, material and workmanship. The contractor shall bear the cost of repairs carried out on his behalf by the Railways at site. In such case, the contractor shall be informed in advance of the works proposed to be carried out by the Railways.
2. During the maintenance period, the contractor shall bear the responsibility and be liable for maintenance as envisaged in clause 47 of the GCC.

25. **WARRANTY:**

1. The contractor shall warrant that entirely new material will be used for execution of the work under the contract and the material/work will be free from all defects/faults in designs, workmanship and manufacture and shall be of the highest grade and consistent with the established standards and in full conformity with technical specifications drawings and other contract stipulations.
2. This warranty shall expire 24 (Twenty Four) months from the date of acceptance of the completed work by the railway except in respect of complaints, defects and/or claims notified to the contractor before the expiry of the warranty period.
3. The contractors liability in respect of any complaint, defect or claim shall be limited to the execution, installation and erection of replacement parts/equipment free of any charge, or the repair of defective parts only to the extent that such replacement or repairs are attributable to or arise from faulty workmanship or design or material in the manufacture of the equipment and also in the event of failure of the equipment to perform as intended.
4. The contractor shall, if required, replace, repair, execute and/or install the goods or such portion thereof as is rejected by the railways, free of cost at site or at the option of the railway the contractor shall pay to the railway the value thereof and such other expenditure and damage as may arise by reason of the breach of the conditions herein specified.
5. All replacement and repairs that the railway shall call upon the contractor to deliver or perform under this warranty shall be delivered and performed by the contractor within a period of 21 (twenty one) days promptly from the date of receipt of advice to that effect from the Engineer. In case where such replacement, repairs execution and/or installation takes place during warranty period the provision of this warranty clause shall apply to that portion until the expiry of 24 (twenty Four) months (Extended Warranty period) from the date of such replacement, repair, execution and/or installation.
6. In case if the reported defects are not rectified satisfactorily within the above mentioned 21 days, the railway may proceed to do the work at the contractors risk and cost and also without prejudice to any other rights of the railway under this contract.
7. The Railway may, at its discretion, recover the ground rent for the goods which have been rejected during the warranty period, if the rejected materials are not taken over within the period of 3 (three) months by the contractor or his representative.
8. If the replacement at site of any parts which may be found defective in the equipment whether such equipment be of his own manufacture or those of his sub-Contractor whether arising from faulty design, materials, workmanship or negligence in any manner on the part of the Contractor

provided always that such defective parts as are not repairable at site are promptly returned to the Contractor if so required by him at his (Contractor's) own expenses.

9. In case of type defects in Contractor's equipment and components detected during guarantee period, Contractor should replace all such irrespective of the fact whether all such items have failed or not. The Contractor shall bear the cost or repairs carried out on his behalf by the Purchaser at site. In such a case, the Contractor shall be informed in advance of the works proposed to be carried out by the Purchaser.
  10. If it becomes necessary for the Contractor to replace or renew any defective portion of the equipment under the para-aforesaid then the provision of the said Para shall also apply to the portions of the equipment on replaced or renamed until the expiration of six months from the date of such replacement or renewal or until the end of the above-mentioned period whichever is late. Such extension shall not apply in case of defects of a minor nature, the decision of the General Manager or his successor/nominee being final in the matter. If any defect be not remedied within a reasonable time during the aforesaid period the Purchaser may proceed to do work at the Contractor's risk and expense, but without prejudice to any other rights and remedies which the purchase may have against the Contractor in respect of such defects or faults.
  11. The repaired or renewed parts shall be delivered and erected on site free of charge to the purchaser.
  12. Maintenance of Works: The Contractor shall at all times during the progress and continuance of the works and also for the period of maintenance specified in the Tender Form after the date of issue of the certificate of completion by the Engineer or any other earlier date subsequent to the completion of the works that may be fixed by the Engineer, be responsible for and effectively maintain and uphold in good substantial, sound and perfect condition all and every part of the works and shall make good from time to time and at all times as often as the Engineer shall require, any damage or defect that may during the above period arise in or be discovered or be in any way connected with the works, provided that such damage or defect is not directly caused by errors in the contract documents, act of providence or insurrection or civil riot, and the Contractor shall be liable for and shall pay and make good to the Railway or other persons legally entitled thereto whenever required by the Engineer so to do, all losses, damages, costs and expenses they or any of them may incur or be put or be liable to by reasons or in consequence of the operations of the Contractor or of his failure in any respect.
  13. For the faithful fulfillment of the obligations of the warranty contemplated in this clause and for the due and faithful fulfillment of the contract as a whole, the contractor has to furnish Security Deposit as detailed at 2.20 (B) of General Conditions.
  14. As and when an amendment to the contract extending the date of completion is issued, the contractor shall arrange, within 15 (fifteen) days of the receipt of letter, a letter of amendment to the Bank instrument for SD, rendering the same valid for the contract period as amended.
26. **STEPS TO BE TAKEN IN ORDER TO AVOID DAMAGES TO RAILWAY INSTALLATIONS/ RAILWAY TRAFFIC:**
1. The contractor shall see that no damage is caused to Railway signaling and transmission wires, stations, installations, communication lines, electric devices, trains of any kind, fencing, as well as any rolling stock and in general to all Railway installations and equipment. In case any damage is caused to these due to the fault of the contractor or on the part of any one on his behalf, all repairs there under required will be carried out by the Railway at the entire cost of the contractor and the amount of expenses thus incurred will be recovered from the payment due to him.
  2. The contractor will plan and execute the work in such a way as to ensure that no disruption or damage/distortion is caused to Railway traffic or damage /distortion is caused to Railway track / Railway communication / power lines resulting in disruption / danger to traffic, the cost of damage caused to the Railway's property or death / injury caused to Railway's personal / public

- will be recovered from the contractor's against this work or any other work / work or any other work/works being executed by the firm under Railway / any Government Department.
3. The warranty period for LED items should be 5 (Five years) years from date of commissioning. If failure /defective of LED items within the warranty period of 5 years should be replaced with new item.
  4. A 100% penalty will be recovered for a deficient earth pit or a non-stranded earth pit. It includes any earth pit without boxes or covers. Any broken box/cover, short length of electrode etc. will be treated as deficient/non-standard earth pit.
27. **PATENTED DEVICES, MATERIALS AND PROCESSES:** When the contractor desires to use any designed device materials or process covered by a letter of patent or copy right, the right, for such use shall be secured by suitable level arrangement and agreement with patent owner and copy of the agreement shall be filled with Railway if so required. The contractor shall also indemnify Railway against any claims arising out of above.
28. **Working during Night (Clause-23):** The Contractor shall not carry out any work between sun-set and sun-rise without the previous permission of the Engineer. However, if the Engineer is satisfied that the work is not likely to be completed in time except by resorting to night work, he may order the same without confirming any right on the Contractor for claiming any extra payment for the same. Contractor shall provide adequate flood lighting arrangements for night working. Night working also shall be done to meet the tight targets.
29. **ASSISTANCE DURING ACCIDENTS/NATURAL CALAMITIES:**
1. Vehicles and equipment of contractors can be drafted by Railway Administration in case of accidents/natural calamities involving human lives.
  2. For payment purposes, the item may be operated as a Non-Schedule (NS) item as per the existing norms and powers delegated to the Railways.
30. **QUALITY OF MATERIALS AND QUALITY CONTROL:**
1. All materials used in the execution of the contract shall be of the best quality and of the class most suited for the purpose specified. Components, assemblies and equipment to be obtained from proven source, chosen from the approved makes indicated in this tender documents. The work shall also confirm to the following acts, rules and standard codes of practices.
    - a. Latest IS codes, b. S.C. Railway specifications

All the equipments/materials covered by this contract shall comply with the Technical specifications enclosed to tender documents as referred to therein in all respects and shall be adequate to perform the duties for which they are designed.
  2. All erection work shall be of the best quality to the entire satisfaction of the Railway. The contractor shall ensure that the equipments and services under the scope of this contract, whether manufactured or assembled within the contractor's premises or at his subordinate's premises or at the Railway's site or at any other place, are strictly in accordance with the provision of this contract. For this purpose, the contractor shall adopt necessary quality assurance programme to control such activities at all states.
  3. **The contractor has to procure all the materials from the authorized dealer of the approved makes (if not procured through OEM) as per the approved list of CEE/C/SC (Copy uploaded in the tender documents in IREPS). Prior Approval to be taken before supply of the material.**
31. **INSPECTION:**
1. Railway reserve the right to inspect the electrical equipments viz. etc. at the firm premises/approved laboratories. The inspection officer will be nominated by Railway.
  2. The successful tenderer has to submit proper documents for supply of electrical materials viz. Inspection reports, test reports, warranty certificates, manufacturer's test certificates etc. (as the case may be).
  3. **RITES inspection:**

As per the discretion of the Railway officials, the electrical material will be inspected either at Firm's premises/ approved laboratories or at site. Inspection charges will be borne by Railways.

**As per PCEE/SCR's Lr. No. E.29/P/Vol.XI dated 27.09.2017,**

- a. **Pre inspection of items by RITES/RDSO for the material procured through works contract for which supply items value is more than Rs. 5.0 Lakhs. RITES inspection should be carried out by the Contractor.**
  - b. **For Consignee inspection, the firms should submit Guarantee/Warranty certificate, Test certificate from OEM.**
4. The Contractors shall provide without any extra cost to the Railway all materials, equipments, tools, labour and maintenance of every kind with necessary testing facilities which the Railway of the inspecting officer may consider necessary for any test and examination to be made at the contractors or sub-contractors premises and at site and shall pay all cost attended thereon.

32. **CERTIFICATES OF INSPECTION AND APPROVAL:**

1. No equipment/stores will be considered ready for erection until the Railway or the inspecting officer nominated by it, shall have certified in writing that they have been inspected and approved by him.
2. The inspecting officer or his authorized representative shall have, at all reasonable times, access to the contractors premises and shall have power to.
3. Inspect and examine the materials and workmanship of the work, at any time during the manufacture at the manufacturer's premises or in the premises of the contractor or at the site of erection.
4. Certify before any equipment is submitted for inspection that it is in accordance with the spirit of the contract and no unsatisfactory method is adopted/employed.
5. Reject any part of the work executed by the contractor if it is not in accordance with the contract.
6. Reject the whole of the work including equipment tendered for inspection, if the same is unsatisfactory.
7. Mark rejected equipment with rejection mark so that the same may be easily identified.
8. Re inspect at the time of erection at site, any equipment previously inspected and approved by the Inspecting Officer. Notwithstanding any approval given earlier, the contractor shall make good the rejections made, based on such re-inspection at site.
9. The successful tenderer must submit the complete design of all electrical activities before execution of the works to Dy.CEE/C/BZA office for approval.
10. The tenderer may please note that the electrical materials included in the various schedules should be as per the makes indicated in the CEE/C/SC's approved list. The successful tenderer has to obtain the approval of the competent authority of the Railways in writing before supply/installation/commissioning of the material.
11. The required material specified in the tender schedule has to be procured as per IS/RDSO specifications and prior approval of competent authority (who is competent to sign the contract agreement) is to be obtained before procurement.
12. At the time of supply/inspection, contractor shall produce a copy of routine test done on the equipment at supplier's premises along with other technical (operation and maintenance) manuals required for particular equipment to inspecting officer. The inspecting officer shall consider these test reports in addition to other tests for satisfaction of the quality of equipment.
13. 3 copies of technical manuals for electrical equipments, installed vide the contract are to be given by the successful tenderer.

33. **CONSEQUENCES OF REJECTION:** On the equipment/work being rejected by the Inspecting Officer or the Railway at Destination, the contractor shall replace such rejected equipment portion of the work forthwith but, in any event not later than a period of 4 (four) weeks in the case of minor equipments from the date of rejection. The contractor shall bear all the cost of such replacement

including freight etc., but without being entitled to any extra time on this account. The decision as to whether the equipment is to be classified as minor or major for the purpose of this clause shall be that of the Engineer and it shall not be called into question on any account.

34. **CUTTING AWAY AND MAKING GOOD:** The contractor(s) shall carryout all the necessary cutting away and making good for the purpose of the contract of all wood works, walls, floors etc. of the Railway's building. The contractor(s) shall be responsible and shall make good at his/their expense to the satisfaction of the president or his representative, any damage to or disfigurement of the building, which may be caused by the acts of commissions of the contractor or agents in connection with the contract.
35. **OBSTRUCTION OF RAILWAY STAFF:** The contractor(s) shall not obstruct directly or indirectly the Railway staff on duty and the staff working with the Railways system in any form.
36. **DELEGATION OF POWERS:** Subject as otherwise provided in this contract, all notices 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 Executive Electrical Engineer (Construction), Vijayawada.
37. **SUPPLY OF CEMENT:** Railway will not supply cement to contractors have to make their own arrangements. ISI standard cement shall be used.
38. **SPECIFICATIONS:** Every effort has been made by the Railways to cover all the items required for provided by them under executing the various works in respective specifications. These items might have been covered explicitly or implicitly in the specification and the contractor shall however provide free of cost all such items that may be required for proper execution, commissioning and performance of the equipments supplied and installed by them whether they are mentioned explicitly or implicitly in the specifications or not. No extra claim whatsoever will be entertained by the Railways for such items so provided by the contractor for proper execution or for ensuring satisfactory performance of the installations in this contract.
39. **NUTS, BOLTS AND WASHERS:** All the nuts, bolts, including washers 12 mm or less shall be of stainless steel. Above 12 mm bolts, nuts, washers etc. shall be of hot dip galvanized.
40. **MONTHLY PROGRESS REPORT:** The contractor shall furnish to the EEE/CN/BZA during the first week of every month, a progress report showing progress of finalization of design and drawing, materials and equipment received at site and the works carried out during the preceding month and up to date progress.
41. **MEMORANDUM OF DESCRIPTIVE MATTER:** The tenderer may, if he deems necessary, submit a short and concise memorandum or descriptive matter which cannot be incorporated in other parts of the tender. In the event of the tenderer quoting rates based on the assumptions which are contrary to the principles laid down in the tender papers, the basis for such assumption of rates to which they are connected should be incorporated in the memorandum. If no mention is made in the memorandum it would be presumed that the same basis as has been laid down in the tender papers has been followed by the tenderer.
42. **SPECIFIED RAILWAY STORES:**
  - a. The various equipments, components and materials to be supplied by the Railways to the contractor will be handed over to the contractor as far as possible in the state of ready for installation. The contractor has to endeavour to bring the equipments into successful operation. In the event of failure of any item supplied by Railways due to inherent defects/deficiencies in the item the contractor shall not be responsible. Should the defects be repairable at site without requiring dismantlement of the equipment then the repair shall be done by the contractor free of cost.
  - b. In case the damage to the stores handed over to the contractor is caused by quality testing or careless handling by the contractor as distinct from the damage due to inherent manufacturing defects, the cost of repairs/replacement the damaged equipment/material shall be borne by the contractor in addition to the cost of dismantling and re-erection if any.
43. The contractor shall arrange at his own cost all tools, plants and facilities as necessary for erection and testing the erected installations and other equipments, in compliance with the specifications.

44. The contractor or his representatives will accompany the Purchasers Engineers on inspection or attend their offices wherever called upon to do so.
45. The contractor shall not be entitled to any extra payment due to hindrance resulting from normal Railway operations. Such as delay on account of adequate number and duration of blocks not being granted, operational delay in movement of work trains etc., but the purchaser shall grant a reasonable extension of time to the contractor.
46. If the purchaser is unable to supply materials to the contractors as specified in the contract shall not be entitled to any extra payment on account of such delay in supply. However, such delays in supplies will be adjusted into extension of completion dates in the work.
47. The contractor should insure the stores brought to site against risks in calamities consequence of damage, war and in various calamities, as required under the emergency risk.
48. The tenderer may please note that the work of wiring, illumination, Air conditioning, provision of electrical gadget/fittings, air-cooling, fire alarm system etc. and all other electrical works prescribed in the tender documents have to be completed in all respects. In case the tenderer considers any item that is essential to complete the work has not been included in the tender schedule, the cost of same may be included against the existing items in the schedule.
49. The tenderer can inspect the site and study the relevant drawings in the office of Dy.CEE/C/BZA before submitting their offer. The Railway reserves the right to slightly modify the drawings as per the site conditions.
50. The required material specified in the tender schedule has to be procured as per IS/RDSO specifications and prior approval of competent authority (who is competent to sign the contract agreement) is to be obtained before procurement.
51. The works will be executed by Dy.CEE/C/BZA and his team of Railway representatives.
52. The Rates included all lead and if the materials obtained by rail all freight charges including loading charges will be charged.
53. The contractor has to submit completion/as erected drawings along with the bills.
54. All electrical fixtures like Light fittings, ceiling fans, exhaust fans, geysers, plug sockets, control switches, boards, HDPE pipes, GI pipes, conical poles, LED name boards, solar pumps, solar systems, cables, DG set etc. including wiring materials are to be approved by the Dy.CEE/C/BZA before commencement of work and supply of materials to site.
55. The successful tenderer has to submit the detailed drawings and obtain the approval of competent authority before issuing order for fabrication and inspection is to be arranged for the Railway officials in the premises of manufacturer before supply the same to site.
56. The contractor has to arrange for the inspection of RITES/RDSO to the major materials/value of equipment exceeding the agreemental Rs. Five lakh.
57. The Inspection of schedule items in the premises of manufacturer as per the Inspection clause at item No. 33 of Condition of Contract.
58. The Drawings, specifications, General conditions of contract and special conditions are readily available for reference in the office of the Dy.CEE/C/BZA during working hours.
59. The contractor shall collect the approved building drawings and various conditions mentioned for carrying electrical wiring works such as running of emergency circuit, number of fans and lights to be provided etc.
60. Based on these station drawings, the contractor has to submit the AutoCAD wiring diagrams duly indicating MDBs (Main Distribution Boards), SDBs (Sub Distribution Boards) with various protective equipment along with drawing, Control switch boards and plan of laying of conduit duly indicating the length of the building lay out plan for drawal/running of wires/cables as per the conditions mentioned in the station building drawing provided by Railways. A prior approval of these drawings from this office shall be taken before commencement of work. All drawings shall be prepared in three copies. One set of drawings will be kept with this office as record, one set for the field supervisor and other set of approved drawings will be returned to the contractor for execution.

61. At times of emergency, the contractor shall deploy bare minimum number of staff i.e. 8 persons per station. The emergency shall include CRS inspections/Commissioning of stations/NI working etc. The intimation regarding deployment of staff shall be intimated by Railways at least one week in advance. If the contractor fails to deploy bare minimum staff per station as mentioned above or the staff deployed are found to be ineffective then a penalty of Rs. 1000/- for shortfall of 1 person per day per station will be levied and same will be recovered from the contractor. The decision of railway officer in-charge at site is binding on both the parties.
62. Every station building/goomty/RBGE room etc. shall be invariably provided with two numbers of independent earth pits. The MDBs/SDBs/Control Panels etc. shall be provided with two independent connections to both the earth pits.
63. Reputed make/Brand/Model to be used and connected document of purchase particulars of concerned tender/agreement particular from the authorized dealer while taking the approval.
64. The contractor has to submit the manufacturers test certificate for Transformers, AB switch, insulators, HT/LT UG XLPE cables, cable end termination kits etc.
65. Necessary liaison work including permission for commencement of work and taking shut downs with SEB has to be done by the successful contractor.
66. All electrical materials are to be used as per the requirement of SEB authorities and this work is pertaining to SEB.
67. Power supply lines belongs to SEB authorities. Modification work is to carried out as per the drawings and specifications and to suit the requirement of SEB authorities.
68. The power supply lines will be constructed as per the rules and regulations of SEB authorities and IE rules 1956. Required clearances have to be maintained accordingly.
69. All Electrical materials are to be used as per the approved makes of SEB and the same are to be purchased from their approved vendors. The materials are to be inspected by the representatives of SEB/Railways.
70. The work is being done for SEB as per the specifications and requirement of SEB authorities with respect to specifications, testing and other technical details before submitting their offer.
71. The contractor has to submit the proposed modification drawings of PLCs to this office before executing the work for approval and submit the completion/as erected drawings duly signed by concerned SEB authorities along with their bills.
72. Work is turn-key in nature and the contractor's scope is to proper completion and commissioning of the equipment/work.
73. Contractor will be responsible to solve Right of way issues and issues related to the crop compensation etc.
74. In case of conflict in specification of tender schedule items decision of Railway is final and binding on the contractor.
75. In case of any dispute of any nature arising on during the execution of the contract, the decision of the railways will be final and binding on the contractor.
76. **OFFICER IN-CHARGE:**  
Deputy Chief Electrical Engineer/Construction/Vijayawada  
**NOMINATED OFFICERS:**  
Divisional Electrical Engineer/Asst. Divisional Electrical Engineer/Construction/Vijayawada  
**NOMINATED SUPERVISORS:**  
Senior Section Engineer/Electrical/Construction/Vijayawada
77. **REMOVAL OF IMPROPER WORK AND MATERIALS:** The Engineer or the Engineer's Representative shall be entitled to order from time to time:
  - a) The removal from the site, within the time specified in the order, of any materials which in his opinion are not in accordance with the specifications or drawings.
  - b) The substitution of proper and suitable materials, and



- c) the removal and proper re-execution, notwithstanding any previous tests thereof or on account payments therefor, of any work which in respect of materials or workmanship is not in his opinion in accordance with the specifications and in case of default on the part of the Contractor in carrying out such order, the Railway shall be entitled to rescind the contract under Clause 62 of these conditions.
  - d) The provision of Construction and Demolition Waste Management Rule 2016 issued by Ministry of Environment Forest and Climate Change dated 29.03.2016 and published in the Gazette of India, Part – II, Section -3, Sub-section (ii) are binding upon the Contractor. Contractor shall implement these provisions at worksites, for which no extra payment will be payable.
78. **QUALITY ASSURANCE OF MATERIALS:** All the material, required for this work shall be subject to inspection to ensure that the work is done in accordance with specification, drawings and is of the best quality suitable for the purpose. Following inspection schedule shall be followed.
- a) **Inspection of material:**
    - i) **At Firm's Premises:** The Schedule supply Items value more than Rs. 5.0 Lakhs inspection by RITES/RDSO. The RITES inspection fee as charged by the RITES shall be borne by Railways for the first inspection call, for the lot offered. In case the material is rejected or not found suitable or incomplete, any additional fee charged by RITES for second or more inspection calls, the fee claimed by the RITES shall be borne by the contractor. Hence Contractor therefore shall ensure that the material offered for inspection at proper stage, when it is ready for inspection.
    - ii) **Consignee inspection:** Inspection of supply items value below Rs. 5.0 Lakhs, shall be done at the Depot/Firm premises by Railway Engineers. The firm should also submit Guarantee/Warranty certificate, Test certificate from OEM. The Contractor shall further submit delivery challans, authorized dealership certificates etc. during the inspection to the Railways inspecting authority.  
MRC (Material Receipt Certificate) cum Consignee Inspection Certificate format to be enclosed. MRC to be issued for item inspection by RITES/Consignee at factory also by SSE/E/C/GS nominated for issue of MRC.
    - iii) All the defects/discrepancies, if any, pointed out during the inspection should be attended by the contractor immediately.
  - b) **Stage inspection of work:** Stage inspection shall be carried out by the Railway Engineer's representative from time to time during execution of the work at site. All the shortcomings noticed during stage inspection shall be attended by the contractor. Site order register will be maintained by Railway/PSAA staff, instructions given through site order register shall be acknowledged by Contractor's supervisor promptly and any failure to do will entail debarring such supervisor from supervising the work. The contractor's register is free to give his remarks in site order & hence acknowledge of instruction is must any refusal to acknowledge if any result in recording of such attitude in performance /experience of contractor.
  - c) **Final Inspections:** After completion of whole or part of work, contractor shall offer it for final inspection and testing. All the shortcomings noticed during final inspection shall be attended by the contractor immediately and a joint inspection shall be carried out by Railway Engineer's Representative and by Contractor representative after completion of the entire work and a joint inspection/measurement report shall be made. The joint measurements/inspection report shall be signed by the contractor's representative, Railway's authorized Engineer for that work. Any defect/shortcomings noticed shall be attended by the contractor immediately before claiming the bill.
79. **DEFECTIVE EQUIPMENTS TO BE CHANGED:** Defective equipments during guarantee period either due to materials or workmanship shall be replaced by the contractor. If defective equipments are not replaced in a reasonable time as decided by the purchaser, the same may be replaced by purchaser and in such cases, recoveries will be made from the contractor's SD or other bills with this unit or any unit of Indian Government.
80. **USE OF REJECTED EQUIPMENT:** In the event of such rejection as aforesaid, the Purchaser shall, without prejudice to his other rights and remedies and in particular without prejudice to his rights

- under the clause just preceding, be entitled to the use of the rejected equipment for a time reasonable sufficient to enable him to obtain other replacement equipment. During such period, if the rejected equipment is used commercially the Contractor shall not be entitled to the payment on energisation until such rejected equipment is rectified and / or replaced, but the Purchaser shall not be entitled to claim any damages arising out of rejected equipment in respect of such period.
81. The contractor shall submit As Erected Drawings executed at site in CAD (Six copies) duly signed by the Railways site Engineer and the contractor's representative and these copies should be handed over at the time of final bill, in the office of Dy.CEE/C/BZA.
  82. **INSURANCE:** The Contractor shall take out and keep in force a policy or policies of insurance against all liabilities of the Contractor or the Purchaser at common law or under any statute in respect of accidents to persons who shall be employed by the Contractor in or about the site of work or the Contractor's offices for the purpose of carrying out the works on the site.
  83. **CORRECTNESS OF WORK AND MATERIALS:**
    - (a) The contractor shall be solely responsible for the correctness of the position, levels and dimensions of the works according to approved drawings, notwithstanding that he may have been assisted by the Purchaser or his men in setting out the same.
    - (b) If any dimension figured upon a drawing differs from that obtained by scaling the drawing, the figured dimension should be normally taken as correct, unless it is prima facie mistake. But all such cases shall be brought to the notice of the Purchaser's Engineers and the discrepancy set right before execution.
  84. **CONTRACTOR'S RESPONSIBILITY FOR DISCREPANCY:**
    - a. All designs and drawings submitted by the contractor shall be based on a thorough study and shall be such that the contractor is satisfied about their suitability. The Purchaser's approval will be based on these considerations, notwithstanding the approval communicated by the Purchaser, during the progress of the contract for designs and drawings, prototype samples of components, materials and equipment after inspection of materials, after erection and adjustments to installations, the ultimate responsibility for correct design and execution of work shall rest with the contractor unless the Purchaser insists on adoption of his own designs in spite of the contractor not being agreeable to it.
    - b. The contractor shall be responsible for and shall bear and pay the costs for any alteration of works arising from any discrepancies, errors or omissions in the designs and drawings supplied by him, whether such designs and drawings have been approved by the Purchaser or not.
  85. **CONTRACTOR'S LIABILITY FOR COSTS AND DAMAGES:**
    - (a) **WITHHOLDING AND LIEN IN RESPECT OF SUMS CLAIMED:** Whenever any claim or claims for payment of a sum of money arises out of or under the Contract against the Contractor, the Purchaser shall be entitled to withhold and also have lien to retain such sum or sums in whole or in part from the Security, if any, deposited by the Contractor and for the purpose aforesaid, the Purchaser shall be entitled to withhold the said cash security deposit or the security if any, furnished as the case may be and also have lien over the same pending finalisation or adjudication of any such claim. In the event of the Security being insufficient to cover the claimed amount or amounts or if no security has been taken from the Contractor, the Purchaser shall be entitled to withhold and have lien to retain to the extent of such claim amount or amounts referred to supra, from any sum or sums found payable or which at any time thereafter may become payable to the Contractor under the same contract or any other Department of the Central Government pending finalisation or adjudication of any such claim. It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to by the Purchaser till the claim arising out of or under the contract is determined by the Arbitrator (if the contract is governed by the Arbitration clause) or by the competent court as the case may be and that the Contractor will have no claim for interest or damages whatsoever or any account in respect of such withholding or retention under the lien referred to supra and duly notified as such to the Contractor. If the Contractor is a partnership firm or a limited company, the Purchaser shall be entitled to withhold

and also have lien to retain towards such claimed amount or amounts in whole or in part from any sum found payable to any partner/limited company, as the case may be, whether in his individual capacity or otherwise.

- (b) **LIEN IN RESPECT OF OTHER CONTRACTS:** Any sum or sums of money due and payable to the Contractor (including the security deposit returnable to him) under the Contract may be withheld or retained by way of lien by the Purchaser against any claim of this or any other Railway or any other Department of the Central Government in respect of payment of a sum of money arising out of or under any other contract made by the contractor with this or any other Railway or any other department of the Central Government.
- (c) It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Purchaser will be kept withheld or retained as such by the Purchaser till the claim arising out of or under any other contract is either mutually settled or determined by the Arbitrator, if the other contract is governed by the Arbitration clause or by the competent court as the case may be, and that the Contractor shall have no claim for interest or damages whatsoever on this account or any other grounds in respect of any sum of money withheld or retained under this clause and duly notified to the Contractor .

86. **SAFETY MEASURES:**

- (a) The Contractor shall take all precautionary measures in order to ensure the protection of his own personnel moving or working on the Railway premises, but shall then conform to the rules and regulations of the Railway. If and when, in the course of the work there is likely to be any danger to persons in the employment of the Contractor due to running traffic while working in the Railway siding and premises, the Contractor shall provide necessary protection i.e. Flagmen, Flag etc. required in block working. Competency for the above shall, however, be given by the Railway authorities. The Purchaser shall remain indemnified by the Contractor in the event of any accident occurring in the normal course of work, arising out of the failure of Contractor or his men to exercise reasonable precaution at all places of work. The Contractor shall be responsible to take all precautions to ensure the safety of the public whether on public or railway property and shall post such look out men as may, in the opinion of the Engineer, be required to comply with regulations appertaining to the work. Contractor shall ensure placement of barricading / partitions at the place of work to ensure safety of habitants of adjacent area, failing which Engineer may advise stoppage of work as per his discretion
- (b)
  - (i) Blasting of rock for foundation work shall be done only after due notice is given to the Purchaser and time/s and date/s for blasting operations agreed to by the Purchaser. Blasting, if required to be done in the vicinity of the track, shall not be undertaken until the Purchaser's flagmen on duty take necessary steps to protect trains and the track is adequately protected by the Contractor against damage by blasted rock. The Contractor shall follow detailed instructions which will be issued to him regarding blasting operations in the vicinity of tracks. He flagmen for protection of trains and the Track in such cases will be appointed by the purchaser and no expenses on this account will be charged from the contractor.
  - (ii) Explosives shall not be used on the works or on the site by the Contractor without the permission of the Engineer and then also only in the manner and to the extent to which such permission is given. Where explosives are required for the works, they shall be stored in a special magazine to be provided by and at the cost of the Contractor in accordance with the Explosive Rules. The Contractor shall obtain the necessary license for the storage and the use of explosives. All operations in which or for which explosives are employed shall be at the sole risk and responsibility of the Contractor and the Contractor shall indemnify the Railway in respect thereof
- (c) During stringing operations every care shall be taken to prevent conductors hanging low over tracks on which traffic block has not been given. All conductors shall be pulled out before traffic block is cleared so that such conductors do not infringe with moving traffic.

- (d) Ladder trolleys shall be used with caution. They shall not be put on tracks until the flagmen are on duty to protect the trolleys and the Purchaser's representative authorises in writing for the trolleys to be put on the tracks. Ladder trolleys shall be promptly removed on instructions from the Purchaser's representative and well in advance of trains. No claims shall rest on the Purchaser in the event of a ladder trolley being run over by train. The flagmen for the above job will be provided by the contractor.

Competency for the above shall, however, be given by the Railway authority. Protection of track by banner flags shall be done in accordance with General Rules of Indian Railways and Subsidiary Rules of the concerned zonal Railway where work is being carried out. Flagmen so deployed by the contractor shall be medically fit for A/3 category (as per Indian Rly Medical Manual); examination and certification of which shall be given by Railway Doctor. Such medical examination from Rly Doctors shall be arranged by Rly authority; prescribed fee for which shall be borne by the contractor.

- (e) The Contractor shall abide by all Railway regulations in force for the time being and ensure that the same are followed by his representatives, Agents or Sub-contractors or workmen. He shall give due notice to his employees and workers about provision of the para.
- (f) While working within station limits, especially on passenger platforms, the Contractor shall ensure that at all times sufficient space is left for free movement of passenger traffic. He must cover and/or barricade the excavations carried out in such areas and continue to maintain these till the work is completed, with a view to avoid any accident to public or to Railway staff.
- (g) The works must be carried out most carefully without any infringement of the Indian Railway Act or the General and Subsidiary Rules in force on the Railway in such a way that they do not hinder Railway Operation or affect the proper functioning or damage any Railway equipment, structure or rolling stock except as agreed to by the Purchaser, provided that all damage and disfiguration caused by the Contractor to any Railway property must be made good by the Contractor at his own cost failing which cost of such repairs shall be recovered from the Contractor.
- (h) If safety of track or track drainage etc. is affected as a consequence of works undertaken by the Contractor, the Contractor shall take immediate steps to restore normal conditions. In case of delay, the Purchaser shall, after giving due notice to the Contractor in writing, take necessary steps and recover the costs from the Contractor.
- (i) Moreover, if any time the works to be carried out directly concern the safety of trains, the Contractor's staff must comply fully with the Railway regulations given to him by the authorised Railway staff. The Contractor's employees and workers may for no reason operate an installation concerning train safety or train movement. They shall notify the authorised representative of the Purchaser who will take all necessary steps in this regard.
- (j) The Contractor shall be responsible for safe custody of all equipments till provisional acceptance.
- (k) The Contractor's liability to meet third party claims of the type outlined above will be applicable only in cases where accidents have been caused by bad design, workmanship, material or negligence on the part of the Contractor and further the liability of the Contractor will be limited to Rs. 25 lacks for any one accident.
- (l) The Contractor shall ensure that unauthorised, careless or inadvertent operation of switchgear, which may result in accident to staff and/or damage to equipment, does not occur.
- (m) The Contractor shall abide by all instructions issued by the Purchaser from time to time in connection with protection/safety of track/Railway installations/personnel as well as quality control. The Contractor should not leave the excavated pits unfilled overnight. Due to any reason if it become necessary to leave the pit unfilled overnight, it should be filled back effectively with sand bags to the satisfaction of the Purchaser's representative.
- (n) The Contractor shall obtain a valid electrical contractor license for LT/HT/EHT of voltage equal to OR more than 110/132/200KV as applicable from the concerned statutory authority before

taking up the physical execution of work and submit a copy of the same to concerned Rly Electrification project in-charge.

- (o) (p) In case of failure to adhere to above provisions or if unsafe practices/safety violation by contractor/his staff are noticed at the site of work, the contractor shall be levied with a penalty of Rs. 20,000/- for the 1st incident, Rs. 50,000/- for the 2nd incident and Rs. 1,00,000/- for subsequent such incident. Repeated safety violations shall become a valid ground for initiating the contract termination proceedings under relevant clause of GCC.
- (p) In the event of any unsafe condition arising at the site of work warranting speed restrictions to be imposed at the site, such work (including any disturbance caused to assets/works of other agencies by the Contractor/his staff executing the work) shall be attended by the Railway immediately, simultaneously giving due information to the contractor. A departmental inquiry will be held and in case it is found that contractor is not properly executing/completing the work or leaving it unsafe at the end of day's work, warranting speed restrictions to be imposed, the labour cost of the work so attended, shall be recovered from the contractor. The supervision charges @ 12.5% of the work and train detention charges @ Rs. 5000/- for every half hour of delay or part thereof, shall also be recovered.
- (q) Any incident involving (i) hitting of contractor's machinery/tools & plants/trolley/motor vehicle or (ii) hitting of any part of work executed/structure erected arising out of defective/unsafe execution of work(s) with the Railway's rolling stock/departmental vehicle moving on the Railway track(s), shall be treated as violation of safety on the work site and a minimum penalty imposed for each of such incident shall be Rs. 1,00,000/-. The amount of penalty imposed in such cases, as decided by the purchaser, shall be final and binding on the contractor. However, the actual amount of the liability shall be governed by the provisions contained in para-1.2.41 (Accidents) of Part-I, Chapter-II, and the imposition of the minimum penalty of Rs. 1,00,000/-, as mentioned above, shall be in addition to (over and above) the actual amount of liability in such cases, as governed by the provisions contained in para-1.2.41 (Accidents) of Part-I, Chapter-II.
- (r) In case of any damage to OFC/Cable occurred due to fault of the contractor, a flat penalty of Rs. 1,00,000/- will be imposed.

87. **GENERAL CONDITIONS OF CONTRACT:**

- a. "Indian Railways Standards General Conditions of Contract, April '2022" governing the performance of the works covered by this Tender "Standard General Conditions of Contract" in use in General in the South Central Railway as amended time to time. A copy of the booklet incorporating the above General Conditions of the Contract uploaded separately.
- b. In submitting this letter it would be deemed that the Tenderer has kept himself fully informed of the provisions of the Indian Railways Standards General Conditions of Contract, April – 2022 including all corrections and amendments issued up to the date of Tender Notice.
- c. Any changes in the GCC issued by Rly. Board from time to time will be applicable during the currency of contract

**NOTE:** The contract shall be governed by IRS conditions as applicable. All the terms and conditions in the tender are also equally applicable.

88. **SAFETY PRECAUTIONS AND SAFE WORKING METHODS AT WORK SITE:**

- 1. The contractor shall not start any work without the presence of Railway supervisor or his representative and contractor's supervisor at site.
- 2. The contractor shall, at all times, adopt such safe methods of working as well as ensure safety of rail traffic, structures, equipment and labour. The work shall be so carried out that there is no infringement to the Railway's Schedule of Dimensions. If at any time the Railway finds the safety arrangements inadequate or unsafe, the contractor shall take immediate corrective action as directed by the Railway's representative at site. Any dereliction in the matter shall in no way absolve the contractor of his sole responsibility to adopt safe working methods.

3. The contractor shall not allow any road vehicle belonging to him or his suppliers etc., to ply in Railway land next to the running line. If, for execution of work, road vehicles are necessary to be used in Railway land next to the Railway line, the contractor shall apply to the Engineer-in-charge for permission, giving the type and No. of individual vehicles, names and license particulars of the drivers, location, duration and timing of such work/ movement. The Engineer-in-charge or his authorized representative will personally counsel, examine and certify the road vehicle drivers, contractor's flagmen and supervisor and will give written permission giving names of road vehicle drivers, contractor's flagmen and supervisors to be deployed on the work, location, period and timing of the work. This permission will be subject to the following obligatory condition.
  - i) The road vehicles can ply adjacent to the track at a distance of more than 6.00m clear from the centre line of track only after clearly demarcating or suitably cordoning off of track at a minimum clear distance of 6.00 metres from the center of nearest track. For plying of road vehicles during night hours, specific permission in writing to be given/obtained by/from engineer in charge after ensuring adequate safety measures like sufficient illumination of entire stretch of work site, adequate number of flagmen with color light hand signals, whistles, detonators, walkie-talkies, mobiles, etc. Barricading shall be provided wherever justified and feasible. Barricading should be of sturdy semi-permanent fencing with MS angle vertical posts with three rows of horizontal MS bars (as per schedule item), embedded in concrete and will be paid under relevant schedule item.
  - ii) Nominated vehicles and drivers will be utilized for work in the presence of at least one flagman and one supervisor certified for such work. It must be strictly ensured that there is no vehicle movement (either in forward or reverse) towards the track, in the face of an approaching train, so as to avoid any possible infringement / contact by the road vehicle with train.
  - iii) The supervisor/workmen should be counseled about safety measures. A competency certificate to the contractor's supervisors as per proforma below shall be issued by AEN, which will be valid only for the work for which it has been issued.  
 Certified that Sri \_\_\_\_\_ P.Way supervisor of M/s. \_\_\_\_\_ has been examined regarding P.Way working on \_\_\_\_\_ work. His knowledge has been found satisfactory and he is capable of supervising the work safely.
 

Assistant Engineer
  - iv) Supplementary site specific instructions, wherever considered necessary, shall be issued by the Engineer-in-charge. Engineer-in-charge may impose any other condition necessary for a particular work or site.
  - v) The Engineer-in-charge shall approve the methodology proposed to be adopted by the contractor, with a view to ensure safety of trains, passengers and workers and he shall also ensure that the methods and arrangements are actually available at site before start of the work and the contractor's supervisors and the workers have clearly understood the safety aspects and requirements to be adopted/ followed while executing the work.
  - vi) There shall be an assurance register kept at each site, which will have to be signed by both, i.e., Railway Supervisor or his representative as well as the contractor's supervisor as a token of their having understood the safety precautions to be observed at site.
  - vii) The contractor shall remain fully responsible for ensuring safety and in case of any accident, shall bear cost of all damages to his equipment and men and also damages to Railway and its passengers.
4. **When the vehicle is to be worked closer to 6.0m but not less than 2.80m from center line of running track, following extra precautions shall be observed.**
  - i) Execution of doubling works in the vicinity of nearest track is not permitted without providing barricade at a minimum distance of 2.80m clear of nearest track centre and any

movement of vehicles less than 2.80m clear of nearest track centre is not permitted. Barricading should be of sturdy semi-permanent fencing with MS angle vertical posts with three rows of horizontal MS bars (as per schedule item), embedded in concrete and will be paid under relevant schedule item.

- ii) It is also the responsibility of the contractor to provide suitable barriers at vulnerable locations viz, Level crossings to prevent unauthorized road vehicles from trespassing into worksite. These barriers are to be opened only for the movement of Railway contractor's authorized vehicles or other railway vehicles.
  - iii) Presence of an authorized Railways representative shall be ensured before plying of vehicle or working of machinery.
  - iv) Railway's Supervisor shall issue suitable caution order to drivers of approaching train about road vehicles plying or machineries working close to running tracks. The train drivers shall be advised to whistle freely to warn about the approaching train. Whistle boards shall be provided wherever considered necessary. If necessary, suitable speed restrictions will be imposed.
  - v) Lookout men shall be posted along the track at a distance of 800m from such locations who will carry red flag and whistles to warn to the road vehicle/machinery users about the approaching trains.
  - vi) On curves where visibility is poor, additional lookout men shall be posted.
5. **When the vehicle is to be worked closer to 2.80m from center line of running track.**
- i) Plying of vehicle or working of machinery closer to 2.80 m clear from running track shall be done only under protection of track by imposing suitable Traffic block. The site shall be protected as per provisions of Para No. 806 & 807 of P.Way manual as the case may be.
  - ii) Presence of a Railway's supervisor shall be ensured at work site.
6. **SPECIAL CONDITIONS FOR WORKING OF ROAD CRANES:**
- i) No machine shall be selected to do any lifting on a specific job until its size and characteristics are considered against the weights, dimensions and lift radii of the heaviest and largest loads.
  - ii) The contractor shall ensure that a valid Certificate of Fitness is available before use of Road Cranes.
  - iii) Contractors can utilize the services of any competent person as defined in Factories Act, 1948 and approved by Chief Inspector of Factories.
  - iv) The laminated photocopies of fitness certificate issued by competent person, the operators' photo, manufacturer's load chart and competency certificate shall always be either kept in the operator cabin or pasted on the visible surface of the lifting appliances.
  - v) All lifting appliances including all parts and gears thereof, whether fixed or movable shall be thoroughly tested and examined by a competent person once at least in every six months or after it has undergone any alterations or repairs liable to affect its stability.
7. **Transportation of Railway Materials from Railways stores to work site:** Whenever Railway materials i.e. Railway supply items will be given to contractor from Railway stores (anywhere at south central Railway) for erection at work site the transportation charges will be paid as per the accepted rates of the schedule. This charge will not be applicable to transportation of contractor supply items, since transportation charge is included in the contractor supply items.

## **CHAPTER-III**

### **PRICES & PAYMENTS**

#### **1. PRICES AND PAYMENTS:**

- i) **SCOPE:** This chapter deals with prices to be paid for supply and/or erection of various items of works or for supplies and other amounts payment in accordance with the acceptance schedules of prices and rates and terms and conditions of payment mentioned herein. This is a works contract. The total prices for the completed items of work are the actual prices payable to the contractor as per the terms and conditions of the contract.
- ii) **SCHEDULE OF PRICES:**
  - a) The unit prices of various items of work shall be included in the schedule. All unit prices shall be firm irrespective of minor variations in basic quantities and use of alternative types approved by the purchaser. Minor changes at the basic designs shall not affect unit prices so long as such changes are mutually agreed to by the purchaser and the contractor. The prices shall be for material and erection. The contractor shall carefully note the items of materials, equipments, fittings and components which will be supplied by Railways.
  - b) The prices shall include provision for wastage in transit and erection. The prices shall include all incidental charges for transport loading, unloading and handling of materials. The prices shall include insurance premium under the emergency risks, all taxes, duties, levies etc.
- iii) **QUANTITIES:** It is considered that the unit prices of the individual items include all the elements of work involved in putting the installation in service. However, for supply and installation of HDPE pipe and cable, only 80% of the scheduled quantity shall be supplied initially and balance quantity shall be supplied only after obtaining written request to supply the same from this office.

#### **2. PAYMENTS AND RECOVERIES:** Subjects to any deduction or recoveries which the purchaser may be entitled to make under the contract, the contractor shall unless otherwise agree to, be entitled to get the following payments, subject to conditions stipulated in subsequent paragraphs.

- i) For all tenders having advertised cost of Rs.10 lakh or above, the contractor shall have the option to take payment from Railways through a letter of credit (LC) arrangement.
- ii) This option of taking payment through LC arrangement has to be exercised in IREPS (Indian Railway Electronic Procurement System – the e-application on which tenders are called by Railways) by the tenderer at the time of bidding itself. And the tenderer shall affirm having read over and agreed to the terms and conditions of the LC option.
- iii) The option so exercised, shall be an integral part of the bidder's offer.
- iv) The above option of taking payment through LC arrangement, once exercised by tenderer at the time of bidding, shall be final and no change shall be permitted, thereafter, during execution of contract.
- v) In case tenderer opts for payment through LC, following shall be procedure to deal release of payment through LC:
  - (a) The LC shall be a sight LC.
  - (b) The contractor shall select his Advising/Negotiating bank for LC. The incidental cost towards issue of LC and its operation thereof shall be borne by the contractor.
  - (c) SBI, New Delhi, Main Branch will be nodal branch for issue of LCS based on online requests received from Railway Accounts Units for tenders opened in financial year 2018-19. SBI branches where the respective Railway Accounts Office has its Account (local SBI branch) will be the issuance /reimbursing branch for LC issued under this arrangement. The Bank shall remain same for this tender till completion of contract. The incidental cost @ 0.15% per annum of LC value, towards issue of LC and operation thereof shall be borne by the contractor and shall be recovered from his bills.
  - (d) The LC shall be opened initially for duration of 180 to 365 days in consultation with contractor. The LC shall be extended time to time as per the progress of the contract, on the request of the contractor. The value of LC to be opened initially as well as extended



thereafter shall be finalized by the engineer in consultation with the contractor on the basis of expected progress of work.

- (e) The LC terms and condition shall inter-dia indemnify and save harmless the Railway from and against all losses, claims and demands of every nature and description brought or recovered against the Railways by reason of any act or omission of the contractor, his agents or employees in relation to the Letter of Credit (LC). All sums payable/borne by Railways on this account shall be considered as reasonable compensation and paid by contractor.
- (f) The LC terms and conditions shall inter-alia Provide that Railways will issue a Document of Authorisation after passing the bill for completed work, to enable the contractor to claim the authorized amount from their bank.
- (g) The acceptable agreed upon document for payments to be released under the LC shall be Document of Authorisation.
- (h) The Document of Authorisation shall be issued by Railway Accounts Office against each bill passed by Railways.
- (i) On issuance of Document of Authorisation, a copy of Document of Authorisation shall be posted on IREPS for download by the contractor. A digitally signed copy of Document of Authorisation shall also be sent by Railway Accounts Office to Railway's bank (Local SBI Branch).
- (j) The contractor shall be taken print out of the Document of Authorization available on IREPS and present his claim to his bank (advising Bank) for necessary payments as per LC terms and conditions. The claim shall comprise of a copy of Document of Authorisation, Bill of Exchange and Bill.
- (k) The payment against LC shall be subject to verification from Railway's Bank (Local SBI Branch).
- (l) The Contractor 's bank (advising bank) shall submit the documents to the Railway's Bank (Local SBI Branch).
- (m) The railway's bank (issuing bank) shall, after verifying the claim so received w.r.t the digitally signed Document of Authorisation received from Railway Accounts Office, release the payment to contractor's bank (advising bank) for crediting the same to contractor's account.
- (n) Any number of bills can be dealt with in one LC, Provided the sum total of payments to the contractor is within the amount for which LC has been opened.
- (o) The LC shall be closed after the release of final payment including PVC amount if any to the contractor.
- (p) The release of performance guarantee or security deposit shall be dealt directly by railway with the contractor i.e. not through LC.
- (q) For the opening of LC, the executive department shall make a request letter to concerned Accounts department on a format.

3. **TERMS OF PAYMENT:**

a. **PROGRESS PAYMENT:**

- i) On completion of each item of work or part of any item in Schedule on agreed items, the Contractor shall be due for payments to the extent of 95% of the prices for supply and erection included in schedule. Payment will be made based on Schedule rates for the various items of Schedule items, loaded with the percentage quoted by the contractor for schedule items. Balance 5% will be released after attending of remarks of handing over of assets to open line & handing over of released items to open line in the condition they were before release.
- ii) The payment will be arranged to the contractor on submission of bills. In respect of the above claim, the following documentation is to be invariably adhered to
  - a. MRC (material receipt certificate) shall be issued by SSE/E/C/GS for all major items preferably before erection, incase erected, MRC can be issued by checking erected item.
  - b. The following document needed for issue of MRC
    - i) Delivery Challan
    - ii) RITES/Consignee inspection at factory
    - iii) Factory test reports
    - iv) Warranty Certificate
    - v) Authorised Dealership certificate (ADC) if purchased from Other than OEM
    - vi) For Minor item like switches, sockets, bends only delivery challan & ADC
  - c. DPR (Daily progress report) /Joint measurement of works completed is satisfactory issued by CON/PSAA staff.
  - d. Quantity schedule based on DPR.
  - e. After approval of Qty schedule, measurement will be uploaded in online (IRWCMS) by contractor & approved by SSE/C, ADEE/DEE/C, Dy.CEE/C etc.  
  
Note: In case of major item approval for Specification & make shall be obtained before place P.O. on supplier to avoid wrong procurement by ignorance which may lead to rejection later at any time.
  - f. Paying Authority: The Bill paying authority Dy.CEE/Construction/BZA.

b. **ON ACCOUNT PAYMENT OF SUPPLY:** The on-account payment of supply 70% payment on supply of items, 25% after erection & 5% after attending to defects, handing over assets to division & handing over of released items. The document given at 3 (ii) a, b & d are required for on account payment of supply. In addition to this the following are also required.

- a. Should insure the stores till the successful commissioning of the equipment/material.
- b. Submission of indemnity bond for on account payment (in case the materials are kept in the custody of contractor without erection) and for Railway supply materials in form-16.

4. **QUANTITIES SPECIFIED IN SCHEDULE:** The quantity of works indicated either on the drawing or in the schedule of quantities and price part tender documents, are only tentative and the Engineer at site, on behalf of the Railway, shall be entitled by order in writing, to enlarge or extend, diminish or reduce the works or make any alternations in quantities to an extent of 25% of the individual value of the item of the tender. As such, the tenderer shall quote their rates per unit taking this also into consideration no variation in the rates quoted shall be entertained at later date. Payments will be made on prorata basis. Minor modifications, other than the items indicated in schedule if any shall also be carried out at free of cost to the satisfaction of Engineer at site.

5. **PRICE VARIATION CLAUSE 46A of GCC:**

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

- a) Materials supplied by Railway to the Contractors, either free or at fixed rate;
  - b) Any extra item(s) included in subsequent variation falling outside the purview of the Bill(s) of Quantities of tender, under clause 39. (1)(b) of these Standard General Conditions, unless applicability of PVC and 'Base Month' has been specially agreed, while fixing the rates of such extra item(s).
2. **Base Month:** The Base Month for 'Price Variation Clause' shall be taken as the one month prior to closing of tender, unless otherwise stated elsewhere. The quarter for applicability of PVC shall commence from the month following the Base month. The Price Variation shall be based on the average Price Index of the quarter under consideration.
  3. **Validity:** Rates accepted by Railway Administration shall hold good till completion of work and no additional individual claim shall be admissible except:
    - (a) Payment/recovery for increase/decrease in GST on works contract or imposition/removal of any tax/cess on Works Contract as per Clause 37,
    - (b) Payment/recovery for overall market situation as per Price Variation Clause given hereunder.
  4. Components of various items in a contract on which variation in prices be admissible, shall be steel, cement, ferrous material, non-ferrous material, insulators, zinc and other materials, labour, plant & machinery, fuel, explosives, detonators etc. Adjustment for variation in prices of these items shall be determined in the manner prescribed.
  5. No price variation shall be admissible for fixed components.
  6. The percentages of various components in various type of works shall be as specified for all item (s)/ Bill(s) of Quantities in tender document and the same shall be fixed as per table & classifications given below:

**(I) For Civil Engineering Works**

S N	Classification Components		1A, 2 & 3A	4A	5A	6A	7	8A	9A	1B, 3B, 4B, 5B, 6B 8B & 9B	1C, 3C, 4C, 5C, 6C, 8C & 9C	3D, 4D, 5D, 6D, 8D & 9D	3E, 4E, 5E, 6E, 8E & 9E
1	Fixed	*	15	15	15	15	15	15	15	15	15	15	15
2	Labour	L <sub>c</sub>	20	25	30	20	50	20	20	0	0	10	25
3	Steel	S <sub>c</sub>	0	0	0	0	0	0	0	85	0	50	0
4	Cement	C <sub>c</sub>	0	0	15	0	0	0	0	0	85	0	0
5	Plant Machinery & Spares	PM <sub>c</sub>	30	15	5	20	15	20	30	0	0	10	30
6	Fuel & Lubricants	F <sub>c</sub>	25	15	5	15	15	20	15	0	0	10	20
7	Other materials	M <sub>c</sub>	10	15	30	30	5	25	20	0	0	5	10
8	Detonators & Explosive	E <sub>c</sub>	0	15	0	0	0	0	0	0	0	0	0
Total			100	100	100	100	100	100	100	100	100	100	100

\* It shall not be considered for any price variation.

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

**1 Earthwork in Formation**

- 1A All Item(s) excluding 1B or/and 1C
- 1B Item(s) for supply of Steel

1C Item(s) for supply of Cement

**2 Ballast Supply Works**

**3 Tunnelling Works (Without Explosives)**

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

3B Item(s) for supply of Steel

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

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

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

**4 Tunnelling Works (With explosives)**

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

4B Item(s) for supply of Steel

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

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

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

**5 Building Works**

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

5B Item(s) for supply of Steel

5C Item(s) for supply of Cement

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

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

**6 Bridges & Protection work**

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

6B Item(s) for supply of Steel

6C Item(s) for supply of Cement

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

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

**7 Permanent Way linking**

**8 Platform, Passenger Amenities**

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

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

8C Item(s) for supply of Cement Item

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

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

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

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

9B Item(s) for supply of Steel

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

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

Where,

- L Amount of price variation in Labour
- M Amount of price variation in Materials
- F Amount of price variation in Fuel
- E Amount of price variation in Explosives
- PM Amount of price variation in Plant, Machinery and Spares
- S Amount of price variation in Steel Supply Item
- C Amount of price variation in Cement Supply Item
- T Percentage variation payable on the gross value of bill of Concreting (Bill(s) of Quantities for concrete items)
- R Percentage variation payable on the gross value of bill of Ferrous Items (Bill(s) of Quantities for ferrous items)
- N Percentage variation payable on the gross value of bill of Non-Ferrous Items (Bill(s) of Quantities for non-ferrous items)
- I Percentage variation payable on the gross value of bill of Insulator (Bill(s) of Quantities for Insulator items)
- G Percentage variation payable on the gross value of bill of General Works (Bill(s) of Quantities for General items)
- Er Percentage variation payable on the gross value of erection (Bill(s) of Quantities for Erection Item)
- L<sub>C</sub> % of Labour Component in the item(s)
- M<sub>C</sub> % of Material Component in the item(s)
- F<sub>C</sub> % of Fuel Component in the item(s)
- E<sub>C</sub> % of Explosive Component in the item(s)

PM <sub>C</sub>	% of Plant, Machinery and Spares Component in the item(s)
S <sub>C</sub>	% of Steel Supply item Component in the item(s)
C <sub>C</sub>	% of Cement Supply item Component in the item(s)
W	Gross value of work done by Contractor as per on-account bill(s) excluding the Gross value of work under W <sub>S</sub> or/and W <sub>C</sub> or/and W <sub>SF</sub> or/and W <sub>F</sub> or/and W <sub>SFL</sub> or/and W <sub>FL</sub> and cost of materials supplied by Railway either free or at fixed rate,
W <sub>S</sub>	Gross value of work done by Contractor for item(s) of supply of steel.
W <sub>C</sub>	Gross value of work done by Contractor for item(s) of supply of cement and /or supply of grout material.
W <sub>SF</sub>	Gross value of work done by Contractor for item(s) of Fabrication & Erection of Structures including supply of Steel.
W <sub>F</sub>	Gross value of work done by Contractor for Fabrication & Erection of Structures excluding supply of Steel.
W <sub>SFL</sub>	Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders including supply of Steel.
W <sub>FL</sub>	Gross value of work done by Contractor for item(s) of Fabrication, Assembly, Erection / Launching of Girders excluding supply of Steel.
L <sub>B</sub>	Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for the base period
L <sub>Q</sub>	Consumer Price Index for Industrial Workers - All India: Published in R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration
M <sub>B</sub>	Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the base period
M <sub>Q</sub>	Wholesale Price Index: All commodities – as published in the R.B.I. Bulletin for the average price index of the 3 months of the quarter under consideration
F <sub>B</sub>	The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai & Chennai, for the base period
F <sub>Q</sub>	The average of official prices of Diesel available on the official website of 'Petroleum Planning and Analysis cell' under Ministry of Petroleum and Natural Gas for Delhi, Kolkata, Mumbai & Chennai, for the 3 months of the quarter under consideration
E <sub>B</sub>	Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of Economic Adviser, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the base period.
E <sub>Q</sub>	Index number of Monthly Whole Sale Price Index for the category 'Explosive' of (g). Manufacture of other chemical products under (J) MANUFACTURE OF CHEMICALS AND CHEMICAL PRODUCTS, published by Office of Economic Adviser, Govt. of India, Govt. of India, Ministry of Commerce & Industry, Department of Industrial Policy & Promotion (DIPP), for the average price index of 3 months of the quarter under consideration.
PM <sub>B</sub>	Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for 'Manufacture of machinery for mining, quarrying and construction'– published in RBI (Reserve Bank of India) Bulletin, for the base period.
PM <sub>Q</sub>	Index Number of Wholesale Prices in India by Groups and Sub Groups (Averages) for 'Manufacture of machinery for mining, quarrying and construction'– published in RBI (Reserve Bank of India) Bulletin, for the average price index of 3 months of the quarter under consideration.
S <sub>B</sub>	The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the base period.

- $S_Q$  The average rate provided by the Joint Plant Committee for the relevant category of steel item as mentioned in Clause 46A.9; for the 3 months of the quarter under consideration.
- $C_B$  Index No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the base period
- $C_Q$  No. of Wholesale Price Index of sub-group Cement, Lime & Plaster as published in RBI Bulletin for the average price index of the 3 months of the quarter under consideration
- $R_T$  IEEMA price index for Steel Blooms (size 150mmx150mm) for the month which is two months prior to date of inspection of material.
- $R_O$  IEEMA price index for Steel Blooms (size 150mmx150mm) for the month which is one month prior to date of opening of tender.
- $P_T$  IEEMA price index for Copper wire rods for the month which is two months prior to date of inspection of material.
- $P_O$  IEEMA price index for Copper wire rods for the month which is one month prior to date of opening of tender.
- $Z_T$  IEEMA price index for Zinc for the month which is two months prior to date of inspection of material
- $Z_O$  IEEMA price index for Zinc for the month which is one month prior to date of opening of tender
- $I_T$  RBI wholesale price index for the sub-group "Insulators" for the month which is two months prior to date of inspection of material
- $I_O$  RBI wholesale price index for the sub-group "Insulators" for the month which is one month prior to date of opening of tender
8. The demands for escalation of cost shall be allowed on the basis of provisional indices as mentioned in Clause 46A.7. Any adjustment needed to be done based on the finally published indices shall be made as and when they become available.
9. (1) Relevant categories of steel for the purpose of operating Price Variation formula, as mentioned in this Clause shall be as under:

S. No.	Classification	Rates to be used for calculating $S_Q$ or $S_B$
1	Reinforcement bars and other rounds	Average of per tonne rates of 10mm dia TMT & 25mm dia TMT; confirming IS1786; Fe 500
2	All types and sizes of angles, channels and joists	Average of per tonne rates of 'Angle 75x75x6mm, Mild Steel Plate 10mm thickness and Channel 150x75mm; confirming IS2062, E250 Gr "A"
3	All types and sizes of plates	Average of per tonne rates of 'MS Plates 10mm thickness and 25mm thickness; confirming IS2062, E250 Gr "A"
4	Any other section of steel not covered in the above categories	Average of price for the 3 categories covered under SL 1, 2 & 3 in this table.

- (2) Relevant city for referring "JPC (Joint Plant Committee)" rates of steel items ( $S_Q$  / $S_B$ ) in different Zonal Railways shall be as under:

S. No.	City	Railway
1.	Delhi	Northern, North Central, North Eastern, North Western
2.	Kolkata	Eastern, East Central, East Coast, Northeast Frontier, South Eastern, Southeast Central
3.	Mumbai	Central, Western, West Central

4.	Chennai	Southern, South Central & South Western
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10. **Price Variation During Extended Period of Contract:** The price adjustment as worked out above, i.e. either increase or decrease shall be applicable upto the stipulated date of completion of work including the extended period of completion where such extension has been granted under Clause 17A of the Standard General Conditions of Contract. However, where extension of time has been granted due to contractor's failure under Clause 17B of the Standard General Conditions of Contract, price adjustment shall be done as follows:

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

#### **VARIATIONS IN EXTENT OF CONTRACT**

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

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

**(2) (i)** Unless otherwise specified in the special conditions of the contract, the accepted variation in quantity of each individual item of the contract would be upto 25% of the quantity originally contracted, except in case of foundation work (in which no variation limit shall apply). However, the rates for the increased quantities shall be as per sub- para (iii) below.

(ii) The Contractor shall be bound to carry out the work at the agreed rates and shall not be entitled to any claim or any compensation whatsoever upto the limit of 25% variation in quantity of individual item of works.

(iii) In case, an increase in quantity of an individual item by more than 25% of the agreement quantity is considered unavoidable, the 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 up to 150% of the agreement quantity of the concerned item, shall be paid at 96% of the rate awarded for that item in that particular tender;
- c. Variation in quantities of individual items beyond 150% will be avoided and would be permitted only in exceptional unavoidable circumstances and shall be paid at 96% of the rate awarded for that item in that particular tender.



- d. Variation to quantities of Minor Value Item: The limit for varying quantities for minor value items shall be 100% (as against 25% prescribed for other items). A minor value item for this purpose is defined as an item whose original agreement value is less than 1 % of the total original contract value.
- 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;
  - 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;
  - Variation in quantities of individual minor value item beyond 200% will be avoided and would be permitted only in exceptional unavoidable circumstances and shall be paid at 96% of the rate awarded for that item in that particular tender.
  - 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.
  - In case of foundation work, no variation limit shall apply and the work shall be carried out by the Contractor on agreed rates irrespective of any variation.
  - 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).

#### **ADDITIONAL ITEMS:**

**NS Items:** Any NS items of work which are not provided in the schedule of quantities and rates, shall be executed only with the prior approval of the Railway and at rates and conditions as may be mutually agreed upon and incorporated in a supplementary agreement.

**(3) Handling Vitiating during Variation Contract Quantities:** While executing the work, all efforts should be ensured that no vitiating takes place in normal circumstances. Vitiating should be an exemption rather than a routine affair. The following procedure will be adopted in case of occurrence of vitiating.

- a) A contract shall be considered "Vitiating" only when the following percentage variation in contract value between the tenderers are noticed to have been exceeded.

S. No.	Value of contract	Percentage difference between present contractor and new L-1 as a result of variation. (Percentage shall be calculated with base as the revised contract quantities multiplied by the rates of the present contractor)
1	Small value contracts; (Tender value less than Rs. 50 Lakh)	10
2	Other than small value contracts; (Tender value equal to or more than Rs. 50 Lakh)	5

- b) 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.

Railway Tender Accepting Authority (TAA) (Competent for the revised quantity) will examine the feasibility to bring in a new agency by calling fresh tenders to carry out the extra quantity of work keeping in view the progress of the work in accordance with the original contract and the nature and lay-out of the work. Otherwise negotiating the rate with the existing contractor for arriving at a reasonable rate for the additional quantities of work, may be adopted.

Vitiation should always be computed with respect to the items, rates, quantities and conditions as available at the time of Tender Opening and subsequent changes/ additions by way of new items will be counted for computing Vitiatio

**(4)** In case the contractor fails to attend the meeting after being notified to do so or in the event of no settlement being arrived at, the Railway shall be entitled to execute the extra works by other means and the contractor shall have no claim for loss or damage that may result from such procedure.

## **CHAPTER-IV**

### **EXPLANATORY NOTES FOR THE ITEMS IN THE SCHEDULE OF PRICES**

The explanatory notes for various items of work in Tender Schedule are given below:

The tenderer is advised to go through the explanatory notes given below carefully and assess the work involved and quote the prices accordingly.

- 1.** Confirmity to IE Act, IE Rules and standards:
  - i) All Electrical works shall be carried out in accordance with the provisions of Indian Electricity Act, 1910 and Indian Electricity Rules, 1956 amended up to date.
  - ii) The work shall also confirm to relevant Indian Standard Codes of Practice for the type of work involved.
  - iii) In all electrical installation works, relevant safety codes of practice shall be followed.
- 2.** The successful tenderer should complete the work in all respects and submit, on completion of the works, necessary test certificates / report and also the "as erected drawings" required for obtaining the EIGs sanction to commission the equipments.
- 3.** The quantities of components and materials required to make up a unit of work for selected items are indicated for guidance only. There may be minor variations to suit erection but no adjustment in prices of schedule shall be made on that account. In estimating the prices for various items of work, provision for loss and wastage in transit and erection should be catered for over and above the basic quantities of components and materials required to make up a unit of work, indicated herein, except for materials supplied by the purchaser.
- 4.** All the materials supplied by the Purchaser shall be correctly accounted and quantities reconciled on completion of the work by the contractor. On completion of work, all surplus materials supplied by the purchaser together with the ones found defective or have become defective or broken on account of defective materials and/or workmanship shall be returned to the purchaser.
- 5.** If there are any shortages during final reconciliation, their cost will be recovered by the purchaser from the contractor at the book rate or the last purchase rate or the prevailing market rate whichever is higher plus 5% on account of initial freight, 2% on account of incidental charges together with supervision charges at 12.5% of the total cost inclusive of material, freight and incidental charges. Freight between the purchasers source of supply and the contractors depot or place of work shall be to the contractor's account.
- 6.** The rail poles wherever mentioned will be supplied by the purchaser. The contractor has to arrange for cutting to required length, loading, un-loading and transportation of the same from the nearest possible railway depot at the convenience of Railway Administration.
- 7.** It shall be the responsibility of the contractor to safe guard the complete installation until the same is taken over by the authorized representative of Railways after satisfactory tests.
- 8.** All the Electrical Installations shall be properly protected and provided with conventional danger and caution boards indicating the system voltage etc. with white paint on red back ground wherever necessary and also as per the directives of the Engineer at site.
- 9.** The acceptance of the supply is subject to the inspection by the consignee.
- 10.** These conditions shall be binding on the contractor in addition to the General conditions of the contracts for Electrical works of South Central Railway.

<b>Name of the Work:</b> Electrical Construction/GTL: Guntakal Division: - Guntakal Division: - Shifting/Modification of existing power line crossings of 33 kV, 11 kV HT and LT lines, shifting of DTRs, and modification of parallel lines at various locations between CHELLUR and PUDI stations in connection with the construction of the new bypass line between Yerpedu and Pudi stations.	
<b>Schedule-A: Shifting/Modification to 33 kV HT Over Head Power Line Crossings</b>	
1	<b>SUPPLY &amp; ERECTION OF D.P. STRUCTURE:</b> The price shall cover Supply and erection of Double pole structure by pre-stressed cement concrete poles of 9.1 metres long 280 KG working load confirming to IS 1678:1998 or latest as per approved Drawing as per State Electricity Board Norms.
2	<b>SUPPLY &amp; ERECTION OF D.P. STRUCTURE:</b> Supply and erection of Double pole structure by PSCC circular spun poles of 12.5 metres long 350 KG working load confirming to IS 13158:1991 or latest as per approved Drawing as per State Electricity Board Norms
3	<b>M-type Galvanized Steel Towers:</b> Design, supply, Fabrication and erection of M-type Galvanized Steel Towers of suitable height etc. including cross arms as per the direction of site Engineer & State Electricity Board norms complete. The item shall include fabrication from tested structural steel sections, hot dip galvanization conforming to IS:2629 & IS:4759, erection, alignment, tightening, tack welding of nuts, painting of stub portions below ground level with bituminous paint and all incidental works complete. M-Type lattice steel tower of suitable height and configuration complete with cross arms, peak, danger plates, anti-climbing devices, phase plates, number plates, hangers, clamps and all tower accessories as per approved drawings and State Electricity Board/APTRANSCO specifications.
4	<b>Excavation of pit:</b> Excavation of pit for M-type tower of size 1.2x1.2x3.3 mtr in all types of soil and Hard rock sites as per the State Electricity Board norms and as per the instruction of site Engineer
5	Supply and fixing of dip galvanized bolts, Zinc coated nuts, flat washers and spring washers etc including Tack welding of total tower nuts and bolts
6	<b>Concreting:</b> Setting of stubs in position for laying of foundation of towers with 1:2:4 cc mix using 40 mm HBG metal including cost of all concreting materials and cement, form boxes and curing for 14 days
7	<b>SUPPLY, FABRICATION &amp; FIXING OF MS CHANNELS AND ANGLES:</b> The price shall cover supply, fabrication & fixing of MS channels and angles of sizes either ISMC 150mmx75mmx6mm and ISA 75mmx75mmx6mm or any other dimension as per site Engineer based on the requirement from concerned Electricity Board Engineer at site including necessary clamps, bolts, nuts, washers including painting with Two coats of red oxide, one coat of aluminum with all connected accessories etc. for double pole structure with PSCC poles mentioned in item No. 1 above.
8	Supply and erection of PSCC circular spun pole of 12.5 metres long 350 KG working load confirming to IS 13158:1991 or latest as per State Electricity Board Norms
9	<b>SUPPLY &amp; ERECTION OF 9.1 METRES POLES:</b> The price shall cover supply and erection of pre-stressed cement concrete pole of 9.1 metres long 280 kg working load confirming to IS 1678:1998 or latest and filling up the pit with concrete mixture including coping, finishing for each pole.
10	<b>SUPPLY &amp; ERECTION OF 8.0 METERS POLES:</b> The price shall cover supply and erection of pre-stressed cement concrete pole of 8.0 metres long 200 kg working load confirming to IS 1678:1998 or latest and filling up the pit with concrete mixture including coping, finishing for each pole.
11	Supply and erection of single Guy arrangement with Guy wire of size 7/2.50mm, clamp, turn buckle, stay insulator, end making of Guy wire, anchor rod and plate with anchor assembly.
12	<b>EXCAVATION OF PIT:</b> The price shall cover "Excavation of pit of size 700mmX700x1500mm (or) any other dimension as per site condition for PSSC poles/Rail pole/Tubular pole and Rail strut & Stay as per instruction of

	Site Engineer & as per State Electricity Board Norms."
13	<b>MASS CONCRETING FOR POLES:</b> The price shall cover Mass concreting of erected poles/strut poles/stay poles and stay sets with Pit of size 700mm x 700mm x 1500mm (0.735 cum) or any other dimensions as per site requirement and direction of site Engineer based on the requirement from concerned Electricity Board Engineer with CC (1:3:6) using 40mm size metal including the cost of metal, sand, cement and curing etc.
14	<b>COPING OF POLES:</b> The price shall cover Copping of poles/stay poles/stays with a height of size 470mm x 450mm x 450mm (0.095 cum) or any other dimensions as per site requirement and direction of site Engineer based on the requirement from concerned Electricity Board Engineer at site with CC (1:3:6) using 20mm size metal including the cost of metal, sand, cement and curing etc.
15	<b>SUPPLY &amp; FIXING OF 33 kV POLY DISC INSULATORS:</b> The price shall cover supply, fixing and connecting of 33 kV poly Disc insulators (i.e. 3 Nos. of 11 kV is 1 set) with metal parts including nuts, bolts, washers etc.
16	<b>SUPPLY &amp; FIXING OF 33 kV POLY PIN INSULATOR:</b> The price shall cover supply, fixing and connecting of 33 kV poly pin insulators with metal parts including nuts, bolts, washers etc.
17	<b>SUPPLY &amp; FIXING OF 'V' CROSS ARMS:</b> The price shall cover supply and fixing of 'V' channel type HT cross arms with clamps, bolts, nuts, washers etc. The 'V' cross arms shall be painted with one coat of red oxide and two coats of Aluminium paint wherever required as per instructions of site Engineer.
18	<b>SUPPLY &amp; FIXING OF TOP CLAMPS WITH CLEAT:</b> The price shall cover supply, fabrication and fixing of top clamps with cleat suitable for 33 kV overhead line. The top clamps shall be painted with one coat of red oxide and two coats of Aluminium paint wherever required as per instructions of site Engineer.
19	<b>SUPPLY &amp; STRINGING OF HT OH MAINS:</b> The price shall cover supply and stringing of 33 kV HT OH mains with AAAC of size 100 Sq.mm. (7/4.26 AAAC/Dog) confirming to IS:398 Part-II or latest on the insulators including binding of wires connecting of jumpers as per standards and instructions of site Engineer.
20	<b>EXCAVATION OF CABLE TRENCH:</b> The price shall cover Excavation of cable trench in ordinary soil of size 450mm width x1250mm deep and duly fixing the trench with earth ramming well in stages to bring the surface in full conformity as per specification No. CEE/CON/STD-7. The exact route of the HT cables is to be decided in consultation with site Engineer.
21	<b>EXCAVATION OF CABLE TRENCH IN ROCKY SOIL:</b> The price shall cover Excavation of cable trench duly breaking the existing rocky soil of size 450mm width x1250mm deep. The flooring shall be made good condition as original by the contractor after completion of trenching work up to the satisfaction of the Engineer at site. The exact route of the HT cables is to be decided in consultation with site Engineer.
22	<b>SUPPLY &amp; LAYING OF HDPE PIPE:</b> The price shall cover supply and laying of HDPE pipe of PE-80 grade in PN-4 size 6" inner dia and outer dia of HDPE pipe 160 mm and wall thickness minimum 6.2 mm, maximum 7.1 mm with joints, bends, elbows etc. including all accessories etc. for laying of HT cable.
23	Supply, providing, erection, testing and commissioning of 800 Amps, 33kV AB switch assembling etc. Gang operated outdoor type complete with operating rod, insulators, GI operating pipe, base channel and danger board complete.
24	<b>SUPPLY &amp; LAYING OF 33 kV HT XLPE CABLE:</b> The price shall cover supply & laying of 33 kV grade cross linked polyethylene (XLPE) power cable, PVC sheathed, 3 core 400 sq.mm. size confirming to IS:7098/Part-II/2011 or latest. The cost includes proper storage, Handling, transportation etc. The cables shall be supplied along with test certificates of manufacturers. Including cable pulling, dressing, end sealing, testing before and after laying, megger testing, HV withstand test and obtaining approval from concerned DISCOM authorities.
25	<b>SUPPLY &amp; ERECTION OF 33 kV CABLE END TERMINATION KITS:</b> The price shall cover supply, connecting, fixing and commissioning of HT 33 kV grade end termination kit, heat shrinkable,

	<p>outdoor/indoor/straight type suitable for 3 core 400 sq.mm. size of XLPE earthed system cables complete with suitable jumpers, bolts, nuts, washers, lugs etc.</p> <p>The Heat shrinkable cable kits shall be comprised of material in an expanded form which on application of heat shrinks down to a predetermined diameter adhering to any conductor size between firmly and simultaneously the inside coating if any melts and seals the ends.</p> <p>The kit shall essentially contain the following components.</p> <ol style="list-style-type: none"> <li>Lug sealing tape</li> <li>Terminal connector</li> <li>Conductor</li> <li>Terminal sleeve</li> <li>Rain shed</li> <li>Gland sleeve adhesive</li> <li>Armour bonding braid</li> <li>Worm drive clip.</li> <li>Copper /Brass earthing screen</li> <li>Spring clamp etc.</li> </ol>
26	<p><b>Heat shrinkable straight through jointing kits:</b></p> <p>Supply, fixing, connecting, testing and commissioning of 33 kV HT heat shrinkable straight through jointing kits suitable for 3 core 400 Sq.mm. 33 kV XLPE HT UG cable including all accessories confirming to IS: 13573/Part-II/2011 or latest.</p>
27	<p><b>SUPPLY &amp; LAYING OF GI WIRE:</b> The price shall cover supply and laying of 6 SWG GI wire along with cable in different type of trenches/GI pipe as per instructions of site Engineer.</p>
28	<p>Supply of earth pit materials and construction of earth pit as per IS 3043:1987 specification. This item also includes of supply and erection of CI pipe of size of 100mm inner diameter, 13mm thickness and 3000mm length. This work also includes of fabrication and fixing of GI strips for earthing connection. Laying of 50 mm × 6 mm GI strip / 8 SWG GI wire for structure earthing. Excavated eathpit should be filled by mixture of coke/charcoal, salt and sand up to top. Provision of brick masonry chamber of size 650mmx650mm and depth upto 1000mm including light type CI cover frame and applying 12mm thick cement plaster in 1:3 inside and to all the exposed faces up to 300mm below. Foundation level, curing etc., All required materials for this job such as CI pipe cover with frame, salt, cement sand, charcoal gravel, bricks etc required bolts, nuts and double washers,number plates or painted plates. Tentative quantity of salt and charcoal shall be of 2.5CMt. The CI pipe should bepainted with 2 coats of bitumen paint as per the directions of Rly engineer at site. Note:The work should be strictly done as per IS 3043:1987 specification or latest. Earth resistance testing and stenciling values on pit.</p>
29	<p><b>SUPPLY &amp; FIXING OF GI PIPE:</b> The price shall cover supply and fixing of GI pipe of 6” dia “B” class (Medium) as per IS:1239 to the structure/walls/rail poles with suitable clamps, bolts, nuts, washers etc. for supporting cables. The clamps shall be painted with one coat of red oxide and two coats of aluminium paint. The MS clamps shall be fixed at an interval of not more than 1.0 meter and also as per instructions of site Engineer.</p>
30	<p><b>SUPPLY &amp; FIXING OF DANGER BOARDS:</b> The price shall cover supply, fixing of danger boards in Hindi, English and Regional language on enameled steel plate with clamps, bolts and nuts complete with all other connected materials and works including all accessories as per instructions of site Engineer.</p>
31	<p><b>SUPPLY &amp; FIXING OF CABLE CROSSING DETAIL BOARD:</b> The price shall cover supply and fixing of cable crossing detail board in English on MS plate of 3mm thick with clamps, bolts, nuts etc. (Screen printing on Board) as per the details given in the drg. No. DEE/CN/BZA/2001/24 and instructions of site Engineer.</p>
32	<p><b>SUPPLY &amp; FIXING OF ANTI CLIMBING DEVICES:</b> The price shall cover supply and fixing of anti climbing devices on DP structures with clamps, bolts, nuts etc. as per instructions of site Engineer.</p>
33	<p><b>HORIZONTAL DRILLING OF BORE:</b> The price shall cover Horizontal drilling of bore at two metres below the track or formation level suitable for laying of 33 kV HT XLPE UG cable of 3 core 400 Sq.mm size through 6” HDPE pipe. Horizontal directional drilling including pilot boring, reaming, insertion of HDPE pipe, restoration of surface, dewatering if required and all consumables complete.</p>

34	<b>SUPPLY &amp; FIXING OF CABLE ROUTE INDICATORS:</b> The price shall cover supply and fixing of cable route indicators at a distance of 6 meters longitudinally as per Drg. No. DEE/CN/2001/23. The indicators shall be cast iron with MS stem as per the details given in the drawing. The cable marker shall be painted with 3 coats of red oxide. One coat before providing at site and another after positioning and cementing.
35	<b>DISMANTLING OF 33 KV HT OH MAINS:</b> The price shall cover Dismantling of 33 kV HT overhead mains including Guarding, insulators, cross arms etc. on RCC/RSJ/PSCC/DP/Tower and handing over the same to concerned supervisor of supply authorities at his stores. Transportation of dismantled Towers, poles, conductors, transformers and accessories to stores. Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.
36	<b>DISMANTLING OF 33 kV TOWER:</b> The price shall cover Dismantling of 33 kV Tower and handing over the same to concerned supply authorities at his store. Transportation of dismantled Towers, poles, conductors, transformers and accessories to stores. Note: All released materials are to be handed over to concerned supply authorities and acknowledgements are to be furnished along with final bill.
37	<b>DISMANTLING OF RSJ/RCC/TUBULAR POLES:</b> The price shall cover Dismantling of RSJ/RCC/Tubular poles and handing over the same to the concerned supervisor of maintenance at his stores. Transportation of dismantled Towers, poles, conductors, transformers and accessories to stores. Note: All released materials are to be handed over to concerned supply authorities and acknowledgements are to be furnished along with final bill.
38	<b>PREPARATION OF COMPLETION DRAWINGS:</b> The price shall cover Preparation and submission of completion drawings in A3 size with all relevant details and measurements of executed power line crossings and transmission power line crossing. The drawings shall be submitted in 1+6 copies along with AUTOCAD CD duly signed by the concerned APSPDCL authorities and to be furnished along with final bill.
<b>Schedule-B: Shifting/Modification to 11 kV HT Over Head Power Line Crossings</b>	
1	<b>SUPPLY &amp; ERECTION OF D.P. STRUCTURE:</b> The price shall cover Supply and erection of Double pole structure by pre-stressed cement concrete poles of 9.1 metres long 280 KG working load confirming to IS 1678:1998 or latest as per approved Drawing as per State Electricity Board Norms.
2	<b>SUPPLY, FABRICATION &amp; FIXING OF MS CHANNELS AND ANGLES:</b> The price shall cover supply, fabrication & fixing of MS channels and angles of sizes either ISMC 150mmx75mmx6mm and ISA 75mmx75mmx6mm or any other dimension as per site Engineer based on the requirement from concerned Electricity Board Engineer at site including necessary clamps, bolts, nuts, washers including painting with Two coats of red oxide, one coat of aluminum with all connected accessories etc. for double pole structure with PSCC poles mentioned in item No. 1 above.
3	<b>SUPPLY &amp; ERECTION OF 9.1 METRES POLES:</b> The price shall cover supply and erection of pre-stressed cement concrete pole of 9.1 metres long 280 kg working load confirming to IS 1678:1998 or latest and filling up the pit with concrete mixture including coping, finishing for each pole.
4	<b>SUPPLY &amp; ERECTION OF 8.0 METERS POLES:</b> The price shall cover supply and erection of pre-stressed cement concrete pole of 8.0 metres long 200 kg working load confirming to IS 1678:1998 or latest and filling up the pit with concrete mixture including coping, finishing for each pole.
5	<b>Excavation of Pit:</b> The price shall cover "Excavation of pit of size 700mmX700x1500mm (or) any other dimension as per site condition for PSSC poles/Rail pole/Tubular pole and Rail strut & Stay as per instruction of Site Engineer & as per State Electricity Board Norms."
6	<b>MASS CONCRETING FOR POLES:</b> The price shall cover Mass concreting of erected poles/strut poles/stay

	poles and stay sets with Pit of size 700mm x 700mm x 1500mm (0.735 cum) or any other dimensions as per site requirement and direction of site Engineer based on the requirement from concerned Electricity Board Engineer with CC (1:3:6) using 40mm size metal including the cost of metal, sand, cement and curing etc.
7	<b>COPING OF POLES:</b> The price shall cover Coping of poles/stay poles/stays with a height of size 470mm x 450mm x 450mm (0.095 cum) or any other dimensions as per site requirement and direction of site Engineer based on the requirement from concerned Electricity Board Engineer at site with CC (1:3:6) using 20mm size metal including the cost of metal, sand, cement and curing etc.
8	<b>Supply, fixing and connecting of Disc insulators:</b> The price shall cover supply, fixing and connecting of 11 kV Poly Disc insulators with metal parts including nuts, bolts, washers etc.
9	<b>Supply, fixing and connecting of pin insulators:</b> The price shall cover supply, fixing and connecting of 11 kV poly pin insulators with metal parts including nuts, bolts, washers etc.
10	<b>SUPPLY &amp; FIXING OF ‘V’ CROSS ARMS:</b> The price shall cover supply and fixing of ‘V’ channel type HT cross arms with clamps, bolts, nuts, washers etc. The ‘V’ cross arms shall be painted with one coat of red oxide and two coats of Aluminium paint wherever required as per instructions of site Engineer.
11	<b>SUPPLY &amp; FIXING OF TOP CLAMPS WITH CLEAT:</b> The price shall cover supply, fabrication and fixing of top clamps with cleat suitable for 11 kV overhead line including all connected accessories etc. The top clamps shall be painted with one coat of red oxide and two coats of Aluminium paint wherever required as per instructions of site Engineer.
12	<b>SUPPLY &amp; STRINGING OF HT OH MAINS:</b> The price shall cover supply and stringing of 11 kV HT OH mains with AAAC of size 55 Sq.mm. (7/3.15 AAAC/Rabbit) conforming to IS:398/Part-IV/1994 or latest on the insulators including binding of wires connecting of jumpers as per standards and instructions of site Engineer.
13	<b>SUPPLY &amp; FIXING OF CABLE ROUTE INDICATORS:</b> The price shall cover supply and fixing of cable route indicators at a distance of 6 meters longitudinally as per Drg. No. DEE/CN/2001/23. The indicators shall be cast iron with MS stem as per the details given in the drawing. The cable marker shall be painted with 3 coats of red oxide. One coat before providing at site and another after positioning and cementing.
14	<b>EXCAVATION OF CABLE TRENCH:</b> The price shall cover Excavation of cable trench in ordinary soil of size 450mm width x1250mm deep and duly fixing the trench with earth ramming well in stages to bring the surface in full conformity as per specification No. CEE/CON/STD-7. The exact route of the HT cables is to be decided in consultation with site Engineer.
15	<b>EXCAVATION OF CABLE TRENCH IN ROCKY SOIL:</b> The price shall cover Excavation of cable trench in rocky soil of size 450mm width x1250mm deep duly breaking the rock/CC/Tar/RCC Road etc. The flooring shall be made good condition as original by the contractor duly filling with a layer of sand, bricks, cement etc. after laying of the cable and completion of trenching work up to the satisfaction of the Engineer at site. The exact route of the HT cables is to be decided in consultation with site Engineer.
16	<b>Supply and laying of HDPE Pipe:</b> The price shall cover supply and laying of HDPE Pipe of PE-80 grade in PN-4 size 6" inner dia and outer dia of 160 mm and wall thickness minimum 6.2 mm maximum 7.1 mm with joints, bends, elbows etc. including all other connected accessories.



17	<p><b>SUPPLY &amp; LAYING OF 11 kV HT XLPE CABLE:</b></p> <p>The price shall cover supply &amp; laying of 11 kV grade cross linked polyethylene (XLPE) power cable, PVC sheathed, 3 core 240 sq.mm. size confirming to IS:7098/Part-II/2011 or latest. The cost includes proper storage, Handling, transportation etc. The cables shall be supplied along with test certificates of manufacturers. Including cable pulling, dressing, end sealing, testing before and after laying, megger testing, HV withstand test and obtaining approval from concerned DISCOM authorities.</p>
18	<p><b>SUPPLY &amp; ERECTION OF CABLE END TERMINATION KITS FOR 11 kV:</b></p> <p>The price shall cover supply, connecting, fixing and commissioning of HT 11 kV grade end termination kit, heat shrinkable, outdoor/indoor/straight type confirming to IS: 13573/Part-II/2011 suitable for 3 core 240 sq.mm. size of XLPE earthed system cables complete with suitable jumpers, bolts, nuts, washers, lugs etc.</p> <p>The Heat shrinkable cable kits shall be comprised of material in an expanded form which on application of heat shrinks down to a predetermined diameter adhering to any conductor size between firmly and simultaneously the inside coating if any melts and seals the ends.</p> <p>The kit shall essentially contain the following components.</p> <ol style="list-style-type: none"> <li>Lug sealing tape</li> <li>Terminal connector</li> <li>Conductor</li> <li>Terminal sleeve</li> <li>Rain shed</li> <li>Gland sleeve adhesive</li> <li>Armour bonding braid</li> <li>Worm drive clip.</li> <li>Copper /Brass earthing screen</li> <li>Spring clamp etc.</li> </ol>
19	<p>The price shall cover supply, fixing, connecting, testing and commissioning of 11 kV HT heat shrinkable straight through jointing kits suitable for 3 core 240 Sq.mm 11 kV XLPE HT UG cable including all accessories confirming to IS: 13573/Part-II/2011 or latest.</p>
20	<p><b>SUPPLY &amp; LAYING OF GI WIRE:</b></p> <p>The price shall cover supply and laying of 6 SWG GI wire along with cable in different type of trenches/GI pipe as per instructions of site Engineer.</p>
21	<p><b>Earth Electrode:</b></p> <p>Supply of earth pit materials and construction of earth pit as per IS 3043:1987 specification. This item also includes supply and erection of CI pipe of size of 100mm inner diameter, 13mm thickness and 3000mm length. This work also includes of fabrication and fixing of GI strips for earthing connection. laying of 50 mm × 6 mm GI strip / 8 SWG GI wire for structure earthing. Excavated earth pit should be filled by mixture of coke/charcoal, salt and sand up to top. Provision of brick masonry chamber of size 650mmx650mm and depth upto 1000mm including light type CI cover frame and applying 12mm thick cement plaster in 1:3 inside and to all the exposed faces up to 300mm below. Foundation level, curing etc., All required materials for this job such as CI pipe cover with frame, salt, cement sand, charcoal gravel, bricks etc required bolts, nuts and double washers, number plates or painted plates. Tentative quantity of salt and charcoal shall be of 2.5CMt. The CI pipe should be painted with 2 coats of bitumen paint as per the directions of Rly engineer at site. Note: The work should be strictly done as per IS 3043:1987 specification or latest. Earth resistance testing and stenciling values on pit.</p>
22	<p><b>SUPPLY &amp; FIXING OF GI PIPE:</b></p> <p>The price shall cover supply and fixing of GI pipe of 6" dia "B" class (Medium) as per IS:1239 to the structure/walls/rail poles with suitable clamps, bolts, nuts, washers etc. for supporting cables. The clamps shall be painted with one coat of red oxide and two coats of aluminium paint. The MS clamps shall be fixed at an interval</p>

	of not more than 1.0 meter and also as per instructions of site Engineer.
23	<b>SUPPLY &amp; FIXING OF DANGER BOARDS:</b> <p>The price shall cover supply, fixing of danger boards in Hindi, English and Regional language on enameled steel plate with clamps, bolts and nuts complete with all other connected materials and works including all accessories as per instructions of site Engineer.</p>
24	<b>SUPPLY &amp; FIXING OF CABLE CROSSING DETAIL BOARD:</b> <p>The price shall cover supply and fixing of cable crossing detail board in English on MS plate of 3mm thick with clamps, bolts, nuts etc. (Screen printing on Board) as per the details given in the drg. No. DEE/CN/BZA/2001/24 and instructions of site Engineer.</p>
25	<b>SUPPLY &amp; FIXING OF ANTI CLIMBING DEVICES:</b> <p>The price shall cover supply and fixing of anti-climbing devices on DP structures with clamps, bolts, nuts etc. as per instructions of site Engineer.</p>
26	<b>HORIZONTAL DRILLING OF BORE:</b> <p>The price shall cover Horizontal drilling of bore at 2 metres below the track or formation level suitable for laying of 11 kV HT XLPE UG cable of 3 core 240 Sq.mm size through 6" HDPE pipe. Horizontal directional drilling including pilot boring, reaming, insertion of HDPE pipe, restoration of surface, dewatering if required and all consumables complete.</p>
27	<b>REMOVING OF EXISTING TRANSFORMERS:</b> <p>The price shall cover Removing of existing transformer and shifting erection, testing and commissioning of the same with all other connected accessories etc. at new location as per the instructions of site Engineer. Including dismantling of all jumpers, LT connections, earthing, transportation, unloading, re-erection, oil level checking, testing and commissioning complete.</p>
28	<b>CONSTRUCTION OF TRANSFORMER PLINTH:</b> <p>The price shall cover Excavation of pit of size 1.5mx1.5mx1.5m deep and provision of foundation with cement concrete mixture of 1:3:6 ratio stone wall etc. Construction of plinth above ground level 1.5mx1.5mx1.5meters height with stones, stone wall and cement concrete ratio 1:3:6, on top of the plinth two channels of 100x50x6mm size of 1.5 meters long embedded in concrete shall be provided for keeping the transformer on wheels including all accessories.</p>
29	<b>SUPPLY &amp; ERECTION OF A.B. SWITCH:</b> <p>The price shall cover supply, erection, testing and commissioning of 11KV, AB switch, 400 A capacity, triple pole, vertical mounting, gang operated, three insulator type with necessary operating rod conforming to IS: 9921/1982 with pad lock and keys complete with fixing of necessary base and handle with M.S clamps on 2 pole structure with clamps, bolts, nuts, washers etc. The scope of work includes supply of manufacturers test report of the equipment. Gang operated outdoor type complete with operating rod, insulators, GI operating pipe, base channel and danger board.</p>
30	<b>SUPPLY &amp; ERECTION OF DROP OUT FUSE SWITCH:</b> <p>The price shall cover supply, erection, testing, and commissioning of 11KV, vertical type, drop out fuse and operating rod complete with fixing on 2 pole structure with clamps, bolts nuts washers etc. The cost includes all the required clamps, bolts, nuts etc. The scope work includes supply of manufacturers test report of the equipment.</p>
31	<b>SUPPLY &amp; ERECTION OF LIGHTNING ARRESTORS:</b> <p>The price shall cover supply, erection testing and commissioning of 3 Nos. of lightening arrestors, outdoor line type as per IS:3070 of 1985 or latest to work on 11KV line on DP structure with necessary clamps etc. as required. The lightening arrestors shall be connected to two independent earths as per the I.E. Rules. The cost includes all the items such as clamps, bolts, earthing etc.</p>

32	<p><b>SUPPLY &amp; FIXING OF DISTRIBUTION BOARD:</b></p> <p>The price shall cover supply, erection, testing and commissioning of pre-wired sheet steel, 240/440 volts 50 Hz, single/Three phase ac supply on surface/ recess/rail pole/wall lockable distribution board completely suitable for vermin/insect proof along with Neoprene gasket etc. with specified switch gear of MCBs/MCCBs with single phase/3 phase and neutral bus bars neutral link, earth bar, DIN bar, detachable gland plate, inter connections painting arrangements including earth terminals and 8 SWG earth continuity wire and other connected accessories as required for the work. The DB shall be fixed duly grouted to the wall as per the requirement of Engineer at site.</p>
33	<p><b>DISMANTLING OF AB SWITCH &amp; DROPOUT FUSE &amp; LA:</b></p> <p>The price shall cover Dismantling of AB switch, Dropout fuse, LA and handing over the same to concerned SEB authorities. Transportation of dismantled Towers, poles, conductors, transformers and accessories to stores.</p> <p>Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.</p>
34	<p><b>DISMANTLING OF 11 KV HT OH MAINS:</b></p> <p>The price shall cover Dismantling of 11 kV HT overhead mains including Guarding, insulators, cross arms etc. on RCC/RSJ/PSCC/DP/Tower and handing over the same to concerned supervisor of supply authorities at his stores. Transportation of dismantled Towers, poles, conductors, transformers and accessories to stores.</p> <p>Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.</p>
35	<p><b>DISMANTLING OF RSJ/RCC/TUBULAR POLES:</b></p> <p>The price shall cover Dismantling of RSJ/RCC/Tubular poles and handing over the same to the concerned supervisor of maintenance at his stores. Transportation of dismantled Towers, poles, conductors, transformers and accessories to stores.</p> <p>Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.</p>
36	<p><b>PREPARATION OF COMPLETION DRAWINGS:</b></p> <p>The price shall cover Preparation and submission of completion drawings in A3 size with all relevant details and measurements of executed power line crossings and transmission power line crossing. The drawings shall be submitted in 1+6 copies along with AUTOCAD CD duly signed by the concerned SEB authorities and to be furnished along with final bill.</p>
<b>SCHEDULE-C: Shifting/Modification of LT Over Head Power Line Crossings</b>	
1	<p><b>SUPPLY &amp; ERECTION OF 9.1 METRES POLES:</b></p> <p>The price shall cover supply and erection of pre-stressed cement concrete pole of 9.1 metres long 280 kg working load confirming to IS 1678:1998 or latest and filling up the pit with concrete mixture including coping, finishing for each pole.</p>
2	<p><b>SUPPLY &amp; ERECTION OF 8.0 METERS POLES:</b></p> <p>The price shall cover supply and erection of pre-stressed cement concrete pole of 8.0 metres long 200 kg working load confirming to IS 1678:1998 or latest and filling up the pit with concrete mixture including coping, finishing for each pole.</p>
3	<p><b>EXCAVATION OF PIT:</b></p> <p>The price shall cover Excavation of pit of size 700mmx700mmx1500mm for erection of PSCC poles as per instruction of site Engineer.</p>
4	<p><b>MASS CONCRETING FOR POLES:</b></p> <p>The price shall cover Mass concreting of erected poles/strut poles/stay poles and stay sets with Pit of size</p>

	700mm x 700mm x 1500mm (0.735 cum) or any other dimensions as per site requirement and direction of site Engineer based on the requirement from concerned Electricity Board Engineer with CC (1:3:6) using 40mm size metal including the cost of metal, sand, cement and curing etc.
5	<b>COPING OF POLES:</b> <p>The price shall cover Coping of poles/stay poles/stays with a height of size 470mm x 450mm x 450mm (0.095 cum) or any other dimensions as per site requirement and direction of site Engineer based on the requirement from concerned Electricity Board Engineer at site with CC (1:3:6) using 20mm size metal including the cost of metal, sand, cement and curing etc.</p>
6	<b>SUPPLY OF LT POLY PIN INSULATOR:</b> <p>The price shall cover supply, fixing of LT poly pin insulators with metal parts including nuts, bolts, washers etc.</p>
7	<b>SUPPLY OF 4'-4 WAY CROSS ARMS:</b> <p>The price shall cover supply and fixing of 4'-4 way cross arm with Angle Type LT cross arms with clamps, bolts, nuts, washers. The LT cross arms shall be painted with one coat of red oxide and two coats of Aluminium paint wherever requires as per site Engineer etc.</p>
8	<b>STRINGING OF LT OH MAINS:</b> <p>The price shall cover supply and stringing of LT OH mains with AAAC of size 34 Sq.mm. (7/2.5 AAAC/Weasel) confirming to IS:398/Part-IV/1994 or latest. The price also includes supply and stringing of HT overhead mains on the insulators including binding of wires connecting of jumper as per standards and instruction of the Engineer at site.</p>
9	<b>SUPPLY &amp; FIXING OF CABLE ROUTE INDICATORS:</b> <p>The price shall cover supply and fixing of cable route indicators at a distance of 6 metres longitudinally as per Drg. No. DEE/CN/2001/23&amp;24. The indicators shall be cast iron with MS stem as per the details given in the drawing. The cable marker shall be painted with 3 coats of red oxide. One coat before providing at site and another after positioning and cementing.</p>
10	<b>EXCAVATION OF LT/HT CABLE TRENCH:</b> <p>The price shall cover Excavation of cable trench in ordinary soil of size 450mm width x1250mm deep and duly fixing the trench with earth ramming well in stages to bring the surface in full conformity as per specification No. CEE/CON/STD-7. The exact route of the LT cable and HT cables is to be decided in consultation with Engineer in-charge.</p>
11	<b>EXCAVATION OF CABLE TRENCH IN ROCKY SOIL:</b> <p>The price shall cover Excavation of cable trench in rocky soil of size 450mm width x1250mm deep duly breaking the rock/CC/Tar/RCC Road etc. The flooring shall be made good condition as original by the contractor duly filling with a layer of sand, bricks, cement etc. after laying of the cable and completion of trenching work up to the satisfaction of the Engineer at site. The exact route of the HT cables is to be decided in consultation with site Engineer.</p>
12	<b>SUPPLY OF HDPE PIPE FOR LAYING OF CABLES:</b> <p>The price shall cover supply and laying of HDPE (High Density Polyethylene) pipe of PE-80 grade in PN-4 size 4" inner dia and outer dia of HDPE pipe 110 mm and wall thickness minimum 4.3 mm, maximum 4.8mm with 'T' joints, bends, elbows etc. including all accessories.</p>
13	<b>SUPPLY OF HDPE PIPE FOR LAYING OF CABLES:</b> <p>The price shall cover supply and laying of HDPE (High Density Polyethylene) pipe of PE-80 grade in PN-4 size 2" inner dia and outer dia of HDPE pipe 63 mm and wall thickness minimum 2.5 mm, maximum 2.8 mm with 'T' joints, bends, elbows etc. including all accessories.</p>
14	<b>SUPPLY &amp; FIXING OF GI PIPE:</b>

	<p>The price shall cover supply and fixing of 4" dia GI pipe of "B" class (Medium) as per IS:1239 to the structure/ walls/rail poles with suitable clamps, bolts, nuts, washers etc. for supporting cables. The clamps shall be painted with one coat of red oxide and two coats of aluminum paint. The MS clamps shall be fixed at an interval of not more than 1.0 meter and also as per the requirement of Engineer at Site.</p>
15	<p><b>SUPPLY &amp; LAYING OF GI WIRE:</b></p> <p>The price shall cover supply and erection of 6 SWG GI wire along with cable in different type of trenches/GI pipe as per the direction of Railway site Engineer.</p>
16	<p><b>SUPPLY OF LT XLPE UG CABLE:</b></p> <p>The price shall cover supply of LT cross linked polyethylene (XLPE) power cable, PVC sheathed, 4 core of specified size conforming to IS:7098 part-I /1988 or latest. The cost includes proper storage, Handling, transportation etc. The cables shall be supplied along with test certificates of manufacturers.</p>
17	<p><b>SUPPLY OF LT XLPE UG CABLE:</b></p> <p>The price shall cover supply of LT cross linked polyethylene (XLPE) power cable, PVC sheathed, 4 core of specified size conforming to IS:7098 part-I /1988 or latest. The cost includes proper storage, Handling, transportation etc. The cables shall be supplied along with test certificates of manufacturers. Including cable pulling, dressing, end sealing, testing before and after laying, megger testing, HV withstand test and obtaining approval from concerned DISCOM authorities.</p>
18	<p>Supply and erection of Earth electrode of 48.4 mm outer dia &amp; 40 mm inner dia, 3.1 m long steel tube galvanised with welded MS galvanised lug as per drawing No. ETI/OHE/P/7021 &amp; RDSO specification No. TI/SPC/PSI/ERTHNG/0210 or latest including excavation of pit, protective concrete box with cover and all other connected materials like GI wire, charcoal, salt etc.</p>
19	<p><b>SUPPLY &amp; FIXING OF DANGER BOARDS:</b></p> <p>The price shall cover supply, fixing of danger boards in Hindi, English and Regional language on enameled steel plate with clamps, bolts and nuts complete with all other connected materials and works including all accessories as per requirement of Engineer at site.</p>
20	<p><b>SUPPLY &amp; FIXING OF CABLE CROSSING DETAIL BOARD:</b></p> <p>The price shall cover supply and fixing of cable crossing detail board in English on MS plate of 3mm thick with clamps, bolts, nuts etc. as per requirement of Engineer at site.</p>
21	<p><b>SUPPLY &amp; FIXING OF ANTI CLIMBING DEVICES:</b></p> <p>The price shall cover supply and fixing of anti climbing devices on poles with clamps, bolts, nuts etc as per requirement of Engineer at site.</p>
22	<p><b>HORIZONTAL DRILLING OF BORE:</b></p> <p>The price shall cover Horizontal drilling of bore at 2 metres below the track or formation level suitable for laying of LT XLPE UG cable of 4 core 120 Sq.mm size through 4" HDPE pipe. Horizontal directional drilling including pilot boring, reaming, insertion of HDPE pipe, restoration of surface, dewatering if required and all consumables complete.</p>
23	<p><b>DISMANTLING OF LT OH MAINS:</b></p> <p>The price shall cover Dismantling of LT overhead mains including Guarding, insulators, cross arms etc. on RCC/RSJ/PSCC/DP/Tower and handing over the same to concerned supervisor of supply authorities at his stores. Transportation of dismantled Towers, poles, conductors, transformers and accessories to stores.</p> <p>Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.</p>
24	<p><b>DISMANTLING OF RSJ/RCC/TUBULAR POLES:</b></p> <p>The price shall cover Dismantling of RSJ/RCC/Tubular poles and handing over the same to the concerned supervisor of maintenance his stores. Transportation of dismantled Towers, poles, conductors,</p>

	transformers and accessories to stores. Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.
25	<b>Supply of as erected/completion drawings:</b> The price shall cover preparation and submission of completion drawings in A3 size with all relevant details and measurements of executed power line crossings and transmission power line crossing. The drawings shall be submitted in 1+6 copies along with AUTOCAD CD duly signed by the concerned SEB authorities and to be furnished along with final bill

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## CHAPTER-V

### Technical Specifications

#### I. GENERAL INSTRUCTION FOR DESIGNED BASED CRITERIA FOR GENERAL ELECTRICAL WORKS

1. It is Contractor's responsibility to execute the job in all respect as per the detailed drawings / specifications. The Contractor shall be responsible for all electrical installations and electrical fixtures including lighting and other power equipment for Station Building and suitable systems for Platforms, Station Parking, Circulation, landscaping etc.
2. All the necessary Safety Equipment's, Measuring Equipment's, Tools, Safety Charts, Maintenance Charts Etc needs to be provided by the contractor.
3. Provision of MDBs, DBs, with proper rating switchgear (MCBs, MCCBs, ELCBs etc.), suitable rating XLPE Cables along with laying with HDPE pipes, FRP cable trays, FRLS copper conductor of suitable rating for the concealed conduit wiring on walls and ceilings, modular switchboard, modular switches, lighting, BLDC fan, exhaust fan, air cooling, power points, ACs, Geysers, Road lighting, pathway, Earthings etc as per the yardsticks, guidelines of Railway board for respective assets and specification mentioned. (Letter No: RB letter No.2018/LM(PA)03/06 Dt:14.02.2022).
4. Internal Lighting has to be done for all areas of Station Building. Electrification of all stations, service buildings, LC gates, end goomties etc as per SCR Technical Circular No.4/2022 issued vide letter No.77/2/P/GE/WORKS(T) Dt.07.04.2022.
5. Electrical General Services Manual Volume-I (Power Supply) circulated by Railway Board to be followed.
6. Quality of Electrical Works planned & executed should be confirming to IE Rules/CEA Regulations, National Building Code (NBC) of India – 2016, National Electrical Code (NEC) of India – 2023, CPWD Specificaion, Super ECBC Codes, relevant IS Standards etc. Proper earthing is to be planned & incorporated in proposals. HT/LT switchgears and cables to be provided as per load requirements. All cables to be laid in trenches/pipes/cable trays for ease of maintenance & aesthetic look. Proper fault protection & gradation system to be ensured. Where detailed specification is given for any item in this tender document, such specification will prevail over other standard specification.
7. For ventilation of various areas ceiling fans shall be provided in offices/small cabins, waiting rooms, platforms etc. BLDC fans with remote regulators to be provided as per enclosed specification and NBC-2016.
8. Standard Digital Signages for stations and other premises to be ensured as per the guidelines issued by Railway board vide letter No.2023/SD-II/22/07/02 dated 15.05.2023.
9. Minimum essential amenities as per Railway Board letter No.2018/LM(PA)03/06 Dt:14.02.2022 to be provided at each station.
10. The facilities mentioned as desirable category are applicable for this tender.
11. LT Power from transformers and DG sets shall be brought to Main LT Panels/ synchronizing through sandwich type bus ducts if it more than 450 KVA as per CPWD. Power shall be distributed to respective loads through a network of LT Panels, bus ducts, LT XLPE Insulated, FRLS PVC inner and outer sheathed armoured Cables which shall be laid on Cable trays both for horizontal & vertical runs cabling.
12. Size of the cable should be designed 1.5 times capacity of calculated load. Approval of competent authority to be taken for proposed power supply, cable laying, internal wiring diagram for power and lighting load etc.
13. The power distribution shall be designed for 6% voltage drop from source to load, as per NBC-2016.
14. The electrical Installation work shall be carried out in accordance with Indian Standard Code of Practice. It shall also be in conformity with the current Indian Electricity rules and regulations and requirements of the Local Electricity Supply Authority and Fire Insurance regulations so far as these become applicable to the installation.
15. The wiring shall generally be done using FRLS PVC insulated copper conductor wires of 1100V Grade in M.S./ PVC conduits as called for including providing switches, sockets, plug tops, electronic fan regulators, outlet boxes etc.
16. HDPE pipe shall be used in all exposed applications. Earth wire shall also be insulated and of same cross-sectional area as phase wire.
17. Color Code shall be maintained for the entire wiring i.e., Red, Blue & Yellow for phase wires, black for neutral & green for earth wire.

18. Minimum size of copper wire shall be 1.5 Sq mm. for light points. Minimum wire for sub-circuit light point will be 2.5 Sq mm.
19. Wires of size 4 Sq mm. and above shall be used for power outlets.
20. Modular type switches/ outlets shall be provided.
21. Sufficient number of light points/ power points will be provided for using various housekeeping electrical/ electronic gadgets in common areas.

Note: Jointing or looping of wires shall be done anywhere except at a switch box or a light fitting. No joint shall be permitted above false ceiling.

**II. WIRE SIZES:** The size of the copper cable/ wires used for internal wiring shall be as follows:

- Light Point wiring for single & two points - 1.5 Sq mm
- Light Point wiring for more than two points - 2.5 Sq mm
- Light Plug Wiring - 2.5 Sq mm
- Power Plug (6/ 16 Amp Socket outlet) - 4.0 Sq mm
- Power Plug (20/ 30 Amp MCB) - 6.0 Sq mm
- Circuit Wiring from DB to First Switch - 2.5 Sq mm
- ☐ For wiring of higher capacity outlets, size of wires will be decided keeping in view load and distance from DB.
- ☐ The size of earth continuity conductor shall be same as phase wire.

Outdoor:

- All cables from MDB to SDB's in buildings (stations/service buildings etc) shall be copper.

**III. DESIGN CRITERIA FOR DISTRIBUTION BOARDS:**

- ☐ For connection of lighting/ power circuits, MCB type distribution boards shall be provided suitable for 3 phase 415 V and single phase 230 V.
- ☐ All distribution boards shall be fabricated from 1.6 mm thick sheet and shall be of double door construction. The incomers shall be with MCCB/ MCB. In each phase 30mA ELCBs/RCCBs shall be provided for protection against earth leakage. All Distribution boards shall be with minimum IP42 protection.
- ☐ MCBs shall be of 10 kA fault rating and capacity shall be as per load requirement.
- ☐ Distribution boards, MCCB, MCB, ELCB shall be of reputed manufacture and same make.
- ☐ Distribution boards shall be provided in an accessible location.
- ☐ Each circuit load shall not be loaded with more than 1000-Watt load. Minimum wire size shall be for sub circuit wiring for light points 2.5sqmm and for power 4sqmm with FRLS Cu wire. Separate neutral to be pulled for each circuit.
- ☐ For External feeders all above specifications except IP protection which shall be IP67 shall be followed. All cable entries for External feeder pillar shall be from bottom. All External feeders shall be provided with Real time delay timer with Day light sensor and contactor for Automatic operation.
- ☐ All distribution boards and Feeder pillar shall be provided with RAL-7032 Powder coating.

**IV. DESIGN CRITERIA FOR LIGHTING AND FANS:**

- ☐ General lighting of various common areas shall be planned as per NBC-2016 and Guidelines issued by Ministry of Railways.
- ☐ Internal Lighting has to be done for all areas of Station Building. Electrification of all stations, service buildings, LC gates, end goomties etc as per SCR Technical Circular No.4/2022 issued vide letter No.77/2/P/GE/WORKS(T) Dt.07.04.2022.
- ☐ Electrification of all LC gates, Station platforms (with 30%-70% Automatic Control system to save energy), yards, circulating area, approach road, Cabling and Lighting arrangements at ROB/RUBs as per the details given by civil engineering department.



- ☐ Lux levels at various areas will be maintain proper, minimum LUX levels in the entire building or external areas. All Energy efficient reputed brand LED Lighting Should be 5\* BEE Ratings. The minimum lux level to maintained in station premises/circulating area to be ensured.

S. NO.	Location	Approved Lux Levels		
		NSG1, NSG2, NSG3	SG4, SG1, SG2, SG3	NSG5, NSG6
1	Concourse	150	100	50
2	Circulating Area	50	30	20
3	Waiting Hall	150	100	100
4	Retiring Room	100	100	100
5	Platform			
	a) Open	50	30	30
	b) Covered	150	100	100
6	Enquiry cum Reservation Office			
	a) General	150	100	100
	b) Counter	150	150	100
7	Covered Passage way			
	a) Corridors	50	50	50
	b) FOB	50	50	50
	c) Stairs	50	50	50
8	Parcel/luggage Office			
	a) General	100	100	50
	b) Counter	150	150	150
9	Time Table	200	200	200
10	Outdoor Car Parking	50	30	20
11	Restaurant Area			
	a) Kitchen	200	150	150
	b) Stores	150	100	100
	c) Dining Hall	200	150	150
12	Other Service Building at Station	200	200	200
13	Cloak Room			
	a) General	150	100	100
	b) Counter	150	150	150
14	Public Utility Service (Toilet/Bathroom)	100	75	50
15	Above Escalators	150	150	150
16	Near Lifts	100	100	100

- ☐ All LED fixture must be as per enclosed specification.
- ☐ For ventilation of various areas ceiling fans shall be provided in offices/small cabins, waiting rooms, platforms etc. BLDC fans with remote regulators to be provided as per enclosed specification and NBC-2016.
- ☐ Energy efficient exhaust fans to be provided in wash areas, S&T installation, battery rooms, power rooms, stores etc.

#### V. DESIGN CRITERIA FOR EXTERNAL LIGHTING:

- ☐ The Contractor will design, supply, install and commission the external lighting including 16m long high mast with 9 nos of 150 W flood light as required.
- ☐ The light fixtures used shall have an ingress protection rating of IP-65 or higher as per application.
- ☐ For station platform 5m single/double bracket as per site requirement octagonal pole to be provided.
- ☐ For circulating area 7m pole with single/double bracket as per site requirement octagonal pole to be provided.
- ☐ For circulating area 60W LED flood light to be provided in street pole.
- ☐ For platform area 30W LED flood light to be provided in street pole.

#### VI. DESIGN CRITERIA OF METERING:

- ☐ Intelligent Meters in major energy consuming equipment/ systems to relay energy consumption data on wireless network to IBMS for giving power consumption analytics – activity wise as per GRIHA requirement.
- ☐ Dual Source Energy Meters are to be provided for giving power consumption analytics.
- ☐ All energy meters shall be BMS compatible

#### **VII. DESIGN CRITERIA OF AT SUPPLY, CLS PANEL, RELAY ROOM:**

- ☐ Extension of AT supply to Lights & Fans in SM/ASM Room, PF, COP, Poles & FOB 30% light circuit as per RB letter No.2018/LM(PA)/03/06 Dt.09.04.2018 circulated vide PCEE/SCR letter No.E.4/2/AT Dt.07.12.2022.
- ☐ AT junction box to be provided as per DRG. NO: E.252/Tr.D/HQ/AT-JB/2023-23(Alt.1) Dt.22.11.2023.
- ☐ Provision of CLS panel (150 Amps at RBG room and 60 Amps at end goomties, LC gates and IB huts), extending power supply (UP AT, DOWN AT, Local supply) along with stand by cables arrangements, proper earthing, cable route indicators and preparation of cable route diagrams. Power supply arrangements to be arranged from AT to CLS panels at stations and end Goomties with 2core LT XLPE 150/70Sqmm cabling arrangements laid in HDPE pipe as per railway specifications and necessary approval to be taken. JPO No.E.CN.77/2/Policy (JPO-I) Dt.30.01.2019 circulated vide PCEE/SCR office letter No.E.219/TRD/ETPL/Vol.VII Dt.05.02.2019 to be followed for AT Traction supply arrangements scheme to S&T installations in 25kV AC area.
- ☐ CLSJunction box as per thefollowing:(1) Bus Bar: 150x32x6mm Bimetallic Tinnedcopper Busbar (2) Size of thebox: 485x550x225mm (3) Sheet Thickness: Box-14SWG; Cover - 16SWG (4) Box and cover to beconnected for equipotentialbonding (5) Suitable earthingprovision for the CLSJunction Box (6) Suitable FRP Insulating Material Base for mounting Busbar (7) Painting: Siemens Grey RAL7032Powder coated. The junctionbox shall be as per Drg No.01/2022-4/2/AR.
- ☐ Air conditioning in the relay rooms (2x2 Ton) and end goomties (2x1.5 Ton) of S&T installations by inverted type energy efficient 5-star rating split air conditioners along with 24Hrs timer arrangements, proper drainage arrangements.
- ☐ Extension of LT power supply for CLS Work:

#### **VIII. DESIGN CRITERIA OF LED STATION NAME BOARD AND DIGITAL SIGNAGES:**

- ☐ Standard Digital Signages for stations and other premises to be ensured as per the guidelines issued by Railway board vide letter No.2023/SD-II/22/07/02 dated 15.05.2023.
- ☐ The material for signages should be non- reflective, preferably matt finish to reduce the stray light reflectance and increase the visibility. The surface should be processed to prevent glare. Backlighting is preferred. The material of all signage boards shall be chosen to reduce wear and tear and possible damage by vandalism and at the same time easy to maintain. Some suggested materials for signage include Aluminium Composite Panel (ACP), acrylic, Concrete, Steel, wood etc.
- ☐ The installation/erection of signages should be executed in accordance with good industry practices followed for achieving high standards of workmanship, thus ensuring safety and durability of the Works. All codes and standards referred to in these specifications shall be the latest thereof, unless otherwise stated. The design of various components, assemblies and subassemblies should be done so that it facilitates easy field assembly and dismantling.
- ☐ Design, fabrication, supply, erection, fixing, testing, commissioning and loading, transportation and unloading to site of LED type Individual English letters boards. The height of letters shall be 450 mm and shall have proportionate width. Letter should be manufactured from high quality 3 mm thick acrylic sheet. For uniform brightness of the letters height of the acrylic letter shall be about 4". Acrylic letters should be illuminated from inside by 2nd generation Superflux IP 66 medium power LED. Distance between 2 LED's shall be about 3" LED circuit should be provided with 24 V LED driver of Philips / Osram make of suitable capacity and quantity. Acrylic letters along with LED should be fixed on 3 mm thick Aluminium composite sheet and entire sheet shall be supported on suitable size of MS angle frame from the backside to withstand wind pressure. The LED signage system shall be confirming to RDSO specification no RDSO/PE/SPEC/PS/0086-2009 (Rev – 0) Amdt-1 or latest.
- ☐ Design, fabrication, supply, erection, fixing, testing, commissioning and loading, transportation and unloading to site of LED type Individual Devnagari letter for Hindi & Marathi letters boards. The height of letters shall be 450 mm and shall have proportionate width. Letter should be manufactured from high quality 3 mm thick acrylic sheet. For uniform brightness of the letters height of the acrylic letter shall be about 4". Acrylic letters should be illuminated from inside by 2nd generation Superflux IP 66 medium power LED string. Distance between 2 LED's shall be about 3" LED circuit should be provided with 24 V LED driver of Philips/Osram make of suitable capacity and quantity. Acrylic letters along with LED should be fixed on 3 mm thick Aluminium composite sheet and entire sheet shall be supported on suitable size of MS angle frame from the backside to withstand wind pressure. The LED signage system shall be confirming to RDSO specification no RDSO/PE/SPEC/PS/0086-2009 (Rev – 0) Amdt-1 or latest.

#### **IX. DESIGN CRITERIA OF PUMP INSTALLATION AND MONITORING:**

- ☐ 2/5HP (3.70kW), 25 stage or suitable capacity as per site submersible pumpset with RS-485 port pump control panel to be provided at station/service buildings.
- ☐ Web based monitoring Electric pumps installation including cabling, starting arrangements with protections, energy savers etc. for water supply at Station, LC gates, and other service buildings.

#### **X. DESIGN CRITERIA OF WATER COOLER:**

- ☐ 150 ltrs capacity water coolers to be provided each at station platform.
- ☐ Necessary proper drain pipe facilities to be provided for water coolers.

#### **XI. DESIGN CRITERIA OF ENERGY CONSERVATION:**

- ☐ Following measures are proposed for energy conservation:
  - All Motors to be with efficiency IE-3 as per IS-12615.
  - Power factor to be maintained automatically near unity as far as possible with APFC Relays. This will reduce power distribution losses.
  - Copper conductor wires/ cables are proposed for sizes up to 16 Sq mm. This will reduce losses and improve reliability.

- The power distribution shall be designed for 6% voltage drop from source to load, as per NBC-2016.
- All cables shall be de-rated to reduce losses. This will avoid heating of cables & improve reliability.
- As per Railway Board Energy efficiency Policy Letter No.2022/EEM/150/09 dated 30.12.2022, Energy efficient equipment of star rated reputed brands VIZ LED Lights, BLDC Fans, 5 Star rated Inverter AC Units, type Air conditioners, Pumps, DG Sets, Transformers, adoption of low carbon cooling system/two stage evaporative/radiant cooling system etc., and Energy Conservation Measures like provision of Natural Day Light Pipes, automation of pumping, PF lighting, Pitline lighting, intelligent water management system etc., are to be ensured.

## **XII. DESIGN CRITERIA OF POWER LINE CROSSINGS:**

- Modification of all overhead/underground lines running parallel and across the track in between station section on both sides to be executed by Railway.
- Required Liaisoning/statutory clearances and permissions to be done by EPC Contractor.
- Modification shall be done as per powerline crossing regulations, 1987 with latest amendments.

## **XIII. DESIGN CRITERIA FOR ENHANCEMENT OF LOAD**

- The work for up gradation of power supply from the premises of State Government to Railways premises upto metering point will be executed by State Electricity Board authorities directly. The necessary estimate charges/demand charges/ Supervision Charges against the load enhancement and extending power supply upto metering point shall be borne by the Railways. However, Liaisoning and obtaining statutory clearances/ Estimates from state electricity board to be co-ordinated by EPC agency.

NOTE: Station load enhancement up to 50kW and LC gate load enhancement up to 5kW to be done.

- Approval and sanction of Electrical load from Local / State supply shall be arranged by Contractor.

**XIV.** The Contractor shall ensure that replacement / modification / augmentation of existing system shall be done as per the detailed design in such a manner so that it would not cause any effect on Station operations.

**XV.** Contractor shall make provisions of track crossing/Road/ Platform crossings of cables through HDD, HDPE pipe of suitable size cable between platforms if necessary. For the same contractor has to take prior approvals on drawings and material.

**XVI.** Provision of MDBs, DBs, with proper rating switchgear (MCBs, MCCBs, ELCBs etc.), suitable rating XLPE Cables along with laying with HDPE pipes, FRP cable trays, FRLS copper conductor of suitable rating for the concealed conduit wiring on walls and ceilings, modular switchboard, modular switches, lighting, BLDC fan, exhaust fan, air cooling, power points, ACs, Geysers, Road lighting, pathway, Earthings etc as per the yardsticks, guidelines of Railway board for respective assets and specification mentioned. (Letter No: RB letter No.2018/LM(PA)03/06 Dt:09.04.2018).

**XVII.** Quality of Electrical Works planned & executed should be confirming to IE Rules/CEA Regulations, National Building Code (NBC) of India – 2016, National Electrical Code (NEC) of India – 2023, **Super ECBC Codes**, relevant IS Standards etc. Proper earthing, suitable Fire detection, Fire alarm and Fire suppression systems (including provision of Gas Insulated Switchgear (GIS) panels) are to be planned & incorporated in proposals. HT/LT switchgears and cables to be provided as per load requirements. All cables to be laid in trenches/pipes/cable trays for ease of maintenance & aesthetic look. Proper fault protection & gradation system to be ensured.

**XVIII.** Copies of station building wiring diagrams, earthing layout, AT cable route diagrams and other cable route diagrams etc shall be submitted to authority.

**XIX.** Design base criteria for wiring layout at stations – Copy of drawing showing lights, fans, SDBs is enclosed.

**XX. Preferred makes for Electrical(G) items: -**

<b>S. No.</b>	<b>Description of Item</b>	<b>Approved makes</b>
1	PVC pipes	Sudhakar/Nandi/Ashirvad/Finolex /Narmada/ Astral
2	Modular switches, Sockets andboards (Surface & Concealed)	Legrand/ Havells/GM/Schneider/L&T
3	Copper Wires/Cables	Finolex / Havells/Polycab or any BIS approved make
4	Modular plug socket with control switch	Legrand/ Havells/Schneider/L&T/ABB
5	Industrial type plug & socket	Legrand/L&T/ Havells
6	LED tube lights	PHILIPS / Crompton/ Havells /Bajaj/Wipro or any BIS approved make
7	LED ceiling lights	
8	LED street light	
9	LED Flood lights	PHILIPS / Crompton/ Havells /Bajaj or any BIS approved make
10	BLDC ceiling fan-5 Star	Atomberg/Havells/Orient/Bajaj/ USHA or any BIS approved make
11	Exhaust fan	Crompton/ Havells/ Almonard/Bajaj/Usha/Orient or any BIS approved make
12	XLPE LT/HT cables	Finolex/Havells/Polycabor any BIS approved make
13	MCB & MCCB's	Legrand/L&T/ Havells/ABB/ Siemens
14	Meters	Schneider/Secure/Rishab/L&T /Socomec
15	LED indication lamps	L&T/Schneider/Esbee/Teknik/Binay/ Conserv
16	Distribution boards	Legrand/Havells/ L&T/ABB/ Siemens
17	Octagonal poles	Bajaj/ Transrail/ Valmont
18	Split AC units (5 star)/Cassette ACs	O-General/ Daikin/Hitachi/Mitsubishi/Blue Star
19	CLS control panels	As per the vendor list of CORE/Prayagraj
20	Terminal Junction Box	Sintex/ABB/ Electromac
21	FRP Ladder type Cable tray	Sintex/FiberTech/Aeron
22	Flat copper cable	Polycab/Havells/ L&T
23	Pre-cooling socket	Legrand/L&T/ Hensel/Havells
24	Water coolers	Bluestar/Usha/ Sidwal/ Voltas
25	Timers	Legrand/L&T/ Havells
26	Ding Dong calling bell	Legrand/L&T/ HPL/GM
27	High mast	Bajaj/ Transrail/Valmont

28	Power contactor	Siemens/ABB/ Schneider/ L&T/Havells
29	Pumps	Kirloskar/Crompton/ Grundfos/ Texmo/CRI
30	Pump Control Panels	C&S/L&T/ Siemens/BCH/ Crompton
31	Geysers	Crompton/ Havells/Bajaj/ V-Guard/Racold
32	Heat shrinkable cable jointing kits	Densons/Raychem/ REPLXicon/ M-seal
33	Transformers	Any BIS certified Manufacturer.
34	VCB Panels	Siemens/ABB/ Schneider/L&T
35	DG set	Crompton Greaves/ Mahindra/ Kirlosker/ Cummins/Captiva
36	Air circulator	Almonard/Bajaj/Crompton/ Havells/ Usha
37	Wall mounted fans	Havells/L&T/ Crompton/Usha/Almonard
38	Welding sockets	Legrand/L&T/ Hensel/Havells/ Standard
39	HDPE Pipes	Narmada/Nagarjuna/Godavari/KC Polymers
40	Bus trunking& Bus Duct	Legrand/L&T/ABB/Schneider
41	LT/HT Panels	Any TTP panels. If TTP is not available, L&T/Havells/Legrand.
42	Solar Power Panels	Tata BP/Havells/Renew System/Photon
43	Lifts & Escalators	Johnson/Omega/Shindler/L&T
44	Lighting arrestor for System	As per IEC/IS codes
45	HVAC System	Daikin (India)/Blue Star/Samsung (India)
46	UPS	Numeric/Schneider/APC/Emerson/Mitsubishi/Siemens

**NOTE:**

1. For item requiring mandatory BIS Certificate, BIS certified only considered even if not in above list.
2. For LED lights, BLDC fans, octagonal poles, High masts, DG set, Transformer, Cables, AC's, DB's, Switchgear, VCB panels, HVAC system, Solar Panel, Lifts & Escalators, LT/HT Panels, UPS specification approval to be taken along with make from Authority. Any make other than given above may be considered when makes of above do not match required specification and other makes meet the specification given in contract.
3. Any deviation to make given above requires approval of Authority (i.e. CEE/C/SC)
4. Any item not covered above, prior approval of authority for the make proposed to be used shall be obtained.
5. Sample approval to be taken for following & to be pre ensured Authority. Ex.GI Modular box, Switches, Conduits, Switch board covers, pipes, wires etc.

## **TECHNICAL SPECIFICATIONS FOR CONSTRUCTION**

**Standard Technical Specifications and drawings For Construction of Electrical General works can be downloaded from the following web link:**

**[https://drive.google.com/drive/folders/1DKumCHat1IOSY4KGxuAvlai4HkbehhYx?usp=drive\\_link](https://drive.google.com/drive/folders/1DKumCHat1IOSY4KGxuAvlai4HkbehhYx?usp=drive_link)**

## **SPECIFICATION No. CEE/CON/STD-7**

Specification for High Tension & Low Tension underground cables and cable trenches, cable laying etc.

- 1. Scope:** This specification covers supply of low tension and high tension underground cables and laying of cables in the cable trenches, running of cables along with structures, walls, steel frame work, trusses etc., with connected materials, indicators etc.
- 2. HT 11 kV UG Cable:**
  1. Power cables shall be suitable for 11 kV, 3 phase earthed system and for Heavy duty.
  2. The cable shall be 11 kV grade, three core, aluminum conductored screened, cross-linked polyethylene (XLPE) insulated inner sheath common covering of proofed or plastic taped, galvanized steel double strip armored and outer PVC sheathed.
  3. The conductors shall be of stranded aluminum of "3/4" "H" of 'H' temper, compacted and shaped.
  4. The XLPE insulated PVC sheathed cables shall be conform to IS-7098, Part-II/1973 or its latest edition.
- 3. LT UG Cables:**
  1. Power cables shall be suitable for 440/433V, 3 phase with neutral earthed system and for heavy duty use.
  2. The cable shall be of 1100 Volts grade, 2/3, 1/2, 4 core, PVC insulated and PVC sheathed, aluminum conductored, cores laid up, surrounded by common covering inner sheath applied either by extension or wrapping of a filling material containing by rubber or thermoplastic materials applied with proofed or plastic tape and armored with galvanized steel round wire/flat strip and outer sheathing with PVC.
  3. The conductors shall be of stranded aluminum wires, sizes confirming to class-2 of table 13 of IS-8130/76 or latest.
  4. The PVC insulated and PVC sheathed LT UG cables shall conform to IS:1554 (Pt.I)/1976 or latest.
- 4. Cable trenches (ordinary):** Excavation of cable trenches of different sizes in all types of soils. The bottom of trench is leveled freed from stones and sharp edges of rock. A layer of 10 cms thick sand is laid at the bottom of trench after laying the cable, it is covered once again with 10cms. thick sand and covered with well burnt country bricks at the rate of 9 to 10 bricks per meter depending upon with of brick for each cable without leaving any gap in between so as to prevent damages to the cables due to crow bars etc. during any excavation at a later date and one brick to be placed in between the cables at every one meter of regular interval and duly filling the trench with earth after positioning the cable markers and ramming well in stages to bring the surface in level with original surface. If two separate feeders are to be laid in the same trench a horizontal interval spacing is advisable in order to reduce the effect of mutual heating and also to ensure that a fault accruing on are cable will not damage the adjacent one number of pipes are laid for number of cables, if are required to be laid. The cable trench can be closed with the excavated earth and ramming well in stages to bring the surface in level with the original and making the road as earlier. The cables can be drawn through pipes without disturbing the traffic, When once the above arrangement is made. The cable markers can be placed on either side of the road so as to identify the cable route. If single core cables are used for forming a three phase circuit, the three cables are laid in triangular formation (trefoil). The sizes and cable trench details are shown in the drawing No.A3/E/STD/6 enclosed.
- 5. Road Crossing:** Cutting of roads, excavation of the cable Trench of different sizes and laying of HDPE pipes and jointed with collars in an approved manner. The pipes are required to be laid so as to keep the cable at one meter below the ground level. The pipes shall be extended upon 2 meters below on either side of the road, measured from the edge of the road. The pipes shall be positioned so as to maintain a slope of about 1 in 30 to allow drainage of seepage water. No bricks of sand are required to be placed at such places. The sizes and road crossing details are shown in the drawing No. A3/E/STD/6 enclosed.



- 6. Track Crossing:** Removing of existing ballast, excavation of the cable trench of different sizes under the track and laying of HDPE pipes and jointed with collars in an approved manner. The pipes are required to be laid so as to keep the cable at minimum 2 metres below the track or formation level. The pipes shall be laid upto the Railway boundary at both ends of upto the point as prescribed by the Railways. The pipes used shall be of long length and the pipes shall be positioned so as to maintain a slope of short 1 in 30 to allow drainage of seepage water. No bricks or sand are required to be placed at such places. A number of pipes are laid for number of cables if are required to be laid. The cable trench can be closed with the excavated earth and ramming wall in stages to bring the formation/cutting as per the original and replacing the removed ballast as earlier. The cables can be drawn through pipes without disturbing the traffic, when once the above arrangement is made. The cable markers can be placed on either side of the track at a convenient place so as to identify the cable route. The sizes and track crossing details are shown in the Drg.No. A3/E/STD/6 enclosed.
- 7. Laying of cables on Racks and Cleats:** Inside buildings, workshops, sheds, substations, it is sometimes necessary to lay the cables on racks or brackets, spaced at regular intervals or same times they are required to be cleated directly on the walls/ trusses/ beams or MS structures fixed on walls.

The cables are laid direct upon trays with or without spacers some times instead of using metal trays, the cables are required to be supported and clamped on brackets spaced at such regular intervals so as to prevent under sag.

For horizontal runs, brackets or supports made from angle iron are grouted in the walls and they are arranged in a single plane when only a few cables are involved, when large number of cables have to be laid over the same route the brackets are fixed as per formation.

For horizontal run of one or two cables the cables can be clamped/cleated directly on walls/ beams preferably with the non-magnetic materials like Aluminum - wood etc. For vertical runs, the cables are clamped/cleated on walls/columns or on MS flats or on Angle Irons fixed on walls and they are required to be space at such intervals so as to prevent buckling of cables and creep age of load.

All steel work shall be painted with one coat of red oxide and finished with suitable colour anti-corrosive paints.
- 8. Cables along the structures:** The G. I. pipes shall be fastened to the structures upto 2.5 metres from ground level by suitable MS clamps at an intervals of not more than one meter with suitable bolts, nuts, washers etc., the cables shall be drawn through the G.I. pipe. Both the ends of G. I. pipe shall have a PVC/wooden bushes to avoid abrasion to the cable. In addition the top and shall be sealed with cable compound to arrest ingress of rain water.

The cable shall be run above pipe level up to cable termination end through suitable teak wood cleats duly clamped to the structure by suitable clamps, bolts, nuts, washers etc.
- 9.** Inside the sub-stations, repair sheds, workshops etc. suitable sizes of masonry trenches will be constructed by the Railways. The cable shall be laid in the trenches and covered with RCC slabs/MS sheets/Aluminum chequered plates as per the schedule and instructions of Engineer at site.
- 10. Boards:** The cable trench shall be straight as far as possible without bends and at places where obstacles are encountered there shall be no abrupt bends or if unavoidable, the cable shall be following specifications.
  - 1. Bending radius for PVC cables:** While installing/laying PVC cables, the following minimum handing radial should be observed in order that the cables, especially insulation may not undergo damage.

Voltage grades of cable - Recommended minimum bending radius

    - a) Up to 11kv-  $15 \times D$
    - b) Above 11kV-  $15 \times D$  for multi core cables.  
 $20 \times D$  for single core cables.

Where D is over all diameter of cable.
- 11. SLOPE:** The slope of the cable trench according to the formation of the land shall be made so as to keep the bend of the cable minimum as stated in item 10 above.

## **12. Looping of cable:**

1. The cable at the foot of the structures shall be looped to the lengths of 5 metres to allow for the future requirement to coil diameter shall be not less than minimum bending radius as stated in item 10 above. The excavation at structures shall be done suitable and covered with sand, bricks and earth as detailed under item 4 above.
2. At each end termination near the panel board a 5 Mtr. loop shall be kept as an allowance and loop ring shall be formed circular and as recommended by the cable manufacturers.

## **13. Accessories/Materials:**

**1. Cable route indicators:** Cast Iron cable route indicators markers manufactured as per the drawing No. A3/E/STD/6 and cemented. The cable markers shall be positioned, fixed firm and in a manner acceptable to the Engineer at site. The M.S. steams shall be dipped in hot a and dried before they are fixed. The cable marker shall be painted with 3 coats of red oxide. One coat before providing at site and another after positioning and cementing. The spacing of the markers shall be not more than 6 meters in a straight runs.

### **2. Contrary bricks:**

- 1. General:** Country bricks must free from cracks, large chipped surfaces and broken corner stones and lumps inclusions of burnt kankar if of small extent may be permitted. The brick surface should be so hard as not to get scretched by the finger nail. Francharged surface should not have cavities to any appreciable.
- 2. Quality and sizes:** Country bricks may be slightly over burnt but not under burnt in any care. The colour may be dull red or even reddish yellow, provided it is not due to under burnt material and is only a feature of type of moldings clay used. The normal size of country brick should be 225mm x 115mm x 75mm. the size of the frog in the upper face should be same as per first or second class bricks.
- 3. Sand:** The sand shall be preferably of river sand or as per the quality required by the Engineer at site. The sand shall be from lumps of earth, clay etc. and screened.
- 4. HDPE Pipes:** HDPE pipes supplied shall be of suitable size to the standard lengths. Necessary collars for jointing the above pipes shall also be supplied. The pipes and collars shall be conforming to relevant latest IS specification and same should be approved by the Engineer at site before laying in the trenches.
- 5. Clamps, bolts etc:** Clamps shall be made out of aluminum of HS plate. The bolts used shall be of suitable dia and of sufficient length, One MS hose nut and a check nut with one spring washer between two nos. of flat washers hall be used for tightening the bolts. The MS clamps shall be painted with one coat of red oxide and two coats of aluminum paint.
- 6. GI Pipes:** The G.I. Pipes shall be of 'B' class of 50mm dia., 100mm dia., 3.4 dia thickness to the stranded standard lengths. Necessary collars, bends etc., for jointing the above pipes shall also be supplied. The pipes and accessories shall be approved by the Engineer at site before using the same.
- 7. Outdoor end termination:** The kit should essentially contain the following contents:
  - ☐ Required quantity of cable jointing compound.
  - ☐ Required quantity of hardner.
  - ☐ Plastic mould.
  - ☐ Mould adhesive cum solvent.
  - ☐ Earth continuity connection.
  - ☐ Stress grading paste.
  - ☐ Self banding insulating tape.
  - ☐ Insulators.
  - ☐ Copper binding wire.
  - ☐ Aluminum oxide tape.

- ☐ Nylon string for cutting XLPE insulation.
- ☐ Polyester tape.
- ☐ Semi conducting self bonding tape.
- ☐ 'M' Seal (Fast setting) epoxy putty.
- ☐ Instruction Sheet.

**1. Door end terminations:** The kit should essentially contain the following contents.

- ☐ Required quantity of cable jointing compound.
- ☐ Required quantity of hardner.
- ☐ Plastic mould.
- ☐ Mould adhesive cum solvent.
- ☐ 'M' Seal (fast setting) epoxy putty.
- ☐ Earth continuity connection.
- ☐ Stress grading paste.
- ☐ Self bonding insulating tape.
- ☐ Copper binding wire.
- ☐ Aluminum Oxide tape.
- ☐ Nylon string for cutting XLPE insulation.
- ☐ Semi conducting self bending.
- ☐ Instruction Sheet.

**8. LT Cable end boxes/kits** to use with 11kV PVC cables for indoor & outdoor end terminations: The kit should essentially contain the following contents.

- ☐ Required quantity of cable jointing compound.
- ☐ Required quantity of hardner.
- ☐ Plastic mould.
- ☐ Mould adhesive cum solvent.
- ☐ M-Seal (fast setting) epoxy putty.
- ☐ Earth continuity connection.
- ☐ Spacer.
- ☐ Instruction Sheet.

**9. W.P. Junction Boxes:** These shall be made out of MS sheet Iron with weather proof x-type with suitable terminals looking arrangements knock out arrangement suitable entry holes etc. The box shall be painted with one coat of red oxide and two coats of grey colour paint. These shall be made and provided as per the instructions of the Engineer at site. X arrangements.

**10. Cable Gland:** The cable gland shall be of brass with fixing check nuts etc. The correct size of gland shall be used for the particular size of cable. the glands to be used should be approved by the Engineer at site.

**11. Cable Jointing Lugs:** These shall be made of aluminum crimping type (E. E., solder less) and bolted type and also shall have adequate current carrying capacity. The lugs to be used to be approved by the Engineer at site.

**12. Cable Markers of track crossings:** These shall be made of cast iron. The design shall be approved by the Railways. The following information shall be clearly marked on the marker.

- a. Electric - Volts.
- b. Number- Cables.
- c. Danger - English, Hindi and the vernacular of the district.

d. Depth of cable- Below ground level between the toe of bank and Railway facing.

**13.** Cable markers used where No. of feeders involved: These shall be made of cast iron. The design shall be approved by the Railway. The following information shall be clearly marked off the market.

- a. Electric Cable- Volts.
- b. No sizes of cables.
- c. Length of cable
- d. Origin & destination of cable.

**14. General:**

1. Test certificates shall be produced for the cables supplied.
2. All materials/accessories supplied should have approval of site Engineer before using the same.
3. The method of laying the cables shall be generally as indicated in Drg.No. A3/E/STD/6. The cable routes shall be actually measured at site and the requirements assessed before the supplies are effected. No joints in straight runs will be permitted. Measurements for cables will be taken as straight runs and from gland to gland. Covering of trenches shall be carried out only after measurements are taken and recorded. Insulation resistance tests shall be repeated after laying the cable and before the terminations are made in the presence of the Engineer-in-charge at site.
4. While connecting the cables to OH Mains/Switch panels, the cable end boxes shall be used as per the directions of the Engineer at site.
5. Cables required to be laid in existing trenches within the unit/sub-stations/shop bays, the contractor shall ensure that this is done by removing the existing slabs and replacing the same after laying, duly cleaning the trench wherever warranted.
6. Wherever the cables enter or leave the buildings, they shall be passed through walls in 150mm dia.RCC/GI pipes with collar as directed by the Engineer-in-charge at site including civil works.
7. The cables shall be treated through RCC pipes at all road and rail line crossings and at all other service line crossings like drain pipes, sewage and water mains as per the instructions of the Engineer-in-charge at site.
8. Where track crossings are involved in the two cable markers shall be fixed at both ends of the underground crossing as directed by the Engineer at site.
9. Where we have to deal with number of feeders like workshops, repair shops, substations etc. Approved type CI cable route indicators shall be grouted in concrete along with the route of the cable at intervals of 20 metres in straight runs and at every diversion point and at every entry and exist-points of buildings, sheds etc., these shall be used along with the types of cable markers as directed by the site incharge to check at site.
10. All cable ends shall be provided with cable glands and each lead provided with crimped aluminum shoes of suitable sizes.
11. Any foundation/drainage/walls/masonry structure will be re-made with a good shape after passing the cable by the contractor, pipes will be provided by the contractor.

**15. CABLE TERMINATIONS:**

1. All the exposed cable runs in shops floors particularly being terminated on SDBs, fuse boxes, shall be encased in a suitable size of GI pipe and secured to the pillars/ columns by means of clamps.
2. Termination of cable shall be carried out using approved crimping type "Dowells" aluminum lugs and approved type of crimping tools.
3. The method of termination shall be as per the procedure laid down in the relevant manufacturer's literature.
4. The prices quoted shall include all the necessary supply materials such as glands, lugs, consumables etc.

5. Every piece of cable shall be tested before taking up the termination work and after completion of the same and the results of such tests shall be recorded.
6. All testing shall be carried out in the presence of the Engineer-in-charge at site.

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## **SPECIFICATION No. SCR/E/1/2008**

For Conduit wiring including switches and fittings

**1. Scope:** This specification covers the detailed requirements for concealed/recessed type of wiring work in non/metallic conduits including switches and fittings.

**2. Materials:**

**1. Conduits:**

- i) All non-Metallic conduits, pipes and accessories shall be of suitable materials complying with IS: 9537/Pt.3 or latest and IS: 3419 or latest for rigid conduit and IS: 6946 or latest for flexible conduits. The Interior of the conduits shall be free from obstructions. The rigid conduits pipes shall be ISI marked.
- ii) The conduits shall be circular in cross-section. The conduits shall be designated by their nominal outside diameter.
- iii) No non-metallic conduit not less than 20 mm in diameter shall be used.
- iv) Wiring capacity: The maximum number of PVC insulated Aluminium/copper conductor cables of 650/1100V grade conforming to IS: 694-1990 that can be drawn in one conduit of various sizes shall be selected accordingly.

**2. Conduit accessories:**

- i) The conduit wiring system shall be complete in all respects including accessories.
- ii) Rigid conduit accessories shall be normally of grip type.
- iii) Flexible conduit accessories shall be of threaded type.
- iv) Bends, couplers etc., shall be solid type in recessed type of works.
- v) Saddles for fixing conduits shall be heavy gauge non-metallic type with base.
- vi) For all sizes of conduit, the size of clamps shall be 4.5 mm (7 SWG) diameter.

**3. Outlets:**

- i) The switch boxes shall be made of either rigid PVC molding, or mild steel, or cast iron on all sides except at the front.
- ii) PVC boxes shall comply with the requirements laid down in IS: 14772 or latest. These boxes shall be free from burrs, fins and internal roughness. The thickness of the walls and base of PVC boxes shall not be less than 2mm. The clear depth of PVC boxes shall not be less than 60 mm.
- iii) The specification for metallic boxes shall be as per requirements.
- iv) 3mm specification for metallic boxes shall be as per requirements.

**3. Installation:**

**1. Aspects for concealed/Recessed conduit works:**

- i) The erection of conduits of each circuit shall be completed before the cables are drawn in.
- ii) Conduit Joints: All joints shall be sealed/cemented with approved cement. Damaged conduit pipes/fittings shall not be used in the work. Cut ends of conduit pipes shall have no sharp edge nor any burrs left to avoid damage to the insulation of conductors while pulling them through such pipes.

**iii) Bends in Conduit:**

- a. All bends in the system may be formed either by bending the pipes by an approved method of heating, or by inserting suitable accessories such as bends, elbows or similar fittings, or by fixing non-metallic Inspection boxes, whichever is most suitable. Where necessary, solid type fittings shall be used.
- b. Radius of bends in conduit pipes shall not be less than 7.5 cm.
- c. Care shall be taken while bending the pipes to ensure that the conduit pipe is not injured, and that the internal diameter is not effectively reduced.

- iv) **Outlets:** All switches, plugs, fan regulators etc., shall be fitted in flush pattern. The fan regulators can be mounted on the switch box covers, if so stipulated in the tender specifications, or if so directed by the Engineer-in-charge.
  - v) **Painting:** After Installation, all accessible surface of metallic accessories shall be painted.
2. Additional requirements for recessed conduit work:
- i) **Making Chase:**
    - a. The chase in the wall shall be neatly made, and ample dimensions to permit the conduit to be in the manner desired.
    - b. In the case of building under construction, the conduits shall be buried in the wall before plastering, and shall be finished neatly after erection of conduit.
    - c. In case of exposed brick/rubble masonry work, special care shall be taken to fix the conduit and accessories in position along with the building work.
  - ii) **Fixing conduits in chase:**
    - a. The conduit pipe shall be fixed by means of staples, or by means of non-metallic saddles, placed at not more than 60 cm apart or shall be fixed by any other approve means of fixing.
    - b. At either side of the bends, saddles/staples shall be fixed at a distance of 15 cm from the centre of the bends.
  - iii) **Erection in RCC work:**
    - a. The conduit pipes shall be laid in position and fixed to the steel reinforcement bars by steel binding wires before the concreting is done. The conduit pipes shall be fixed firmly to the steel reinforcement bars to avoid their dislocation during pouring of cement concrete and subsequent tamping of the same.
    - b. Fixing of standard bends or elbows shall be avoided as far as practicable, and all curves shall be maintained by bending the conduit pipe itself with a long radius which will permit easy drawing in of conductors.
    - c. Location of inspection/junction boxes in RCC work should be identified by suitable means to avoid unnecessary chipping of the RCC slab subsequently to locate these boxes.
  - iv) **Fixing inspection boxes:**
    - a. Suitable inspection boxes to the minimum requirement shall be provided to permit inspection, and to facilitate replacement of wires, if necessary.
    - b. These shall be mounted flush with the wall or ceiling concrete. Minimum 65mm depth junction boxes shall be used in roof slabs and the depth of the boxes in other places shall be as per IS: 2667 or latest.
    - c. Suitable ventilating holes shall be provided in the inspection box covers.
  - v) **Fixing switch boxes and accessories:** Switch boxes shall be mounted flush with the wall. All outlets such as switches, socket outlets etc., shall be flush mounting type, unless otherwise specified.
  - vi) **Flush wire:** To facilitate subsequent drawing of wires in the conduit, GI flush wire of 1.6mm/1.2mm (16/18 SWG) shall be provided along with laying of the recessed conduit.
  - vii) **Bunching of cables:** For ease of maintenance, cables carrying direct current or alternative current shall always be bunched so that the outgoing and return cable are drawn in the same conduit.

#### 4. **Earthing requirements:**

A protective (earth) conductor shall be drawn inside the conduit in all distribution circuits to provide for earthing of non-current Carrying metallic parts of the installation. These shall be terminated on the earth terminal in the switch boxes, and/or earth terminal blocks at the Distribution boards.

#### 5. **Wiring Specification for Service Buildings:**

1. All the light points, fan points should be wired with 2 Nos. of PVC insulated 1.5 Sq.mm multistranded copper conductor wires and 2/3 pin 5A plug sockets wired with 2 Nos. of PVC insulated 2.5 Sq.mm multistranded copper conductor wires and 5/15 A power plugs with 2 Nos. of PVC insulated 4 Sq.mm copper conductor wires along with earth continuity wires (separate circuit should be drawn from sub distribution board to the 5/15 A power plug).
2. All power circuits should be wired with 2 Nos. of PVC insulated 4 Sq.mm multistranded copper conductor wires along with 2.5 Sq.mm PVC insulated multistranded copper wire as earth continuity. The individual circuit should be taken from nearest main distribution board/sub distribution board/ distribution board as per the directions of Engineer at site.
3. All the fittings should be earthed properly with earth continuity wire. The size of the earthing wire should not be less than half of the size of the conductor along which it is provided, the minimum being 1.5 Sq.mm.
4. The PVC insulation should conform to IS; 694/90 or latest and copper conductor should conform to IS: 8130/84 or latest.
5. All cables/conductors, wiring material makes shall be any one of the approved make/brand.
6. All the lights, fans, 5A modular plug sockets should be controlled by 5A modular switch of approved make/brand.
7. The modular type bell push should be of approved make/brand.
8. All the FT light fittings & fans should be connected from three terminal ceiling rose with three-core PVC insulated copper flexible cable.
9. The 5/15 A modular power plug should be of approved make/brand.
10. The 2/3 pin 5A modular plug socket should be of approved make/brand.
11. All the boards should be of MS/polycarbonate fire retardant unbreakable type as specified in the schedule.
12. The FT fitting shall be fixed on 2 Nos. of round blocks and connected from ceiling rose with PVC insulated flexible copper cable.
13. All the incoming mains from sub distribution board to meter board should be connected with 2 Nos. of suitable size PVC insulation conforming to IS: 694/1990 or latest and Copper conductor conforming to IS; 8130/84 or latest along with 1 No. of suitable size PVC insulated multistranded copper wire as earth continuity.
14. All the sub-circuit mains from meter board to individual distribution boards/switch boards should be connected with 2 Nos. of suitable size PVC Insulation conforming to IS: 694/1990 or latest along with 1 No. of suitable size PVC insulated multistranded copper wire as earth continuity.
15. The patch works left after electrical wiring/rewiring, are to be attended and to be brought back as it was prevailing earlier duly taking up necessary plastering and distempering/white washing etc., Further, while doing drilling etc., it should be ensured that no damage is caused to the walls of the building.
16. PVC conduits shall be laid in parallel/perpendicular to the walls/roof shall be arranged properly. Further the total wiring in the service buildings shall appear elegant.
17. As per Railways site Engineer's instructions, the wiring is to be taken up in PVC concealed wiring suitable to the site conditions.
18. Conformity with the Indian Electricity Rules.

The installation work shall be generally carried out in conformity with the requirement of Indian Electricity Rules 1956 as amended from time to time.

All the materials, fittings, equipment and other accessories used in the electrical installations shall conform to relevant Indian standard specification wherever they exist and shall be of approved make. In case an Indian standard.

Specification does not exist the materials and other items shall be approved by the competent authority. Specification of materials used generally in the wiring installations and electrical fittings



to be of approved makes. Approval of samples to be obtained by the contractor from the Engineer-in-charge of the Railways before commencement of the work.

19. Workmanship: Good workmanship is an essential requirement for compliance of the wiring of installation. The work of electrical installation shall be carried out under the supervision of a person holding a certificate of competency issued by recognized authority.
  20. All the wiring work should be carried out in the presence of Railway's Engineer at site and in accordance with the of Indian Electricity Act 1910 & with IE rules 1956 amended up to date. During wiring colour code of cables/conductors as per IE Rules 1956 shall be strictly followed.
  21. The specification to be strictly followed for point wiring, sub-circuit wiring, main circuit wiring etc., specified in the scope of work and tender schedule and the work shall conform to relevant Indian standard code of practice. For the electrical installation works, relevant codes of practice for safety shall be followed.
  22. The sample of fittings/switches and any schedule item should be got approved by Sr. DEE/M of the division before commencement of the work. The approved samples will be kept with the nominated Section Engineer. The divisional officer will exercise adequate care to ensure that approved fittings, switch boards, modular switches and other accessories etc., are suitable as per aesthetics of civil engineering structure.
6. Wherever composite tender for combined civil engineering and electrical works are not existing, the concerned divisional electrical in-charge i.e. Sr.DEE/M will give the conduit plan as well as the location of inspection boxes, junction boxes and switch boards to the engineering department before tenders for the work are floated so that conduit pipes are provided inside the walls and ceiling at the time of construction itself in order to facilitate concealed wiring by the electrical department later. The conduit pipe shall preferably be procured and provided by the Engineering department. Suitable openings will be provided during civil engineering construction, as per the plan given by Electrical department, for providing inspection boxes, junction boxes and switch boards etc., later by the Electrical department.

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## **SPECIFICATION NO. B/E.CN/SPEC./01**

### **SPECIFICATION FOR INDOOR CUBICLE TYPE 430 VOLTS, 3 PHASE, 4 WIRE SWITCH BOARD PANEL**

- 1. GENERAL:** The switch board shall be made of 2 mm thick CRCA sheet, Vermin, rust and weather proof, design for indoor installation and shall be easily extensible on either side. The unit shall be complete with Floor mounting pedestal.

The switch Board shall comprise of totally enclosed Bus Bar chambers with centrally located Bus bar coupler incomers, ACBs and outgoing feeders, as per the Schedule of requirements. The insulation level of the frame shall withstand to 2.5 KV (RMS) power frequency test.
- 2. BUS BAR CHAMBER:** Bus bar chamber shall be fabricated and arranged in a box form with detachable front and rear covers. The Electrical grade Copper extruded bus bar of sufficient cross section such that the current density does not exceed 1.6 Amp for Square millimeter at normal current rating shall be provided. The bus bar shall be colour coded with heat shrinkable sleeves and supported at frequent intervals to withstand maximum electrical stresses by means of suitable epoxy glass resin blocks.
- 3. AIR CIRCUIT BREAKER 800 Amps, 4 POLE:** The microprocessor Air Circuit Breaker conform to IS:13947-2, IEC 60947-2 or latest of suitable capacity, motor operated mechanism, with mechanical and electrical closing motor and closed solenoid of 220-240 V AC/DC and shunt released of 220-240 AC/DC, 500 V AC suitable for use on 400/440Volts, 3 phase 50 Hz AC supply, 50 KA breaking capacity  $I_{cu}=I_{cs}=I_{cw}$  for 1.0Sec. The Air Circuit Breakers shall be microprocessor based adjustable current and time settings for over current, short circuit and earth fault protection with CT's at the maximum rating with specified frame size.
- 4. MOULDED CASE CIRCUIT BREAKERS:** The MCCBs shall generally conform to IS:13947-2, IEC 60947-2 or latest. They shall be Microprocessor/Electronic based released with over load, short circuit and Earth fault protection, suitable for applications of 400/440Volts, 4 pole 25 kA/36 kA/50 kA, 50 HZ, AC supply, MCCB's shall be mounted on the door of the switch board making it possible to open or close the breaker from outside.
- 5. METERING PANEL:** The indicating meters shall be of suitable size flush mounting pattern and industrial grade 1 accuracy. The meters shall be provided with protective fuses, selector switches wherever required.
- 6. EARTHING:** Suitable arrangements shall be provided for the earthing of frame work and metal parts of the switch gear in accordance with the Indian Electricity ACT and Rules.
- 7. TERMINAL ARRANGEMENTS:** Each feeder unit shall be provided with compression gland complete with gland armoured clamp and suitable to receive 4 core, 110 V grade cables with Aluminum conductors of various sizes as per the requirements at site.
- 8. PAINTING:** All steel work in the construction of panel shall undergo a SEVEN TANK PROCESS of rust proofing process comprising alkaline degreasing, de-scaling in dilute sulphuric acid, solution and recognized phosphating process. The steel work shall then receive 2 coats of filler oxide primer before final painting.
  - ☐ **Degreasing:** All the steel components to be painted should be effectively cleaned by Alkaline degreasing.
  - ☐ **Pickling:** Oxide scale and rust formation are to be removed in a hot bath sulphuric acid fitting of the surface is to be prevented by the use of pickling inhibitors.
  - ☐ **Cold Rinsing:** The parts then shall be washed with cold water to remove all the traces of acidic solution.
  - ☐ **Phosphating:** In order to obtain durable paint coating, the metal surface is to be given phosphative treatment by developing a phosphate layer on the surface preferably hot granodire solution will be used in the phosphating plan.
  - ☐ **Passivating:** This process will be carried out by using diodilite solution.
  - ☐ **Drying:** The treatment parts will be dried in a hot chamber in a dust free atmosphere to ensure that they are absolutely clear and dry before the paint is applied.

- ☐ **Primer coating:** The treatment and dried parts are sprayed with high corrosion premier,
- ☐ **Stone drying:** The primer coating is to be baked in a electrically heated storing oven. The operation is to be carried out in strictly controlled temperature and time conditions.
- ☐ **Finishing coat:** The finishing paint coat is powder coat of siemens grey shade of over baked mat finish.

**9. DESIGN AND DRAWINGS:** Design of cubicle type of switch board panel and fully dimensioned drawings, offered by tenderer, showing the arrangement of Switch-gear, size of angles channels and sheet used in supporting frame work, foundations details, cable termination arrangements with legend shall be submitted in quadruplicate.

**10. TEST SHEETS:** Triplicate copies of certified test sheets carried out at market work shall be submitted to the **Dy.CEE/C/BZA** prior to effective supplies.

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### SPECIFICATION FOR LUMINAIRES INDOOR LED LIGHTS

S. No.	Parameters	Technical Specifications
1	Type of LED	High Power, SMD (Surface Mounting Device)
2	Lumen Output/Efficacy of the system	$\geq 120$ Lumens/W
3	LED Bulb life	$\geq 50,000$ burning hours
4	Nominal Voltage	220-240 V AC
5	Input Operating Voltage	140 - 270 V AC (Auto restart)
6	Driver type	Constant current driver with short circuit protection with inbuilt high & low voltage cut off.
7	Bulb Cover	UVP3 stabilized poly carbonate
8	Correlated Color Temperature (CCT)	Cool White 5000-6500 K (OR) As Specified
9	Color Rendering Index (CRI)	$\geq 80$
10	Power factor (PF)	$\geq 0.95$
11	Ingress Protection (IP)	$\geq$ IP 40
12	Surge Voltage/Protection	To withstand $\geq 2$ kV
13	Driver Efficiency	$\geq 85\%$
14	Total Harmonics Distortion	Maximum 10%

**NOTE:**

1. NABL Test reports for LED luminaire shall be submitted. Driver performance Requirements to IS:60104/IEC:62384 & Driver safety requirements to IS:15885/IEC:61347. Firm shall submit driver performance/safety from NABL/BIS.
2. Firm shall submit LM 79/IS:16106 test report for luminaries from NABL accredited laboratory and LM- 80/IS:16105 test report for LEDs should be from accredited National/International certifying agencies. LM79 report with wattage variation upto  $\pm 5\%$  of the specified rating is acceptable.
3. Firm shall submit warranty (for free replacement) Certificate for 5 years along with supply.

### SPECIFICATION FOR LUMINAIRES OUTDOOR LED LIGHTS

S. No.	Parameters	Technical Specifications
1	Type LED	High Power LED, SMD (Surface mounting Device)
2	Lumen Output/ Efficacy of the system	$\geq 120$ Lumens/W
3	LED life	$\geq 50,000$ burning hours
4	Depreciation	30% max. after 50,000 burning hours
5	Nominal Voltage	220 - 240 V AC
6	Input Operating Voltage	140 - 270 V AC (Auto restart)
7	Control of Distribution	Fully cut off
8	Driver type	Constant current potted driver with short circuit protection with inbuilt high & low voltage cut off.
9	Surge Protection	Internal 4kV & External $\geq 10$ kV
10	THD (Total Harmonic Distortion)	$\leq 10\%$
11	Driver Components	Industrial Grade only
12	Efficiency of driver electronics	$\geq 85\%$
14	Correlated Color Temperature (CCT)	5000-6500 (OR) As Specified
15	Color Rendering Index (CRI)	$\geq 70$
16	Power Factor	$\geq 0.95$
17	Construction of Housing	Pressure die-cast aluminum/ Extruded Aluminum
18	Finishing	Anodizes/Powder Coated
19	Secondary Optics	Poly carbonate lens/Silicon
20	Mounting	Suitable for existing pole/ Truss/ Lantern mounted etc.
21	Ingress Protection (IP)	$\geq IP66$

**NOTE:**

1. NABL Test reports for LED luminaire shall be submitted. Driver performance Requirements to IS:60104/IEC:62384 & Driver safety requirements to IS:15885/IEC:61347. Firm shall submit driver performance/safety from NABL/BIS.
2. Firm shall submit LM 79/IS:16106 test report for luminaries from NABL accredited laboratory and LM- 80/IS:16105 test report for LEDs should be from accredited National/International certifying agencies. LM79 report with wattage variation upto  $\pm 5\%$  of the specified rating is acceptable.
3. Firm shall submit warranty (for free replacement) Certificate for 5 years along with supply.

**SPECIFICATION FOR BLDC 5 STAR RATED CEILING FAN**

S. No.	Description	Specification
1.	Motor	Brushless DC (BLDC)
2.	Sweep size	1200 mm
3.	Min. Air Delivery	220 Cu.m/Min
4.	BEE Star Rating	5 Star
5.	Power Consumption & Power Factor	28 Watts (Max.) & 0.98
6.	Speed	Variable Speed
7.	Total Harmonic Distortion	8%
8.	Speed Control	Step type Electronic Regulator or/and IR Remote operated
9.	Voltage Range	140 V to 240 V
10.	Standard Color	White/Brown/Cream/Ivory
11.	Blade Thickness	1.1 mm and 3
12.	Blade Material	Aluminium
13.	Double Ball Bearing	Yes
14.	Down Rod size (without Shackle)	300 mm
15.	Shank Thickness (Min.)	2 mm
16.	Shackle Thickness (Min.)	2 mm
17.	Canopy	2 Nos.
18.	Testing	Type testing reports to be submitted, issued any NABL accredited certifying agency
19.	Warranty	5 years
20.	Governing BIS specifications	IS: 374/2019 (Fourth Revision) – Specification for Electric Ceiling Fan that covers Performance and Safety requirements of BLDC fans

**(I) SCHEDULE OF GUARANTEED PERFORMANCE AND OTHER PARTICULARS OF 11 KV SERIES REACTORS FOR CAPACITORS**

<b>Sl.No.</b>	<b>Description</b>	
1.	Type and make	Aluminium wound/Air Cored/Dry Type/ Outdoor /Neutral End Reactor in Open Execution.Shreem/Shrihans/ PS Electrical /reputed Make
2.	Insulation level	28 KV(rms)/75 KV(Peak)
3.	Rated current and voltage	60.245 Amps & 11 KV
4.	Rated capacity/inductance	0.88 KVAR/0.7716 mH
5.	Rated Frequency	50 HZ
6.	Compensation percent of series reactors	0.2%
7.	Number of Phases	Single Phase
8.	Dimensions (Overall) x L X B X H (mm) (Approx.)	<b>As per approved drawings</b>
9.	Total weight/weight of coil and assembly unit	<b>As per approved drawings</b>
10.	Rated short time current and specified duration	16.6 times of 130% of rated current for 2 Sec
11.	Reactance at rated current	0.24 ohm
12.	Type of cooling	Air natural Cooled (AN)
13.	Load losses	210 Watts
14.	Winding resistance (cold/hot)	0.04 ohm
15.	Voltage and current rating of reactor bushing	Not Applicable
16.	Rated KVAR	0.88
17.	Terminal arrangement	Suitable for Bus bar connection on IC & OG side
18.	Maximum system voltage for which reactor is designed	12.65 KV
19.	Choke voltage/Phase at rated current	15.06 Volts
20.	Conforming to ISS	IS 5553 (Part-3)-1990
21.	Whether reactor designed for	
	a) Harmonics	NO
	b) Inrush current	Yes
22.	Type of shielding adopted in the reactor	No shielding provided Open execution

**SPECIFICATION FOR DIESEL GENERATOR SET**

- 1. Scope:** Supply of CPCB IV+ DG Set of 1000 kVA at 0.8 PF 415 V 50 Hz 3Ø Radiator cooled and Turbocharged complete with 1500 RPM Diesel Engine of suitable BHP & AC Brush less Alternator mounted on a common base Frame & coupled through a flexible coupling or close coupled.
- 2. Alternator:**
  1. 1500 RPM, 1P or 3P, Brushless type, screen protected, revolving field, Self-excited alternator conforming to IS/IEC 60034-1 IP23, with standard Alternator Protection (over voltage, over speed & Under voltage)
  2. A reliable long life with superior class 'H' insulation with temperature rise to Class H
- 3. Diesel Engine:**

Engine should comprise of Silencer, Electronic governor, suitable rating battery, Battery charging alternator, battery charger, Inbuilt Fuel tank with fuel pipe, AVM pads, Control panel with 3P MCCB of suitable rating with short circuit protections (25kA, 36kA, 50kA) with microprocessor based controller indicating genset parameters (i.e. volt, amps, KWH, KVAR, Hrs etc.), The diesel engine shall be capable of providing 10% overload for 1 Hr for every 11 Hrs of continuous running at full load. The DG set shall be supplied as per OEM specifications and shall be tested at site along with below.

  - i. CRDI Engine
  - ii. Water cooled Radiator coupled to engine
  - iii. Dry type air cleaner with service indicator
  - iv. First fill of lube oil, Coolant & first fill of Diesel
  - v. Electrical starter motor with soft start System
  - vi. Battery charging alternator
  - vii. Remote Monitor system
  - viii. 2 years / 5000 Hrs Warranty from commissioning or 30-month form supply.
  - ix. Emission control system - EGR & (DOC, SCR for >75 KVA DG set)
  - x. 10 Mtrs Exhaust pipe from Silencer
- 4. Genset Controller:**
  - i. Microprocessor based genset monitoring, metering and control system with full graphics LCD display for easy front panel access.
  - ii. AMF relay, manual and remote start / stop modes for 1-ph & 3-ph gensets
  - iii. Backlit and full graphics display with power saving feature
  - iv. Engine parameter monitoring -Lube oil pressure, Engine coolant temperature, Fuel level, Battery voltage, Engine running hours
  - v. AC Alternator parameter monitoring -Voltage L-N & L\_L, Current, kW, kVA (Phase & Total), Frequency, KWH, PF
  - vi. Genset Protection: Engine: Low lube oil pressure, High coolant temperature, Battery High/Low Volts, Fail to Start, Sensor failure, Low fuel level, Overspeed AC Alternator: Over/Under Voltage, Over/Under, Frequency, Loss of AC sensing, Over frequency, Over Current, kW Overload, Unbalancing load
  - vii. Maintenance notification based on Engine Run Hour & due date
  - viii. Communication: USB port, RS485, CAN
  - ix. 9.30-50 Event logs
- 5. Acoustic Enclosure:**
  - i. Specially designed to meet stringent MOEF/CPCB IV+ norms
  - ii. Weatherproof, powder coated Acoustic enclosure for DG set for sound attenuation fabricated from 1.2 mm / 1.6 mm CRCA sheet steel (structure) with side wall fabricated from 1.2mm /1.6 mm CRCA sheet and filled with PU Foam/Rockwood for Fire retardant acoustic and for better safety
  - iii. Designed to operate in extreme climatic conditions in temperatures ranging from -10 deg to 55 deg without any external aid
  - iv. Fabricated base frame with AVM pads.
  - v. Noise level is less than 75 db (A) at a distance of 1 Mtrs as per CPCB norms, complete in all respect.



- 6. Governing:** The Governing employed shall be of class A-1. The engine shall be provided within the limits stipulated under class A-1 Electronic governor as per ISO 3046/BS 5514 with actuator as per standard design of manufacturer. Governor shall be a self-contained unit capable of monitoring speed.
- 7. Mounting Arrangements:** The Diesel Engine and Alternator shall be mounted on a liberally designed rigid fabricated bed plate. It shall not flex due to vibrations in service or during handling. Suitable anti-vibration mountings of "DUNLOP" make only to be provided. The base frame shall be sturdy, welded construction, channel irons of suitable size with required number of holes drilled for fixing. The alternator shall be directly coupled to the engine through a suitable design flexible coupling capable of absorbing slight mis-alignment to ensure smooth running.

Technical Specification of 9 Mtr Hot Dip Glavanised Street Light Octagonal Pole		
S.I NO	DESCRIPTIONS	DESIRED/REQUIREMENT
1	General Specifications	Fabrication, Transportation and supply of hot-dip galvanized Octagonal Pole. with BSEN - 10025 grade S 355 JO steel plate for shaft, IS 2062 for base plate with door opening arrangement, including the supply of suitable boards with bakelite sheet and MCB's as per IS specification suitable to withstand the wind speed of 180KMPH for 9 Mtrs mounting height Pole having dimensions bottom 185 mm,. Top 70mm with 3mm thick, base plate 275 x 275 x 20mm and 4 Nos of M24 x 1000 long 'J' bolts along with templates. Including Supply of 1.5M Dragon type decorative Single arm Galvanize finished bracket (The design should be approved from field Engineers)
2	Pole Shaft	The pole shaft shall be made from sheet steel confirming to BSEN 10025.The pole shaft shall have octagonal cross section and shall be continuously tapered with single longitudinal welding. There shall not be any circumferential welding. All octagonal pole shafts shall be provided with the rigid flange plate of suitable thickness (as per IS 2062) with provision for fixing 4 foundation bolts. This base plate shall be fillet welded to the pole shaft at two locations i.e. from inside and outside.
3	Door Opening	The octagonal Poles shall have door of approximate 500 mm length at the elevation of 500 mm from the Base plate. The door shall be vandal resistance and shall be weather proof to ensure safety of inside connections. Bakelite sheet with one MCB and stud type connector ( 4 nos) inside the pole at door opening for cable connection.The door shall be flush with the exterior surface and shall have suitable locking arrangement. There shall also be suitable arrangement for the purpose of earthing. The pole shall be adequately strengthened at the location of the door to compensate for the loss in section.
4	Material	Octagonal Poles -Steel Grade BSEN 10025 - S355J0 or Equivalent Base Plate Fe 410 conforming to IS 226 / IS 2062
5	Pole Sections	The Octagonal Poles shall be in single section. There shall not be any circumferential weld joint.
6	Galvanization	The poles shall be hot dip galvanized as per relevant Indian standards with average coating thickness of minimum 65 micron.
7	Fixing Type	The Octagonal Poles shall be suitable for bolting on a foundation with a set of four foundation bolts for greater rigidity.
8	Documentation	Pole drawing along with details of baseplate , foundation bolts and foundation details (RCC) shall be submitted along with offer

## **ANNEXURE TO DG SET SPECIFICATION**

### **Guaranteed Technical particulars of Diesel Generating Sets to be furnished by the tenderers**

#### **I. DIESEL ENGINE:**

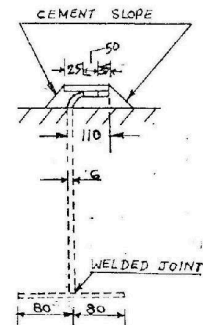
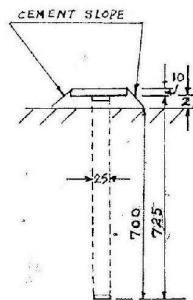
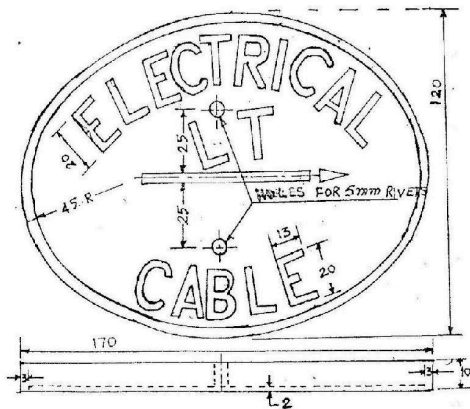
1. Name of the manufacturer.
2. Type
3. Model and number of cylinders.
4. IS rating.
5. Direction of rotation.
6. Mode of starting, details of apparatus required.
7. Whether two stroke or four stroke.
8. Number, arrangement and material of cylinders.
9. Cylinder bore (mm)
10. Cube capacity (liters)
11. Stroke (mm)
12. Nominal compression ratio.
13. Compression pressure.
14. Power rating of the engine under standard reference conditions in KW.
15. Rated Speed (rev/min)
16. Fuel injection pump type, make and number of units.
17. Fuel injection pressure at (a) Full rated out-put (b) No load.
18. Type of governing and its sensitivity.
19. Thermal efficiency.
20. Fuel oil service tank capacity (liter)
21. Recommended fuel oil specification.
22. Specific fuel oil consumption.
23. Lubricating oil specification.
24. Lubricating oil sump capacity.
25. Lubricating oil consumption.
26. Maximum permissible temperature of lubricating oil (°C).
27. Muffler (silencer) type.
28. Filter type and make for (a) Air (b) Fuel (c) Lubricating Oil.
29. Weight of engine (kg)
30. Overall dimension of Engine and outline drawing (L x W x H) in mm.
31. Performance curves as per IS:10000 (Part-VI) 1980 at standard reference conditions specified in IS:10000 (Part-II) 1980.
32. Accessories on engine as tested.
33. Details of safety devices provided.
34. List of standard equipment and tools covered by the offer.
35. List of optional equipment, if any, offered.
36. Schedule of recommended maintenance and overhaul periods.
37. Maximum permissible back pressure in the exhaust system and maximum permissible in take depression
38. Method of cooling and the capacity of the cooling system with the specified rates of water and oil circulation.
39. Any other information appropriate to the particulars of engine application.

## **II      ALTERNATOR:**

1.    Name of the manufacturer.
2.    Type
3.    Model and frame size
4.    Type of duty
5.    Rate output in kVA/kW
6.    Power Factor
7.    Rated voltage and winding connections.
8.    Current at rated output (Amp)
9.    Frequency with tolerance on full load.
10.   Excitation current and voltage at rated output.
11.   Weight of the Alternator in Kg.
12.   Overall dimensions (L x W x H) in mm.
13.   Speed in rev/min.
14.   Class of insulation.
15.   a) Guaranteed temperature rise in the motor winding etc., on full load.  
      (b) Margin available for the class of insulation used.
16.   Type of Field excitation and control.
17.   Efficiency of the alternator at rated output.

\*   \*   \*

**DRAWING NO. DEE/CN/BZA/2001/23**  
**DRAWING FOR CABLE ROUTE INDIACTORS**



**NOTE:**

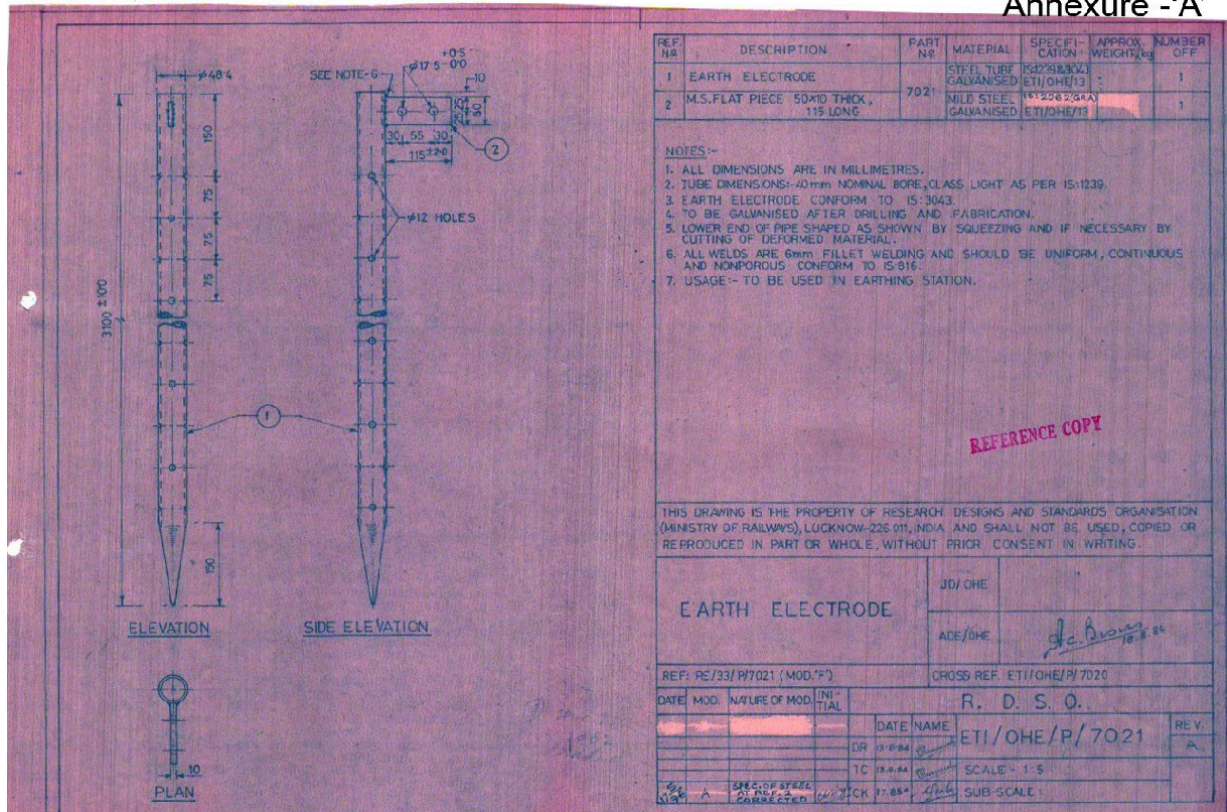
1. CABLE MARKERS AND STEMS SHOULD BE DIPPED IN HOT TAR AND ALLOWED TO DRY.
2. TABLETS ON ELECTRICAL CABLE MARKERS TO BE PAINTED RED.
3. ALL DIMENSIONS ARE IN MM.
4. THIS DRAWING HOLDS GOOD FOR HT POWER CABLE ALSO THE LETTERING SHOULD BE SUITABALLY MODIFIED.

SOUTH CENTRAL RAILWAY	
ELECTRICAL CABLE MARKER	
DRG. NO. DEE/CN/BZA/2001/23	
SCALE	NTS
DATE	21-11-2001
DRAWN	B. L. Gao

DEE/CNB

**DRAWING NO. ETI/OHE/P/7021**  
**DRAWING FOR EARTH ELECTRODE**

Annexure - 'A'



## Regulations for Safe Working on Electrical Equipment

### SECTION—I

Terms and Definitions: For the purpose of these rules unless there is something repugnant in the subject or context the following terms will have the meaning here in assigned to them

1. **Accessible.** Within physical reach without the use of any Appliance or special effort.
2. **Alternative feed switch or changeover switch:**A switch used for connecting either one of the two sources of the supply to an electrical circuit
3. **Authorized Person:** A Person who is duly authorized to perform the duties appertaining to his employment, the authorization being made by an Officer of the Railway Administration empowered for that purpose. The works which an authorized person is authorized to carry out are defined in Certificates of Competence vide Appendix II. The geographical area over which the jurisdiction of the authorized person extends shall be clearly defined by the Competent authority.
4. **Bare:** Means not covered with insulating materials.
5. **Cable:** A length of insulated single conductor (solid or stranded or of two or more such conductors, each provided with its own insulation, which are laid up together. Such insulated conductor or conductors may or may not be provided with an overall mechanical protective covering;
6. **Cable-Flexible:** A cable consisting of one or more cores each formed of a group of wires, the diameter and the physical properties of the wires and the Insulating material being such as to afford flexibility.
7. **Caution Notice:** A notice attached to live equipment calling attention to the danger of touching or Interfering with such equipment.
8. **Circuit:** A number of conductors connected together for the purpose of carrying current. they form 3 closed path through which a current can circulate, the circuit is referred to as 'closed-. When the path is not closed, the circuit is referred to as 'open".
9. **Circuit Breaker:** A switch for opening automatically, unless other-wise specified, a circuit under abnormal conditions such as those of overload or fault.
10. **Conductor:** A body or substance which offers a low resistance to the passage of an electric current.
11. **Conduit:** Rigid or flexible metallic tubing or mechanically strong and fire resisting non-metallic tubing into which a cable or cables may be drawn for the purpose of affording it or them mechanical protection.
12. **Cut-Out:** Any appliance for automatically cutting off the transmission of energy through any conductor when the current rises above a predetermined amount.
13. **Danger:** Danger to health or danger to life or any part of body from shock, burn, or other injury to persons, or property, or from fire or explosion, attendant upon the generation, transmission, transformation, conversion, distribution or use of energy;
14. **Danger-Notice:** A notice attached to dead equipment to convey as warning against such equipment being made alive
15. **Dead:** At or about earth potential and disconnected from any live system; Provided that apparatus separated from a live conductor by a spark gap shall not be deemed to be dead NOTE The term 'dead' is used only with reference to current carrying parts then these parts are not alive.
16. **Dead Equipment:** Electrical equipment which is not electrically alive.
17. **Distribution System:** A system of electrical equipment by means of which electrical energy in the form of alternating or direct current is distributed over a given area
18. **Earth:** The conducting mass of the earth or of any conductor in direct electrical connection there with.
19. **Earthed:** Or 'connected with earth' - Connected with the general mass of earth in such a manner as to ensure at all times an immediate discharge of energy without danger;
20. **Earthing Connection:** A metallic conductor for connecting electrical equipment to earth.

21. **Electrical Equipment:** Any apparatus which is used for generation transmission or utilisation of electrical energy
22. **Feeder:** A conductor connecting (a) generating station with a sub-station or feeding point or (b) a substation with a feeding point
23. **Guarded:** Covered, shielded, fenced or otherwise protected by means of suitable casing, barrier, rail or metal screens to remove the possibility of dangerous contact or approach by persons or objects to a point of danger.
24. **High Voltage:** A Voltage which under normal working conditions may exceed 850 volts.
25. **Insulator or Insulating Material :** Material which offers relatively high resistance to the passage of an electric current
26. **Isolator :** A switch suitable for disconnecting a circuit under no-load conditions only.
27. **Linesman/Lineman:** A person authorized to inspect and work on overhead lines and switches in relation therewith.
28. **Live Equipment:** Equipment which is electrically alive. Electrical equipment is alive when a potential difference exists between it and earth or when it is connected to another conductor or circuit in which such a potential difference exists.  
***NOTE:** In the case of an overhead electric supply line the space between the top of the pole and a distance of 6 feet below the bottom conductor is to be regarded as 'Live Equipment'.*
29. **Operator:** A person in charge of a sub-station or a Generating station
30. **Overhead equipment:** Any electrical conductors run above the ground together with their associated fittings, insulators and other attachments, by means of which electrical power is transmitted or distributed.
31. **Neutral conductor:** Conductor of a multi-wire system the voltage of which is normally midway between the voltage of the other conductors of the system
32. **Permit-to-work:** A form of declaration signed and given by an authorized person to a person in charge of work to be carried out on or adjacent to any electrical equipment, for the purpose of making known to such person exactly what equipment is dead, earthed and safe to be worked on or adjacent to.
33. **Portable:** So designed as to be capable of being moved while in operation
34. **Portable hand lamp:** A portable light fixture provided with suitable handle, guard and flexible cord connected to a plug.
35. **Power (or Generating) station:** A building complete with equipment installed for the generation and supply of electrical energy.
36. **Pressure or Voltage:** The difference of electric potential measured in volts between any two conductors or between any part of either conductor and the earth as measured by a suitable voltmeter and is said to be
  - a. **Low** - Where the voltage does not exceed 250 volts under normal conditions by an amount greater than 5 percent of the normal pressure where the energy is used
  - b. **Medium** - Where the voltage does not exceed 650 volts under normal conditions by an amount greater than 5 percent of the normal pressure, where energy is used
  - c. **High** - Where the voltage does not exceed 33,000 volts under normal conditions by an amount greater than 12.5 percent of the normal pressure where energy is used
  - d. **Extra High** - Where the voltage exceeds 33,000 volts.
37. **Section switch:** A switch used for connecting or disconnecting adjacent sections of overhead equipment and/or transmission lines.
38. **Span:** The horizontal distance between two adjacent supporting points of an overhead conductor
39. **Switch:** A device for opening and closing an electrical circuit
40. **Switchgear:** Switches, cut-outs or fuses conductors or other apparatus in connection therewith used for the purpose or part of a system.



41. **Sub-stations:** An assemblage of equipment, installed for the supply of electrical energy and comprising converting or transforming machinery, batteries or controlling apparatus. but no prime movers.
42. **System:** Means an electrical system in which all the conductors and apparatus are electrically connected to a common source of pressure.
43. **Transmission lines:** Cables or bare overhead conductors by means of which electrical energy is transmitted between various points to the distribution system
44. **Unauthorized person:** A person who is not permitted to work on electrical equipment except under the personal supervision of an 'Authorized person'

## **SECTION II**

### **GENERAL RULES**

45. **Warning to staff:**
  - a. Safety of the staff should be considered first as a prime factor for the working. All Electrical equipment shall be regarded as being alive at all times and consequently dangerous to human life except in cases where the electrical equipment has been Specially made dead in accordance with the provision of these Rules
  - b. All Railway servants other than those deputed to work on or near electric equipment shall be warned to keep away there from
  - c. No new H.T. installation shall be energized without the prior approval of the Chief Electrical Engineer
46.
  - a. **Work on electrical equipment:** Before commencing and for the whole time that work is being performed on any part of the electrical equipment or adjacent thereto, that part of the electrical equipment shall be made dead, Safe and earthed Every working party shall be protected by independent earths When it is necessary to earth the overhead equipment or transmission lines a minimum of two earths shall be employed one on each side of the working party
  - b. **Afterswitching 'OFF'** the supply and before touching the lines or permitting staff to work on the lines the authorized Person shall in the case of lines energized at medium or low pressure, put on rubber gloves and test each and every one Of the lines for pressure by means of either (i) a Tension Indicator (ii) a "Test Lamp- which shall consist of two lamps of equal wattage and same voltage in series. The sum of the rated voltage of the test lamps shall not be less than the pressure under test-  
In case of high pressure, when suitable apparatus is not available it is essential that rubber gloves shall be worn and the following instructions shall be carried out.
  - c. Before attempting to handle the overhead equipment or any other electrical equipment in order to fix proper earthing a temporary earthing connection shall be fixed to the rail or earth and the other end shall be hooked over the electrical equipment by means of an insulated rod and kept there until such time as a permanent earth has been fixed
  - d. **Permanent earthing** connection shall be fixed first to the rail or earth and afterwards to the electrical equipment. The clamps of the earthing connection shall be securely tightened at both ends
  - e. Precautions to be observed by staff when working on Electrical equipment are defined in Appendix I

## **Section-III**

### **Certificates of competence and Authorization**

47.
  - b. No work on the electrical equipment or in the vicinity of electrical equipment with the exception of the replacements of insulated bridge type fuses and lamps) shall be carried out by anyone, except an "authorized person" or under the direct supervision of an 'authorized Person'.

- c. The authority who shall designate authorized persons will be the Divisional Electrical Engineer-in-charge of the Division/Senior electrical Engineer in Workshops These Officers shall issue a "Certificate of competence" to each authorized person in the form prescribed for the purpose. The procedure laid down at Appendix- II in regard to the issue of 'certificate of competence'. maintenance of register for issue of the certificates. inspections etc shall be rigidly followed
- d. At a central point e.g. office of the Electrical Supervisor in-charge of a Sub-station (which Shall be notified by the Divisional Electrical Engineer/Workshop electrical Engineer) a; each station or settlement there shall be displayed a list of "Authorized Persons" and against the name and trade designation of each will be entered the extent to which they are authorized to handle electrical apparatus
- e. No person shall be deemed to be authorized unless his name is entered in the register of "competency certificates" and a certificate in the appropriate form is issued in his favour as indicated at Appendix II

48. **Permits to work on or near Electrical Equipment:**

- i. It work is to be carried out adjacent to the electrical equipments or on any part thereof by other than Authorized Persons such work shall be done only when and for such time as the person in-charge of the work is in possession of a written "permit-to-work", obtainable on application in accordance with special instructions (See Appendix III)
- ii. "Permits-to-work" shall only be issued by such Authorized Persons as are specially empowered for this purpose by the Railway Administration, and shall only be in the form prescribed by the Railway Administration. Permits-to-work shall only be issued with the knowledge of the person who is responsible for the operation of the power supply on the distribution system
- iii. A duplicate of every permit-to-work issued shall be retained in the office of the authorized person issuing it for a period of 3 months at least except in case of accidents where concerned record will be preserved till acceptance of the findings by competent authority
- iv. The permit will be issued not only to Staff of other than the Electrical Department who might be working on structural or painting work adjacent to live electrical mains but also to electrical staff required to work on electrical equipment and overhead lines.
- v. Where an Electrical Department official himself has to work on an individual item of electric equipment, which is directly under his control, such as on a motor or crane supply lines in a workshop, it is not necessary to issue permit to work, but he must strictly observe all the safety precautions. A supervisor should be continuously present at the works site in all such cases. Permit to work will however, be required if staff belonging to other departments are required to work on or near wires.
- vi. Procedure to be observed by staff in connection with the use of permits-to-work are laid down in Appendix III.
- vii. The "Authorized Person" is the Electrical Department official who is in-charge and controls the electric supply to the area i.e. Wireman in-charge. Mistry in-charge. JE It. JE I. SE or the SSE as the case may be
- viii. In an emergency arising during the absence of the SE, an authorized senior wireman, linemen or Electrician shall carry out the work with an intimation to his superiors immediate) , to avoid prolonged failures. the authorized artisan staff should be trained by the Sr. Subordinates, as to the manner in which to carry out such emergency works when such need arises.
- ix. A list of the men allowed to issue permit-to-work should be maintained in the office of the Divisional Electrical Engineer, and the SSE on each Division. and also 31 each installation. The Divisional Electrical Engineer, will personally examine all men whose names are included in the list in order to ensure that only thoroughly competent men are authorized to issue permits in an emergency.
- x. On minor installations where the Electrical-in-charge consists of a wireman or a line man cum-wireman, he shall be responsible for seeing that the supply of electrical energy is cut off

from the switch room, which should be locked and the key retained in his possession before he commences any work on overhead bare copper mains etc.

- xi. Working on live apparatus-where in continuity of supply is essential it is possible after taking due precautions to work on live electrical equipment for Leaning and repay work particularly in substations and generating stations, such work shall be carried out only under the personal supervision of the SSE. SE in-charge.
  - xii. When an employee is working on live apparatus he shall always be accompanied by another employee capable of rendering first-aid in case of an accidental electric shock.
49. **Access to Electrical Equipment:**
- i. Adequate precautions shall be taken to prevent un-authorized persons gaining access to electrical equipment.
  - ii. No unauthorized person shall be permitted to have access to or to operate any switch or other apparatus which forms part of the electrical equipment or is used in connection therewith
50. **Responsibility for Staff and Equipment Staff:** when at work shall always be under the charge of the senior member who shall be responsible for all work being carried out correctly and in accordance with the rules prescribed by the Railway Administration and in accordance with any special instructions specifically issued. In the case of illiterate staff working on or near electrical equipment the circumstances of the work as affecting their safety and the safety of the electrical equipment shall be explained to them by the senior member.
51. **Accidents to Persons:**
- a. All Accidents to persons shall be reported to the immediate Supervisor without delay, however, slight the injury may be and even though the injured man is capable of performing his duties. First aid shall be rendered if necessary. The injured person shall be sent to a doctor for medical treatment.
  - b. A box containing first-aid equipment shall be kept in each substation and other electrical work depot as directed by the Railway Administration for use when required. A periodical check shall be made of the contents as recorded and any deficiencies shall be reported by the person using the box to the Divisional Electrical Engineer who will arrange for immediate replacement with the Medical Officer concerned.
  - c. In the case of accidents of an electrical nature, an all concerned telegram , Short Message Service (SMS) on mobile " shall be issued when necessary as directed in the rules for reporting accidents
52. **Electric Shocks:** Instructions in English and the regional language regarding the treatment of persons suffering from Electric Shock, shall be exhibited in all power houses, electrical repair shops, and substations and it is the duty of every authorized official to make himself thoroughly familiar with such instructions, and to be able to render artificial respiration. when necessary Electrical shocks are easily received and are easily avoided if proper precautions are taken, in maintaining and handling electrical equipment.
53. **Fire fighting:** In case of fire, do not throw water on live electrical equipment. It is dangerous to you.
- a. When using tire-hose, make sure that the jet of water does not come into contact with live conductors. Don't use a fire extinguisher on electrical equipment unless it is clearly marked as suitable for that purpose. CTC (Carbon Tetra Chloride) or DCPT type extinguishers are suitable
  - b. In case of fire on or adjacent to electrical equipment. switch of the supply immediately to the equipment Fire Fighting apparatus shall be provided at all Power Houses, Substations, Staff, on Buildings etc., and they shall be always maintained in good working order.
  - c. Any Railway servant, who may notice heavy sparking, tire, or break down on or near any Overhead equipment, or Substation etc., must immediately report it to the nearest station or electrical official, for taking necessary action to protect the Electrical Equipment, and rectify the damage.

54. **Register for messages:** All messages relating to operation of switches, issue or permits-to-work and other important communications shall be carefully preserved for a period of at least 6 months. A register of messages shall also be maintained showing particulars of all shut downs. such as the time when sent and the time when received, etc., and entered in the same serial order, as they were effected. Messages when exchanged over the telephone will also be recorded, duly recording the private numbers so exchanged
55. **Inspection of electrical equipment:** All electrical equipments shall be inspected regularly prescribed by the Railway Administration in accordance with special instructions
56. **Portable apparatus:** Shall be thoroughly inspected once a month, and it shall always be maintained in good working condition. Metallic cased portable tools such as Electric drills, Soldering irons, should be efficiently connected to earth by means of a separate conductor or braiding. through a 3 pin plug. CTS cables should be used to withstand rough usage in work, shops etc. Efficient cable grips should be provided so that the internal connections are not disturbed when the cable is pulled.
57. **Modifications to rules and orders:** Modificationns to these rules and subsequent rules or orders shall be posted conspicuously on Notice Boards or forwarded to the stall concerned immediately after receipt. Additional rules shall take the form of printed slips to be in inserted in Rule Books provided by the Railway Administration.
58. **Inability to obey orders** If for any reason an order cannot be carried out the person from whom it was received shall be notified as soon as possible
59. **Ignorance of rules or orders not an excuse:** Ignorance of rules or orders shall not be accepted as an excuse for mistakes it shall be the duty of all members of the staff to make themselves acquainted with :
- a. Rules for safe working on Electrical Equipment.
  - b. Instructions for Resuscitating in case of Electric shock.
  - c. Indian Elect icily Rules
  - d. Departmental circulars and instructions issued from time to time
60. **Working near Cables:** When excavations are being made adjacent to tracks and cable in an electrified area adequate precautions shall be taken for the safety of the staff and to damage to underground cables. Engineering staff and others working in the electrified must use the greatest care in excavating or disturbing the ground lest damage should be caused to the underground cables Cable Markers or indicators are placed along the cable
- In all electrified areas plans should be maintained indicating generally the position of the buried cables Excavation must not be undertaken in the vicinity of the cable routes until the position of the cables has been ascertained from the Electrical Department and a representative of that department is present.

### IMPORTANT I.E. RULES

S. No.	RULE No.	DESCRIPTION
01	RULE – 3	Authorized person
02	RULE – 29	Construction, Installation, Protection, Operation and maintenance of electric supply lines and apparatus.
03	RULE – 33	Earthed terminal on consumer's premises.
04	RULE – 34	Accessibility of bare conductors.
05	RULE – 35	Danger Notices.
06	RULE – 36	Handling of electric supply lines and apparatus.
07	RULE – 42	Accidental charge.
08	RULE – 43	Provision applicable to protective equipment.
09	RULE – 44	Instruction for restoration of persons suffering from electric shock.
10	RULE – 44 A	Intimation of accidents.
11	RULE – 45	Precautions to be adopted by consumers, owners, occupiers, electrical contractors, electrical workman and suppliers.
12	RULE – 46	Periodical inspection and testing of consumer' installation.
13	RULE – 47	Testing of consumer's installation.
14	RULE – 48	Precaution against leakage before connection.
15	RULE – 50	Supply and use of energy.
16	RULE – 51	Provisions applicable to medium, high or extra high voltage installations.
17	RULE – 58	Point of commencement of supply.
18	RULE – 63	Approval by Inspector.
19	RULE – 64	Use of energy at high and extra high voltages.
20	RULE – 65	Voltage Tests.
21	RULE – 66	Metal sheathed electric supply lines.
22	RULE – 67	Connection with earth.
23	RULE – 68	General Conditions as to transformation and control of energy.
24	RULE – 69	Pole type sub-station.
25	RULE – 70	Condensers
26	RULE – 80	Clearances from buildings of high and extra high voltage lines.
27	RULE – 83	Clearances – General
28	RULE – 88	Guarding.
29	RULE – 90	Earthing.
30	RULE – 92	Protection against lightning
31	RULE – 134	Relaxation by Inspector.
32	RULE – 138 A, 139, 140, 140A and 141	Penalty for breach of Rules.

### GOVERNING SPECIFICATIONS

S. No.	ITEM	SPECIFICATION NO:
<b>Cables</b>		
01	Cable 1100 Volts, PVC Aluminum	IS: 1554/Part.I/1976
02	PVC insulated copper conductor cables of 650/1100 volts grade	IS: 694/1990
03	Cross linked polyethylene (XLPE) insulated PVC sheathed cable above 1.1 kV but up to 11 kV supply	IS: 7098 (Part-II)
04	Paper insulated lead sheathed cables for electricity supply	IS: 692/1973
05	Recommended short circuit ratings of High Voltage PVC cables.	IS: 5819/1970
06	Recommended current ratings for cables – PVC insulated and polyethylene insulated.	IS: 3961 (Part II/1967 & Part IV & V/1968)
<b>TRANSFORMERS</b>		
01	Power Transformers.	IS: 2026 (Part II, III & IV/1977)
02	Potential Transformer	IS: 3156/1978 Part I & II
03	Current transformers. Part – 1 General requirements.	IS: 2705 (Part-1) 1981
04	Voltage transformers. Part – 1 General requirements.	IS: 3156 (Part-1) 1978
05	Outdoor type 3 phase distribution transformer up to and including 100 kVA/11kV	IS: 1180/1964
06	Code of practice for installation and maintenance of transformers.	IS: 1886/1967
07	Current Transformers for special purpose	IS: 2705 (Part-IV/1968)
08	Application guide for voltage transformer	IS: 4146/1967
09	Maintenance of transformer	IS: 10028
10	Insulating oil for transformer and switchgear	IS: 335/1972
<b>SWITCHGEARS/CIRCUIT BREAKERS/SWITCHES</b>		
01	ICTP Switch	IS: 4064 Part.I
02	MCB	IS: 8828/1978
03	Front operated cubicle fuse switch, triple pole with neutral	IS: 4064 / 1978
04	Change over switch, Iron clad front handle operated for 415 volts ac, 50 Hz, supply	IS: 2208
05	Air Circuit breaker	IS: 2516
06	Marking and arrangement for switchgear busbars, main connections and auxiliary wiring.	IS: 375/1963
07	Alternating current circuit breakers	IS: 2516 (Part I & II Sec.1; Part-I – Sec. 2 & 3/1977, 1963 & 1972)
08	Code of practice for installation and maintenance of switchgear	IS: 3072/1975
09	Molded case circuit breaker (MCCB)	IS: 2516 / 1966

10	Code of practice for selection, installation and maintenance of fuses not exceeding 650 V	IS: 3106/1966
11	Metal enclosed switchgear and control gear for voltages above 1000 V but not exceeding 11 kV	IS: 3427/1969
12	Heavy duty Air Break switchgear and composite units of airbrake switches and fuses for voltages not exceeding 1000 Volts.	IS: 4047/1967
13	General Requirements for switchgear and control gear for voltages not exceeding 1000 V.	IS: 4237/1967
14	Switches and switch isolators above 1000 V. But not exceeding 11000 V.	IS: 4710/1968
15	Air break Isolators: Alternating current disconnections (isolators) earthing switches for Voltages above 1000 V. part-1 general and definitions.	IS: 9921 (Part-1) 1981
16	Maintenance of control Panel and switchgear	IS: 10018
17	Cutouts: Enclosed distribution fuse Boards and cut outs for voltages not exceeding 1000 Volts.	IS: 2675 - 1966
18	Fuses: Carriers and bases used in re-wearable type electric fuses up to 650 volts.	IS: 2086 – 1963
19	Air break switches, air break disconnections, air break switch disconnections and fuse combinations units for voltages not exceeding 1000 V ac or 1200 V DC. Part-1 General requirements.	IS: 4064 (Part-1) 1978
20	High voltage, 11 kV Vacuum Circuit breaker	IS: 2516
21	Starters for AC motors of voltage not exceeding 1000 volts	IS: 1822 / 1967
22	Enclosed distribution fuse boards and cutouts for voltages not exceeding 1000 V	IS: 2675 / 1983
23	Distribution pillars for voltages not exceeding 1000 V, ac.	IS: 5039 / 1969
<b>Insulators</b>		
01	Porcelain guy strain insulators	IS: 5300
02	Porcelain insulators for lines with voltage greater than 1000 volts	IS: 731/1971
03	Insulator fittings for 11 kV insulators	IS: 2486 (Part –I) / 1971
04	Insulator fittings for 33 kV insulators	IS: 2486 (Part –II) / 1989
05	Insulator fittings for LV/MV insulators	IS: 7935 / 1975.
06	Porcelain insulators for overhead power lines with a nominal voltage up to and including 1000 V.	IS: 1445/1977
07	Insulator fittings for overhead power lines with a and nominal voltage greater than 1000 V.	IS: 2486 (Part I/1971) (Part II/1974)
08	Porcelain insulators for overhead power lines (3.3 kV and above)	IS: 731 – 1971
09	Porcelain post insulators (3.3 kV and above)	IS: 2544 – 1963
<b>Conduits for Electrical Installations/ Wiring Accessories</b>		
01	Rigid steel conduits for electrical installations	IS: 9537 (Part-2)

02	Fittings for rigid steel conduits for electrical wiring	IS: 2667 / 1976
03	Accessories for rigid steel conduits for electrical wiring	IS: 3837 / 1966
04	Flexible non metallic conduits for electrical installations	IS: 6946
05	Rigid type PVC conduit	IS: 2509
06	Fittings for rigid non metallic conduits	IS: 3419 / 1965
07	Conduits for Electrical Installations. Part-1 General requirements	IS: 9537 (Part-1) 1980
08	Conduits for Electrical Installations. Part-2 Rigid steel conduits.	IS: 9537 (Part-2) 1981
09	Conduits for Electrical Installations. Part-3 Rigid plain conduits of insulating materials.	IS: 9537 (Part-3) 1983
10	Flexible steel conduit for electrical wiring.	IS: 3480 – 1966
11	Socket Outlet, 250Volts, 16Amps	IS: 1293/1988
12	Combined Switch cum socket Outlet	IS: 4615/1968
13	Switch, Piano	IS: 3854/1988
14	Ceiling Rose, 3 way, 5 Amps, 230 volts	IS: 371/1979
15	Lamp Holder, Boynet	IS: 1258/1980
16	PVC wiring outlet boxes	IS: 5133 (Part II)
<b>Lightning Arrestors and Surge absorbers</b>		
01	Application guide for non-linear resistor type surge arrestors for alternating current systems.	IS: 4004/1978
02	Lightning arrestor	IS: 3070 (Part-I)/1974
	Relays / Contactors	
01	Contactors for voltage not exceeding 1000 V ac or 1200 V DC	IS: 2959/1975
02	Electrical relays for power system protection.	IS: 3231 / 1965
03	Application guide for Electrical relays for AC Systems	IS: 3842 – Part I/1967, Part-II & III/1966, Part IV & XII)
<b>Meters / Testers/Instruments</b>		
01	KWH Meters	IS: 722/1972
02	Insulation resistance testers hand operated (Magneto- Generator type)	IS: 2992/1983
<b>Electrical Conductors</b>		
01	All Aluminum stranded conductor	IS: 398 (Part-I)
02	Aluminum conductors galvanized steel reinforced	IS: 398 (Part-II)
03	Aluminum conductors for overhead transmission purposes	IS: 378 (Part-I, II & III/1976)
04	Fittings for aluminum and steel cored aluminum conductors for overhead power lines.	IS: 2121/1962
05	Code of practice for design, installation and maintenance of overhead power lines.	IS: 5613 – Pt.I/Sec.2-1971; Pt.II/Sec I & II/1976.
<b>Shunt capacitors</b>		



01	Shunt Capacitor for Power systems, 440 volts, ac, 50 Hz.	IS: 2834/1986
<b>Earthing</b>		
01	Code of practice for earthing.	IS: 3043 – 1966
<b>Safety Items</b>		
01	Rubber Gloves for Electrical purpose	IS: 4770/1991
02	Rubber Mat for Electrical purpose.	IS: 5424/1969
03	Danger Notice Plates	IS: 2551/1982
04	Guide for safety procedures and practices in electrical work.	IS: 5216/1969
05	Safety belt made with nylon rope	IS: 3521/1983
06	Fire Extinguisher CO2 type.	IS: 2878/1976
<b>AC Electric fans</b>		
01	Electric ceiling type fans and regulators.	IS: 374 / 1979
02	Electrical pedestal type fans and regulators.	IS: 1169 / 1967
03	Air circulator type electric fans and regulators.	IS: 2997 / 1964
04	Exhaust type fan 230 Volts, ac	IS: 2997 / 1964
<b>Lamps &amp; Luminaries</b>		
01	Ballasts for Fluorescent lamps.	IS: 1534 / 1967
02	Starter for fluorescent lamps	IS: 2215 / 1968
03	Tubular fluorescent lamps for general lighting service.	IS: 2418 / 1964
04	By pin lamp holders for tubular fluorescent lamps.	IS: 3323 / 1965
05	F.T. Lamp	IS: 2418/1977
06	F.T. Fitting, Box type, 230 volts, ac.	i) IS: 1534/1977 (Ballast) ii) IS: 2215/1989 (Starter) iii) IS: 3323/1980 (Holder)
07	Tungsten filament general service electric lamps.	IS: 418/ 1978
08	High pressure Sodium vapour lamps. Part –1 General requirements and tests.	IS: 9974 (Part-1)/ 1981
09	HPSV Lamp	IS: 9974/Part.I
10	Flood light Luminaries 230 Volts, ac	IS: 10322/1987
11	Bulk Head Electric Light fitting	IS: 2206 / 1984
12	HPSV Outdoor Luminaries 230 V, ac	IS: 10322 / 1987
13	Street Light fitting F.L. Tube type 40 W, 230 V, ac	IS: 10322 / 1987
14	High bay Luminaries 230 Volts, ac	IS: 1777 / 1978
<b>Pumps</b>		
01	Submersible pump sets for clear, cold, fresh water.	IS: 8034 / 1976
02	Motors for submersible pump sets.	IS: 9283 / 1979
<b>Air – Conditioners</b>		
01	Room air conditioners.	IS: 1391 / 1971

<b>Cast Iron/Galvanized Items/wires</b>		
01	Galvanized steel barbed wire	IS: 278/1978
02	Cast Iron manhole covers and frames	IS: 10322
03	G. I. Wire	IS: 239
04	G.I pipe class heavy	IS: 1239
05	Steel tubular poles	IS: 2713 (Part 1 to 3)
06	Stay wire, Galvanized Iron	IS: 2141
<b>Paint</b>		
01	Paint enamel	IS: 2932
<b>Miscellaneous</b>		
01	Guide for short circuit calculations.	IS: 5728/1970
02	Bitumen based filling compound for electrical purposes.	IS: 7084/1973
03	General requirements and method of test for lead acid storage batteries.	IS: 8320/1976
04	Code of practice for building and tower lighting protection.	IS: 2309
05	Code of practice for installation.	IS: 1255/1967
06	Wiring exceeding 650 Volts	IS: 2274/1967
07	Code of Practice for wiring for installation.	IS: 732
08	Storage type Automatic Electric water Heater 230 volts, ac	IS: 2082/ 1965

### CORE APPROVED SOURCES FOR EARTH ELECTRODES

Sl. No.	Firm Name	Address
1.	M/s Aumni Transmission industry PVT Ltd Vadodara (ID 35315)	<b>AUMINI</b> E- 76, GIDC Manjisar,Taluka Savli Vadodara, Gujarat -391770, India
2.	M/s Chaterjee Engineering Co-Kolkatta (ID 17708)	<b>CEC</b> 3/1 Chandtolla Branch Road Kolkata West Bengal -700053 India Regd Address- 216 A JC Bose road Flat 2A Kolkata west Bengal 700017, India
3.	M/s Chatterjee & (Construction) Pvt Ltd (ID-1051029)	<b>CCC</b> 142/143/2 Madhusudhan paul Chowdhury Lane Howrah West Bengal 711101 India Regd Address: 216 A JC Bose road Flat 2A Kolkata west Bengal 700017, India
4.	M/s Dynamic Steel Forge Rajkot (ID-91949)	<b>DSF</b> Plot No G-2521, Near Bhumi cement Almighty Gate GIDC Metoda Taluka – Lodhika , Rakjot Gujarat – 360021 India.
5.	M/s Jainco Transmission Limited – Kolkata (ID- 1028544)	<b>JAINCO</b> Jalan complex Gate No 1 Lane 7, Jangalpur , Bombay Road(NH-6) Howrah , West Bengal -711411, India Regd Address: Dhanshree Tower, 70, Diamond Harbour Road, Room No 3B & 3C , 3 <sup>rd</sup> Floor Kolkata West Bengal – 700023, India
6.	JHR Overseas (ID-1051914)	<b>JHR/II</b> Village-Chhandra, chd Road Ludhiana, Punjab -141113, India Regd Address: Back side New Era machines , New Model Town, Sahnewal Ludhiana, Punjab -141120, India
7.	M/s Khatri castings private limited – Mumbai (ID-3601)	<b>KHATRI</b> At valvada, Near Karmbele Railway Station, NH-8 Taluka –Umargoan Opp.Maruthi Depot Valsad Gujarat – 396001 India Regd Address: 144 Narman Plaza shoppers stop Bldg S.V Road Kandivali (West), Mumbai Maharastra 400067, India
8.	M/s KSE Electrical Pvt ltd Kolkata (ID-6285)	<b>KSE</b> Jalan Industrial Complex 3rd Main Road , 4th left Lane, NH-6, PO Begri Howrah West Bengal 711411 India Regd Address: Chaterjee Internation Centre, 33A, Chowringhee Road 7 <sup>th</sup> floor Kolkata West Bengal – 700071 India
9.	M/ Kumar Fasteners Mathura (ID -3905)	<b>KF Mathura</b> 5-15, Building Material Complex Site – A Industrial Area Mathura , Uttar Pradesh -281004, India
10.	M/s Mosdorfer india Pvt Ltd Mumbai (ID-125222)	<b>MIPL</b> Plot No.196/1 and Village- Gonde Dhumla MIDC Gonde, Taluka –Igat puri, Nashik Maharashtra 422403, India Regd Address: 403C Wing B1, Marathon Innova Opp peninsula Corporate park, lower parel, Mumbai Maharashtra , 400013 India
11.	M/s Nike Energy Manufacturing Pvt Ltd – Varnasi (ID-23941)	<b>NIKE</b> Plot No 279/2 Ganeshpur Tarna Varanasi Uttarpradesh – 221003, India

Sl. No.	Firm Name	Address
12.	M/s NSS stores supply agency private limited Howrah (ID- 35966)	<b>NSSA</b> P – 208, Banaras Road, Belgachia, P.O. Netajigarh Howrah, West Bengal – 711108, India
13.	M/S Royal Balaji Engineering Pvt ltd –Kolkata (ID-23501)	<b>Royal</b> NH-6, Bombay Road, Dhulagari, Sankrail Howrah, West Bengal – 711302 India Regd Address: 153/2B, Sumukh Apartment, APC Road Kolkata, West Bengal-700006, India
14.	M/s Shri Ashutosh Engineering Industries Unit-II Raipur (ID-97354)	<b>SAEI/II</b> (Unit-II), Plot No. 156/1, 157/1, 160 & 161 ,New Patharidih, Urla Raipur , Chhattisgarh-492001, India
15.	M/s Tag corporation – Chennai (ID-1033964)	<b>TAG</b> Shed No. 4 & 5, SIDCO Industrial Estate, Thirumudivakkam Chennai Tamil Nadu-60004, India Regd Address: No91, Thiruneermalai Raod Chrompet undefined Chennai, Tamil nadu -600044, India
16.	M/s Transmission Line products –Kolkata (ID 5692)	<b>TLP-H</b> NH-6 Sankrail Industrial Park P.O Dhulagarh PS Sankrail, Howrah, west Bengal – 711302, India Regd Address: 102 central plaza 2/6 Sarat Bose Road Kolkata, West Bengal -70020 India

**CHAPTER-VI**  
**ANNEXURES**

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

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

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

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

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

Contractor _____ (Signature)	Railway: Designation _____
Address _____	(For President of India)
Date _____	Date _____

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

**Witnesses:**


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

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

1. I/we the tenderer (s) am/are signing this document after carefully reading the contents.
2. I/We the tenderer(s) also accept all the conditions of the tender and have signed all the pages in confirmation thereof.
3. I/we hereby declare that I/we have downloaded the tender documents from Indian Railway website [www.ireps.gov.in](http://www.ireps.gov.in). I/we have verified the content of the document from the website and there is no addition, no deletion or no alteration to the content of the tender document. In case of any discrepancy noticed at any stage i.e. evaluation of tenders, execution of work or final payment of the contract, the master copy available with the railway Administration shall be final and binding upon me/us.
4. I/we declare and certify that I/we have not made any misleading or false representation in the forms, statements and attachments in proof of the qualification requirements.
5. **I/We also understand that my/our offer will be evaluated based on the documents/credentials submitted along with the offer and same shall be binding upon me/us.**
6. **I/We declare that the information and documents submitted along with the tender by me/us are correct and I/we are fully responsible for the correctness of the information and documents, submitted by us.**
7. I/we certify that I/we the tenderer(s) is/are not blacklisted or debarred by Railways or any other Ministry / Department of Govt. of India from participation in tender on the date of submission of bids, either in individual capacity or as a HUF/ member of the partnership firm/LLP/JV/Society/Trust.
8. I/we understand that if the contents of the **certificate** submitted by us are found to be forged/false at any time during process for evaluation of tenders, it shall lead to forfeiture of the Bid Security and may also lead to any other action provided in the contract including banning of business for a period of upto two years. Further, I/we (*insert name of the tenderer*) \*\*.....and all my/our constituents understand that my/our offer shall be summarily rejected.
9. I/we also understand that if the contents of the **certificate** submitted by us are found to be false/forged at any time after the award of the contract, it will lead to termination of the contract, along with forfeiture of Bid Security/Security Deposit and Performance guarantee and may also lead to any other action provided in the contract including banning of business for a period of upto two years.
10. I/We have read the clause regarding restriction on procurement from a bidder of a country which shares a land border with India and certify that I am/We are not from such a country or, if from such a country, have been registered with the competent Authority. I/We hereby certify that I/we fulfil all the requirements in this regard and am/are eligible to be considered (evidence of valid registration by the competent authority is enclosed)

SEAL AND SIGNATURE  
OF THE TENDERER

Place:

Dated:

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

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

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

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

SEAL AND SIGNATURE  
OF THE CONSTITUENT FIRM/CONSTITUENT PARTNER

Place:  
Dated:



**(Bid Security)**

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

**Name of the Bank: -----**

President of India,

Acting through .....,

..... Railway,

Beneficiary: ..... Railway

Date: .....

**Bank Guarantee Bond No.:**

**Date:-----**

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

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

**AND**

WHEREAS, .....**[Insert Name of the Bank]**, with its Branch .....**[Insert Address]** having its Headquarters office at..... **[Insert Address]**, hereinafter called the **Bank**, acting through .....**[Insert Name and Designation of the authorised persons of the Bank]**, have, at the request of the Bidder, agreed to give guarantee for Bid Security as hereinafter contained, in favour of the Railway:

1. KNOW ALL MEN that by these present that I/We the undersigned **[Insert name(s) of authorized representatives of the Bank]**, being fully authorized to sign and incur obligations for and on behalf of the Bank, confirm that the Bank, hereby, unconditionally and irrevocably guarantee to pay to the Railway full amount in the sum of **[Insert required Value of Bid Security]** as above stated.
2. The Bank undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Bank shall be final, conclusive and binding, absolute and unequivocal on the Bank notwithstanding any disputes raised/ pending before any Court, Tribunal, Arbitration or any Authority or any threatened litigation by the Bidder or Bank.
3. The Bank shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the Bidder and without the Railway being required to show grounds or give reasons for its demand of the amount so demanded.
4. The guarantee hereinbefore shall not be affected by any change in the constitution of the Bank or in the constitution of the Bidder.
5. The Bank agrees that no change, addition, modifications to the terms of the Bid document or to any documents, which have been or may be made between the Railway and the Bidder, will in any way absolve the Bank from the liability under this guarantee; and the Bank, hereby, waives any requirement for notice of any such change, addition or modification made by Railway at any time.
6. This guarantee will remain valid and effective from.....**[insert date of issue]** till .....**[insert date, which should be minimum 90 days beyond the expiry of validity of Bid]**. Any demand in respect of this Guarantee should reach the Bank within the validity period of Bid Security.
7. The Bank Guarantee is unconditional and irrevocable.
8. The expressions Bank and Railway herein before used shall include their respective successors and assigns.

9. The Bank hereby undertakes not to revoke the guarantee during its currency, except with the previous consent in writing of the Railway. This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No.758.
10. The Bank hereby confirms that it is on the SFMS (Structured Financial Messaging System) and shall invariably send the advice of this Bank Guarantee to the following bank details –

IFSC CODE	SBIN000RAIL
IFSC TYPE	BRANCH
BANK NAME	STATE BANK OF INDIA
BRANCH NAME	RAIL
CITY NAME	NAVI MUMBAI
ADDRESS	SECTOR-11, CBD BELAPUR, NAVI MUMBAI
DISTRICT	NAVI MUMBAI
STATE	MAHARASHTRA
BG ENABLED	YES

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

Date .....  
Place.....

.....  
Bank's Seal and authorized signature(s)  
*[Name in Block letters]* .....  
*[Designation with Code No.]*.....  
*[P/Attorney]* No.

**Witness:**

- 1 Signature, Name & Address & Seal
- 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.

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

**NAME OF BIDDER/JV PARTNER:**

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

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

**SEAL AND SIGNATURE OF THE BIDDER**

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

**(Signature of Chartered Accountant)**

**Name of CA:** \_\_\_\_\_

**Registration No:** \_\_\_\_\_

**(Seal)**

**Insurance Surety Bond for Performance Security**

Name of the issuer of surety bond:

President of India,

Acting

through.....,

Railway.

Date: \_\_\_\_\_

Surety Bond No: \_\_\_\_\_

Issue Date: \_\_\_\_\_

Amount of Bond: \_\_\_\_\_

Expiry Date: \_\_\_\_\_

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

AND

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

SB No:

Date:

WHEREAS, we, ----- (*Name of insurance company*) hereinafter called the Surety, acting through  
(*Designation(s) of the authorised person of the Surety*), have, at the request of the M/s. XXXX contractor,  
agreed to give Bond for performance security/ additional performance security as hereinafter contained:

1. KNOW ALL MEN by these present that I/We, the undersigned [*Insert name(s) of authorized representatives of the Surety*], being fully authorized to sign and incur obligations for and on behalf of the Surety, confirm that the Surety, hereby, unconditionally and irrevocably Bond to pay the Railway the full amount in the sum of XXXX (Rupees XXXX Only) as above stated.
2. The Surety undertakes to immediately pay on presentation of demand by the Railway any amount up to and including aforementioned full amount without any demur, reservation or recourse. Any such demand made by the Railway on the Surety shall be final, conclusive and binding, absolute and unequivocal notwithstanding any disputes raised/pending before any Court tribunal, arbitration or any authority or any threatened litigation by the Bidder or Bank.
3. On payment of any amount less than aforementioned full amount, as per demand of the Railway, the Bond shall remain valid for the balance amount i.e. the aforementioned full amount less the payment made to the Railway.
4. The Surety shall pay the amount as demanded immediately on presentation of the demand by Railway without any reference to the contractor and without the Railway being required to show grounds or give reasons for its demand or the amount demanded.
5. The Surety Bond shall be unconditional and irrevocable.
6. The Bond hereinbefore shall not be affected by any change in the constitution of the Surety or in the constitution of the Contractor.
7. The Surety agrees that no change, addition, modifications to the terms of the Contract Agreement or to any documents, which have been or may be made between the Railway and the Contractor, will in any way release us from the liability under this Bond; and the Surety, hereby, waives any requirement for notice of any such change, addition or modification to the Surety.



i) **ENGINEERING ORGANISATION AVAILABLE ON HAND**

S. No.	Name & Designation of Employee	Qualification	Previous Experience	Working from to
01	02	03	04	05
A				
B				
C				
Z				

SIGNATURE OF THE TENDERER(S)

NAME OF THE TENDERER

ii) **ENGINEERING ORGANISATION PROPOSED TO BE ENGAGED FOR THIS WORK FROM ABOVE**

S. No.	Name & Designation of Employee	Qualification	Previous Experience	Working from to
01	02	03	04	05
A				
B				
C				
Z				

SIGNATURE OF THE TENDERER(S)

NAME OF THE TENDERER

iii) **ENGINEERING ORGANISATION PROPOSED TO BE ENGAGED FOR THIS WORK FROM OUT SIDE****(A SUITABLY WORDED CONSENT LETTER FROM SUCH A PERSON SHOULD BE OBTAINED AND ENCLOSED)**

S. No.	Name & Designation of Employee	Qualification	Previous Experience	Working from to
01	02	03	04	05
A				
B				
C				
Z				

SIGNATURE OF THE TENDERER(S)

NAME OF THE TENDERER

1. **PLANT & MACHANARY AVAILABLE ON HAND**

S. No.	Particulars of Machinery, Plant & Equipment	No. of Units	Kind and Make	Capacity	Age and Condition	Approximate Cost in Rs. in Lakhs	Purchase Bill No & Date and Registration Particulars
01	02	03	04	05	06	07	08
A							
B							
C							
Z							

SIGNATURE OF THE TENDERER(S)

NAME OF THE TENDERER

2. **PLANT & MACHANARY PROPOSED TO BE INDUCTED FROM ABOVE**

S. No.	Particulars of Machinery, Plant & Equipment	No. of Units	Kind and Make	Capacity	Age and Condition	Approximate Cost in Rs. in Lakhs	Purchase Bill No & Date and Registration Particulars
01	02	03	04	05	06	07	08
A							
B							
C							
Z							

SIGNATURE OF THE TENDERER(S)

NAME OF THE TENDERER

3. **PLANT & MACHANARY PROPOSED TO BE INDUCTED FROM OUT SIDE**

S. No.	Particulars of Machinery, Plant & Equipment	No. of Units	Kind and Make	Capacity	Age and Condition	Approximate Cost in Rs. in Lakhs	Purchase Bill No & Date and Registration Particulars
01	02	03	04	05	06	07	08
A							
B							
C							
Z							

SIGNATURE OF THE TENDERER(S)

NAME OF THE TENDERER

# **LIST OF COMPLETED WORKS BY THE TENDERER**

S.N o.	Name of work	Agreement No. & Date	Designation and address of Agreement signing authority	Agreement Value in Rs. Lakhs	Completed Value of Work (in Rs. Lakhs)	Date of Completion	Remarks
01	02	03	04	05	06	07	08
<b>RAILWAY WORKS</b>							
A							
B							
C							
Z							
<b>STATE Govt. WORKS</b>							
A							
B							
C							
Z							
<b>PUBLIC SECTOR UNDER TAKING WORKS</b>							
A							
B							
C							
Z							

SIGNATURE OF THE TENDERER(S)

NAME OF THE TENDERER



## LIST OF WORKS ON HAND WITH THE TENDERER

S.N o.	Name of work	Agreeme nt No. & Date	Designation and address of Agreement signing authority	Agreement Value in Rs. Lakhs	Bill Amount Paid so far in Rs. Lakhs	Due Date of Compl etion	Number of Extensio n taken
01	02	03	04	05	06	07	08
<b>RAILWAY WORKS</b>							
<b>A</b>							
<b>B</b>							
<b>C</b>							
<b>Z</b>							
<b>STATE Govt. WORKS</b>							
<b>A</b>							
<b>B</b>							
<b>C</b>							
<b>Z</b>							
<b>PUBLIC SECTOR UNDER TAKING WORKS</b>							
<b>A</b>							
<b>B</b>							
<b>C</b>							
<b>Z</b>							

SIGNATURE OF THE TENDERER(S)

NAME OF THE TENDERER

## EXPERIENCE CERTIFICATE

S. No	Work Details	Details
1	Name of work	
2	Agreement No., Date & Name of the Agency	
3	Agreement Value in ` (in words & Figures)	
4	Date of Completion	
5	Number of Extensions Granted	
6	Actual date of Completion of work	
7	Value of Final Bill if Passed (in words)	
8	Work Completed but Final Measurement not recorded	
a	Amount Paid so far as in CC bill No.	
9	Work completed Final Measurement Recorded with Negative Variation	
a	Amount so far Paid as in CC bill No.	
10	Work completed, if Final measurements recorded with Positive Variation which is not sanctioned yet	
a	Original Agreement Value or Last sanctioned agreement value whichever is lower	

**Note:**

1. This Certificate in this proforma is to be issued only for physically **Completed work**.
2. This Certificate to be issued by an Officer not below the rank of JA Grade or Bill Passing officer in Railways and Bill passing officer/Executive in-charge of work in other Govt. Department/Govt. Bodies/Public sector undertaking. The Certificate should bear the Signature and Seal of the issuing officer, Name of the Department etc.

Signature :

Name of Officer :

Designation :

Address :

Office Seal :

Phone/Fax No :

Date :

**CERTIFICATE FROM CHARTERED ACCOUNTANT IN THEIR LETTER HEAD  
TO WHOM SO EVER CONCERNED**

We \_\_\_\_\_ are the auditors for the firm \_\_\_\_\_ since last \_\_\_\_\_ (many) years. On the strength of the above association, we are issuing this Certificate to the Firm on the Annual Contractual Turnover during **the last three Audited Financial Years** as per Audited Balance sheet.

It is further certified that advances or loans taken by the firm in connection with execution of contracts are not reflected in the contractual receipts from Contracts as indicated below.

<b>S. No.</b>	<b>Financial year</b>	<b>Receipts from contracts executed for Govt./Govt. bodies/PSUs/Pvt. Organization reflected in Audited Balance Sheets in P&amp;L account (Rs.)</b>	<b>Remarks (if any)</b>
<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>

**Signature :**

**Name of CA :**

**Address :**

**Office Seal :**

**Phone No. :**

**E-mail :**

**Date :**

**Registration Number :**

**UDIN :**

**CHECK LIST OF DOUCUMENTS TO BE SUBMITTED ALONG WITH TENDERS.**

(Tenderers are requested to give certificates and or put (Yes) Mark wherever applicable)

<b>1</b>	<b>Tenderer details:</b>	
<b>1.1</b>	<b>Name of the tenderer</b>	
<b>1.2</b>	<b>Identification of tenderer</b> i) In case of Partnership Firm: An attested copy of partnership deed with latest modifications of the deed. ii) In case of consortium, JV or MoU: A copy of either JV agreement attested by any Gazetted Officer or MOU in original. iii) In case of company: An attested copy of articles of association. iv) In case of Proprietary Firm: An attested copy of Registration/ Income tax/PAN No. for filing returns.	
<b>2</b>	<b>Particulars to Online payment/RTGS/DD/MR/Submitted towards cost of tender form.</b>	
<b>3.</b>	<b>Particulars of Online payment/RTGS/DD/RDR submitted towards EMD.</b>	
<b>4.</b>	<b>Engineering Organization as per details given in Annexure 'A'</b>	
<b>5.</b>	<b>List of plants and machinery in format as per Annexure-'B'</b>	
<b>6.</b>	<b>List of works completed during the last 3 Financial Years as per details given in Annexure-'C'</b>	
<b>7.</b>	<b>List of works on hand in Annexure –'D'</b>	
<b>8.</b>	<b>Attested copy of Experience Certificate as per details given in Annexure-'E'</b>	
<b>9.</b>	<b>Attested copy of certificate showing contractual amount received during the last three financial years and current financial year as per details given in Annexure-'F'</b>	
<b>10</b>	<b>NEFT MANDATE FORM</b>	
<b>11</b>	<b>Registration number of APGST/APVAT</b>	
<b>12.</b>	<b>Any other information/Certificates required as per Tender Document.</b>	
<b>13.</b>	<b>Total number of annexure submitted (Number of pages)</b>	

**Address:****Phone No.****Signature of Tenderer/Contractor**

## NEFT MANDATE FORM

The FA&CAO/C/SC,  
SOUTH CENTRAL RAILWAY, SECUNDERABAD.  
NEFT MANDATE FORM

Sir,

We prefer to the National Electronic Fund Transfer (NEFT) being followed by South Central Railway, SC Division, for remittance of our payments using RBI's NEFT scheme. In confirmation to this, I/We agree to receive our payments being made through the above scheme to our under noted Account.

- 1 Name of Tenderer
- 2 Full postal Address with PIN  
Code
- 3 Email Address of Tenderer
- 4 PAN number of Tenderer
- 5 Bank's Name & Branch
- 6 Full Address of Bank
- 7 Name of City
- 8 Bank Code No.
- 9 Bank Telephone/Fax No. &  
Email
- 10 Bank's IFSC Code for NEFT
- 11 Bank's IFSC Code for RTGS
- 12 Bank's MICR Code
- 13 Tenderer Bank Account Number
- 14 Type of Bank Account
- 15 Tenderer Name as per Bank  
Account
- 16 Telephone Nos. of Tenderer  
BSNL/Landline:  
Mobile/Cell Phone: Fax Number:

(Tenderer should note that the above particulars are necessarily to be provided for return of EMD, SD & other payments due to the tenderer during execution and on completion of work). Certified that the above indicated particulars are true.

## **REVISED MODEL FORM OF BANK GUARANTEE BOND FOR PERFORMANCE GUARANTEE**

1. In consideration of the President of India (hereinafter called "the Government") having agreed to exempt----- ( hereinafter called " the said Contractor(s)") from the demand, under the terms and conditions of an Agreement dated ----- made between ----- and ----- for ----- (hereinafter called "the said Agreement"), of Security deposit for the due fulfillment by the said contractor(s) of the terms and conditions contained in the said Agreement, on production of a Bank Guarantee for Rs.--- ------(Rupees-----only). We ----- (indicate the name of the Bank) (hereinafter referred to as the Bank) at the request of ----- (Contractor(s) do hereby undertake to pay to the Government an amount not exceeding Rs.----- against any loss / damage caused to or suffered or would be caused to or suffered by the Government by reasons of any breach by the said contractor(s) of any of the terms or conditions contained in the said Agreement.
2. We ----- (indicate the name of the Bank) do hereby undertake to pay the amounts due and payable under this guarantee without any demur, merely on a demand from the Government stating that the amount claimed is due by way of loss or damage caused to or would be caused to or suffered by the Government by reason of breach by the said contractor(s) of any of the terms or conditions contained in the said Agreement or by reason of the contractor(s) failure to perform the said Agreement. Any such demand made on the bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee shall be restricted to an amount not exceeding Rs.--.
3. We undertake to pay to the Government any money so demanded notwithstanding any dispute or disputes raised by the contractor(s)/supplier(s) in any suite or proceeding pending before any court or Tribunal relating thereto our liability under this present being absolute and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment thereunder and the contractor(s) / supplier(s) shall have no claim against us for making such payment.
4. We, ------(indicate the name of bank) further agree that the guarantee herein contained shall remain in full force and effect during the period that would be taken for the performance of the said Agreement and that it shall continue to be enforceable till all the dues of the Government under or by virtue of the said Agreement have been fully paid and its claims satisfied or discharged or till ----- Office/Department) Ministry of-----certifies that the terms and conditions of the said Agreement have been fully and properly carried out by the said Contractor(s) and accordingly discharges this guarantee. Unless a demand or claim under this guarantee is made on us in writing on or before the  
we shall be discharged from all liability under this guarantee thereafter.
5. We, ------(indicate the name of the Bank) further agree with the Government that the Government shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said contractor(s) from time to time or to postpone for any time or from time to time any of the powers exercisable by the Government against the said Contractor(s) and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor(s) or for any forbearance act or omission on the part of the Government or any indulgence by the Government to the said Contractor(s) or any such matter or thing whatsoever which under the law relating to the sureties would, but for this provision, have effect of so relieving us.
6. This guarantee will not be discharged due to the change in the constitution of the bank or the Contractor(s) / Supplier(s).
7. We, ------(indicate the name of the bank) lastly under take not to revoke this guarantee during its currency except with the previous consent of the Government in writing.

of

For bank)

Indicate name of the bank

**INDEMNITY BOND**

1. This deed of Indemnity is executed on the day of \_\_\_\_\_ by M/s: \_\_\_\_\_, which expression includes his successors and assignees, in favour of the President of India acting through Dy.CEE/C/BZA/SC the Purchaser, South Central Railway, Secunderabad (herein after called the 'Railway').
2. Whereas the parties hereto have entered into an agreement vide acceptance letter/Agreement No. \_\_\_\_\_ dt \_\_\_\_\_ for the purpose of executing the said contract until such time the materials herein after mentioned are fully erected or otherwise and handed over to the Railway.
3. Whereas we, M/s: \_\_\_\_\_ are required to hold in custody for and on behalf of the Railway in trust give here the list of items for the purpose of executing the said contract until such time the materials are duly erect and or handed over to Railway.
4. Whereas we, M/s: \_\_\_\_\_ are required to furnish an Indemnity Bond.
5. Now by this Indemnity Bond we hereby undertake that we hold in my custody for and on behalf of the President of India and his property in trust of the said materials handed over to us for the purpose of execution of the said contract until such time the materials are duly erected or otherwise handed over to the Railway.
6. We shall be entirely responsible for the safe custody and protection of the said materials against all risks till they are duly erected and or otherwise delivered to the concerned depots or to any other Officer as he may direct otherwise, and shall Indemnify the Railway against any loss, damage or deterioration in respect of the said materials which are in my possession.
7. The said materials shall at all times to open for inspection by any authorized officer of the Railway.
8. Should any loss or damage or deterioration occur or refund becomes due, the President of India shall be entitled to recover from us compensation for such loss or damage or deterioration the amount is to be refunded without prejudice to any other remedies available to Railway and also by deduction from any sum due or any sum which at any time hereafter may become due to us for this work or under any other contract with any other department of the Railway.
9. The value of the above materials for the purpose of indemnity Bond that can be claimed under this Indemnity Bond shall not exceed Rs. \_\_\_\_\_/- (Rupees \_\_\_\_\_ only).
10. In the event of any loss or damage or deterioration as aforesaid the assessment of such loss or damage or deterioration, the assessment of compensation therefore would be made by the President of India or by his authorized Nominee and the said assessment shall be final and binding upon us.
11. In witness whereof we, M/s: \_\_\_\_\_ have executed this Indemnity Bond on the date, month and year final written at \_\_\_\_\_ dated this \_\_\_\_\_.



**PROGRAMME OF MILESTONE**

S. No.	Name of event (mile stone)	Schedule
1	(i) Taking Mark outs (ii) Obtaining the approval for the materials	D1+60
2	(i) Supply of materials like PSCC poles, outdoor heat shrinkable termination kits, straight through jointing kits, GI pipe, HT UG cables, LT UG cables, HDPE pipes, Disc insulators, Pin insulators, cable markers, danger boards, anti climbing devices etc.	D1+120
3	(i) Erection and laying of PSCC poles, outdoor head shrinkable termination kits, straight through jointing kits, GI pipe, HT UG cables, LT UG cables, HDPE pipes, Disc insulators, Pin insulators, cable markers, danger boards, anti climbing devices etc.	D1+180
4	(i) Erection, testing and commissioning of the balance (ii) Handing over the released materials to concerned Railways authorities	D1+240
5	Completion of all other residual works and submission including handing over the installations to the Concerned crossing authorities.	D1+365

**Note:** D1 stands for the date on which Railway hand over the site/drawings as relevant to the contractor.

**CERTIFICATION OF FAMILIARISATION**

I/We hereby solemnly declare that I/We visited the sites of the above works and have familiarized myself/ourselves of the working conditions there in all respects and in particular the following.

- i) Topography of the area.
- ii) Soil conditions at the site of work.
- iii) Sources and availability of construction materials.
- iv) Rates for construction materials.
- v) Availability of local labour, both skilled, unskilled and the prevailing labour rates.
- vi) Availability of water and electricity.
- vii) The existing roads and access to the site of work with regard to crossing of Existing track and re-handlings involved in crossing of existing tracks.
- viii) Availability of space for putting labour camps, offices, stores go downs, Engineering yard for collection of required materials and stacking.
- ix) The site of work is surrounded by running main lines where extensive train operations will be there. Safety measures required before planning execution of work, it is to be studied in detail before quoting rates.
- x) Any other matter that may have bearing on work.

**CHAPTER-VII**  
**PRICE SCHEDULE OF ITEMS**

**Electrical Construction/GTL: Guntakal Division: - Guntakal Division: - Shifting/Modification of existing power line crossings of 33 kV, 11 kV HT and LT lines, shifting of DTRs, and modification of parallel lines at various locations between CHELLUR and PUDI stations in connection with the construction of the new bypass line between Yerpedu and Pudi stations.**

S. No.	Description of Item	Qty.	Unit	Unit Rate in Rs.			Total Cost in Rs.		
				Material	Erection	Total	Material	Erection	Total
Schedule-A: Shifting/Modification to 33 kV HT Over Head Power Line Crossings									
1	Supply and erection of Double pole structure by pre-stressed cement concrete poles of 9.1 metres long 280 KG working load confirming to IS 1678:1998 or latest as per approved Drawing as per State Electricity Board Norms	8	Set	7200	3000	10200	57600	24000	81600.00
2	Supply and erection of Double pole structure by PSCC circular spun poles of 12.5 metres long 350 KG working load confirming to IS 13158:1991 or latest as per approved Drawing as per State Electricity Board Norms	4	Set	26134.64	4434	30568.64	104539	17736	122274.56
3	Design, supply, Fabrication and erection of M-type Galvanized Steel Towers of suitable height etc. including cross arms as per the direction of site Engineer & State Electricity Board norms	4.8	MT	85000	2759	87759	405450	13160	418610.43
4	Excavation of pit for M-type tower of size 1.2x1.2x3.3 mtr in all types of soil and Hard rock sites as per the State Electricity Board norms and as per the instruction of site Engineer	9.5	Cum	0	398	398	0	3783	3782.59
5	Supply and fixing of dip galvanized bolts, Zinc coated nuts, flat washers and spring washers etc including Tack welding of total tower nuts and bolts	0.5	MT	11900	2759	14659	5950	1380	7329.50
6	Setting of stubs in position for laying of foundation of towers with 1:2:4 cc mix using 40 mm HBG metal including cost of all concreting materials and cement, form boxes and curing for 14 days	9.5	Cum	5586	1200	6786	53089	11405	64467.00

7	Supply, fabrication, fixing of MS channels and angles of sizes ISMC 150mmx75mmx6mm and ISA 75mmx75mmx6mm (or) any other dimension as per State Electricity Boards Norms including necessary clamps, bolts, nuts, washers including painting with two coats of red oxide and one coat of aluminium with all connected accessories etc. for Double pole structure mentioned in item No. 1 above	3.2	MT	62852	4000	66852	201126	12800	213926.40
8	Supply and erection of PSCC circular spun pole of 12.5 metres long 350 KG working load confirming to IS 13158:1991 or latest as per State Electricity Board Norms	4	No.	13067.32	2217	15284.32	52269	8868	61137.28
9	Supply and erection of pre-stressed cement concrete pole of 9.1 metres long 280 KG working load confirming to IS 1678:1998 or latest as per State Electricity Board Norms	8	No.	3600	1500	5100	28800	12000	40800.00
10	Supply and erection of pre-stressed cement concrete strut pole of 8.0 metres long 200 KG working load confirming to IS 1678:1998 or latest as per State Electricity Board Norms	32	No.	1800	1500	3300	57600	48000	105600.00
11	Supply and erection of single Guy arrangement with Guy wire of size 7/2.50mm, clamp, turn buckle, stay insulator, end making of Guy wire, anchor rod and plate with anchor assembly.	8	Set	1450	696	2146	11600	5568	17168.00
12	"Excavation of pit of size 700mmX700x1500mm (or) any other dimension as per site condition for Rail pole/Tubular pole and Rail strut & Stay as per instruction of Site Engineer & as per State Electricity Board Norms."	60	No.	0	293	293	0	17580	17580.00
13	Mass concreting of erected poles/strut poles/stay poles and stay sets with Pit of size 700mm x 700mm x 1500mm(0.735 cum) or any other dimensions as per site requirement and direction of site Engineer based on therequirement from concerned Electricity Board Engineer with	44.1	cum	2277	600	2877	100416	26460	126875.70

	CC (1:3:6) using 40mm size metal including the cost of metal, sand, cement and curing etc.								
14	Coping of poles/stay poles/stays with a height of size 470mm x 450mm x 450mm (0.095 cum) or any other dimensions as per site requirement and direction of site Engineer based on the requirement from concerned Electricity Board Engineer at site with CC (1:3:6) using 20mm size metal including the cost of metal, sand, cement and curing etc.	5.7	cum	2497	600	3097	14233	3420	17652.90
15	Supply, fixing and connecting of 33 kV Poly Disc insulators (i.e. 3 Nos. of 11 kV is 1 set) with metal parts including nuts, bolts, washers etc.	24	Set	900	240	1140	21600	5760	27360.00
16	Supply, fixing and connecting of 33 kV poly pin insulators with metal parts including nuts, bolts, washers etc.	24	No.	193	80	273	4632	1920	6552.00
17	Supply, fixing and connecting of 'V' channel type HT cross arms including clamps, bolts, nuts, washers etc.	8	Set	1508	450	1958	12064	3600	15664.00
18	Supply, fabrication and fixing of top clamps with cleat complete with all other connected accessories etc.	8	Set	232	88	320	1856	704	2560.00
19	Supply and stringing of 33 kV HT OH mains with AAAC of size 100 Sq.mm. (7/4.26 AAAC/Dog) including binding and jumper connections etc. conforming to IS:398/Part-IV/1994 or latest	1200	Metre	80	10	90	96000	12000	108000.00
20	Excavation of cable trench in all types of ordinary soil of size 450 mm width x 1250 mm deep for laying of HT/LT XLPE UG cable and making original arrangements after laying of the cable including all accessories etc.	240	Metre	0	130	130	0	31200	31200.00
21	Excavation of cable trench in rocky soil of size 450 mm width x 1250 mm deep duly breaking the rock/CC/Tar/RCC Road and making original arrangements duly filling with a layer of sand, bricks, cement etc. after laying of the cable including all accessories etc.	80	Metre	0	348	348	0	27840	27840.00

22	Supply and laying of HDPE (High Density Polyethylene pipe) pipe of PE-100 Grade in PN- 6 size outer dia of HDPE pipe 225mm and wall thickness minimum 10.3mm maximum 11.6mm with joints, bends, elbows etc. including all other connected accessories.	480	Metre	1108	100	1208	531840	48000	579840.00
23	Supply, providing, erection, testing and commissioning of 800 Amps, 33kV AB switch assembling etc.	8	Set	35400	1500	36900	283200	12000	295200.00
24	Supply, laying, fixing, connecting and commissioning of 3 core 400 Sq.mm. PVC sheathed XLPE HT aluminium, armoured UG power cable 33 kV grade including all accessories confirming to IS:7098 Part-II/2011 or latest.	800	Metre	3314	124	3438	2651200	99200	2750400.00
25	Supply, fixing, connecting, testing and commissioning of outdoor type (EPKT6374), 33 kV HT Heat shrinkable cable jointing kits suitable for 3 core 400 Sq.mm. 33 kV XLPE HT UG cable including all accessories confirming to IS: 13573/Part-II/2011 or latest.	16	Set	22220	2500	24720	355520	40000	395520.00
26	Supply, fixing, connecting, testing and commissioning of 33 kV HT heat shrinkable straight through jointing kits suitable for 3 core 400 Sq.mm. 33 kV XLPE HT UG cable including all accessories confirming to IS: 13573/Part-II/2011 or latest.	2	Set	47563	3500	51063	95126	7000	102126.00
27	Supply and laying of GI earth continuity wire of 6 SWG for providing earth inter connections to the cables etc.	800	Metre	12	3	15	9600	2400	12000.00
28	Supply of earth pit materials and construction of earth pit as per IS 3043:1987 specification. This item also includes supply and erection of CI pipe of size of 100mm inner diameter, 13mm thickness and 3000mm length. This work also includes of fabrication and fixing of GI strips for earthing connection. Excavated earth pit should be filled by mixture of coke/charcoal, salt and sand up to top. Provision of brick masonry	16	Set	8000	700	8700	128000	11200	139200.00

	chamber of size 650mmx650mm and depth upto 1000mm including light type CI cover frame and applying 12mm thick cement plaster in 1:3 inside and to all the exposed faces up to 300mm below. Foundation level, curing etc., All required materials for this job such as CI pipe cover with frame, salt, cement sand, charcoal gravel, bricks etc required bolts, nuts and double washers, number plates or painted plates. Tentative quantity of salt and charcoal shall be of 2.5CMt. The CI pipe should be painted with 2 coats of bitumen paint as per the directions of Rly engineer at site. Note: The work should be strictly done as per IS 3043:1987 specification or latest.								
29	Supply and fixing of 6" (150mm) dia G.I. pipe of 'B' class (medium) as per IS:1239 to the structures/walls/rail poles with suitable clamps, bolts, nuts, washers etc. for supporting the cable. The clamps shall be painted with one coat of red oxide and two coats of aluminium paint. The MS clamps shall be fixed at an interval of not more than 1.0 Mtr. and also instructions of site Engineer.	96	Metre	1075	50	1125	103200	4800	108000.00
30	Supply and provision of Danger Boards in Hindi/English and Regional language on enameled steel plate with clamps, bolts and nuts complete with all other connected materials and works including all accessories (Size: 250x200 mm).	8	No.	365	100	465	2920	800	3720.00
31	Supply and fixing of cable crossing detail board in English on MS plate of 3mm thick with clamps, bolts nuts etc. (Screen printing on Board) as per the details given in the drg. No. DEE/CN/BZA/2001/24	8	No.	365	100	465	2920	800	3720.00
32	Supply and fixing of anti climbing devices with clamps, bolts, nuts etc. complete with all other connected materials and works	16	No.	365	100	465	5840	1600	7440.00
33	Horizontal drilling of bore suitable for laying of 33 kV HT XLPE UG cable of 3 core 400 Sq.mm. through 6" HDPE pipe as per instructions	80	Metre	0	2157	2157	0	172560	172560.00

	of site Engineer								
34	Supply and fixing of cable route indicators at a distance of 6 metres longitudinally. The indicators shall be of cast iron with lettering of "POWER CABLE" duly indicating the rating of cable with MS stem as per the details given in the drg. No. DEE/CN/BZA/2001/23	40	Each	186	57	243	7440	2280	9720.00
35	Dismantling of 33 kV HT OH mains including Guarding insulators, cross arms etc. on RCC/RSJ/PSCC/DP/Tower and handing over the same to concerned supervisor of supply authorities at his stores. Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.	12	Span	0	1370	1370	0	16440	16440.00
36	Dismantling of 33 kV Tower and handing over the same to concerned supervisor of supply authorities at his stores. Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.	2	No.	0	9750	9750	0	19500	19500.00
37	Dismantling of RSJ/RCC/Tubular poles and handing over the same to the concerned supervisor of maintenance at his stores. Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.	16	No.	0	1000	1000	0	16000	16000.00
38	Preparation and submission of completion drawings in A3 size with all relevant details and measurements of executed power line crossings and transmission power line crossing. The drawings shall be submitted in 1+6 copies along with AUTOCAD CD duly signed by the concerned SEB authorities and to be furnished along with final bill	4	Set	0	1000	1000	0	4000	4000.00
<b>Total of Schedule-A</b>							<b>5405630</b>	<b>747763</b>	<b>6153393.51</b>
<b>Schedule-B: Shifting/Modification to 11 kV HT Over Head Power Line Crossings</b>									

1	Supply and erection of Double pole structure by pre-stressed cement concrete poles of 9.1 metres long 280 KG working load confirming to IS 1678:1998 or latest as per approved Drawing as per State Electricity Board Norms	46	Set	7200	3000	10200	331200	138000	469200.00
2	Supply, fabrication, fixing of MS channels and angles of sizes ISMC 150mmx75mmx6mm and ISA 75mmx75mmx6mm (or) any other dimension as per State Electricity Boards Norms including necessary clamps, bolts, nuts, washers including painting with two coats of red oxide and one coat of aluminium with all connected accessories etc. for Double pole structure mentioned in item No. 1 & 2 above	18.4	MT	62852	4000	66852	1156477	73600	1230076.80
3	Supply and erection of pre-stressed cement concrete pole of 9.1 metres long 280 KG working load confirming to IS 1678:1998 or latest as per State Electricity Board Norms	50	No.	3600	1500	5100	180000	75000	255000.00
4	Supply and erection of pre-stressed cement concrete strut pole of 8.0 metres long 200 KG working load confirming to IS 1678:1998 or latest as per State Electricity Board Norms	92	No.	1800	1500	3300	165600	138000	303600.00
5	"Excavation of pit of size 700mmX700x1500mm (or) any other dimension as per site condition for Rail pole/Tubular pole and Rail strut & Stay as per instruction of Site Engineer & as per State Electricity Board Norms."	23.4	No.	0	293	293	0	68562	68562.00
6	Mass concreting of erected poles/strut poles/stay poles and stay sets with Pit of size 700mm x 700mm x 1500mm(0.735 cum) or any other dimensions as per site requirement and direction of site Engineer based on therequirement from concerned Electricity Board Engineer with CC (1:3:6) using 40mm size metal including the cost of metal, sand, cement and curing etc.	171.99	cum	2277	600	2877	391621	103194	494815.23



7	Coping of poles/stay poles/stays with a height of size 470mm x 450mm x 450mm (0.095 cum) or any other dimensions as per site requirement and direction of site Engineer based on the requirement from concerned Electricity Board Engineer at site with CC (1:3:6) using 20mm size metal including the cost of metal, sand, cement and curing etc.	22.23	cu m	2497	600	3097	55508	13338	68846.31
8	Supply, fixing and connecting of 11 kV Poly Disc insulators with metal parts including nuts, bolts, washers etc.	162	No .	300	80	380	48600	12960	61560.00
9	Supply, fixing and connecting of 11 kV poly pin insulators with metal parts including nuts, bolts, washers etc.	162	No .	69	50	119	11178	8100	19278.00
10	Supply, fixing and connecting of 'V' channel type HT cross arms including clamps, bolts, nuts, washers etc.	54	Set	1508	450	1958	81432	24300	105732.00
11	Supply, fabrication and fixing of top clamps with cleat complete with all other connected accessories etc.	46	Set	232	88	320	10672	4048	14720.00
12	Supply and stringing of 11 kV HT OH mains with AAAC of size 55 Sq.mm. (7/3.15 AAAC/Rabbit) including binding and jumper connection etc. confirming to IS:398/Part-IV/1994 or latest	7100	Metre	31.27	10	41.27	222017	71000	293017.00
13	Supply and fixing of cable route indicators at a distance of 6 metres longitudinally. The indicators shall be of cast iron with lettering of "POWER CABLE" duly indicating the rating of cable with MS stem as per the details given in the drg. No. DEE/CN/BZA/2001/23	230	Each	186	57	243	42780	13110	55890.00
14	Excavation of cable trench in all types of ordinary soil of size 450 mm width x 1250 mm deep for laying of HT/LT XLPE UG cable and making original arrangements after laying of the cable including all accessories etc.	1380	Metre	0	130	130	0	179400	179400.00
15	Excavation of cable trench in rocky soil of size 450 mm width x 1250 mm deep duly breaking the rock/CC/Tar/RCC Road and making original arrangements duly filling with a layer of sand, bricks, cement etc.	460	Metre	0	348	348	0	160080	160080.00

	after laying of the cable including all accessories etc.								
16	Supply and laying of HDPE Pipe of PE-80 grade in PN-4 size 6" inner dia and outer dia of 160 mm and wall thickness minimum 6.2 mm maximum 7.1 mm with joints, bends, elbows etc. including all other connected accessories.	27 60	Me tre	567	39	606	15649 20	107640	167256 0.00
17	Supply, laying, fixing, connecting and commissioning of 3 core 240 Sq.mm. PVC sheathed XLPE HT aluminium armoured UG power cable 11 kV grade including all accessories confirming to IS:7098 Part-II/2011 or latest.	46 00	Me tre	1626	124	1750	74796 00	570400	805000 0.00
18	Supply, fixing, connecting, testing and commissioning of out door type 11 kV HT Heat shrinkable cable jointing kits suitable for 3 core 240 sq.mm. 11 kV XLPE HT UG cable including all accessories confirming to IS: 13573/Part-II/2011 or latest.	92	Se t	7331	1900	9231	67445 2	174800	849252 .00
19	Supply, fixing, connecting, testing and commissioning of 11 kV HT heat shrinkable straight through jointing kits suitable for 3 core 240 Sq.mm 11 kV XLPE HT UG cable including all accessories confirming to IS: 13573/Part-II/2011 or latest.	6	Se t	10797	1900	1269 7	64782	11400	76182. 00
20	Supply and laying of GI earth continuity wire of 6 SWG for providing earth inter connections to the cables etc.	46 00	Me tre	12	3	15	55200	13800	69000. 00
21	Supply of earth pit materials and construction of earth pit as per IS 3043:1987 specification. This item also includes supply and erection of CI pipe of size of 100mm inner diameter, 13mm thickness and 3000mm length. This workalso includes of fabrication and fixing of GI strips for earthing connection. Excavated eathpit should be filled bymixture of coke/charcoal, salt and sand up to top. Provision of brick masonry chamber of size 650mmx650mm anddepth upto 1000mm including light type CI cover frame and applying 12mm thick cement plaster in 1:3 inside and	92	Se t	8000	700	8700	73600 0	64400	800400 .00

	toall the exposed faces up to 300mm below. Foundation level, curing etc., All required materials for this job such as CIpipe cover with frame, salt, cement sand, charcoal gravel, bricks etc required bolts, nuts and double washers,number plates or painted plates. Tentative quantity of salt and charcoal shall be of 2.5CMt. The CI pipe should bepainted with 2 coats of bitumen paint as per the directions of Rly engineer at site. Note:The work should be strictlydone as per IS 3043:1987 specification or latest.								
22	Supply and fixing of 6" (150mm) dia G.I. pipe of 'B' class (medium) as per IS:1239 to the structures/walls/rail poles with suitable clamps, bolts, nuts, washers etc. for supporting the cable. The clamps shall be painted with one coat of red oxide and two coats of aluminium paint. The MS clamps shall be fixed at an interval of not more than 1.0 Mtr. and also as per instructions of site Engineer.	55 2	Me tre	1075	50	1125	59340 0	27600	621000 .00
23	Supply and provision of Danger Boards in Hindi/English and Regional language on enameled steel plate with clamps, bolts and nuts complete with all other connected materials and works including all accessories (Size: 250x200 mm).	46	No .	365	100	465	16790	4600	21390. 00
24	Supply and fixing of cable crossing detail board in English on MS plate of 3mm thick with clamps, bolts nuts etc. (Screen printing on Board) as per the details given in the drg. No. DEE/CN/BZA/2001/24	46	No .	365	100	465	16790	4600	21390. 00
25	Supply and fixing of anti climbing devices with clamps, bolts, nuts etc. complete with all other connected materials and works	92	No .	365	100	465	33580	9200	42780. 00
26	Horizontal drilling of bores suitable for laying of 11 kV HT XLPE UG cable of 3 core 240 Sq.mm. through 6" HDPE pipe as per instructions of site Engineer	46 0	Me tre	0	2157	2157	0	992220	992220 .00
27	Removing of existing Transformer and shifting, erection, testing and commissioning of the same with all other	3	No .	0	10000	1000 0	0	30000	30000. 00

	connected accessories etc., at new location as per the instructions of site Engineer								
28	Erection and construction of Transformer plinth, excavation of pit 1.5mx1.5mx1.5 meters deep and provision of foundation with cement concrete mixture of 1:3:6 ratio stone wall etc. construction of plinth above ground level of size 1.5x1.5x1.5 meters height with R.R.stone, stone wall and cement concrete of ratio 1:3:6 on top of the plinth, two channels of 100x50x4.7mm of 1.5meters long embedded in concrete shall be provided for keeping the transformer on wheels including all accessories.	3	No .	5080	2000	7080	15240	6000	21240.00
29	Supply, providing, erection, testing and commissioning of 400 Amps, 11 kV AB switch assembling including Isolator structure, Operating rod etc.	23	set	13750	1500	15250	316250	34500	350750.00
30	Supply , erection of 11 kV Drop out fuse switch complete with all accessories.	3	set	5725	800	6525	17175	2400	19575.00
31	Supply and erection of 3 Nos. of 11 kV lighting arrestors out door type use for 9 kV, 10 kV with all other connected accessories etc.	3	set	2620	800	3420	7860	2400	10260.00
32	Supply, fixing and connecting of distribution box with the following switches MCCB 200 A 25 KA (I/C) and 3x63A MCCB 3 pole 10 KA (O/G) including all accessories.	3	set	27698	5000	32698	83094	15000	98094.00
33	Dismantling of AB switch, Drop out fuse and LA and handing over the same to concerned authorities. Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.	6	Set	0	1500	1500	0	9000	9000.00
34	Dismantlement of 11 kV HT OH mains including Guarding, insulators, cross arms etc. on RCC/RSJ/PSCC/DP/Tower and handing over the same to concerned supervisors of supply authorities at his store.	69	Span	0	1370	1370	0	94530	94530.00

	Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.								
35	Dismantling of RSJ/RCC/Tubular poles and handing over the same to the concerned supervisor of maintenance at his stores. Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill.	10 0	No .	0	1000	1000	0	100000	100000 .00
36	Preparation and submission of completion drawings in A3 size with all relevant details and measurements of executed power line crossings and transmission power line crossing. The drawings shall be submitted in 1+6 copies along with AUTOCAD CD duly signed by the concerned SEB authorities and to be furnished along with final bill.	23	Se t	0	1000	1000	0	23000	23000. 00
<b>Total of Schedule-B</b>							<b>14372 218</b>	<b>338018 2</b>	<b>17752 400.34</b>
<b>SCHEDULE-C: Shifting/Modification of LT Over Head Power Line Crossings</b>									
1	Supply and erection of pre-stressed cement concrete pole of 9.1 metres long 280 KG working load confirming to IS 1678:1998 or latest as per State Electricity Board Norms	60	No .	3600	1500	5100	21600 0	90000	306000 .00
2	Supply and erection of pre-stressed cement concrete strut pole of 8.0 metres long 200 KG working load confirming to IS 1678:1998 or latest as per State Electricity Board Norms.	60	No .	1800	1500	3300	10800 0	90000	198000 .00
3	"Excavation of pit of size 700mmX700x1500mm (or) any other dimension as per site condition for Rail pole/Tubular pole and Rail strut & Stay as per instruction of Site Engineer & as per State Electricity Board Norms."	12 4	No .	0	293	293	0	36332	36332. 00
4	Mass concreting of erected poles/strut poles/stay poles and stay sets with Pit of size 700mm x 700mm x 1500mm(0.735 cum) or any other dimensions as per site requirement and direction of site	90. 40	cu m	2277	600	2877	20585 2	54243	260080 .80

	Engineer based on therequirement from concerned Electricity Board Engineer with CC (1:3:6) using 40mm size metal including the cost ofmetal, sand, cement and curing etc.								
5	Coping of poles/stay poles/stays with a height of size 470mm x 450mm x 450mm (0.095 cum) or any otherdimensions as per site requirement and direction of site Engineer based on the requirement from concernedElectricity Board Engineer at site with CC (1:3:6) using 20mm size metal including the cost of metal, sand, cementand curing etc.	11.68	cu m	2497	600	3097	29177	7011	36172.96
6	Supply, fixing and connecting of LT Poly pin insulators with metal parts including nuts, bolts, washers etc.	252	No .	69	50	119	17388	12600	29988.00
7	Supply, fixing and connecting of 4'-4 way cross arm including clamps, bolts, nuts, washers etc.	63	No .	400	230	630	25200	14490	39690.00
8	Supply and stringing of LT OH mains wth AAAC of size 34 Sq.mm. (7/2.5 AAAC/Weasel) including binding and jumper connection etc. confirming to IS:398/Part-IV/1994 or latest	6150	Me tre	15	8	23	92250	49200	141450.00
9	Supply and fixing of cable route indicators at a distance of 6 metres longitudinally. The indicators shall be of cast iron with lettering of "POWER CABLE" duly indicating the rating of cable with MS stem as per the details given in the drg. No. DEE/CN/BZA/2001/23	300	No .	186	57	243	55800	17100	72900.00
10	Excavation of cable trench in all types of ordinary soil of size 450 mm width x 1250 mm deep for laying of HT/LT XLPE UG cable and making original arrangements after laying of the cable including all accessories etc.	1800	Me tre	0	130	130	0	234000	234000.00
11	Excavation of cable trench in rocky soil of size 450 mm width x 1250 mm deep duly breaking the rock/CC/Tar/RCC Road and making original arrangements duly filling with a layer of sand, bricks, cement etc. after laying of the cable including all accessories etc.	600	Me tre	0	348	348	0	208800	208800.00

12	Supply and laying of HDPE pipe of PE-80 grade in PN-4 size 4" dia and outer dia of HDPE pipe 110mm and wall thickness minimum 4.3 mm maximum 4.8 mm with "T" joints, bolts, elbows etc. including all other connected accessories	3600	Me tre	259	18	277	932400	64800	997200.00
13	Supply and laying of HDPE pipe of PE-80 grade in PN-4 size 2" dia and outer dia of HDPE pipe 63mm and wall thickness minimum 2.5 mm maximum 2.8 mm with "T" joints, bolts, elbows etc. including all other connected accessories	3600	Me tre	91	19	110	327600	68400	396000.00
14	Supply and fixing of 4"(100mm) dia G.I. pipe of 'B' class (medium) as per IS:1239 to the structures/wals/rail poles with suitable clamps, bolts, nuts, washers etc. for supporting the cable. The clamps shall be painted with one coat of red oxide and two coats of aluminium paint. The MS clamps shall be fixed at an interval of not more than 1.0 mtr. and also as per the requirement of Engineer at site	720	Me tre	700	55	755	504000	39600	543600.00
15	Supply and laying of GI earth continuity wire of 6 SWG for providing earth inter connections to the cables etc.	9000	Me tre	12	3	15	108000	27000	135000.00
16	Supply, laying, connecting, testing and commissioning of 4 core 120 Sq.mm LT XLPE Aluminium UG cable, 1100 Volts as per IS:7098 Pt.I/1988 or latest.	6000	Me tre	784	50	834	4704000	300000	5004000.00
17	Supply, laying, connecting, testing and commissioning of 4 core 25 Sq.mm LT XLPE Aluminium UG cable, 1100 Volts as per IS:7098 Pt.I/1988 or latest.	3000	Me tre	156	29	185	468000	87000	555000.00
18	Supply and erection of Earth electrode of 48.4 mm outer dia & 40 mm inner dia, 3.1 m long steel tube galvanised with welded MS galvanised lug as per drawing No. ETI/OHE/P/7021 & RDSO specification No. TI/SPC/PSI/ERTHNG/0210 or latest including excavation of pit, protective concrete box with cover and all other connected materials like GI wire, charcoal, salt etc.	60	No .	1355	552	1907	81300	33120	114420.00

19	Supply and provision of Danger Boards in Hindi/English and Regional language on enameled steel plate with clamps, bolts and nuts complete with all other connected materials and works including all accessories (Size: 250x200 mm).	60	No .	365	100	465	21900	6000	27900.00
20	Supply and fixing of cable crossing detail board in English on MS plate of 3mm thick with clamps, bolts nuts etc. (Screen printing on Board) as per the details given in the drg. No. DEE/CN/BZA/2001/24	60	No .	365	100	465	21900	6000	27900.00
21	Supply and fixing of anti climbing devices with clamps, bolts, nuts etc. complete with all other connected materials and works	60	No .	365	100	465	21900	6000	27900.00
22	Horizontal drilling of bores suitable for laying of LT XLPE UG cable of 4 core 120 Sq.mm. through 4" HDPE pipe as per instructions of site Engineer	600	Metre	0	2157	2157	0	1294200	1294200.00
23	Dismantlement of LT OH mains including Guarding, insulators, cross arms etc. on RCC/RSJ/PSCC/DP/Tower and handing over the same to concerned supervisors of supply authorities at his store. Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill	90	Span	0	1370	1370	0	123300	123300.00
24	Dismantling of RSJ/RCC/Tubular poles and handing over the same to the concerned supervisor of maintenance at his stores Note: All released materials are to be handed over to the concerned supply authorities and acknowledgements are to be furnished along with final bill	126	No .	0	1000	1000	0	126000	126000.00
25	Preparation and submission of completion drawings in A3 size with all relevent details and measurements of executed power line crossings and transmission power line crossing. The drawings shall be submitted in 1+6 copies along with AUTOCAD CD duly signed by the concerned SEB authorities and to be furnished along with final bill	30	Set	0	1000	1000	0	30000	30000.00



<b>Total of Schedule-C</b>	<b>7940668</b>	<b>3025196</b>	<b>10965863.63</b>
<b>Grand Total of Schedule-A, B &amp; C</b>	<b>34871598.87</b>		