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|---|---|---|
| GETCO | **GUJARAT ENERGY TRANSMISSION CORPORATION LIMITED**<br>**Transmission Circle Office, Jambuva, N.H.No.8, Vadodara-390 014**<br>**CIN U40100GJ1999SGC036018**<br>**E-mail : setrjambuva.getco@gebmail.com** | आज़ादी का अमृत महोत्सव |

GETCO

## TRANSMISSION CIRCLE - JAMBUVA

## TENDER NO. - JTC/ 26-27 / n-173

.

**Name of work :** Bi-Annual Rate Contract for carrying out survey & route alignment work for Various 66kV/132kV/220kV/400kV class Transmission lines on tower & H-Frame lines approved under various scheme (Link Line/R&M work/ Providing 2nd Source(Disaster Management Plan)/Shifting or any other) under AM Divisions under Jambuva Circle

# TECHNICAL SPECIFICATION

**(to be submitted on line through n-code only)**

**Name of Bidder :** _____

## TENDER NOTICE No –JTC/26-27/n-173

Superintending Engineer, Transmission Circle GETCO Jambuva ( Address of the office - Gujarat Energy Transmission Corporation Limited, Circle Office, 220kv Jambuva sub-station compound, N.H. No-8, PO:- Jambuva, Tal & Dist: Vadodara.-390 014 ) invites "On line Tenders" (e-tendering) for the purchase/ works of following items. Tender Papers & Specifications may be down loaded from Web site https://tender.nprocure.com (For view, down load and on line submission) and GUVNL/GETCO web site www.guvnl.com (For View & download only).

**All tender documents, scanned copies of original documents (Notarized / self-attested copies of original – as specified in tender document) along with scan copy of transaction slip of payment made through RTGS/NEFT for Tender Fee & EMD shall be unloaded through on line only ( which is mandatory) on (n) procure portal.**

**Bidders shall compulsorily pay tender fee and EMD through RTGS/NEFT only. No any physical documents, Demand Draft / Banker's cheque or Pay order for tender fee and EMD to be submitted by bidders.**

All the bidders, in respect of tender item must have vendor registration with the GETCO prior to the date of opening of technical bid of the tender, otherwise their bids will not be considered eligible for technical scrutiny and their technical bids will not be opened.

| Sr. No. | Description | |
|---|---|---|
| 1 | Tender No.: | JTC/26-27/n-173 |
| 2 | Purchase/Work of | Bi-Annual Rate Contract for carrying out survey & route alignment work for Various 66kV/132kV/220kV/400kV class Transmission lines on tower & H-Frame lines approved under various scheme (Link Line/R&M work/ Providing 2nd Source(Disaster Management Plan)/Shifting or any other) under AM Divisions under Jambuva Circle |
| 3 | Tender Fee ( non- refundable) | Rs. 1,180.00 ( Rs. 1000.00 + GST 180.00 ) |
| 4 | Estimated cost incl. of GST in Rs. Lakh | Rs. 48,24,784.00 |
| 5 | Earnest Money Deposit amount in Rs. | Rs. 48,250.00 |
| 6 | On line (E-tendering) tender/ offer submission last date up to 16.00 hours only (This is mandatory) | **16.11.2026** |
| 7 | Date of opening of Tender fee, EMD and online technical bid at 16.10 hours | **16.11.2026** |
| 8 | Tentative Date of on – line opening of Price bid, | Shall be intimated separately. |
| 9 | Prices | Firm Basis |
| 10 | Validity of offer | 180 Days |
| 11 | Time limit | 24 Months |
| 12 | Appropriate / Registration Class | GETCO registered contractor of any class |

IMPORTANT:

1 All tender documents, scanned copies of original (Notarized / self-attested copies of original – as specified in tender document) documents along with scan copy of transaction slip of payment made through RTGS/NEFT for Tender Fee & EMD shall be uploaded through on line only (which is mandatory) on (n) procure Portal. No any physical documents , Demand Draft / Banker's cheque or Pay order for tender fee and EMD will be accepted
2. Bidder shall have to made payment for Tender fee and EMD though RTGS / NEFT only on or before due date and time of submission of tender .Tender fee and EMD paid though Demand Draft / Banker's cheque or Pay order will not be accepted and no any further communication in the matter will be entertained.
3. It is mandatory for all the bidders to upload their tender documents by on line (E-tendering) in scheduled time.
4. It shall be sole responsibility of the bidder that the uploaded scanned documents (in PDF form) remain legible (readable) and should not be password protected.
5. All the Appendices, forms, formats, declaration, undertaking, etc (To be submitted on bidder's letterhead), Tender acceptance letter (on bidder's letterhead), price bid, tender documents specified in the tender must be submitted through online on n-procure portal (mandatory) (All the documents to be duly self attested by the bidder). For any differences or wrong entry bidder shall be sole responsible for that documents.
6. Tender will be evaluated on the basis of Data / Details / Documents submitted by the bidders though online offer only.

7. The bidders are required to upload complete technical bid duly filled, sealed & signed by bidder ( all the appendices (annexure)/forms etc). This is intended for transparency and speedy evaluation of the bids. Instead of simply confirming/attached in bid/refer physical offer, the bidder shall fill in the particulars against appropriate place in respect of each line appearing in Technical bid (In the absence of required details in uploaded tender documents, technical bid , the purchaser has every right to evaluate the bids accordingly and bidder cannot raise any objection against any point during evaluation).
8. **Payment of Tender Fee and Earnest Money Deposit (EMD ) : The EMD and Tender fee plus GST as applicable shall be paid through RTGS/NEFT only .**
   **1) Payment of Tender fee , EMD through RTGS/NEFT : For the** payment through RTGS/NEFT the scan copy of payment made (transaction slip of payment made) shall be uploaded online with the Tender documents on n-procure portal.
   2) Bidder has to provide following detail on the same date of payment made so that receipt can be generated at below mentioned e-mail ids:
      1. **decmcjmbco.getco@gebmail.com**
      2. **nvp.getco@gebmail.com**
      3. **aotr.jambuva@gebmail.com**

| Sr. No. | Required Details |
|---|---|
| 1 | Name & Postal Address of the bidder |
| 2 | Contact Detail & e-mail id of the bidder |
| 3 | Tender No. with due date |
| 4 | Mode of Payment made |
| 5 | Ref. ID with Bank Details(UTR number) |
| 6 | Amount Paid for Tender fee in Rs. |
| 7 | Amount Paid for EMD in Rs. |
| 8 | GST Registration No. |
| 9 | Pan No. |

   3) GETCO Beneficiary Bank Details are as under:

| Sr.No. | Particulars | Requisite Details |
|---|---|---|
| 1 | Name of Bank | BANK OF BARODA |
| 2 | Name of Branch | MAKARPURA VILLAGE BRANCH, VADODARA |
| 3 | Branch Code | 0634 |
| 4 | MICR Code | 390012031 |
| 5 | IFSC Code | BARB0MAKARP |
| 6 | Name of Account | GETCO , JAMBUVA |
| 7 | Account No. | 06340200000181 |
| 8 | GST No. | 24AABCG4029R2ZC |

9. Tender fee and EMD paid though Demand Draft / Banker's cheque or Pay order will not be accepted. Also, Tender fee and EMD received after due date and time as specified in the tender will not be accepted/opened irrespective of delay due to any reasons and the Corporation shall not assume any responsibility for late receipt of the same.
10. Tender without EMD and tender fee plus GST as applicable shall be rejected.
11. Bidders are requested to remain in touch with the n-procure portal for any amendment/corrigendum or extension of due date etc.
12. The GETCO reserves the right to award the work to one or more bidders, considering their technical and financial capacity OR to reject any or all tenders or accept any tender without assigning any reason thereof.

Any technical questions, information and clarification that may be required pertaining to this enquiry should be referred to: The Superintending Engineer (TR), Gujarat Energy Transmission Corporation Limited, Circle office Jambuva.

GETCO reserves the right to reject any OR all tenders without assigning any reasons thereof.

Yours faithfully,
Superintending Engineer (TR)
C.O., GETCO, Jambuva

To view the PDF file please use “Acrobat Reader” software which can be downloaded from “Adobe” website

**Note:-**

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| **In case bidder needs any difficulty in accessing / submission of on line bid / clarification or if training required for participating in online tender, they can contact the following office:** (n) Procure Cell, (n) code solutions-A division of GNFC Ltd., 403, GNFC Infotower, S.G. Road, Bodakdev Ahmedabad –380054 (Gujarat ). |
| Toll Free: 1-800-233-1010 ( Ext. 501, 512,516 , 517 , 525 ) , Phone No. 079-26857315 / 316 / 317, Fax: 079-26857321 / 40007533, Email: nprocure@gnvfc.net |

# TENDER No: JTC/26-27 / n-173

## TECHNICAL BID

"Bi-Annual Rate Contract for carrying out survey & route alignment work for Various 66kV/132kV/220kV/400kV class Transmission lines on tower & H-Frame lines approved under various scheme (Link Line/R&M work/ Providing 2nd Source(Disaster Management Plan)/Shifting or any other) under AM Divisions under Jambuva Circle"

# Index


| Sr. No. | Document | Document Code | Part | Page No. |
|---|---|---|---|---|
| 1 | Tender Notice | - | I | 1 |
| 2 | Technical Bid | - | I | 5 |
| 3 | Integrity Pact | - | I | 6 |
| 4 | Instructions to Tenderers | ITB | I | 7 |
| 5 | Qualification Requirement | - | | 19 |
| 6 | General Conditions of Contract | GCC | I | 21 |
| 7 | Erection Conditions of Contract | ECC | I | 38 |
| 8 | Special Conditions of Contract with Declaration Form | SCC | I | 46 |
| 9 | Technical Specifications | TSP | II A | 54 |
| 10 | Technical Data sheets | TDS | II B | 58 |
| 11 | Various Annexures | - | | 71 |
| 12 | Price Bid | - | | 97 |

**GUJARAT ENERGY TRANSMISSION CORPORATION LIMITED**
**BARODA**

**Date :**

## I N T E G R I T Y  P A C T

### OUR ENEAVOUR

To create environment where Business Confidence is built through Best Business Practices and is fostered in an atmosphere of trust and respect between providers of goods and services and their users for the ultimate benefit of society a the nation.

| GETCO COMMITMENT | PARTY'S COMMITMENT |
|---|---|
| □ To maintain the highest ethical standards In business and professional | □ Not to bring pressure / recommendations outside GETCO to influence its decision. |
| □ Ensure maximum transparency to the Satisfaction of stakeholders. | □ Not to use intimidation, threat, inducement or Pressure of any kind on GETCO or any of it's employees under any circumstances. |
| □ To ensure to fulfill the terms of agreement / contract and to consider objectively the viewpoint of parties. | □ To be prompt and reasonable in fulfilling the contract, agreement, legal obligations. |
| □ To ensure regular and timely release of payment on due dates for work done. | □ To provide goods and / or services timely as per agreed quality and specifications at minimum cost of GETCO. |
| □ To ensure that no improper demand is made by employees or by anyone on our behalf. | □ To abide by the general discipline to be maintained in our dealings. |
| □ To give maximum possible assistance to all the Vendors / Suppliers / Service provider and other to enable them to complete the contract in time. | □ To be true and honest in furnishing information including payment to agents / sub-agent. |
| □ To provide all information to suppliers/ contractors relating to contract / Job which facilitate him to complete the contract / job successfully in time. | □ Not to divulge any information, business details available during the course of business relationship to others without the written consent of GETCO. |
| □ To ensure minimum hurdles to Vendors/ suppliers / contractors in complete of agreement / contract / work order. | □ Not to enter into carter / syndicate / understanding whether formal / non-formal so as to influence the price. |

_____
**Seal & Signature**
**(GETCO Authorized Signatory)**

_____
**Seal & Signature**
**(Party's Authorized Person)**

**Name :**
Designation :

Name :

## (A) INSTRUCTIONS TO THE BIDDERS

**A. INTRODUCTION**

**1.0 General Particulars**

1.1 The Gujarat Energy Transmission Corporation Ltd., Baroda hereinafter called 'GETCO'/ 'OWNER' intends to receive bids for Bi-Annual Rate Contract for carrying out survey & route alignment work for Various 66kV/132kV/220kV/400kV class Transmission lines on tower & H-Frame lines approved under various scheme (Link Line/R&M work/ Providing 2nd Source(Disaster Management Plan)/Shifting or any other) under AM Divisions under Jambuva Circle as detailed in the accompanying specifications in accordance with Terms and Conditions herein. The bids shall be prepared and furnished as per these Instructions.

**2.0 Bidding Costs**

All costs/expenses in the preparation and submission of the Bid (including any post Bid discussions/presentations) shall be fully borne by the Bidder. Owner will not be responsible/liable for these costs irrespective of the course and conclusion of this Bidding.

**3.0 BID DOCUMENTS**

**Details of Documents**

The following Bid documents apart from Invitation to Bid detail the material and equipment specifications/characteristics, the bidding procedures and the terms & conditions of contract:

a. Instructions to Bidders (ITB-Part I)
b. General Conditions of Contract (GCC-Part I)
c. Erection Conditions of Contract (ECC-Part I)
d. Special Conditions of Contract (SCC-Part I)
e. Technical Specifications (TSP-Part IIA)
f. Technical Data Sheets (TDS-Part IIB)
g. "Schedule-B" Bid Form and Price Schedules (BF/PS-Part III)

**4.0 Knowing the Bid Documents**

4.1 Every intending Bidder is to examine and understand all instructions, forms, terms, conditions and specifications in the Bid Documents and fully know himself all the conditions and contents therein, which may in any manner, affect the scope & content of work and the costs thereof. Submission of a Bid not substantially responsive to the Bid Document in all respects and/or failure to furnish all information required by the Bid Document may entail rejection of the Bid at the Bidder's risk.

**5.0 Clarifications on Bid Documents**

5.1 In case an intending Bidder finds any discrepancy or omission in the documents and specifications or is in doubt as to the true meaning of any part, he shall make a request, in writing not later than the date of pre Bid discussion, to the owner in triplicate. The owner will issue explanations, interpretations and clarifications as deemed fit in writing as a response to this request. On receipt of such interpretations/clarifications, the Bidder may submit his Bid within the date and time stipulated in the Bid invitation, All such explanations, interpretations and clarifications from the Owner shall be deemed as part of Bid Documents and shall invariably accompany the Bidder's proposal.

5.2 Any verbal/telephonic clarifications and information given by the Owner or his employee (s) or his representative(s) will not in any way be binding on the Owner.

**6.0 Amendment of bidding document:**

6.1 At any time prior to the deadline for submission of Bids the Owner may, for any reason, whether at his own initiative or in response to a clarification requested by the intending Bidder, modify the Bidding Document with amendment(s).

6.2 The amendment will be notified in writing or Fax /web site to all intending Bidders who have received the Bidding Document at the address contained in the letter of request for issue of Bidding document from the Bidders. Owner will bear no responsibility or liability arising out of non-receipt of the same in time or otherwise.

6.3 In order to afford prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the Owner may, at his discretion, extend the deadline for the submission of bids.

6.4 Such amendments, clarifications etc. shall be binding on bidders and will be given due consideration by the Bidders while they submit their bids and shall invariably enclose such documents as a part of the bid.

**7.0 PREPARATION OF BIDS**

**7.1 Language of Bid:**

The Bid prepared by the Bidder and all correspondence and documents relating to the Bid, exchanged by the Bidder and the Owner, shall be written in the English language, provided that any printed literature furnished by the Bidder may be written in another language so long as accompanied by an English translation of its pertinent passages. Failure to comply with this may disqualify a bid. For purposes of interpretation of the bid, the English translation shall govern.

**7.2 Bid Format**

Bidders have to make the Bid in the formats furnished with this Document. Verbatim without adding any printed/typewritten text of their own.

**8.0 Local Conditions:**

8.1 It will be imperative on each Bidder to fully inform himself of all local conditions and factors, which may have any effect on the execution of the Contract covered under these documents and specifications. The Owner shall not entertain any request for clarifications from the bidders, regarding such local conditions.

8.2 It must be understood and agreed that such factors have properly been investigated and considered while submitting the proposals. No claim for financial adjustment to the Contract awarded under these specifications and documents will be entertained by the owner. Neither any change in the time schedule of the Contract nor any financial adjustments arising thereof shall be permitted by the Owner, which are based on the lack of such clear information or its effect on the cost of the works to the Bidder.

**9.0 Documents comprising the Bid:**

9.1 The Bidder shall complete the Bid form inclusive of Price Schedules; Technical Data Requirements etc. furnished in the Bidding Documents, indicating, for the services to be rendered, a brief description of services, quantity and price.

9.2 All tender documents, scanned copies of original (Notarized / self-attested copies of original – as specified in tender document) documents along with scanned copy of original document for Tender Fee & EMD shall be uploaded through on line only (which is mandatory) on (n) procure Portal to establish that the Bidder meets the Qualification Requirements.**No physical documents to be submitted by the bidder**.

9.3 Complete technical bid / Tender Documents / formats are to be filled in all respects. Same shall be sealed and signed by the Company Authorized Signatory wherever specified and scanned copies of original (Notarized / self-attested copies of original – as specified in tender document) documents along with scanned copy of original document shall be uploaded through on line only (which is mandatory) on (n) procure Portal.

9.4 Bidder shall have to made payment for Tender fee and **EMD though RTGS / NEFT only on before due date and time of submission of tender**. **Tender fee and EMD paid though Demand Draft / Banker's cheque or Pay order will not be accepted and no any further communication in the matter will be entertained.**

9.5 It shall be sole responsibility of the bidder that the uploaded scanned documents ( in PDF form) remain legible & should not be password protected.

9.6 Bidder shall have to upload scanned copies of complete technical bid filled in all respect and sealed and signed by Company Authorized Signatory through on line only (which is mandatory) on (n) procure Portal

**10.0 Bid Price:**

10.1 The Bidder shall indicate percentage above/below of total bid price indicated in the appropriate price Schedules, enclosed in bid proposal sheets for erection, testing and commissioning, and other services it proposes to furnish under the contract. The % age above/below indicated shall be inclusive of all taxes and duties applicable inclusive of GST applicable on required inputs and services.

10.2 The Bidder shall specifically note that the Tenders are invited on percentage rate increase/decrease based in relation to unit rates of tender price schedule.

**11.0 Price Basis:**

11.1 The Price shall be quoted on firm basis.

11.2 The Price quoted by the bidder shall remain fixed during the bidder's performance of the contract and shall not be subject to variation on any account save for change in quantity. A bid submitted with an adjustable price quotation shall be treated as non-responsive and rejected.

**12.0 Taxes and Duties:**

12.1 **Goods and Service Tax (GST)**:

12.1.1 The F.O.R. Destination prices are excluding GST and Cess as applicable which will be paid extra on a given taxable goods and/or services within the original contractual delivery period. The amount and% of GST and Cess as applicable should clearly be indicated separately. (GST/Cess means all applicable

Tax/Cess under GST Laws. GST Laws means IGST Act, GST(Compensation to the State for Loss of Revenue) Act, CGST Act, UTGST Act and SGSCT Act, 2017and all related ancillary legislations).

12.1.2 You shall have to submit a C.A Certificate& duly authorized Signatory of successful bidder, certifying that you have not claimed Refund of any applicable GST and Cess, charged to COMPANY or shall not claim any such Refund, on a future date, from the concerned Authorities and if, any Refund, in respect of such GST and Cess, is claimed by you, it will be immediately passed on to the COMPANY, without COMPANY making any specific Claim, for the same, either from the Department or from you.

12.1.3 The offers having price INCLUSIVE OF GST and Cess is likely to be rejected if the rate of GST and Cess is not mentioned clearly unless the bidder has opted for Compostion Scheme under GST Act, which should be clearly indicated in the price bid. COMPANY may at its discretion consider such offer with presumption of highest applicable rate of VAT/GST/Cess prevailing when the price quoted is inclusive of GST and Cess.

12.1.4 If the Supplier/Contractor has opted for the Composition scheme of GST, the same must be clearly specified with valid Declaration & Certificate from Department. In the event of withdrawal/cessation of the Supplier from Composition scheme during the tenure of the contract, the rate mentioned in the price bid shall be final and any additional GST will have to be borne by the tenderer. In no case additional amount towards tax or otherwise will be paid / reimbursed to supplier/contractor. Further Statutory Variation clause will not be applicable in case of Supplier / Contractor has opted for Composition Scheme under GST.

12.1.5 Supplier/Contractor should charge GST in Invoice at the rate as agreed to / mentioned in acceptance of tender only and any deviation in the same shall not be accepted. Further, any additional liability of GST (later on due to wrong mentioning of GST rate, mis-interpretation of HSN/SAC Code, etc.) over and above as charged in the invoice shall be borne by the Supplier/Contractor. However, any refund received by the supplier / contractor on account of GST charged from the company; such refund shall have to be passed on to the company, along with interest if any. Such refund along with interest needs to be passed on suo-moto by the supplier / contractor.

12.1.6 Further, the Company has a right to recover the amount of GST along with penal interest at the rate of 15% per annum if GST charged is not paid / short paid to the government or fail to upload the details or uploads inaccurate particulars on GSTIN portal by the Supplier / Contractor within the stipulated time limit.

12.1.7 In case, Govt. revises the rate of GST rate / Code during the tenure of the contract, the provision of GUVNL's statutory variation clause shall apply.

12.1.8 INPUT TAX CREDIT BENEFIT

In the event of any statutory increase in the rate of Input Tax Creditand / or due to inclusion of any other additional item of their inputs / input services under the ambit of the Input Tax Credit provisions under the GST Act, subsequent to the date of submission of the offer, the same should be passed on to COMPANY and you should inform such changes to COMPANY from time to time.

12.1.9 GST, other taxes and other levies and duties including custom duty solely in respect of the transaction between the owner and the contractor under this contract, if any, shall be included in the bid price. These shall also be indicated separately wherever applicable as mentioned in the Tender.

12.2 As regards the income Tax, surcharge on income tax and any other corporate tax, including GST if any ,the owner shall not bear any tax liability whatsoever. The bidder shall be liable and responsible for payment of such taxes as attracted under the provisions of the law.

12.3 Notwithstanding the tax liabilities as per the sub-clause 12.1 above the owner shall have the right to make deduction at source from the amounts payable to the contractor in respect of Income Tax (on the cost of items of supply included in the works contract) as may be mandatory in terms of the law. The owner shall not bear any liability in this regard but shall issue necessary certificate in respect of such deduction made.

12.4 In case any tax or duty is newly introduced by the Government applicable for this contract with effect from the next day of the date submission of the bid and if the contractor is required to pay additional tax or duty, then the owner shall reimburse the contractor the additional tax or duty so paid by the contractor against submission by the contractor of documentary evidence to the satisfaction of the owner. This provision will not be applicable to transaction between the contractor and his sub-contractors and will be applicable only to the direct transaction between the contractors and owner. Besides the said statutory variation, no other statutory variation shall be payable by the owner.

12.5 The owner's liability for all taxes and duties including GST under the contract shall be limited to those indicated by the Bidder in the Bid Proposal Sheets, subject to the statutory variations and variations as per Clause No. 12.10 para.

12.6 If the cost to the Contractor during the performance of the 'Contract' shall be increased or reduced by reasons of the making, passing or promulgation of any law after the date of submission of bid or by any order, regulation or bye-law having the force of law the amount of such increase or reduction shall be added to or deducted from the "Contract Price" as the case may be for direct transactions between

contactor & owner, and not for bought out items. It is the Bidders responsibility to furnish details of taxes, duties, levies etc. applicable as on the date of submission of the bid.

12.7 No claim for any increase towards the statutory variation regarding enhancement of existing tax or duty or introduction of a new tax or duty applicable shall be entertained by the Owner during the extended period of contract, if any, provided the extension of the contract is required by causes attributable to the contractor.

12.8 The provision of statutory variation regarding enhancement of existing tax or duty or introduction of a new tax or duty will be applicable only to the direct transaction between the contractor and the owner.

12.9 Before quoting, the bidder may ascertain from the concerned tax authorities of Government of Gujarat the applicability of Entry Tax, GST in respect of this work and include the same in the quoted price. The Owner in this regard will entertain no separate claim, as it is the responsibility of the Bidder to pay all these taxes.

12.10 In addition, the conditions detailed under Special Conditions of Contract shall apply.

**13.0 Time Schedule:**

13.1 The basic consideration and the essence of the contract shall be strict adherence to the time schedule for performing the specified works.

13.2 The Owner's requirements of completion schedule for the Works are mentioned in the accompanying Special Conditions of Contract.

13.3 The completion schedule as stated in the special conditions of contract shall be one of the major factors in consideration of the bids.

13.4 The owner reserves the right to request for a change in the work schedule during pre- award discussions with successful bidder.

13.5 The successful bidder will be required to prepare detailed Bar chart and finalize the same with the owner as per the requirement of Clause no 27.0 of GCC

**14.0 Contract Quality assurance:**

14.1 The Bidder shall include in his proposal the Quality Assurance Program containing the overall quality management and procedures which he proposes to follow in the performance of the Works during various phases as detailed in relevant clause of the General Technical Conditions.

14.2 At the time of Award of Contract, the detailed Quality Assurance Program to be followed for the execution of the Contract will be mutually discussed and agreed and such agreed Program shall form a part of the Contract.

14.3 The Bidder shall clearly specify the list of sub-vendors from whom the bought out items are being supplied wherever specifically indicated in the tender document shall supply only from those vendors. Such details shall be accompanied by their list of previous supplies made performance reports etc. However, in case of orders are placed, specific approval shall be obtained from the owner for the vendor-supplied materials. The quality assurance program shall be furnished for each material separately for approval.

**15.0 Insurance:**

The Bidder's insurance liabilities pertaining to the scope of Works are detailed out in Clauses titled Insurance, in General Terms and Conditions of Contract and in Erection Conditions of this Part-I. Bidder's attention is specifically invited to these clauses. Bid price shall include all the costs in fulfilling all the insurance liabilities under the Contract.

**16.0 Erection Tools and Tackles:**

The Bidder under a separate schedule, in his proposal shall include a list of all-special equipment tools & tackles etc. which he proposes to bring to site for the purpose of erection, handling, testing and commissioning including performance and guarantee tests of the equipment. If any such equipment is listed anywhere else in the proposal and not specially mentioned in the above schedule, it shall be deemed to have been included in the Bidder's proposed scope of supply.

**17.0 Brand Names:**

17.1 The specific reference in these specifications and documents to any material/equipment by brand name makes or catalogue number shall be construed as establishing standards of quality and performance and not as limiting competition. However, Bidders may offer other similar material/equipment provided they meet the specified standard, design and performance requirements. The Bidder shall furnish adequate technical information about such alternative material equipment to enable the Owner to determine its acceptability. The Owner shall be the sole judge on the acceptability or otherwise of such alternatively material/equipment.

17.2 The bidder shall note that standards for workmanship material and equipment, and reference to brand name of catalogue numbers designed by the Owner in its Technical Specifications are intended to be

descriptive only and not restrictive. The Bidder may substitute alternative standards, brand name and/or catalogue numbers in its bid, provided that it demonstrates to the Owner's satisfaction that the substitutions are substantially equivalent or superior to those designed in the Technical Specification.

**18.0 Bid Security/EMD:**

The bidder shall furnish, as a part of its bid EMD, bid security for an amount of one percent of estimated cost to be paid as under:

**a) Payment of Earnest Money Deposit ( EMD ) can be accepted by RTGS/ NEFT only.**

1. In case of payment through RTGS/NEFT the scan copy of payment made (transaction slip of payment made) shall be uploaded online with the Tender documents on n-procure portal.
2. Bidder has to provide following detail on the same date of payment made so that receipt can be generated at below mentioned e-mail ids:
   1. **decmcjmbco.getco@gebmail.com**
   2. **nvp.getco@gebmail.com**
   3. **aotr.jambuva@gebmail.com**

| Sr. No. | Required Details |
|---|---|
| 1 | Name & Postal Address of the bidder |
| 2 | Contact Detail & e-mail id of the bidder |
| 3 | Tender No. with due date |
| 4 | Mode of Payment made |
| 5 | Ref. ID with Bank Details(UTR number) |
| 6 | Amount Paid for Tender fee in Rs. |
| 7 | Amount Paid for EMD in Rs. |
| 8 | GST No. |
| 9 | Pan No. |

3. GETCO Beneficiary Bank Details are as under:

| Sr.No. | Particulars | Requisite Details |
|---|---|---|
| 1 | Name of Bank | BANK OF BARODA |
| 2 | Name of Branch | MAKARPURA VILLAGE BRANCH, VADODARA |
| 3 | Branch Code | 0634 |
| 4 | MICR Code | 390012031 |
| 5 | IFSC Code | BARB0MAKARP |
| 6 | Name of Account | GETCO , JAMBUVA |
| 7 | Account No. | 06340200000181 |
| 8 | GST No. | 24AABCG4029R2ZC |

18.1 The offer should be valid for a minimum period of 180 days from the date of opening of technical bid.

18.3 The bid security is required to protect the owner against the risk of Bidder's conduct, which would warrant the guarantee forfeiture, pursuant to relevant paras elsewhere The bid guarantee shall be made payable to the Owner without any condition whatsoever.

18.4 The Owner as non-responsive will reject any bid not secured in accordance with Para 18.1 above. No exemptions are made in the furnishing of the security.

18.5 Unsuccessful Bidder's bid security/EMD will be returned/refunded on finalization of tender or three months from the date of submission of tender whichever is later.

18.6 The successful bidders, Bid Security will be discharged upon, furnishing the contract performance guarantee

18.7 The bid guarantee may be forfeited.

a) If a Bidder withdraws its bid during the period of bid validity specified by the bidder on the bid Form:
b) If a bidder refuses to accept the contract or fails to commence the works including supplies within thirty days of letter of award of contract)

18.8 **If successful bidder fails to furnish the Security deposit to execute the contract for the work offered to him, his EMD shall be forfeited.**

**19.0 Format of Bid:**

19.1 The original and all copies of the bid shall be typed or written in indelible ink and shall be signed by the Bidder or a person or persons duly authorized by the Bidder to sign the Contract. The letter of authorization shall be indicated by written power-of-attorney accompanying the bid. All pages of the bid, except for un-amended printed literature, shall be initiated by the person or persons signing the bid.

19.2 Complete technical bid / all Tender Documents / formats are to be filled in all respects. Same shall be sealed and signed by the Company Authorized Signatory wherever specified and scanned copies of original (Notarized / self-attested copies of original – as specified in tender document) documents along with scanned copy of original document shall be uploaded through on line only (which is mandatory) on (n) procure Portal. No physical documents to be submitted by the bidder

19.3 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initiated by the person or persons signing the bid.

19.4 The bid shall contain no interlineations, erasures or overwriting except as necessary to correct errors made by the Bidder, in which case such corrections shall be initiated by the person or persons signing the bid.

19.5 Bids shall be submitted as under:

**Complete Technical Bid, Tender documents as per QR , Price Bid and transcation slip for payment made for tender fee & EMD through RTGS / NEFT ,shall be submitted 'online' only.**

**20.0 Signature of Bids:**

20.1 The bid must contain the name, residence and place of business of the person or persons making the bid and must be signed and sealed by the Bidder with his usual signature. The names of all persons signing should also be typed or printed below the signature.

20.2 Bid by a partnership must be furnished with full names of all partners and be signed with the partnership name, followed by the signature(s) and designation(s) or the authorized partner(s) or other authorized representative(s).

20.3 Bids by Corporation/Company must be signed with the legal name of the Corporation/Company by the President/Managing Director or by the Secretary or other person or persons authorized to bid on behalf of such Corporation/Company in the matter.

20.4 A bid by a person who affixes to his signature the word 'President', 'Managing Director', 'Secretary', 'Agent' or other designation without disclosing his Principal will be rejected.

20.5 If it is found that two or more persons who are connected with one another either financially or as a principal and agent have bid under different names without disclosing their connection then such bids will be liable for rejection. Satisfactory evidence of authority of the person signing on behalf of the Bidder shall be furnished with the bid.

20.6 The Bidder's name stated on the proposal shall be the exact legal name of the firm.

20.7 Bids not conforming to the above requirements of signing may be disqualified and EMD forfeited.

**21.0 Submission of bids:**

21.1 **Complete Technical Bid, Tender documents as per QR , Price Bid and transcation slip for payment made for tender fee & EMD through RTGS / NEFT ,shall be submitted 'online' only.**

**Price Bid : Technical & Price bid shall be submitted 'online' only through n-code.**

21.2 The Technical Bid and accompanying documents, RTGS/ NEFT transaction slip for payment made for tender fee and EMD shall be uploaded ( scanned copies of original document ) through on line only (which is mandatory) on (n) procure Portal by the bidder.

21.3 Address of the Owner is as under:

The Superintending Engineer
GETCO, Circle Office.
220kv Jambuva sub-station compound.
NH -8, Jambuva PIN CODE- 390014
Vadodara.

**22.0 Deadline for submission of bids:**

22.1 The Bidders have to submit the bid documents with detail of payment of tender / Fee /EMD paid though NEFT / RTGS by online mode only as per schedule closing date of submission of online bid.

22.2 The Owner may, at its discretion, extend this deadline for the submission of bids by amending the Bidding Document in which case all rights and obligations on the Owner and Bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

**23.0 Late Bids**

23.1 Any bid received by the Owner after the time and date fixed or extended for submission of bids prescribed by the Owner, will be rejected and not considered for evaluation.

**24. Modification and withdrawal of bids:**

24.1 The Bidder may modify or withdraw its bid after the bid's submission provided that written notice of the modification or withdrawal is received by the Owner prior to the deadline prescribed for submission of bids.

24.2 The Bidder's modification or withdrawal notice shall be prepared, sealed, marked and dispatched in accordance with the provisions of clause 23.0. The envelope should clearly indicate whether the modification is for the Technical bid or the Price bid. No bid modifications notice by Telex/Grams/Fax shall be entertained by the Owner.

24.3 No bid shall be modified in any manner, whatsoever subsequent to the deadline for submission of bids.

24.4 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal/modification of a bid during this interval may result in the Bidder's forfeiture of its bid security.

**25.0 Information required with the proposal:**

25.1 The bids must clearly indicate the name of the manufacturer, the type and/or model of each principal item of equipment proposed to be furnished and erected. The bid should also contain drawings and descriptive materials indicating general dimensions, materials from which the parts are manufactured, principles of operation, the extent of pre-assembly involved, major construction equipment proposed to be deployed, method of erection and the proposed erection organizational structure.

25.2 The above information shall be provided by the Bidder in the form of separate sheets, drawings, catalogues, etc. in five copies.

25.3 Any bid not containing sufficient descriptive material to describe accurately the equipment proposed may be treated as incomplete and hence rejected. Such descriptive materials and drawings submitted by the Bidder will be retained by the Owner. Any major departure from these drawings and descriptive material submitted will not be permitted during the execution of the Contract without specific written permission of the Owner.

25.4 Oral statements made by the Bidder at any time regarding quality, quantity or arrangement of the equipment or any other matter will not be considered.

25.5 Standard catalogue pages and other documents of the Bidder may be used in the bid to provide additional information and data as deemed necessary by the Bidder.

25.6 The Bidder, along with his Proposal, shall submit a list of recommended erection equipment and materials which will be required for the purpose of erection of equipment and materials supplied under the Contract.

25.7 In case the 'Proposal' information contradicts specification requirements, the specification requirements will govern, unless otherwise brought out clearly in the technical commercial deviation schedule.

**26.0 BID OPENING AND EVALUATION**

**Opening of bids by owner:**

26.1 The Owner will open the technical bids online on Date of opening online technical bid.

26.2 The Bidder's names, Technical modifications, bid withdrawal and such other details as the Owner, at his discretion may consider appropriate, will be announced in the Technical Bid Opening.

26.3 Price bid will be open 'online' only through n-code after technical scrutiny of tender.

**27.0 Purpose of evaluation of bids:**

27.1 The Bids received/accepted/opened will be evaluated by the Owner to ascertain the technical responsiveness of the bid for the complete scope of the proposal, as covered under these specifications and documents. All technically responsive bids shall then be examined to determine the LOWEST EVALUATED COMMERCIALLY AND TECHNICALLY RESPONSIVE BIDS.

**27 ( A) Policy for bids under consideration:**

27.A.1 Bids shall be deemed to be under consideration immediately after opening of Technical Bid and until such time official intimation of award/rejection is made by the Owner to the Bidders. While the Bids are under consideration, Bidders and/or their representatives and other interested parties are advised to

refrain from contacting by any means, the owner and/or his employee's representatives on the matters related to Bids under consideration.

**28.0 Submission and Evaluation of Documents / Clarification:**

28.1 The Bidder shall submit/upload all the documents, certificates, declarations, statements and other information required under the Tender Document along with its original online bid within the stipulated date and time for submission of bids. The Bidder shall be solely responsible for ensuring completeness, correctness, legibility and validity of all such documents.

28.2 The Technical/Qualification Requirement (QR) evaluation of the bid shall be carried out only on the basis of the Data / Details / Documents submitted/uploaded by the Bidder as part of its original online offer on or before the stipulated last date and time for submission of the bid.

28.3 After the stipulated last date and time for submission of bids, no new, additional, substitute or replacement document shall be accepted or considered for establishing or improving the eligibility, Qualification Requirement (QR), technical qualification or experience of the Bidder.

28.4 In case any document, certificate, work order, completion certificate, experience certificate, registration certificate or other document required for establishing the eligibility/QR of the Bidder has not been submitted/uploaded with the original online bid, the same shall not be subsequently submitted or considered for establishing or improving the eligibility/QR of the Bidder.

28.5 The Owner/Tendering Authority may, wherever considered necessary, seek clarification only in respect of the Data / Details / Documents already submitted/uploaded by the Bidder with its original online offer, provided that such clarification does not result in any change, addition, substitution or improvement in the substance of the original bid or in the eligibility/QR of the Bidder.

28.6 No clarification shall be sought or accepted for introducing a new experience, new work order, new completion certificate or any other new document which was required to be submitted with the original online bid but was not submitted/uploaded within the stipulated bid submission period.

28.7 No post-bid clarification or document submitted voluntarily by the Bidder shall be considered for evaluation. Any clarification, if required by the Owner/Tendering Authority, shall be sought in writing and shall be limited to the original online submission.

28.8 In case the required Data / Details / Documents are not available in the original online offer, the bid shall be evaluated on the basis of the documents actually submitted/uploaded with the original online bid and dealt with in accordance with the Tender conditions.

28.9 In case any document uploaded/submitted by the Bidder along with the original online bid is found to be unreadable, illegible, corrupted, damaged or otherwise not accessible/openable, the Owner/Tendering Authority may seek clarification/re-submission only for such document(s) which are specifically required as per the duly filled online Annexures submitted by the Bidder, and only to the extent permissible under the Tender Conditions.

If the Bidder has not duly filled the relevant online Annexure(s), or has merely mentioned **"As per attached documents"** or any similar general remark in place of providing the required details in the prescribed Annexure(s), then **no further communication, clarification or opportunity for submission/re-submission of such document(s) shall be entertained,** and the bid shall be evaluated on the basis of the documents/data available in the original online offer.

The responsibility for ensuring that all uploaded documents are complete, properly filled, legible, accessible, valid and correctly linked/referenced through the prescribed Annexures shall rest solely with the Bidder.

**29.0 Evaluation of Online Offer :**

Tender shall be evaluated on the basis of the Data / Details / Documents forming part of the original online offer submitted/uploaded by the Bidder on or before the stipulated last date and time for submission of the bid.

No new, additional, substitute or replacement document submitted after the stipulated last date and time for submission of the bid shall be considered for establishing or improving the eligibility, Qualification Requirement (QR), technical qualification or experience of the Bidder.

Clarification, if any, shall be governed strictly by Clause No. 26 of the Tender Document and shall not result in any change or improvement in the substance of the original bid.

**30.0 Online Annexures and Supporting Documents:**

Bidders shall fill all online Annexures, wherever required, and shall upload all supporting authentic documents as specified in the Tender Document.

The Bidder shall ensure that all documents required for establishing eligibility, Qualification Requirement (QR), technical qualification and experience are duly uploaded/submitted along with the original online bid within the stipulated date and time for submission of the bid.

The responsibility for submission/uploading of complete and valid documents required under the Tender Document shall rest solely with the Bidder.

In case any required Data / Details / Documents are not submitted/uploaded with the original online bid, the same shall not subsequently be accepted or considered for establishing or improving the eligibility/QR, except for clarification strictly within the scope permitted under Clause No. 26.

The Owner reserves the right to evaluate the bid on the basis of the Data / Details / Documents available in the original online offer and in accordance with the provisions of the Tender Document.

**31.0 Preliminary Examination:**

31.1 The Owner will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.

31.2 **Arithmetical errors will be rectified on the following basis:**
If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected. If there is a discrepancy between the total bid amount and the sum of total costs, the latter shall prevail and the total bid amount will be corrected accordingly. If there is a discrepancy between words and figures, the amount advantageous to the Owner will prevail. If the Bidder does not accept the correction of the errors as above, his Bid will be rejected and the amount of Bid Security will be forfeited. The Bidder should ensure that the prices furnished in various price schedules are consistent with each other. In the case of any inconsistency in the prices furnished in the specified prices schedules to be identified in Bid Form for this purpose, the Owner shall be entitled to consider the highest price for the purpose of evaluation and for the purpose of award of Contract use the lowest of the prices in these schedules.

31.3 Prior to the detailed evaluation, the Owner will determine the substantial responsiveness of each bid to the Bidding Document. For purpose of these Clauses, a substantially responsive bid is one which conforms to all the terms and conditions of the Bidding Document without material deviations. A material deviation is one which affects in any way the prices, quality, quantity or delivery period of the equipment, completion of works or which limits in any way the responsibilities or liabilities of the Bidder of any right of the Owner as required in these specifications and documents. The Owner's determination of a bid's responsiveness shall be based on the contents of the bid itself without recourse to extrinsic evidence.

31.4 A bid determined as not substantially responsive will be rejected by the Owner and may not subsequently be made responsive by the Bidder by correction of non-conformity.

31.5 The Owner may waive any minor informality or non-conformity or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.

**32.0 Evaluation of Price Bids:**

32.1 <u>Definitions and Meanings:</u>
For the purpose of the evaluation and comparison of bids, the following meanings and definition will apply: -
a) 'Bid Price' shall mean the price quoted by each Bidder in his proposal for the complete scope of works.
b) 'Evaluated Bid Price' shall be summation of 'Bid Price', 'Differential Price' and 'Cost Compensation for Deviations.'

**33.0 <u>Calculation of differential Price & Cost Compensation for Deviations.</u>**

The Differential Price to be added to the Bid Price of each bid during evaluation and comparison shall be derived as under:

Differential Price (DP)=n1F1+n2F2…+nn Fn, where F1, F2…Fn are the various factors in Indian Rupees per unit of parameter differential or deficiency in the equipment and services offered as stipulated in these specifications: n1, n2…nn are the respective parameter differential or deficiency in the corresponding units to be determined from the Bidder's proposal. The above factors and corresponding units of

parameter differential are derived from the Technical Specifications, Data sheets and/or Special Conditions of Contract.

Deviations from the Bidding Documents in so far as practicable will be converted to a Rupee value (D) and from the Bidding Document while evaluating the bids. In determining the Rupee value of the deviations the Owner will use parameters consistent with those specified in the specifications and documents and or other information as necessary and available to the Owner.

**33.1 Comparison of Bids**

The bids shall be compared on the basis of lumpsum prices (i.e., for erection services to be rendered as quoted by the Bidder) for the entire scope of the proposal as defined in the Bidding Document.

For comparison purposes all the evaluated bid prices shall be in Indian Rupees as under:

W = Q + DP + D

Where

W = Total Comparison Price

Q = Bid Price quoted by the bidder in Indian Rupees (Value of erection cost including other components if any.)

DP = Different price in Indian Rupees calculated as above

D = Cost compensation for deviations calculated as above.

All evaluated bid prices of all the bidders shall be compared among themselves to determine the lowest evaluated bid and, as a result of this comparison, the lowest bid will be selected for the award of the Contract.

**34.0 AWARD OF CONTRACT**

**Award Criteria**

34.1 The owner will award the contract to the successful Bidder, whose bid has been determined to be substantially responsive and has been determined as the lowest evaluated bid, providing further that the Bidder is determined to be qualified to perform the contract satisfactorily. The Owner shall be the sole judge in this regard.

**35.0 MATCHING OF END COST:**

35.1 In case the GETCO decides to award contract on matching end-cost basis, the bidder has to reduce all the quoted rates proportionately. The reduction on overall basis will not be accepted (i.e. all unit rates of erection schedule shall be reduced proportionately by difference in percentage). The confirmation for matching end cost shall be given within 7 (seven) days from the letter from GETCO.

35.2 Further, the Owner reserves the right to award separate contracts to two or more parties in line with the terms and conditions specified in the accompanying Technical Specifications.

**36.0 Owner's right to accept any bid and to reject any or all bids:**

36.1 The Owner reserves the right to accept or reject any bid, and to annual the bidding process and reject all bids at time prior to award of contract, any without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Owner's action.

**37.0 Notification of award:**

37.1 Prior to the expiration of the period of bid validity and extended validity period, if any, the Owner will notify the successful Bidder in writing by registered letter or cable or telex or FAX, to be confirmed in writing by registered letter, that its bid has been accepted.

37.2 The notification of award will constitute the formation of the Contract.

37.3 Upon the successful Bidder's furnishing of performance guarantee pursuant to relevant clause 36.0, the Owner will promptly notify each unsuccessful Bidder and will discharge its bid security, pursuant to Clause 18.0.

**38.0 Signing of contract:**

38.1 At the same time as the Owner notifies the successful Bidder that his bid has been accepted, the Owner will send the Bidder the detailed of Award, incorporating all agreements between the parties.

38.2 Within 15 days of receipt of the detailed of Award, the successful bidder shall sign the same with date and return it to the Owner.

38.3 The Bidder will prepare the Contract Agreement as per the Performa prescribed and the same will be signed within 30 (Thirty) days of notification of Award.

**39.0 Contract Performance Guarantee:**

39.1 As a contract performance security, the successful bidder, to whom the work is awarded, shall be required to furnish a performance guarantee in form of Bank guarantee from a Public Sector Indian bank/Scheduled, Commercial Bank in the form to be furnished. The guarantee amount shall be equal to ten percent (10%) of the Contract price and it shall guarantee the faithful performance of the Contract in accordance with the terms and conditions specified in these documents and specifications. the guarantee shall be valid up to 90 days after the end of Warranty Period.

39.2 The Performance Guarantee shall cover additionally the following guarantees to the Owner:

a) The successful Bidder guarantees the successful and satisfactory operation of the equipment furnished and erected under the Contract, as per the specifications and documents.

b) The successful Bidder further guarantees that the equipment provided by him/his sub-vendors and installed by him shall be free from all defects in design, material and workmanship and shall upon written notice from the Owner fully remedy free of expenses to the Owner such defects as developed under the normal use of the said equipment within the period of guarantee specified in the relevant clause of the General Terms and Conditions in the Part-I / Special Conditions of Contract.

39.3 The Contract Performance Guarantee is intended to secure the performance of the entire contract. However, it is not to be construed as limiting the damages under clause entitled "Equipment Performance Guarantee" in Technical Specifications, Part-II and damages stipulated in other clauses in the Bid documents.

39.4 The performance guarantee will be discharged without any interest at the end of guarantee period, unless otherwise specified in Special Conditions of Contract.

**37.0 Scope of the proposal**

37.1 The Scope of the proposal shall be on the basis of a single Bidder's responsibility, completely covering all the equipment erection and other installation services specified under the accompanying Technical Specifications. It will include among others as specified therein the following: -

a) Receipt of equipments and material from GETCO's store, transportation, storage, preservation and conservation of equipment at the Site.

b) Pre-assembly, if any, erection, testing and commissioning of all the equipments.

c) Reliability tests and performance and guarantee tests on completion of commissioning.

37.2 **No deviation** whatsoever to certain conditions of the bidding documents permitted by the Owner and therefore, the Bidders are advised that while making Bid Proposals and quoting prices these conditions may appropriately be taken into consideration. Bidders are required to furnish a certificate in this regard **as per the format provided in Special Conditions of Contract in a separate sealed envelope containing Bid security, which shall accompany the Technical Bid.** Any Bid not accompanied by such certificate shall be rejected by the Owner and shall not be opened.

37.3 Bids not covering the above cited entire scope of works may be treated as incomplete and hence rejected.

37.4 The Bidder shall complete all the schedules & annexure in the Bid Proposal Sheets, Technical Data Sheets and specified elsewhere. The Qualifying Data should be filled in the required schedule of Bid Proposal Sheets.

37.5 The scope of work is **Bi-Annual Rate Contract for carrying out survey & route alignment work for Various 66kV/132kV/220kV/400kV class Transmission lines on tower & H-Frame lines approved under various scheme (Link Line/R&M work/ Providing 2nd Source(Disaster Management Plan)/Shifting or any other) under AM Divisions under Jambuva Circle** as per standard specification and standard practice of GETCO and as per EIC.

## Qualification Requirement

To be qualified for award, the bidder shall provide following satisfactory evidence to the Owner of his capability and adequacy of resources:

| Sr. no. | Qualifying Requirements |
|---|---|
| **1.** | **Registration** : The Bidder shall be strictly a GETCO registered contractor of any class |
| **2.** | **Technical Criteria**:<br>The bidder should have experience of work executed for **50 KM of transmission line survey & preparation of profiles** complete with details covered along the route alignment, leveling, fixing of angle point, EHV/HT/LT & P&T line, National highway & Railway Crossings in such a way that no forest / NA Plotting land involved. Also, **Bidder should have experience of transmission line survey of 66kV & above voltage class as main contractor in GETCO or other STU or CTU, during last three financial year**.<br><br>Copy of Work order & Satisfactory completion certificate (WCC in form 3-A) from respective department should be submitted. |
| **3.** | **Financial Criteria**:<br>The bidder shall submit the Bank solvency of the amount which is 20% of the total estimated cost of tender |
| **4.** | **Additional Documents:**<br>1. Payment of Tender fee and EMD.<br>2. GST registration certificate. (Certificate of Provisional GST registration shall not be accepted).<br>3. Details of Proprietorship / Partners/Directors of the Firm/Company. Partnership deed, MOA, BR, if applicable.<br>4. Copy of power of attorney as the case may be.<br>5. PF registration<br>**6.** The Bidder should have to submit copy of PAN card.<br>**7.** Profit Loss and Balance sheet & IT returns of Last three financial years. |

Note :

1. Complete Technical bid ,all tender documents (Scan copy of notarized/self-attested as per tender specification) ,RTGS/ NEFT transaction slip for payment made for tender fee and EMD to be submitted on line only (which is mandatory) on (n) procure Portal. No physical documents to be submitted by the bidder. Aslo , refer clause no. 28,29,30 of Instruction to bidders
2. The owner reserves the right to reject the Bid proposal of any Bidder, if in the Owner's opinion the Qualification data is incomplete and Bidder is not qualified to perform the Contract satisfactorily. Aslo , refer clause no. 28,29,30 of Instruction to bidders
3. All above Qualification Requirement documents must be submitted online with Self attested by Bidder (With seal & signature of bidder).

**SCOPE OF WORK**

1. The Scope of the proposal shall be on the basis of a single Bidder's responsibility, completely covering all the services specified under the accompanying Technical Specifications.
2. The Bidder shall complete all the schedules & annexure in the Bid Proposal Sheets, technical Data Sheets and specified elsewhere.
3. The scope of work is Bi-Annual Rate Contract for carrying out survey & route alignment work for Various 66kV/132kV/220kV/400kV class Transmission lines on tower & H-Frame lines approved under various scheme (Link Line/R&M work/ Providing 2nd Source(Disaster Management Plan)/Shifting or any other) under AM Divisions under Jambuva Circle as per standard specification and standard practice of GETCO and as per EIC.
4. The above work shall be done as per GETCO's approved drawing/layout.
5. Necessary field quality plan of GETCO shall be implemented and necessary documentation shall also be maintained as per GETCO's norms and instruction of EIC. If required field quality plan shall be available at field offices.
6. During the work of erection / Shifting of line safety check list shall be followed. Necessary check list will be available at our field office.

7. Successful bidder has to appoint site Engineer to maintained site register & FQP as per ISO.
8. All work should be done accordingly to ISO & FQP and all require documents including Filled FQP, testing results etc. should be submitted while handing over the completed work.
9. The quantity mentioned in price bid is tentative and may vary in actual work order.
10. All EE ( AM ) / DE Tech are requested to contact DE /JE Tech Circle office for requirement regarding allotment of agency for the work covered under subjected BRC with detail planning for indented work, detail of work proposed well in advance. Also, submit detail of work executed ( BOQ) to DE Tech Circle office in the interest of monitoring of subjected work.
11. DE Tech Circle office shall have to allot the agency on as and when required basis as per requirement of field office and has to Co-ordinate amongst agency & concern division office as well as monitoring of subjected work
12. Contractor shall have to start work on receipt of intimation from EIC / EE AM and program / allotment given by DE Tech Circle office as per specifications of the tender and instructions of concern EE AM at the earliest
13. Successful bidder shall have to submit Monthly statement for execution of work shall be submitted to SE Jambuva , DE Tech Circle showing detailed work carried out for monitoring of order quantity/value.

**Superintending Engineer (TR)**
**GETCO, Jambuva, C.O.**

**PART- I ( GCC)**
**GENERAL TERMS AND CONDITIONS OF CONTRACT**

**A. INTRODUCTION**

1.0 DEFINITION OF TERMS

1.1 The 'Contract' means the agreement entered into between the Owner and the Contractor as per the Contract Agreement signed by the parties, including all attachments and appendices thereto and all documents incorporated by reference therein.

1.2 ''Owner' shall mean the Gujarat Energy Transmission Corporation Ltd, Vadodara or any of its group companies. i.e. GUVNL, GSECL, MGVCL, DGVCL, PGVCL, UGVCL and shall include its legal representatives, successors and assigns.

1.3 'Contractor' shall mean the Bidder whose bid is accepted by the Owner for the award of the Works and shall include such successful Bidder's legal representatives, successors and permitted assigns.

1.4 'Sub-Contractor' shall mean the person named in the Contract for any part of the Works or any person to whom any part of the Contract has been sublet by the Contractor with the consent in writing of the Engineer and will include the legal representatives,successors and permitted assigns of such person.

1.5 'Engineer' shall mean the officer appointed in writing by the Owner to act as Engineer from time to time for the purpose of the Contract.

1.6 The terms 'Stores' and 'Materials' shall mean and include equipment, stores and materials to be issued to the Contractor under the Contract.

1.7 'Works' shall mean and include taking delivery of line materials labour and services, as per the Specifications and complete erection, testing and putting into satisfactory operation including all transportation, handling, unloading and storage at the Site as defined in the Contract.

1.8 'Specifications' shall mean the Specifications and Bidding Document forming a part of the Contract and such other schedules and drawings as may be mutually agreed upon.

1.9 'Site' shall mean and include the land and other places on, into or through which the works and the related facilities are to be erected or installed and any adjacent land, paths, street or reservoir which may be allocated or used by the Owner or Contractor in the performance of the Contract.

1.10 The term 'Contract Price' shall mean the lump-sum price quoted by the Contractor in his bid with additions and/or deletions as may be agreed and incorporated in the Letter of Award and the contract agreement for the entire scope of the works.

1.11 The term 'Erection Portion' of the Contract price shall mean the value of field activities of the works including erection, testing and putting into satisfactory operation including successful completion of performance and guarantee tests to be performed at Site by the Contractor including cost of insurances.

1.12 Site Engineer 'Inspector' shall mean the owner's Engineers or any person nominated by the time to inspect the equipment; stores or Works under the Contract and/or the duly authorized representative of the Owner.

1.13 'Notice of Award of Contract'/'Letter of Award'/'Telex of Award' shall mean the official notice issued by the Owner notifying the Contractor that his bid has been accepted.

1.14 'Order' shall mean the official letter issued by the Owner informing the acceptance of the bid.

1.15 'Date of Contract' shall mean the date on which letter of commencement of work issued by the respective sub division deputy engineer.

1.16 'Month' shall mean the calendar month. 'Day' or 'Days' unless herein otherwise expressly defined shall mean calendar day or days of 24 hours each.
A 'Week' shall mean continuous period of seven (7) days.

1.17 Writing' shall include any manuscript, type written or printed statement, under or over signature and/or seal as the case may be.

1.18 When the words 'Approved', 'Subject to Approval', 'Satisfactory', 'Equal to', 'Proper', 'Requested', 'As Directed', 'Where Directed', 'When Directed', 'Determined by', 'Accepted', 'Permitted', or words and phrases of like importance are used the approval, judgment, direction etc. is understood to be a function of the Owner/Engineer.

1.19 Test on completion shall mean such tests as prescribed in the Contract to be performed by the Contractor before the work is taken over by the Owner.

1.20 'Performance and Guarantee Tests', shall mean all operational checks and tests required to determine and demonstrate capacity, efficiency, and operating characteristics as specified in the Contract Documents.

1.21 The term 'Final Acceptance'/'Taking Over' shall mean the Owner's written acceptance of the Works performed under the Contract, after successful commissioning/completion of Performance and

Guarantee Tests, as specified in the accompanying Technical Specifications or otherwise agreed in the Contract.

1.22 'Guarantee Period' shall mean the period during which the Contractor shall remain liable for repair or replacement of any defective part of the works performed under the Contract.

1.23 'Latent Defects' shall mean such defects caused by faulty designs, material or work-man- ship which cannot be detected during inspection, testing etc, based on the technology available for carrying out such tests.

1.24 'Drawing', 'Plans, shall mean all:

a) Drawings furnished by the Owner to the Contractor during before execution of work / the progress of the work; and

b) Engineering data and drawings submitted by the Contractor during the progress of the work provided such drawings are acceptable to the Engineer/Owner after duly approved.

1.25 'Codes' shall mean the following including the latest amendments and/or replacements, if any:

a) Indian Electricity Act, 1905 and Rules and Regulations made there under.
b) Electricity Act 2003 and Rules & Regulations made there under.
c) Indian Factory Act, 1948 and Rules and Regulations made there under.
d) Indian Explosives Act, 1884 and Rules and Regulations made there under.
e) Indian Petroleum Act, 1934 and Rules and Regulations made there under.
f) A.S.M.E. Test Codes.
g) A.I.E.E. Test Codes.
h) American Society of Materials Testing Codes.
i) Standards of the Indian Standards Institution.
j) Other Internationally approved standards and/or rules and regulations touching the subject matter of the Contract.

1.26 Words imparting the singular only shall also include the plural and vice –versa where the context so requires.

1.27 Words imparting 'Person' shall include firms, companies, corporations and associations or bodies of individuals, whether incorporated or not.

1.28 Terms and expressions not herein defined shall have the same meaning as are assigned to them in the Indian Sale of Goods Act (1930), failing that in the Indian Contract Act (1872) and failing that in the General Clauses Act (1897) including amendments thereof, if any.

Or

1.29 In addition to the above the following definitions shall also apply.

a) 'All equipment and materials' to be supplied shall also mean 'Goods'.
b) 'Constructed' shall also mean 'erected and installed'.
c) 'Contract Performance Guarantee' shall also mean 'Contract Performance Security'.

1.30 GST / Cess means all applicable tax / cess under GST Laws ,GST laws means IGST Act, GST ( compensation to the state for loss of Revenue ) Act, CGST Act, UTGST Act & SGSCT Act, 2017 and all related ancillary legislations.

1.31 Works contract means a contract for composit supply & covered under the definition of works contract as defined under section 2 ( 119) , of the CGST act , 2017 or SGST act ,2017 & similar provisions, applicable under the UTGST act, 2017 & the IGST act , 2017.

## 2.0 APPLICATION

These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

## 3.0 STANDARDS

The works carried out under this Contract shall conform to the all statutory regulation and provisions the acts, mentioned in the Technical Specifications, and, when no regulations or standard is mentioned, to the authoritative regulations or standards/ Act, appropriate to the works and such stipulations shall be the latest issued by the concerned institution.

## 4.0 LANGUAGE AND MEASURES

All documents pertaining to the Contract including specifications, schedules, notices, correspondences, operating and maintenance instructions, drawings or any other writing shall be written in English language. The Metric System of measurement shall be used exclusively in the Contract.

**5.0 CONTRACT DOCUMENTS**

5.1 The term Contract Documents shall mean and include the following which shall be deemed to form an integral part of the Contract:

a) Invitation to Bid including letter forwarding the Bidding Documents, Instructions to Bidders, General Terms and Conditions of Contract and all other documents included under Volume- I and the Special Conditions of Contract.

b) Specifications of the erection of the equipments and other technical services to be provided under the Contract as brought out in the accompanying Technical Specifications.

c) Contractor's Bid Proposal and the documents attached there to including the letters of clarifications thereto between the Contractor and the Owner prior to the Award of Contract except to the extent of repugnancy.

d) All the materials, literature, data and information of any sort given by the Contractor along with his bid, subject to the approval of the Owner /Consultant.

e) Letter of Award and any agreed variations of the conditions of the documents and special terms and conditions of Contract, if any.

5.2 In the event of any conflict between the above mentioned documents the matter shall be referred to the Engineer whose decision shall be considered as final and binding upon the parties.

**6.0 USE OF CONTRACT DOCUMENTS AND INFORMATION**

6.1 The Contractor shall not, without the Owner's prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample or information furnished by or on behalf of the Owner in connection therewith, to any person other than a person employed by the Contractor in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for the purpose of such performance.

6.2 The Contractor shall not, without the Owner's prior written consent, make use of any document or information enumerated in various Contract documents except for the purpose of performing the Contract.

6.3 The Contractor shall not communicate or us in advertising, publicity, sales releases or in any other medium, photographs or other reproduction of the Works under this Contract, or descriptions of the site, dimensions, quantity, quality or other information, concerning the works unless prior written permission has been obtained from the Owner.

6.4 Any document, other than the Contract itself, enumerated in various Contract documents shall remain the property of the Owner and shall be returned (in all copies) to the Owner on completion of the Contractor's performance under the Contract if so required by the Owner.

**7.0 CONSTRUCTION OF THE CONTRACT**

7.1 Notwithstanding anything stated elsewhere in the bid documents, the Contract to be entered into will be treated as a single Contract.
Award shall be placed on the successful Bidder as follows:

For providing services like inland transportation, insurance for delivery at site, unloading, storage, handling at site, installation, testing and commissioning including performance testing in respect of all the equipment material equipment/materials given by the owner after observing standard store procedures for transport from owner's stores, insurance, unloading storage handling at site installation testing & commissioning.

7.2 In case erection Contract, or where the Owner hands over his equipment to the Contractor for executing, then the Contractor shall at the time of taking delivery of the equipment/dispatch documents be required to execute an Indemnity Bond in favor of the Owner in the form acceptable to the SE(TR) GETCO Jambuva for keeping the equipment in safe custody and to utilize the same exclusively for the purpose

of the said Contract. Samples of Performa for the Indemnity Bond will be furnished during award of Contract.

7.3 The Contract shall in all respects be construed and governed according to Indian Laws.

7.4 It is clearly understood that the total consideration for the Contract(s) has been broken up into various components only for the convenience of payment under the Contract(s) and for the measurement of deviations or modifications under the Contract(s).

**8.0 JURISDICTION OF CONTRACT**

8.1 The laws applicable to the Contract shall be the laws in force in India. The Courts of Vadodara shall have exclusive jurisdiction in all matters arising under this Contract.

**9.0 EXECUTION OF CONTRACT:**

9.1 The Owner, after the issue of the Letter of Award to the Contractor, will send one copy of the final agreement to the Contractor for his scrutiny and approval.

9.2 The Agreement, unless otherwise agreed to, shall be signed within 10 days of the acceptance of the Letter of Award, at the office the Owner at Jambuva on a date and time to be mutually agreed. The Contractor shall provide for signing of the Contract, Performance Guarantee, appropriate power of attorney and other requisite materials. In case the Contract is to be signed beyond the stipulated time, the Bid Guarantee submitted with the Proposal will have to be extended accordingly.

9.3 The Agreement will be signed in copies to be specified and the Contractor shall be provided with one signed original and the rest will be retained by the Owner.

9.4 The Contractor shall provide free of cost to the Owner all the Engineering data, drawings, and descriptive materials submitted with the bid, to form a part of the Contract immediately after issue of Letter of Award

9.5 Subsequent to signing of the Contract, the Contractor at his own cost shall provide the Owner with copies of agreement within fifteen (15) days after the signing of the Contractor.

**10.0 ENFORCEMENT OF TERMS**

10.1 The failure of either party to enforce at any time any of the provisions of this Contract or any rights in respect thereto or to exercise any option therein provided, shall in no way be construed to be a waiver of such provisions, rights or options or in any way to affect the validity of the Contract. The exercise by either party of any of its rights herein shall not preclude or prejudice either party from exercising the same or any other right it may have under the Contract.

**11.0 COMPLETION OF CONTRACT**

11.1 Unless otherwise terminated under the provisions of any other relevant clause, this Contract shall be deemed to have been completed on the expiry of the guarantee period as provided for under the clause entitled 'Guarantee' in this section of the Volume-I.

**B. GUARANTEES & LIABILITIES**

**12.0 TIME – THE ESSENCE OF CONTRACT**

12.1 The time and the date of completion of the Contract as stipulated in the Contract by the Owner without or with modifications, if any, and so incorporated in the Letter of Award, shall be deemed to be the essence of the Contract. The Contractor shall so organize his resources and perform his work as to complete it not later than the date agreed to.

12.2 The Contractor shall submit a detailed bar chart within the time frame agreed consisting of adequate number of activities covering various key phases of the work such as field erection activities within five (5) days of the date of Notification of Award. This network shall also indicate the interface facilities to be provided by the Owner and the dates by which such facilities are needed. The Contractor shall discuss the network so submitted with the Owner and the agreed network shall form part of the Contract documents. During the performance of the Contract, if in the opinion of the Engineer, proper progress is not maintained, suitable changes shall be made in the Contractor's operations to ensure proper progress without any cost implication to the Owner. The interface facilities to be provided by the Owner in accordance with the agreed network shall also be reviewed while reviewing the progress of the Contractor.

12.3 Based on the above agreed network/bar chart fortnightly reports shall be submitted by the Contractor as directed by the Engineer.

12.4 Subsequent to the finalization of the network, the Contractor shall make available to the Engineer a detailed program in line with the agreed Contract network. Such program shall be reviewed, updated and submitted to the Engineer every month thereafter.

12.5 The above bar charts/ program shall be compatible with the Owner's computer environment and furnished to the Owner on such media as may be desired by the Owner.

**13.0 EFFECTIVENESS OF CONTRACT**

The Contract shall be considered as having come into force from the date of the commencement given by the respective construction sub division unless otherwise provided in the notification of award.

**14.0 PENALTY FOR DELAY**

14.1 If the Contractor fails to successfully complete the work within the time fixed under the Contract, the Contractor shall pay to the Owner as penalty a sum specified for each specified period of delay. The details of such penalty are brought out in the accompanying Special Conditions of Contract (SCC).

14.2 Any delay that may take place in work execution beyond Contractual cutoff date stated as per stipulated delivery period shall be subject to the penalty at the rate of ½ % of the delayed work value plus applicable taxes (if any) per week or part thereof, with a ceiling of 10 % of the total contract value plus applicable taxes (if any), detailed in the Special Conditions of Contract (SCC).

14.3 In event of failure of the Contractor to pay the amount of Penalty as demanded, the Owner shall be entitled to deduct the amount of Penalty for delay from the amounts payable to the Contractors under any bills raised under this contract or any other contract with the GUVNL and its Subsidiary Companies i.e. GETCO, GUVNL, GSECL, MGVCL, DGVCL, PGVCL UGVCL. It is permissible for the Owner to adjust the amount of Penalty of delay against any Bank Guarantee furnished by the Contractor under this contract or any other contract with GUVNL and/or its subsidiary companies.

14.4 The penalty will be deducted from bills payable either against this contract or from any Bank Guarantee or any other amount payable under any other contract with the GETCO.

**15.0 GUARANTEE**

15.1 In the event of any emergency where in the judgment of the Engineer, delay would cause serious loss or damages, repairs or adjustment may be made by the Engineer or a third party chosen by the Engineer without advance notice to the Contractor and the cost of such work shall be paid by the Contractor. In the event such action is taken by the Engineer, the Contractor will be notified promptly and he shall assist wherever possible in making necessary corrections. This shall not relieve the Contractor of his liabilities under the terms and conditions of the Contract.

15.3 If it becomes necessary for the Contractor to rectify or renew any defective portions of the works the provision of this clause shall apply to portion of the works so rectified or corrected until the expiry of **twelve(12) months** from the date of such rectification or correction. If any defects are not rectified within a reasonable time, the Engineer may proceed to do the work at the Contractor's risk and cost but without prejudice to any other rights which the Owner may have against the Contractor in respect of such defects.

15.4 The rectification or correction of the work will be carried out free of cost by the Contractor. If any rectification or correction is carried out on his behalf at the site, the Contractor shall bear the cost of such rectification or correction.

15.5 The acceptance of the works by the Engineer shall in no way relieve the Contractor of his obligations under this clause.

15.6 At the end of the guarantee period, the Contractor's liability ceases except for latent defects. For latent defects, the Contractor's liability as mentioned in Clause Nos. 15.1 through 15.5 above, shall remain till the end of 6 months from the date of completion of guarantee period.

15.7 It is the responsibility of the contractor to handover the complete work free of all defects. If within a period of **one year** from the date of handing over the work it is noticed that any defects occurs due to bad workmanship, it is the duty of the contractor to rectify / replace the same at his own cost. If within seven days from the date of receipt of such notice, the contractor does not take up the work, same will be carried out at his risk and cost.

**16.0 TAXES, PERMITS & LICENCES**

The Contractor shall be liable and pay all non-Indian taxes, duties, levies lawfully assessed against the Owner or the Contractor in pursuance of the Contract. In addition the Contractor shall be responsible for payment of all Indian duties **including GST**, levies and taxes lawfully assessed against the Contractor for his personal income & property only.

**17.0 DEFENCE OF SUITS**

If any action in court is brought against the Owner or Engineer or an officer or agent of the Owner, for the failure, omission or neglect on the part of the Contractor to perform any acts, matters, covenants or things under the Contract, or for damage or injury caused by the alleged omission or negligence on the part of the Contractor, his agents, representatives or his Sub-Contractors, or in connection with any claim based on lawful demands of Sub-Contractors, workmen, suppliers or employees, the Contractor shall in all such cases indemnify and keep the Owner, and the Engineer and/or his representative, harmless from all losses, damages, expenses or decrees arising of such action.

**18.0 LIMITATION OF LIABILITIES**

The final payment by the Owner in pursuance of the Contract shall mean the release of the Contractor from all his liabilities under the Contract. Such final payment shall be made only at the end of the Guarantee/Warranty period or after finalization of material account and final bill and till such time as the Contractual liabilities and responsibilities of the Contractor, shall prevail. All other payments made under the Contract shall be treated as on-account payments.

**19.0 ENGINEER'S DECISION**

19.1 In respect of all matters which are left to the decision of the Engineer including the granting or with-holding of the certificates, the Engineer shall, if required to do so by the Contractor, give in writing a decision thereon.

19.2 If, in the opinion of the Contractor, a decision made by the Engineer is not in accordance with the meaning and intent of the Contract, the Contractor may file with the Engineer, within fifteen (15) days after receipt of the decision, a written objection to the decision.

Failure to file an objection within the allotted time will be considered as an acceptance of the Engineer's decision and the decision shall become final and binding.

19.3 The Engineer's decision and the filing of the written objection thereto shall be a condition precedent to the right to request arbitration. It is the intent of the Agreement that there shall be no delay in the execution of the works and the decision of the Engineer as rendered shall be promptly observed.

**20.0 POWER TO VARY OR OMIT WORK**

20.1 No alterations, amendments, omissions, suspensions or variations of the Works (hereinafter referred to as 'variation') under the Contract as detailed in the Contract Documents, shall be made by the Contractor except as directed in writing by the Engineer, but the Engineer shall have full powers subject to the provisions hereinafter contained, from time to time during the execution of the Contract, by notice in writing to instruct the Contractor to make such variation without prejudice to the Contract. The Contractor shall carry out such variation and be bound by the same conditions as far as applicable as though the said variations occurred in the Contract Documents. If any suggested variations would, in the opinion of the Contractor, if carried out, prevent him from fulfilling any of his obligations or guarantees under the Contract, he shall notify the Engineer thereof in writing and the Engineer shall decide forthwith whether or not, the same shall be carried out and if the Engineer confirms his instructions, the Contractor's obligations and guarantees shall be modified to such an extent as may be mutually agreed. Any agreed difference in cost occasioned by any such variation shall be added to or deducted from the Contract Price as the case may be.

20.2 In the event of Engineer requiring any variation, a reasonable and proper notice shall be given to the Contractor to enable him to work his arrangement accordingly, and in cases where goods or materials are already prepared or any design, drawings or pattern made or work done as per the contract requires to be altered, a reasonable and agreed sum in respect thereof shall be paid to the Contractor.

20.3 In any case in which the Contractor has received instructions from the Engineer as to the requirement of carrying out the alterations or additional or substituted work which either then or later on, will in the opinion of the Contractor, involve a claim for additional payment, the Contractor shall immediately and in no case later than thirty (30) days, after receipt of the instructions aforesaid and before carrying out the instructions, advise the Engineer to that effect. But the Engineer shall not become liable for payment of any charges in respect of any such variations, unless the instructions for the performance of the same shall be confirmed in writing by the Engineer.

20.4 If any variation in the Works results in reduction of Contract Price, the parties shall agree, in writing, so to the extent of any change in the price, before the Contractor proceeds with the change.

20.5 In all the above cases, in the event of a disagreement as to the reasonableness of the said sum, the decision of the Engineer shall prevail.

20.6 Notwithstanding anything stated above in this clause, the Engineer shall have the full power to instruct the Contractor, in writing, during the execution of the Contract to vary the quantities of the items or groups of items in accordance with the provisions of clause entitled 'Change of Quantity' in section GCC of this Volume-I. The Contractor shall carry out such variations and be bound by the same conditions as though the said variations occurred in the Contract Documents. However, the Contract Price shall be adjusted at the rates and the prices provided for the original quantities in the Contract.

**21.0 ASSIGNMENT AND SUB-LE TTING OF CONTRACT:**

No subletting of contract is allowed. Contractor should carry out work on his own under his or his authorized supervisor and by labours employed by him.

**22.0 CHANGE OF QUANTITY**

22.1 During the execution of the Contract, the Owner reserves the right to increase or decrease the quantities of items under the Contract but without any change in unit price or other terms & conditions. Such variations unless otherwise specified in the accompanying Special Conditions of Contract and/or Technical Specifications, shall not be subjected to any limitation for the individual items but **the total variations in all such items under the Contract shall be limited to a percentage of the Contract price as specified in the Special Conditions of Contract.**

22.2 The Contract price shall accordingly be adjusted based on the unit rates available in the Contract for the change in quantities as above. The base unit rates, as identified in the Contract shall however remain constant during the currency of the Contract, except as provided for in Clause 33.0 below. In case the unit rates are not available for the change in quantity, the same shall be subjected to mutual agreement.

**23.0 COOPERATION WITH OTHER CONTRACTORS AND CONSULTING ENGINEERS**

The Contractor shall agree to cooperate with the Owner's other Contractors and Consulting Engineers and freely exchange with them such technical information as is necessary to obtain the most efficient and economical design and to avoid unnecessary duplication of efforts. The Engineer shall be provided with three copies of all correspondence addressed by the Contractor to other Contractors and Consulting Engineers of the Owner in respect of such exchange of technical information, wherever needed.

**24.0 NO WAIVER OF RIGHTS**

Neither the inspection by the Owner or the Engineer or any of their officials, employees, or agents nor any order by the Owner or the Engineer for payment of money or any payment for or acceptance of, the whole or any part of the Works by the Owner or the Engineer, nor any extension of time, nor any possession taken by the Engineer shall operate as a waiver of any provision of the Contract, or of any power herein reserved to the Owner or any right to damages herein provided nor shall any waiver of any breach in the Contract be held to be a waiver of any other or subsequent breach.

**25.0 CERTIFICATE NOT TO AFFECT RIGHT OF OWNER AND LIABILITY OF THE CONTRACTOR**.

No interim payment certificate of the Engineer, nor any sum paid on account by the Owner, nor any extension of time for execution of the Works granted by the Engineer shall affect or prejudice the rights of the Owner against the Contractor or relieve the Contractor of his obligation for the due performance of the Contract, or be interpreted as approval of the Works done or of the equipment furnished and no certificate shall create liability for the Owner to pay for alterations, amendments, variations or additional works not ordered, in writing , by the Engineer or discharge the liability of the Contractor for the payment of damages whether due, ascertained, or certified or not or any sum against the payment of which he is bound to indemnify the Owner, nor shall any such certificate nor the acceptance by him of any sum paid on account or otherwise affect or prejudice the rights of the Owner against the Contractor.

**26.0 PROGRESS REPORTS**

During the various stages of the work in pursuance of the Contract, the Contractor shall at his own cost submit periodic progress reports as may be reasonably required by the Engineer with such materials as, charts, net-works, photographs, test certificates, etc. Such progress reports shall be in the form and size as may be required by the Engineer.

**27.0 BAR CHARTS**

The Bidder shall furnish along with the bid, the bar charts and project schedules indicating starting and completion dates of each activity. This is mandatory condition the tenders without which shall be liable to be rejected.

**28.0 TAKING OVER**

Upon successful completion of work of erection of tower line by the Contractor, the Engineer shall issue to the Contractor a completion Certificate as a proof of the final acceptance of the erected line. Such certificate shall not unreasonably be withheld nor will the Engineer delay the issuance thereof on account of minor omissions or defects which do not affect the commercial operation and/or cause any serious risk to the erected line. Such certificate shall not relieve the Contractor of any of his obligations which otherwise survive, by the terms and conditions of the Contract after issue of such certificate.

## C. CONTRACT SECURITY AND PAYMENTS

**29.0 CONTRACT PERFORMANCE GUARANTEE**

The Contractor shall furnish Contract Performance Guarantee(s) for the proper fulfillment of the Contract in the prescribed form within fifteen (15) days of "Notice of Award of Contract". The performance guarantee(s) shall be as per terms prescribed.

**30.0 PAYMENT**

30.1 The payment to the Contractor for the performance of the works under the Contract will be made by the Owner as per the guidelines and conditions specified herein. All payments made during the Contract shall be on account payments only. The final payment will be made on completion of all Works and on fulfillment by the Contractor of all his liabilities under the Contract.

30.2 Currency of Payment

All payments under the Contract shall be in Indian Rupees only.

30.3 Terms.

Payment terms will be as prescribed in the special conditions of contract and on fulfillment of conditions specified thereof.

**31.0 Payment Schedule:**

31.1 Application for Payment

31.2 The Contractor shall submit application for the payment in the prescribed proforma of the Owner. Performa for application for payment will be as prescribed.

31.3 Each such application shall state the amount claimed and shall set forth in detail, in the order of the Payment Schedule, particulars of the Works including the Works executed at Site and of the equipment shipped/brought on to the site pursuant to the Contract up to the date mentioned in the application and for the period covered since the last preceding certificate, if any.

31.4 Every interim payment certificate shall certify the Contract value of the Works executed up to the date mentioned in the application for the payment certificate, provided that no sum shall be included in any interim payment certificate in respect of the works that, according to the decision of the Engineer, does not comply with the Contract.

31.5 Mode of Payment

Payment due on completion of work shall be made by the Owner through Owner's Bank or directly to the Contractor as per the payment schedule.

31.6 All payments under the Contract shall be made as stipulated in the Special Conditions of Contract after signing the Contract Agreement.

Progressive payments linked with erection shall only be made after the issue of certificates by the Engineer, one for the quantum of work completed and the other for the successful completion of quality check points involved in the quantum of work billed.

**32.0 DEDUCTIONS FROM CONTRACT PRICE**

All costs, damages or expenses which the Owner may have paid, for which under the Contract the Contractor is liable, or any other retention award will be claimed by the Owner. All such claims shall be billed by the Owner to the Contractor regularly as and when they fall due. Such bills shall be supported by appropriate and certified vouchers or explanations, to enable the Contractor to properly identify such claims. Such claims shall be paid by the Contractor within thirty (30) days of the receipt of the corresponding bills and if not paid by the Contractor within the said period, the Owner may then deduct

the amount, from any monies due or becoming due by him to the Contractor under the Contract or may be recovered by sections of Law or otherwise.

## D. RISK DISTRIBUTION

### 33.0 INSURANCE

33.1 The Contractor at his cost shall arrange, secure and maintain all insurance as may be pertinent to the Works and obligatory in terms of law to protect his interest and interests of the Owner against all perils detailed herein. The form and the limit of such insurance as defined herein together with the under-writer in each case shall be acceptable to the Owner. However, irrespective of such acceptance, the responsibility to maintain adequate insurance coverage at all time during the period of Contract shall be of Contractor alone. The Contractor's failure in this regard shall not relieve him of any of his contractual responsibilities and obligations. The insurance covers to be taken by the Contractor shall be in the joint name of the Owner and the Contractor. The Contractor shall, however, be authorized to deal directly with Insurance Company or Companies and shall be responsible in regard to maintenance of all insurance covers. Further the insurance should be in freely convertible currency.

33.2 Any loss or damage to the material during handling, transportation, storage, erection, and all activities to be performed till the successful completion of commissioning of the line shall be to the account of the Contractor. The Contractor shall be responsible for preference of all claims and make good the damages or loss by way of repairs and/or replacement of the equipment, damaged or lost. The transfer of title shall not in any way relieve the Contractor of the above responsibilities during the period of Contract. The Contractor shall provide the Owner with copy of all insurance policies and documents taken out by him in pursuance of the Contract. Such copies of documents shall be submitted to the Owner immediately after such insurance coverage. The Contractor shall also inform the Owner in writing at least sixty (60) days in advance regarding the expiry/cancellation and/or change in any of such documents and ensure revalidation, renewal etc., as may be necessary well in time.

33.3 The perils required to be covered under the insurance shall include, but not be limited to fire and allied risks, miscellaneous accidents (erection risks) workman compensation risks, loss or damage in transit, theft, pilferage, riot and strikes and malicious damages, civil commotion, weather conditions, accidents of all kinds, etc. The scope of such insurance shall be adequate to cover the replacement/reinstatement cost of the equipment for all risks up to and including delivery of goods and other costs till the equipment is delivered at Site. The insurance policies to be taken should be on replacement value basis and/or incorporating escalation clause. Notwithstanding the extent of insurance cover and the amount of claim available from the underwriters, the Contractor shall be liable to make good the full replacement/rectification value of all equipment/materials and to ensure their availability as per project requirements.

33.4 All costs on account of insurance liabilities covered under the Contract will be on Contractor's account and will be included in Contract Price, However, the Owner may from time to time, during the pendency of the Contract, ask the Contractor in writing to limit the insurance coverage, risks and in such a case, the parties to the Contract will agree for a mutual settlement, for reduction in Contract price to the extent of reduced premium amount. The Contractor, while arranging the insurance shall ensure to obtain all discounts on premium which may be available for higher volume or for reason of financing arrangement of the project.

33.5 The clause entitled 'Insurance' under the section ECC of this Volume-I, covers the additional insurance requirements for the portion of the works to be performed at the Site.

33.6 Special Conditions of Contract details out the various insurance liabilities.

### 34.0 LIABILITY FOR ACCIDENTS AND DAMAGES

Under the Contract, the Contractor shall be responsible for loss or damage to the plant until the successful completion of commissioning as defined elsewhere in the Bid document.

### 35.0 DELAYS BY OWNER OR HIS AUTHORISED AGENTS

35.1 In case the Contractor's performance is delayed due to any act of omission on the part of the Owner or his authorized agents, then the Contractor shall be given due extension of time for the completion of the Works, to the extent such omission on the part of the Owner has caused delay in the Contractor's performance of the Contract.

Regarding reasonableness or otherwise of the extension of time, the decision of the Engineer shall be final.

35.2 In addition, the Contractor shall be entitled to claim demonstrable and reasonable compensation if such delays have resulted in any increase in cost. The Owner shall examine the justification for such a request for claim and if satisfied, the extent of compensation shall be mutually agreed depending upon the circumstances at the time of such an occurrence.

**36.0 DEMURRAGE, WHARFAGE, ETC**.

All demurrage, warfare and other expenses incurred due to delayed clearance of the material or any other reason shall be to the account of the Contractor.

**37.0 FORCE MAJEURE**

37.1 Force majeure is herein defined as any cause which is beyond the control of the Contractor or the Owner as the case may be, which they could not foresee or with a reasonable amount of diligence could not have foreseen and which substantially affects the performance of the Contract, such as:

a. Natural phenomena, including but not limited to floods, droughts, earthquakes and epidemics;
b. Acts of any Government, domestic or foreign, including but not limited to war, declared or undeclared, priorities, guarantees, and embargoes.

Provided either party shall within fifteen (15) days from the occurrence of such a cause notify the other in writing of such causes.

37.2 The Contractor or the Owner shall not be liable for delays in performing his obligations resulting from any force majeure cause as referred to and/or defined above:

The date of completion will, subject to hereinafter provided, be extended by a reasonable time even though such cause may occur after Contractor's performance of obligation has been delayed due to other causes.

**38.0 SUSPENSION OF WORK**

38.1 The Owner reserves the right to suspend and reinstate execution of the whole or any part of the Works without invalidating the provisions of the Contract. Orders for suspension or reinstatement of the Works will be issued by the Engineer to the Contractor in writing. The time for completion of the works will be extended for a period equal to duration of the suspension.

38.2 Any necessary and demonstrable cost incurred by the Contractor as a result of such suspension of the works will be paid by the Owner, provided such costs are substantiated to the satisfaction of the Engineer. The Owner shall not be responsible for any liabilities if suspension or delay is due to some default on the part of the Contractor or his Sub-Contractor.

**39.0 "RIGHTS OF THE OWNER:**

Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the Contractor, the Owner shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in port from the security, If any, deposited by the Contractor and for the purpose aforesaid, the Owner shall be entitled to encash and withhold the amount of Performance Bank Guarantee or other security, if any, furnished as the case may be. The Owner shall also have a lien over the same pending finalization or adjudication of any such claim. In the event Of the security is insufficient to cover the claimed amount or amounts, the Owner shall be entitled to withhold and have lien to retain to the extent of the such claimed amount or amounts referred to above, from any sum or sums found payable or which at any time thereafter may become payable to the Contractor under the same contract or any other contract with the Owner or GUVNL or its subsidiary companies pending finalization or adjudication of any such claim.

**Lien in respect of Claims in other Contracts:**

a) Any sum of money due and payable, to the Contractor (Including the security deposit) under the contract may be withheld or retained by way of lien by the Owner against any of its claim in respect of payment of a sum of money arising out of or under any other contract made by the Contractor with the Owner or GUVNL or any of its subsidiary companies.

b) It is on agreed that the sum of money so withheld or retained under this clause by the Owner will be kept withheld or retained as such by the Owner till its claim arising out of the same contract or any other contract is either mutually settled or determined by the arbitrator or competent court, as the case may be, and the Contractor shall have no claim for interest or damages whatsoever on this account or on any

other ground in respect of any sum of money withheld or retained under this clause and as may be duly notified to the Contractor.

**40.0 CONTRACTOR`S DEFAULT**

40.1 If the Contractor shall neglect to execute the works with due diligence and expedition or shall refuse or neglect to comply with any reasonable order given to him, in writing by the Engineer in connection with the works or shall contravene the provisions of the Contract, the Owner may give notice in writing to the Contractor to make good the failure, neglect or contravention complained of. Should the Contractor fail to comply with the notice within thirty (30) days from the date of serving the notice, then and in such case the Owner shall be at liberty to employ other workmen and forthwith execute such part of the works as the Contractor may have neglected to do or if the Owner shall think fit, without prejudice to any other right he may have under the Contract to take the work wholly or in part out of the Contractor's hands and re-contract with any other person or persons to complete the works or any part thereof and in that event the Owner shall have free use of all Contractor's equipment that may have been at the time on the Site in connection with the works without being responsible to the Contractor for fair wear and tear thereof and to the exclusion of any right of the Contractor over the same, and If the sum that the contractor is entitled to be paid plus the costs incurred by the Owner in completing the works, exceeds the Contract Price or the entire works if entire works have been completed or the price for part of the work if part of the works have been completed, the Contractor shall be liable for such excess.

If such excess is greater than the sums due to the Contractor, the Contractor shall pay the balance to the Owner and if such excess is less than the sums due to the Contractor, Owner shall pay the balance to the Contractor. For facilitating such payment, Owner shall pay the balance to the contractor. For facilitating such payment, Owner shall encash the Bank Guarantees of Contactor available with Owner/s and retain such other payment due to the Contractor under the Contract in question or any other Contract that the Owner/s may have with the Contractor. Such payment of excess amount shall be independent of the liquidated damages for delay which the Contractor shall have to pay if the completion of works is delayed.

40.2 In addition, such action by the Owner as aforesaid shall not relieve the Contractor of his liability to pay liquidated damages for delay in completion of Works as defined in Clause 14.0 of this Section.

40.3 Such action by the Owner as aforesaid the termination of the Contract under this clause shall not entitle the Contractor to reduce the value of the Contract Performance Guarantee nor the time thereof. The Contract Performance Guarantee shall be valid for the full value and for the full period of the Contract including guarantee period.

**41.0 TERMINATION OF CONTRACT ON OWNER`S INITIATIVE**

41.1 The Owner reserves the right to terminate the Contract either in part or in full due to reasons other than those mentioned under clause entitled 'Contractor's Default'. The Owner shall in such an event give fifteen (15) days notice in writing to the Contractor of his decision to do so.

41.2 The Contractor upon receipt of such notice shall discontinue the work on the date and to the extent specified in the notice, make all reasonable efforts to obtain cancellation of all orders and Contracts to the extent they are related to the work terminated and terms satisfactory to the Owner, stop all further sub-contracting or purchasing activity related to the work terminated, and assist Owner in maintenance, protection, and disposition of the works acquired under the Contract by the Owner.

In the event of such a termination the Contractor shall be paid compensation, equitable and reasonable, dictated by the circumstances prevalent at the time of termination.

41.3 If the Contractor is an individual or a proprietary concern and the individual or the proprietor dies and if the Contractor is a partnership concern and one of the partners dies then unless the Owner is satisfied that the legal representatives of the individual Contractor or of the proprietor of the propriety concern and in the case of partnership, the surviving partners, are capable of carrying out and completing the Contract the Owner shall be entitled to cancel the Contract as to its incomplete part without being in any way liable to payment of any compensation to the estate of deceased Contractor and/or to the surviving partners of the Contractor's firm on account of the cancellation of the Contract. The decision of the Owner that the legal representatives of the deceased Contractor or surviving partners of the Contractor's firm cannot carry out and complete the Contract shall be final and binding on the parties. In the event of such cancellation the Owner shall not hold the estate of the deceased Contractor and/or the surviving partners of the estate of the deceased Contractor and/or the surviving partners of the Contractor's firm liable to damages for not completing the Contract.

**42.0 FRUSTRATION OF CONTRACT**

42.1 In the event of frustration of the Contract because of supervening impossibility in terms of Section 56 of the Indian Contract Act, parties shall be absolved of their responsibility to perform the balance portion of the Contract, subject to provisions contained in sub-clause 42.3 below.

42.2 In the event of non-availability or suspension of funds for any reasons, whatsoever (except for reason of willful or flagrant breach by the Owner) and/or Contractor then the works under the Contract shall be suspended.

Furthermore, if the Owner is unable to make satisfactory alternative arrangements for financing to the Contractor in accordance with the terms of the Contract within three months of the event, the parties hereto shall be relieved from carrying out further obligations under the Contract treating it as frustration of the Contract.

42.3 In the event referred to in sub-clauses 42.1 & 42.2 above the parties shall mutually discuss to arrive at reasonable settlement on all issues including amounts due to either party for the work already done on quantum merit basis which shall be determined by mutual agreement between the parties.

**43.0 GRAFTS AND COMMISSIONS ETC.**

Any graft, commission, gift or advantage given, promised or offered by or on behalf of the Contractor or his partner(s), agent(s), officer(s), director(s), employee(s) or servant(s) or any one on his or their behalf in relation to the obtaining or to the execution of this or any other Contract with the Owner, shall in addition to any criminal liability which it may incur, subject the Contractor to the cancellation of this and all other Contracts and also to payment of any loss or damage to the Owner resulting from any cancellation. The Owner shall then be entitled to deduct the amount so payable from any monies otherwise due to Contractor under the Contract.

**E. RESOLUTION OF DISPUTES**

**44.0 SETTLEMENT OF DISPUTES**

44.1 Any dispute(s) or difference(s) arising out of or in connection with the Contract shall, to the extent possible, be settled amicably between the parties.

44.2 If any dispute or difference of any kind, whatsoever, shall arise between the Owner and the Contractor, arising out of the Contract for the performance of the Works whether during the progress of the Works or after its completion or whether before or after the termination, abandonment or breach of the Contract, it shall, in the first place, be referred to and settled by the Engineer, who, within a period of thirty (30) days after being requested by either party to do so, shall give written notice of his decision to the Owner and the Contractor.

44.3 Save as hereinafter provided, such decision in respect of every matters so referred shall be final and binding upon the parties until the completion of the Works and shall forthwith be given effect to by the Contractor who shall proceed with the Works with all due diligence, whether he or the Owner requires arbitration as hereinafter provided or not.

44.4 If after the Engineer has given written notice of his decision to the parties, no claim to arbitration has been communicated to him by either party within thirty (30) days from the receipt of such notice, the said decision shall become final and binding on the parties.

44.5 In the event of the Engineer failing to notify his decision as aforesaid within thirty (30) days after being requested as aforesaid, or in the event of either the Owner or the Contractor being dissatisfied with any such decision, or within thirty (30) days after the expiry of the first mentioned period of thirty days, as the case may be, either party may require that the matters in dispute be referred to arbitration as hereinafter provided.

**45.0 ARBITRATION**

45.1 (1) Amicable Settlement

Any dispute, difference, controversy or claim between the Parties arising out of or relating to this contract with reference to the construction, interpretation, breach, termination or validity thereof (hereinafter referred as "the Dispute") shall, upon the written request of either Party be referred to the authorized representatives of the Disputing Parties for resolution. The authorized representatives shall promptly meet and attempt to negotiate in good faith a resolution of the Dispute within thirty days of the service of the request.

(2) Arbitration

If the parties fail to amicably resolve the disputes or differences or contrary claims as indicated herewith in sub clause (1) of Clause, arising under or in connection with the present works contracts, whether pertaining to works contracts alone or works and procurement both, the same shall be referred to arbitration under the Gujarat Public Works Contracts Disputes Arbitration Tribunal Act, 1992."

**46.0 RECONCILIATION OF ACCOUNTS**

The Contractor shall prepare and submit every two months, a statement covering payments claimed and the payments received vis-a-vis the works executed, for reconciliation of accounts with the Owner. The Contractor shall also prepare and submit a detailed account of Owner Issue materials received and utilized by him for reconciliation purpose in a format to be discussed & finalized with the Owner before the award of Contract.

**47.0 TAKING DELIVERY AND INSURANCE**

47.1 The contractor has to take delivery from construction store of Tower material, H-frame structure material, conductor & line material keeps S/S materials in safe custody and transport to the respective sites and will be fully responsible for any damage to or loss of all materials at any stage during transportation or erection or taking over of the line by GETCO.

47.2 The Contractor has to open site store and ensure for safe custody of all the stored materials at his own cost.

47.3 The Contractor shall have total responsibility for the entire tower & line materials stored, loose, semi assembled and/or erected by him at site in his custody. The Contractor shall make suitable security arrangements at his own cost to ensure the protection of all materials, equipment and works from theft, fire pilferage and any other damages and loss. It shall be the responsibility of the contractor to arrange for security till the works are finally taken over by the Corporation.

48.0 STORAGE-CUM-ERECTION INSURANCE:-

The contractor shall take suitable storage-cum-erection insurance cover at his cost to the extent of 100% Cost of S/S / Line material, which is required to complete the S/s / line / shifting work. Bidder shall have to take the comprehensive Marine Cum Erection (Overall) insurance policy against any loss, damage, theft, pilferage, fire etc. for the complete period of storage, erection and commissioning up to the time of taking over of the sub-station / line by GETCO. However, if the work is not completed within the stipulated time limit as mentioned into work order, the MCE shall be extended by the contractor up to the work completion and taking over of the line or S/s by GETCO. Moreover, the charge for extension of insurance shall be borne by contractor if the delay is attributed to the contractor. The charge for extension of insurance shall be reimbursed by GETCO to the contractor on production of proof for extension of MCE if the delay is attributed on the part of GETCO. The contractor shall deal directly and pursue the claim with the insurance company and shall be responsible in regard to maintenance of all insurance coverage as well as for settlement of claim. The proof of insurance policy taken by the contractor shall be furnished / submitted to engineer-in-charge of GETCO.

No material shall be issued to bidder/erection agency in absence of such insurance policy. The risk shall be covered for lifting of materials from store to final handing over to GETCO. Further, in absence of the above insurance policy, R.A.bill payment will be withheld.

Bidder shall note that storage cum erection insurance is to be taken at his own cost and amount of material for erection to complete the scope of sub-station work is to be considered **Rs. NIL.**

**49.0 Termination of Contract:**

In case of contractor fails to complete the transmission line work or part thereof within contractual period or in case the work is found not in accordance with prescribed specification the GETCO shall exercise its discretionary power either:

**49.1** To recover, from the contractor as agreed, by way of penalty clause above applicable taxes (if any)

**49.2** To get the work done other contractor after giving due notice to the contractor on account and at the risk of the contractor for such work executed or other similar description without canceling the contract in respect of the works not yet due for completion or

**50.0 To cancel the contract.**

In the event of the risk works of similar description, the opinion of the GETCO shall be final. In the event of action taken under clause (A) or (B) above, the contractor shall be liable to pay for any loss

which the GETCO may sustain on that account, but the contractor shall not be entitled to have any saving on such purchases made against default.

The decision of the GETCO shall be final as regards to the acceptability of stores supplied by the contractor and the GETCO shall not be required to give any reason in writing or otherwise at any time for rejection of the stores.

**51.0 LABOUR LAWS:**

51.1 Persons below the age of 18 years shall not be employed for the work. No female worker shall be employed in the night shift between 07.00 p.m. and 06.00 a.m. next day.

51.2 Contractor shall maintain a valid labor license under the contract Labor (Regulation and abolition) Act for employing necessary manpower required by him. In the absence of such license, the contract shall be liable to be terminated without assigning any reason thereof.

51.3 The Contractor shall at his own expenses comply with all labor laws and keep the GETCO indemnified in respect thereof. Some of the major liabilities under various labor and industrial laws which the Contractor shall comply with, are as under:

**i)** Payment of contribution by way of Employer's Contribution towards provident Fund, Family Pension Scheme, Deposit Linked Insurance Scheme, Administrative charges, etc. at the rates made applicable from time to time by the Government of Gujarat / Government of India or other Statutory Authority.

**ii)** Payment of deposit in respect of each contract labor at the rate of Rs. 30/- or later prevailing rate with the Office of Commissioner of Labor as per the Contract Labor (Regulation and Abolition) Act.

**iii)** License fee as prescribed under the Contract Labor (Regulation and Abolition) Act and Rules framed there under depending upon the number of workmen.

**iv)** Paid leave facility and wages as per the provision of the Factories Act at the rate of one day for every 20 days of working.

**v)** Identity cards as prescribed under the Factories Act with photo affixed thereto, for identification.

**vi)** Payment of retrenchment compensation, Notice Pay and other liabilities as per Industrial Dispute Act. Any payment to the Contractor's employee arising out of any claim of disputes under the Industrial Disputes Act 1947 or any other Labour Laws.

**vii)** Payment of compensation in case of accidental injury.

**viii)** Provision of crèche if the female laborers employed are more than 30.

**ix)** Maternity Leave as per the provisions of the Maternity Benefit Act.

The above are some of the major liabilities of the Contractor in addition to other liabilities prescribed under the various labour laws, in force from time to time, from Statutory Authorities like State Government/ Government o India, which the Contractor shall have to comply with.

**51.4 PROVIDENT FUND AND FAMILY PENSION SCHEME:**

The Contractor shall submit along with his bills (month wise) a statement regarding deduction against employees Provident Fund and Family Pension Scheme in respect of each concerned employee. Provident Fund and Family Pension Scheme at the rate of 18% (or at the rate made applicable by the Government from time to time of the wages. The Contractor's contribution and his worker's contribution towards Provident Fund and Family Pension Scheme shall be deposited by the Contractor with Regional Provident Fund Commissioner, Ahmedabad.

**51.5 DEPOSIT LINKED INSURANCE SCHEME**

The contractor shall have to deposit ½ % of the wages in respect of employees who is a member of the Provident Fund, as the contribution to the Deposit Linked Insurance Scheme with Regional Provident Fund Commissioner, Ahmedabad.

**51.6 ADMINISTRATIVE CHARGES:**

Administrative charges for maintaining Provident Fund Account shall be deposited by the Contractor with Regional Provident Fund Commissioner, Ahmedabad at the rates applicable.

**51.7 PAID LEAVE FACILITY:**

Paid Leave Facility at the rate of one day for every twenty days worked by the Contract Labor, shall be provided by the Contractor to his workers. He shall maintain Leave Records, Leave Cards, for individual laborer which shall be duly verified, approved and certified by the authorized Officer of the GETCO.

**51.8 WORKMAN'S COMPENSATION FUND AND EMPLOYER'S LIABILITY INSURANCE:**

The contractor shall cover all his employees under workmen's compensation fund and under the liability insurance. The purchaser shall not be responsible for any payments of compensation to the workers/supervisor of the contractor for fatal or non-fatal accidents during the pungency of the contract.

**51.9** The contractor shall employ adequate number of experienced skilled at site for daily supervision and for maintenance of various registers and records required under the law and contract. No payment for supervision shall be admissible.

**51.10 CONTRCTOR TO INDEMNIFY THE GETCO:**

The Contractor shall Indemnify the GETCO and every member officer and employees of the GETCO also, Engineer-in-Charge and his staff against all actions, proceedings, claims, demands, costs and expenses whatsoever, arising out of or in connection with the matters referred herein above elsewhere and against all actions, proceedings, claims, demands, costs and expenses which may be made against the GETCO or Government for or in respect of performance of his obligation under the contract documents. The GETCO shall not be liable for intervention of authority Government for or in respect of performance of his obligation under the contract documents. The GETCO shall not be liable for or in respect of or in consequence of any accident or injury to any workman or other person in the employment of the Contractor or his Sub-Contractor and the contractor shall indemnify and keep indemnified the GETCO against all claims, demands, proceedings, cost, charges and expenses whatsoever in respect thereof or in relation thereto.

**51.11 WORKMEN'S COMPENSATION AND EMPLOYER'S LIABILITY INSURANCE**

Insurance shall be affected for all the Contractor's employee engages in the performance of this contract. If any of the work is sublet, the Contractor shall require the Sub-Contractor to provide workmen's employer's liability insurance for the latter's employees, such employees shall be covered under the Contractor's Insurance.

**51.12 WAGES TO BE PAID & TIME OF PAYMENT ETC. BY THE CONTRACTOR**

a) The Contractor shall pay minimum wages per day to his Labors/ Workers as per rates fixed under the minimum wages act. The wages of every Contract Labor employed by him under this contract shall also be paid by him before the expiry of 7$^{th}$ day of the last day of the month in respect of the wages are payable (i.e. wages of a month have to be paid by him in the first week of the next month). Any default will result in cancellation of contract forthwith or else the contractor shall be punishable to the extent of Rs. 100/- per each day or as per the prevailing rules of labor laws.

b) The Contractor shall give his Telephone Number and Address to the GETCO, so that, in case of labor trouble etc. the Contractor can be contacted. The Contractor shall arrange to have his office outside the factory work premises and the Contractor shall arrange to have his office outside the factory work premises and the Contractor shall keep himself present throughout the working hours.

**52.0 REGISTRATION WITH PROVIDENT FUND OFFICE**

I) The separate P.F. code issued from P.F. commissioner is required to be taken by contractor.

ii) If the contractor does not possess separate P.F. code number of RPFC, his tender will not be considered for acceptance.

iii) The contractor should mention separate P.F. code number allotted by PPFC, along with the tender.

**Date:** **Superintending Engineer (TR)**
**(Signature of Contractor)** **GETCO,C.O., Jambuva**
**Address:**
**Seal:**

## PART-I ( ECC )
## ERECTION CONDITIONS OF CONTRACT

### 1.0 GENERAL

1.1 The following shall supplement the conditions already contained in other parts of these specifications & document and shall govern the portion of the work of this Contract to be performed at Site.

1.2 The Contractor upon signing of the Contract shall, nominate a responsible officer as his representative at Site suitably designated for the purpose of overall responsibility and coordination of the works to be performed at Site. Such person shall function from the Site office of the Contractor during the pendency of Contract.

### 2.0 REGULATION OF LOCAL AUTHORITIES AND STATUTES

2.1 The Contractor shall comply with all the rules and regulations of local authorities during the performance of his field activities. He shall also comply with the Minimum Wages Act, 1948 and the Payment of Wages Act (both of the Government of India) and the rules made there under in respect of any employee or workman employed or engaged by him or his Sub-Contractor. He shall abide by labour laws and others as specified in the special conditions of contract.

2.2 All initial registration and statutory inspection fees, if any, in respect of his work pursuant to this Contract shall be to the account of the Contractor. Should any such inspection or registration need to be re-arranged due to the fault of the Contractor or his Sub Contractor, the additional fees to such inspection and/or registration also shall be borne by the Contractor.

### 3.0 OWNER'S LIEN ON EQUIPMENT

The Owner shall have lien on all tower, H-frame, Stringing and other line material brought to the Site for the purpose of erection, testing and commissioning of the line to be erected under the Contract. The Owner shall continue to hold the lien on all such material throughout the period of Contract. No material brought to the Site shall be removed from the Site by the Contractor and/or his Sub-Contractors without the prior written approval of the Engineer.

### 4.0 CONTRACTOR'S SITE ESTABLISHMENT

The Contractor shall at all times keep posted an authorized representative for the purpose of the Contract. Any written order or instruction of the Engineer or his duly authorized representative shall be communicated to the said authorized resident representative of the Contractor and the representative shall be available at a stated address for this purpose.

### 5.0 ACCESS TO SITE AND WORKS ON SITE

5.1 Suitable access to and possession of the Site shall be afforded to the Contractor by the Owner in reasonable time.

5.2 The works so far as it is carried out on the Owner's premises, shall be carried out at such time as the Owner may approve and the Owner shall give the Contractor reasonable facilities for carrying out the works.

5.3 In the execution of the works, no person other than the Contractor or his duly appointed representative, Sub- Contractor and workmen, shall be allowed to do work on the Site,except by the special permission, in writing of the Engineer or his representative.

### 6.0 CO-OPERATION WITH OTHER CONTRACTORS

6.1 The Contractor shall co-operate with all other Contractors or tradesmen of the Owner, who may be performing other works on behalf of the Owner and the workmen who may be employed by the Owner and doing work in the vicinity of the Works under the Contract. The Contractor shall also so arrange to perform his work as to minimize, to the maximum extent possible, interference with the work of other Contractors and their workmen. Any injury or damage that may be sustained by the employees of the other Contractors and the Owner, due to the Contractor's work shall promptly be made good at the Contractor's own expense.

### 7.0 DISCIPLINE OF WORKMEN

The Contractor shall adhere to the disciplinary procedure set by the Engineer in respect of his employees and workmen at Site. The Engineer shall be at liberty to object to the presence of any representative or employee of the Contractor at the Site, if in the opinion of the Engineer such employee has misconduct

himself or is incompetent or negligent or otherwise undesirable and then the Contractor shall remove such a person objected to and provide in his place a competent replacement.

**8.0 CONTRACTOR'S FIELD OPERATION**

8.1 The Contractor shall keep the Engineer informed in advance regarding his field activity plans and schedules for carrying-out each part of the works. Any review of such plan or schedule or method of work by the Engineer shall not relieve the Contractor of any of his responsibilities towards the field activities. Such reviews shall also not be considered as an assumption of any risk or liability by the Engineer or the Owner or any of his representatives and no claim of the Contractor will be entertained because of the failure or inefficiency of any such plan or schedule or method of work reviewed. The Contractor shall be solely responsible for the safety, adequacy and efficiency of plant and equipment and his erection methods.

8.2 The Contractor shall have the complete responsibility for the conditions of the Work-site including the safety of all persons employed by him or his Sub–Contractor and all the properties under his custody during the performance of the work. This requirement shall apply continuously till the completion of the Contract and shall not be limited to normal working hours.

**9.0 PROGRESS REPORT**

9.1 The Contractor shall furnish three (3) copies each to the Engineer of progress including if any, photographs of the work done at Site.

9.2 The weekly progress report detailing-out the progress achieved on all erection activities shall highlight comparison to the schedules. The report shall also indicate the reasons for the variance between the scheduled and actual progress and the action proposed for corrective measures, wherever necessary. progress shall be submitted in following format.

- Description of work as per A/T
- Quantity involved as per Route
- Work executed up to last week
- Work executed during this week
- Total Progress survey in km

**10.0 MAN-POWER REPORT**

10.1 The Contractor shall submit to the Engineer, on the first day of every month, a man hour's schedule for the month, detailing the man hours scheduled for the month, skill-wise and area-wise.

**11.0 PROTECTION OF WORK**

The Contractor shall have total responsibility for protecting his works till it is finally taken over by the Engineer. No claim will be entertained by the Owner or by the Engineer for any damage or loss to the Contractor's works and the Contractor shall be responsible for complete restoration of the damaged works to original conditions to comply with the specification and drawings.

**12.0 EMPLOYMENT OF LABOUR**

12.1 The Contractor will be expected to employ on the work only his regular skilled employees with experience of his particular work. No person below the age of eighteen years shall be employed.

12.2 All traveling expenses including provisions of necessary transport to and from Site, lodging, allowances and other payments to the Contractor's employees shall be the sole responsibility of the Contractor.

12.3 In case the Owner becomes liable to pay any wages or dues to Labour or any Government agency under any of the provisions of the Minimum Wages Act, Workmen Compensation Act, Contract Labour Regulation Abolition Act or any other law due to act of omission of the Contractor, the Owner may make such payment and shall recover the same from the Contractor's bills.

**13.0 FACILITIES TO BE PROVIDED BY THE OWNER**

**13.1 Space :** Land for Contractor's Store, Workshop etc.

a) The Engineer shall at his discretion and for the duration of execution of the Contract make available at site, land for construction of Contractor's field office, workshop, stores,etc. required for execution of the Contract. Any such temporary construction shall be done by the Contractor at his cost.

b) On completion of work the Contractor shall hand over the land duly cleaned to the Engineer. Until and unless the Contractor has handed over the vacant possession of land allotted to him for the above purpose, the payment of his final bill shall not be made.

**13.2 Electricity:**

**Power supply :**

The concerned Executive Engineer shall apply for temporary connection at site.Sub-division paying required service charges & deposit.Such temporary connections to be released on the name of Contractor on recommendation of the concerned Executive Engineer. The power so consumed shall be charged at the prevailing tariff rate

**14.0 FACILITIES TO BE PROVIDED BY THE CONTRACTOR**

**14.1 Tools, tackles and scaffoldings**

The Contractor shall provide all the construction equipments; tools, tackles and scaffoldings required for pre-assembly, erection, of the Towers, H-frame, string, earthing etc, covered under the Contract. He shall submit a list of all such materials to the Engineer before the commencement of work at Site. These tools and tackles shall not be removed from the Site without the written permission of the Engineer.

**14.2 First-aid**

The Contractor shall provide necessary first-aid facilities for all his employees, representatives and workmen working at the Site. Enough number of Contractor's personals shall be trained in administering first-aid.

**14.3 Cleanliness**

The Contractor shall be responsible for keeping the entire area allotted to him clean and free from rubbish, debris etc. during the period of Contract. The Contractor shall employ enough number of personnel to keep the work area clean. Materials and stores shall be so arranged to permit easy cleaning of the area. In areas where equipment might drip oil and cause damage to the floor surface, a suitable protective cover of a flame resistant, oil proof sheet shall be provided to protect the floor from such damage.

**15.0 LINES AND GRADES**

All the works shall be performed to the lines, grades and elevations indicated on the drawings. The Contractor shall be responsible to locate and lay-out the works. Basic horizontal and vertical control points will be established and marked by the Engineer at site at suitable points. These points shall be used as datum for the works under the Contract. The Contractor shall inform the Engineer well in advance of the times and places at which he wishes to do work in the area allotted to him so that suitable datum points may be established and checked by the Engineer to enable the Contractor to proceed with his works. Any work done without being properly located may be removed and/or dismantled by the Engineer at Contractor's expense.

**16.0 FIRE PROTECTION**

16.1 The work procedures that are to be used during the erection shall be those, which minimize fire hazards to the extent practicable. Combustible materials, combustible waste and rubbish shall be collected and removed from the Site at least once each day. Fuels, oils and volatile or inflammable materials shall be stored away from the construction and equipment and materials storage areas.

16.2 All the Contractor's supervisory personnel and select number of workers shall be trained for fire fighting. Enough of such trained personnel must be available at the Site during the entire period of the Contract.

**17.0 SECURITY**

The Contractor shall have total responsibility for all equipment and materials in his custody/stores, loose, semi-assembled and/or erected by him at Site. The Contractor shall make suitable security arrangements ensure the protection of all materials, equipment and works from theft, fire, pilferage and any other damages and loss.

**18.0 MATERIALS HANDLING AND STORAGE**

18.1 All the material furnished under the Contract and arriving at Site shall be promptly received, unloaded, transported and stored in the storage spaces by the Contractor.

18.2 Contractor shall be responsible for examining all the shipment and notify the Engineer immediately of any damages, storage, discrepancy etc, for the purpose of Engineer's information only. The Contractor shall submit to the Engineer every week a report detailing all the receipts during the week. However, the

Contractor shall be solely responsible for any shortages or damages in transit, handling and / or in storage and erection of the equipment at Site. Any demurrage, wharf age and other such charges claimed by the transporters, railways etc, shall be to the account of the Contractor.

18.3 The Contractor shall maintain an accurate and exhaustive record detailing out the list of all equipment materials received by him for the purpose of erection and keep such record open for the inspection of the Engineer in-charge.

18.4 All material shall be handled very carefully to prevent any damage or loss. The equipment stored shall be properly protected to prevent damage either to the equipment or to the floor where they are stored. The equipment from the store shall be moved to the actual location at the appropriate time so as to avoid damage of such equipment at Site.

18.5 All material shall be protected against moisture ingress and corrosion during storage and periodically inspected

18.6 The consumable and other supplies likely to deteriorate due to storage must be thoroughly protected and stored in a suitable manner to prevent damage or deterioration in quality by storage.

18.7 All the materials stored in the open or dusty location must be covered with suitable weatherproof and flame proof covering material wherever applicable.

18.8 If the materials belonging to the Contractor are stored in areas other than those earmarked for him, the Engineer will have the right to get it moved to the area earmarked for the Contractor at the Contractor's cost.

18.9 The Contractor shall be responsible for making suitable indoor storage facilities to store all equipment, which require indoor storage. Normally, all the electrical equipment such as motors, control gears, generators, exciters and consumables like electrodes, lubricants etc. shall be stored in the closed storage space. The Engineer, in addition, may direct the Contractor to move certain other materials, which in his opinion will require indoor storage, to indoor storage areas, which the Contractor shall strictly comply with.

**19.0 CONSTRUCTION MANAGEMENT**

19.1 The field activities of the Contractors working at Site will be coordinated by the Engineer and the Engineer's decision shall be final in resolving any disputes or conflicts between the Contractor and other Contractors and the tradesmen of the Owner regarding scheduling and coordination of work. Such decision by the Engineer shall not be a cause for extra compensation or extension of time for the Contractor.

19.2 The Engineer shall hold weekly meetings of the Contractor at Site, at a time and place to be designated by the Engineer. The Contractor shall attend such meetings and take notes of discussions during the meeting and the decision of the Engineer and shall strictly adhere to those decisions in performing his works. In addition to the above weekly meeting, the Engineer may call for other meetings either with individual Contractors or with selected number of Contractors and in such a case the Contractors if called, will also attend such meetings.

19.3 Time is the essence of the Contract and the Contractor shall be responsible for performance of his works in accordance with the specified construction schedule. If at any time, the Contractor is falling behind the schedule, he shall take necessary action to make good for such delays by increasing his work force or by working overtime or otherwise accelerate the progress of the work to comply with the schedule and shall communicate such actions in writing to the Engineer, satisfying that his action will compensate for the delay. The Contractor shall not be allowed any extra compensation for such action.

19.4 The Engineer shall, however, not be responsible for provision of additional labour and/or materials or supply or any other services to the Contractor except for the coordination work between various Contractors if any at site.

**20.0 FIELD OFFICE RECORDS**

The Contractor shall maintain up to date copies of all drawings, specifications and other Contract Documents and any other supplementary data complete with all the latest revisions thereto. The Contractor shall also maintain in addition the continuous record of all changes to the above Contract Documents, drawings, specifications, and supplementary data, etc. effected at the field and on completion of his total assignment under the Contract shall incorporate all such changes on the drawings and other Engineering data to indicate as installed conditions of the equipment furnished and erected under the Contract. Such drawings and Engineering data shall be submitted to the Engineer in required number of copies.

**21.0 CONTRACTOR'S MATERIALS BROUGHT TO SITE**

21.1 The Contractor shall bring to Site all materials, including construction equipment, tools and tackles for the purpose of the works under intimation to the Engineer. All such goods shall, from the time of their being brought vest in the Owner, but may be used for the purpose of the works only and shall not on any account be removed or taken away by the Contractor without the written permission of the Engineer. The Contractor shall nevertheless be solely liable and responsible for any loss or destruction thereof and damage thereto.

21.2 The Owner shall have a lien on such goods for any sum or sums which may at any time be due or owing to him by the Contractor, under, in respect of or by reasons of the Contract. After giving a fifteen (15) days notice in writing of his intention to do so, the Owner shall be at liberty to sell and dispose off any such goods, in such manner as he shall think fit and to apply the proceeds in or towards the satisfaction of such sum or sums due as aforesaid.

21.3 After the completion of the Works, the Contractor shall remove from the Site under the direction of the Engineer the materials such as construction equipment, erection tools and tackles, scaffolding etc. with the written permission of the Engineer.

**22.0 PROTECTION OF PROPERTY AND CONTRACTOR'S LIABILITY**

22.1 The Contractor shall be responsible for any damage resulting from his operations. He shall also be responsible for protection of all persons including members of public and employees of the Owner and the employees of other Contractors and Sub-Contractors and all public and private property.

**23.0 INSURANCE**

23.1 In addition to the conditions covered under the Clause entitled 'Insurance' in General Terms and Conditions of Contract of this Volume-I, the following provisions will also apply to the portion of works to be done beyond the Contractor's own or his Sub-Contractor's manufacturing Works.

23.2 **Workmen's Compensation Insurance**

This insurance shall protect the Contractor against all claims applicable under the Workmen's Compensation Act, 1948 (Government of India). This policy shall also cover the Contractor against claims for injury, disability, disease or death of his or his Sub-Contractor's employee, which for any reason are not covered under the Workmen's Compensation Act, 1948. The liabilities shall not be less than:

| | |
|---|---|
| Workmen's Compensation | : As per statutory Provisions |
| Employee's Liability | : As per statutory Provisions |

23.3 **Comprehensive General Liability Insurance**

The insurance shall protect the Contractor against all claims arising from injuries, disabilities, disease or death of members of public or damage to property of others, due to any act of omission on the part of the Contractor, his agents, his employees, his representatives and Sub-Contractors or from riots, strikes and civil commotion.

23.4 The hazards to be covered will pertain to all the works and areas where the Contractor, his Sub-Contractors, his agents and his employees have to perform work pursuant to the Contract.

23.5 The above are only illustrative list of insurance covers normally required and it will be the responsibility of the Contractors to maintain all necessary insurance coverage to the extent both in time and amount to take care of all his liabilities either direct or indirect, in pursuance of the Contract.

**24.0 UNFAVOURABLE WORKING CONDITIONS**

The Contractor shall confine all his field operations to those works, which can be performed without subjecting the equipment and materials to adverse effects during inclement weather conditions, like monsoon, storms etc. and during other unfavorable construction conditions. No field activities shall be performed by the Contractor under conditions, which might adversely affect the quality and efficiency thereof, unless special precautions or measures are taken by the Contractor in a proper and satisfactory manner in the performance of such Works and with the concurrence of the Engineer. Such unfavorable construction conditions will in no way relieve the Contractor of his responsibility to perform the Works as per the schedule.

**25.0 PROTECTION OF MONUMENTS AND REFERENCE POINTS**

The Contractor shall ensure that any finds such as relic, antiquity, coins, fossils, etc. which he may come across during the course of performance of his Works either during excavation or elsewhere, are properly protected and handed over to the Engineer. Similarly, the Contractor shall ensure that the bench marks, reference points, etc, which are marked either with the help of Engineer or by the Engineer shall not be disturbed in any way during the performance of his Works. If any work is to be performed which disturbs such reference the same shall be done only after these are transferred to other suitable locations under the direction of the Engineer. The Contractor shall provide all necessary materials and assistance for such relocation of reference points etc.

**26.0 WORK & SAFETY REGULATIONS**

26.1 The Contractor shall ensure proper safety of all the workmen, materials, plant and equipment belonging to him or to GETCO or to others, working at the Site. The Contractor shall also be responsible for provision of all safety notices and safety equipment required both by the relevant legislations and the Engineer, as he may deem necessary.

26.2 All equipment used in construction and erection by Contractor shall meet Indian/International Standards and where such standards do not exist, the Contractor shall ensure these to be absolutely safe. All equipment shall be strictly operated and maintained by the Contractor in accordance with manufacturer's Operation Manual and safety instructions and as per Guidelines/rules of GETCO in this regard.

26.3 Periodical examinations and all tests for all lifting/hoisting equipment & tackles shall be carried-out in accordance with the relevant provisions of Factories Act 1948, Indian Electricity Act 1910 and associated Laws/Rules in force from time to time. A register of such examinations and tests shall be properly maintained by the Contractor and will be promptly produced as and when desired by the Engineer or by the person authorized by him.

26.4 The Contractor shall provide suitable safety equipment of prescribed standard to all employees and workmen according to the need.

26.5 The Contractor shall provide safe working conditions to all workmen and employees at the Site including safe means of access, railings, stairs, ladders, scaffoldings etc. The scaffoldings shall be erected under the control and supervision of an experienced and competent person. For erection, good and standard quality of material only shall be used by the Contractor.

26.6 The Contractor shall not interfere or disturb electric fuses, wiring and other electrical equipment belonging to the Owner or other Contractors under any circumstances, whatsoever, unless expressly permitted in writing by GETCO to handle such fuses, wiring or electrical equipment

26.7 Before the Contractor connects any electrical appliances to any plug or socket belonging to the other Contractor or Owner, he shall:

a. Satisfy the Engineer that the appliance is in good working condition;
b. Inform the Engineer of the maximum current rating, voltage and phases of the appliances;
c. Obtain permission of the Engineer detailing the sockets to which the appliances may be connected.

26.8 The Engineer will not grant permission to connect until he is satisfied that;

a. The appliance is in good condition and is fitted with suitable plug;

b. The appliance is fitted with a suitable cable having two earth conductors, one of which shall be an earthed metal sheath surrounding the cores.

26.9 No electric cable in use by the Contractor/Owner will be disturbed without prior permission. No weight of any description will be imposed on any cable and no ladder or similar equipment will rest against or attached to it.

26.10 No repair work shall be carried out on any live equipment. The equipment must be declared safe by the Engineer and a permit to work shall be issued by the Engineer before any repair work is carried out by the Contractor. While working on electric lines/equipment, whether live or dead, suitable type and sufficient quantity of tools will have to he provided by the Contractor to electricians/workmen/officers.

26.11 In case any accident occurs during the construction/ erection or other associated activities undertaken by the Contractor thereby causing any minor or major or fatal injury to his employees due to any reason, whatsoever, it shall be the responsibility of the Contractor to promptly inform the same to the Engineer in prescribed form and also to all the authorities envisaged under the applicable laws.

26.12 The Engineer shall have the right at his sole discretion to stop the work, if in his opinion the work is being carried out in such a way that it may cause accidents and endanger the safety of the persons and/or property, and/or equipment. In such cases, the Contractor shall be informed in writing about the nature of hazards and possible injury/accident and he shall comply to remove shortcomings promptly. The

Contractor after stopping the specific work can, if felt necessary, appeal against the order of stoppage of work to the Engineer within 3 days of such stoppage of work and decision of the Engineer in this respect shall be conclusive and binding on the Contractor.

26.13 The Contractor shall not be entitled for any damages/compensation for stoppage of work due to safety reasons as provided in Para 31.18 above and the period of such stoppage of work will not be taken as an extension of time for completion of work and will not be the ground for waiver of levy of liquidated damages.

26.14 It is mandatory for the Contractor to observe during the execution of the works, requirements of Safety Rules which would generally include but not limited to following

a) Each employee shall be provided with initial indoctrination regarding safety by the Contractor, so as to enable him to conduct his work in a safe manner.

b) No employee shall be given a new assignment of work unfamiliar to him without proper introduction as to the hazards incident thereto, both to himself and his fellow employees.

c) Employees must not leave naked fires unattended. Smoking shall not be permitted around fire prone areas and adequate fire-fighting equipment shall be provided at crucial location.

d) There shall be a suitable arrangement at every work site for rendering prompt and sufficient first aid to the injured.

e) Requirements of ventilation in underwater working to licensed and experienced divers, use of gum boots for working in slushy or in inundated conditions are essential requirements to be fulfilled.

26.15 The Contractor shall follow and comply with all GETCO Safety Rules, relevant provisions of applicable laws pertaining to the safety of workmen, employees, plant and equipment as may be prescribed from time to time without any demur, protest or contest or reservations. In case of any discrepancy between statutory requirement and GETCO Safety Rules referred above, the latter shall be binding on the Contractor unless the statutory provisions are more stringent.

| | | |
|---|---|---|
| a. Fatal injury or accident Causing death | Rs. 1, 00,000 + GST as applicable per person: for death | These are applicable |
| b. Major injuries or accident causing 25% or more permanent disablement to Workmen or employees | Rs. 20,000 + GST as applicable per person | injury to any person, whosoever. |

Permanent disablement shall have same meaning as indicated in Workmen's Compensation Act. The compensation mentioned above shall be in addition to the compensation payable to the workmen/employees under the relevant provisions of the Workmen's Compensation Act and rules framed there under or any other applicable laws as applicable from time to time. In case the Owner is made to pay such compensation then the Contractor is liable to reimburse the Owner such amount in addition to the compensation indicated above.

## 27.0 CODE REQUIREMENTS

The erection requirements and procedures to be followed during the installation of the equipment shall be in accordance with the relevant Codes and accepted good engineering practice, the Engineer's drawings and other applicable Indian recognized codes and laws and regulation of the Government of India.

## PART-I (SCC)
## SPECIAL CONDITIONS OF CONTRACT

1.0 **General Particulars :**

This part of the Bid Document relates to certain specific/special terms and conditions particular to the Contract. The provisions herein are to be read and understood in conjunction with the relevant provisions elsewhere in the Instructions to Bidders (ITB), the General Conditions of Contract (GCC) and Erection Conditions of Contract (ECC). The intent of provisions herein are specific to this contract and are, in general, supplementary to related provisions under ITB,GCC and ECC. However, in certain provisions which are contrary to those in ITB, GCC and ECC, the provisions in these Special Conditions of Contract will prevail.

**2.0 Tender Fee/ Earnest Money Deposit (EMD) :**

Bidders shall compulsorily pay tender fee and EMD through RTGS/NEFT only.

**a) Payment of Tender fee / Earnest Money Deposit ( EMD ) can be accepted by RTGS/ NEFT.**

**For** payment through RTGS/NEFT the scan copies of payment made (transaction slip of payment made) shall be uploaded online with the Tender documents on n-procure portal.

1. Bidder has to provide following detail on the same date of payment made so that receipt can be generated at below mentioned e-mail ids:
    1. . decmcjmbco.getco@gebmail.com
    2. nvp.getco@gebmail.com
    3. aotr.jambuva@gebmail.com

| Sr. No. | Required Details |
|---|---|
| 1 | Name & Postal Address of the bidder |
| 2 | Contact Detail & e-mail id of the bidder |
| 3 | Tender No. with due date |
| 4 | Mode of Payment made |
| 5 | Ref. ID with Bank Details(UTR number) |
| 6 | Amount Paid for Tender fee in Rs. |
| 7 | Amount Paid for EMD in Rs. |
| 8 | GST No. |
| 9 | Pan No. |

3. GETCO Beneficiary Bank Details are as under:

| Sr.No. | Particulars | Requisite Details |
|---|---|---|
| 1 | Name of Bank | BANK OF BARODA |
| 2 | Name of Branch | MAKARPURA VILLAGE BRANCH, VADODARA |
| 3 | Branch Code | 0634 |
| 4 | MICR Code | 390012031 |
| 5 | IFSC Code | BARB0MAKARP |
| 6 | Name of Account | GETCO , JAMBUVA |
| 7 | Account No. | 06340200000181 |
| 8 | GST No. | 24AABCG4029R2ZC |

2.1 The bid security is required to protect the owner against the risk of Bidder's conduct, which would warrant the guarantee forfeiture, pursuant to relevant para elsewhere The bid guarantee shall be made payable to the Owner without any condition whatsoever.

2.2 The Owner will reject any bid not secured in accordance with Para 18.1 above, as non-responsive. No exemptions are made in the furnishing of the security.

2.3 Unsuccessful Bidder's bid security/EMD will be returned/refunded on finalization of tender or three months from the date of submission of tender.

2.4 The successful bidders, Bid Security will be discharged upon, furnishing the contract Performance guarantee

2.5 The bid guarantee may be forfeited.
a) If a Bidder withdraws its bid during the period of bid validity specified by the bidder on the bid Form:
b) If a bidder refuses to accept the contract or fails to commence the works (including supplies within thirty days of letter of award of contract)

2.6 Bidders are requested to pay an earnest money deposit by RTGS/NEFT. Banker's cheque /

demand draft shall not be accepted.

2.7 Tenders no accompanied by EMD shall be rejected.

2.8 If during the tender validity period, i.e. 180 days, the tenderer withdraws his tender, the EMD shall be forfeited and the tenderer may be disqualified from tendering for future works of GETCO.

2.9 The EMD will be returned promptly to the unsuccessful tenderer. The EMD will be returned to the successful tenderer after he furnishes the Security Deposit for performance and duly enters into the contract. If he fails to furnish the SD or to execute the contract for the work offered to him, his EMD shall be forfeited and the tenderer may be disqualified from tendering for further works for GETCO.

**3.0 Validity period:** The offers should be valid for minimum period of 180 Days from date of opening of tender (Technical Bid).

**4.0 Declaration by Bidder:**

The Bidder shall sign the Declaration enclosed to this SCC and not furnishing the same will make the Bid invalid.

**5.0 Qualifying Requirement:** As mentioned in **Qualifying requirement. Bidder shall have to upload scanned copies of original (Notarized/ self-attested copies of original-as specified in QR) online through n-procure.**

**The Bidder shall submit/upload all the documents, certificates, declarations, statements and other information required under the Tender Document along with its original online bid within the stipulated date and time for submission of bids.**

**The Bidder shall be solely responsible for ensuring completeness, correctness, legibility and validity of all such documents.**

**The Technical/Qualification Requirement (QR) evaluation of the bid shall be carried out only on the basis of the Data / Details / Documents submitted/uploaded by the Bidder as part of its original online offer on or before the stipulated last date and time for submission of the bid.**

**After the stipulated last date and time for submission of bids, no new, additional, substitute or replacement document shall be accepted or considered for establishing or improving the eligibility, Qualification Requirement (QR), technical qualification or experience of the Bidder.**

**Also, refer clause no. 28,29,30 of INSTRUCTIONS TO THE BIDDERS**

**6.0 SCOPE OF WORK:** As mentioned in Qualifying Requirement.

**7.0 Price Inclusions (including Taxes & Duties):**

7.1 Goods & Service tax (GST): GST & Cess as applicable shall be payable/receivable as mentioned in clause 12 of ITB.

7.2 The prices quoted shall be all inclusive of freight, transportation, loading, –unloading & stacking at site of materials supplied by Contractor as well as owner supplied item if any.

7.3 No extra payment toward any type of templates including extension & special tower and erection tools /materials will be made.

7.4 **Evaluation of the tender shall be carried out on end cost basis.**

**7.5 Statutory Variations:**

Any statutory increase or decrease in the taxes and duties subsequent to your offer if it takes place within the original contractual delivery date will be to the GETCO's account subject to the claim being supported by documentary evidence.However, if any decrease takes place after the contractual delivery date, the advantage will have to be passed on to the GETCO.

**7.6 Income Tax**

Income tax at source at the prevailing rate will be deducted from bills in accordance with the provision of Income-Tax Laws and to that effect a certificate will be issued to the contractor.

**7.7 Welfare Cess:-**

1. As per the Welfare Cess Act, the welfare cess @ 1% is applicable on supply and erection items for supply, erection, testing & commissioning of substation, transmission lines, EPC/Turnkey projects, and civil works.The welfare cess @ 1% shall be paid by the contractor and the same shall be reimbursed by employer on production of documentary evidence of payment.

2. Contractor shall get registered under Welfare Cess Act before commencement of work in required head as per nature of work. Office of the Factory Inspector is authorized at present as a registering authority.
3. GETCO shall pay the welfare cess by way of reimbursing to contractors on production of documentary evidence of payment. Registration charges will not be reimbursed.
4. The contracts for which supply or part supply of material are in the scope of GETCO, then contractors shall deposit welfare cess on estimated cost of supplied items to GETCO on progressive basis of utilization. As this part of welfare cess is on GETCO account, the same shall be reimbursed to the contractor on receipt of request letter along with documentary evidence of payment. For calculation of welfare cess on supply part, valuation as per MR shall be taken and informed to the contractor for payment. This will be over and above the A/T value. The modality of payment/ reimbursement of welfare cess will be as under.
5. On receipt of A/T, the contractor / bidder will get them registered under Welfare Cess Act and submit the documentary evidence to the concern office. Copy of Registration certificate shall be submitted before submission of 1st RA bill
6. Before release of payment of first R.A.Bill, the contractor has to submit the documentary evidence of registration. Only thereafter, the bill will be processed for payment.
7. Before release of payment of subsequent R.A.Bills, the contractor has to submit the documentary evidence of payment of welfare cess of previous R.A.Bill.
8. The welfare cess shall be reimbursed to the contractor on submission of copy of documentary evidence of payment by observing due formalities.

9. The Welfare cess @1% is not considered in the estimate for this project & therefore , bidders are requested not to load welfare cess in the price schedules as welfare cess @ 1 % is on reimbursement basis.

**8.0 SECURITY DEPOSIT-CUM-PERFORMANCE GUARANTEE DEPOSIT**

8.1 **The successful bidder has to pay 100 % security deposit (5% of the Contract) upon placement of LOI within 10 days.**

8.2 The successful bidder will be required to pay an amount equivalent to 5 % of the value of the order as a Security Deposit for satisfactory execution of the contract. Such Security Deposit will be payable either in BG/DD payable at Vadodara. Bank guarantees from following Banks will be acceptable.

(A) Guarantees issued by the following Banks will be accepted as SD on permanent basis.

1. All Nationalized Banks.

(B) Guarantees issued by following Banks will be accepted as SD for the period up to March 31, 2027. The validity cut-off date is with respect to date of issue of Bank Guarantee irrespective of date of termination of Bank Guarantee.

AXIS Bank
2. AU Small Finance Bank
3. Bandhan Bank
4. City Union Bank
5. CSB Bank
6. DBS Bank India Limited
7. DCB Bank
8. Dhanlaxmi Bank
9. Equitas Small Finance Bank
10. FEDERAL Bank
11. HDFC Bank
12. HSBC Bank
13. ICICI Bank
14. IDBI Bank
15. IDFC First Bank
16. IndusInd Bank
17. Jammu and Kashmir Bank
18. Jana Small Finance Bank
19. Karnataka Bank

20. Karur Vysya Bank
21. Kotak Mahindra Bank
22. RBL Bank
23. South Indian Bank
24. Standard Chartered Bank
25. Tamilnad Mercantile Bank
26. Ujjivan Small Finance Bank
27. YES Bank
28. Ahmedabad Mercantile Co-Op Bank
29. Nutan Nagrik Sahkari Bank Ltd.
30. Rajkot Nagrik Sahkari Bank Ltd
31. Saraswat Co-Operative Bank Ltd
32. SBPP Co-operative Bank Ltd.
33. SVC Co-Operative Bank Ltd.
34. The Cosmo Co-Op Bank Ltd.
35. The Gujarat State Co-Operative Bank
36. The Surat District Co-Operative Bank
37. The Surat People's Co-Op. Bank Ltd
38. The Baroda Central Co-operative Bank
39. The Panchmahal District Co-Operative Bank
40. The Kalupur Commercial Co-Op. Bank
41. The Rajkot Commercial Co-operative Bank
42. The Banaskantha Mercanttile Co-op. Bank
43. Gujarat Gramin Bank

8.3 No interest will be allowed on amount of Security deposit.

8.4 The Security Deposit- total shall be kept deposited up to 12 months from the date of charging of line. The same shall be released on receipt of N.O.C. from the concerned EE(const./ TR).

8.5 This security deposit is for the performance of contract and the same is liable to be forfeited by the GETCO in event of non fulfillment of the terms and conditions of this contract by the contractor.

8.6 The SD cum performance bank guarantee towards execution of contract will be returned only on successful execution of guarantee period ( 12 months from date of charging line) of the contract.

8.7 Corporate Guarantees are not admissible.

8.8 The 'Signing of Contract 'and 'Contract Agreements' will be done as per prevalent GETCO Terms and Conditions.

8.9 A/T shall be issued on receipt of Bank Guarantees, contract agreement & Indemnity Bond within 30 days of issue of LOA.

**9.0 GUARANTEE PERIOD:**

Total work executed shall be covered under guarantee period against any defect in materials, poor workmanship or defect/ wrong design etc. for a period of **one year** from date of charging of transmission line.

10.0 **PENALTY FOR DELAY:**

10.1 The tenderer should note that the completion time allowed for carrying out the work should be strictly observed. Any delay that may take place in work execution beyond Contractual cutoff date stated as per stipulated delivery period shall be subject to the penalty at the rate of ½ % of the delayed work value plus applicable taxes (if any) per week or part thereof, with a ceiling of 10 % of the total contract value plus applicable taxes (if any).

10.2 In event of failure of the Contractor to pay the amount of Penalty as demanded, the Owner shall be entitled to deduct the amount of Penalty for delay from the amounts payable to the Contractors under any bills raised under this contract or any other contract with the GUVNL and its Subsidiary Companies i.e. GETCO, GUVNL, GSECL, MGVCL, DGVCL, PGVCL UGVCL. It is permissible for the Owner to adjust

the amount of Penalty of delay against any Bank Guarantee furnished by the Contractor under this contract or any other contract with GUVNL and/or its subsidiary companies.

10.3 The penalty will be deducted from bills payable either against this contract or from any Bank Guarantee or any other amount payable under any other contract with the GETCO.

**11.0 COMPLETION PERIOD**

11.1 **Overall Completion period for this Contract will be 24 Months from the date of issue of work order.**

11.2 No mobilization period, idling or stoppage period will be allowed during this period of the Contract.

11.3 The completion date will be deemed to be the date on which all works on the Contract are demonstrated to be complete to the satisfaction of the GETCO/Engineer and is complete in all respects as per the terms and conditions of this Contract.

**11.4 Extension of The Contract : The contract can be extended for further period of 1 Year with mutual agreement with same rate, terms and condition of the contract.**

**12.0 Billing and Payment Terms :** Payments will be made after observing GETCO general procedures by concerned AM Division after completion of work as under :

a) Sub-Order shall be issued by concerned Asset Management Division with copy to Circle office.
b) Each Sub-Order shall be treated as First and Final Bill.
c) Monthly bill for the work executed during the month along with sub order , work completion certificate of the Sub-Station in-charge is to be prepared in triplicate and submitted to respective **Executive Engineer (AM)** for necessary payment.
d) Payment shall be made by the concerned Asset Management Division for the work executed during the month after following the procedure of GETCO within 30 Days.
e) Payment shall be made through RTGS only.
f) All the bills in accordance with the above clauses must be submitted with the following information:
    1. Work done during the month.
    2. Sub order issued by respective division
    3. Item wise cumulative work done.
    4. work completion certificate of the Sub-Station / Line in-charge

g) The payment for work done shall be made only after execution of the contract documents/furnishing of Security Deposit and on execution of work.
h) For each Sub-Order, all statutory liability shall be full fill as per GOG/GETCO's Rules and Regulations.

**13.0 Terms of Payment**

The payment for work done shall be made as under only after execution of the contract documents/furnishing of Security Deposit and on execution of transmission line work.

**PAYMENT TERMS UNDER MSME ACT:**

(1) You have to update your MSME detail on GETCO's website by following link https://getco.co.in/msme/ (and intimate to concern bill submitting office with copy to this office).

(2) The payment will be made within 45 days from the *date of acceptance or the **date of as deemed acceptance of goods or services i.s After submission of all required documents as per at terms & time to time circular issued by GETCO's corporate office as well as statutory requirement to process the bill.

14.0 The contractor will have to give indemnity bond on Non-judicial Stamp paper of value Rs. 300/-to GETCO for material as per attached format. The cost of stamp paper will be born by the contractor.

15.0 Also the successful bidder will have to execute Agreement on stamp paper of value Rs.300/- at our Circle office Jambuva before commencement of works as per GETCO's prescribed Performa. The cost of stamp paper will be born by the contractor.

16.0 The contractor will have to give safety cum indemnity on Non-judicial Stamp paper of value Rs. 300/- to GETCO against any possible claim of compensation for damage to contractor's staff or any of third party during the execution of work. The cost of stamp paper will be born by the contractor.

**17.0 SAFETY CLAUSE**

The Contractor shall follow and comply with all GETCO Safety Rules, relevant provisions of applicable laws pertaining to the safety of workmen, employees, plant and equipment as may be prescribed from time to time without any demur, protest or contest or reservations. In case of any discrepancy between statutory requirement and GETCO Safety Rules referred above, the latter shall be binding on the Contractor unless the statutory provisions are more stringent.

Penalty :

1. In case if any safety related fatal Elect. / Mech. accident occurred to any employee of agency or outsider due to negligence or non-compliance of GETCO safety norms then in addition to the compensation and liability as per statutory requirement, contractor / agency shall be penalized as under:

| Sr. No | Amount of Contract in Rs. | Penalty amount |
|---|---|---|
| 1 | Up to →1 Lac | Rs.5000/- plus applicable taxes (if any) |
| 2 | Above1 Lac to →10 Lacs | Rs.40000/- plus applicable taxes (if any) |
| 3 | 10 to → 100 Lacs | Rs.100,000/- plus applicable taxes (if any) |
| 4 | > 100 Lacs | 1.0 % plus applicable taxes (if any) |

2. **Reporting**:-

1. The contractor shall inform concerned Ex. Engineer Const/TR in writing within 24 hours of fatal/Non-fatal accident occurred to human being.
2. The GETCO investigating officer findings in to accident shall be final and binding to the contractor /Agency.

3. **Safety Requirement**:

i) Kick off Meeting exclusively for safety shall be done in each contract in presence of contractor's site in charge and supervisor. Safety document shall be handed over and vital safety norms and key points of safety related to project shall be explained and recorded for commitment by erection contractor. Such records are mandatory for clearing first erection bill.

ii) During site visit by GETCO official of Executive Engineer and above rank, the following checks during execution of work shall be covered.

I. Safety equipment available and utilize.
   (a) Helmet.
   (b) Safety belt.
   (c) Safety shoes.
   (d) Live line Voltage detector

II. Safety procedure adopted.
   (a) Permit to work
   (b) Earthing at the place of work.
   (c) Adequate supervision.

III. T & P physical Check. (Healthiness and Quality)
   (a) P.P.rope.
   (b) Wire rope and sling.
   (c) Earthing rod

iii) If above-mentioned safety requirements found violated in any of the above three conditions shall attract penalty of Rs.1000/- plus applicable taxes (if any) per occasion. (Max.Rs.3000/--for violation of three conditions)

iv) During subsequent visit, if violation is found, then double penalty applicable taxes (if any) shall be deducted from the bill of the Contractor/Agency.

**18.0 As built Tower Schedule :**

**The contractor must furnish the as built tower schedule as per prescribed format at Annexure-B within 15 days from the date of test charge or commissioning of the line to E.I.C.**

**19.0 "RIGHTS OF THE OWNER:**

Whenever any claim or claims for payment of a sum of money arises out of or under the contract against the Contractor, the Owner shall be entitled to withhold and also have a lien to retain such sum or sums in whole or in port from the security, If any, deposited by the Contractor and for the purpose aforesaid, the Owner shall be entitled to encash and withhold the amount of Performance Bank Guarantee or other security, if any, furnished as the case may be. The Owner shall also have a lien over the same pending finalization or adjudication of any such claim. In the event of the security is insufficient to cover the claimed amount or amounts, the Owner shall be entitled to withhold and have lien to retain to the extent of the such claimed amount or amounts referred to above, from any sum or sums found payable or which at any time thereafter may become payable to the Contractor under the same contract or any other contract with the Owner or GUVNL or its subsidiary companies pending finalization or adjudication of any such claim.

**Lien in respect of Claims in other Contracts:**

a) Any sum of money due and payable, to the Contractor (Including the security deposit) under the contract may be withheld or retained by way of lien by the Owner against any of its claim in respect of payment of a sum of money arising out of or under any other contract made by the Contractor with the Owner or GUVNL or any of its subsidiary companies.

b) It is on agreed that the sum of money so withheld or retained under this clause by the Owner will be kept withheld or retained as such by the Owner till its claim arising out of the same contract or any other contract is either mutually settled or determined by the arbitrator or competent court, as the case may be, and the Contractor shall have no claim for interest or damages whatsoever on this account or on any other ground in respect of any sum of money withheld or retained under this clause and as may be duly notified to the Contractor.

**20.0 In case of emergency, "Agency finalized under ARC has to carry out the work in to nearby Circle in case of emergency" as per inst. EIC./ (EE (Const.).**

**PART-II A**
**TECHNICAL SPECIFICATIONS**

# TECHNICAL SPECIFICATIONS FOR SURVEY

**1.0 General information:-**

The technical specification covers detailed survey including route alignment, profiling, Tower Spotting, contouring and soil investigation etc.

**2.0 Scope of work :**

The scope of work interalia shall include the following:

a) Route alignment using satellite imageries of NRSA and Survey of India Maps, interalia including :-

i) Identification of three alternative route alignments & selection of optimized route alignment. This shall be done using low resolution satellite imageries of NRSA and Survey of India Maps. The output shall be in the form of digitized route alignment drawing with latest topographical and other details / features upto 8 kms on both sides of selected route alignment.

ii) Digital terrain modeling along the selected route using contour data from topographical maps.

b) Detailed survey using GPS, Total work stations, long range scanners & Digital theodolites of reasonable accuracies or alternatively using ALTM (Airborne Laser Terrain Modeling) techniques, interalia including:

i) Digitized profiling along the selected route along with plan details using PLS CADD.
ii) Computer aided tower spotting & optimization
iii) Soil resistivity measurement along the route at interval of every 3 Km.
iv) Digitized contouring at undulated / hilly tower locations.
v) Trial pit of Size- 1 Meter x 1Meter x 3 Meter at every 3 Km or as per the instruction of engineer In charge and measurement of records of soil strata and submission of the same with proposed type of foundation and back filling.

c) Soil Investigation
d) Preparation of survey reports including estimation of Bill of Quantities tower foundation and line material, identification and explanation of route constraints, infrastructure details available enroute etc.
e) Training to GETCO engineers for implementation of software.

2.1 The owner reserves the right to split the total work and award the work for different transmission lines mentioned above to more than one bidder without any change in terms & conditions as applicable for the complete work.

2.2 The Provisional quantities for the scope of work are indicated in relevant Part- III. The final quantities for route alignment & detailed survey (quantities in 'kms' unit) shall be the route length along the approved route alignment. For contouring at undulated / hilly tower locations and soil investigations (quantities in 'locations' unit), the actual quantities to be executed shall be decided by Site Engineer-in-charge. The route alignment, detailed survey, including profiling & tower spotting, contouring, soil investigation etc. shall be carried out by the Contractor as per the technical specifications stipulated here in.

2.3 The contractor must note that the Owner shall not be responsible for loss or damage to properties, trees etc due to contractor's work during survey. The contractor shall indemnity the Owner for any loss or damage to properties, trees etc during the survey work.

2.4 The contractor should note Owner will not furnish the NRSA satellite imageries or topographical maps prepared by survey of India but will make available assistance that may be required in obtaining these by providing letters of recommendation to the concerned authorities. Further, in case the contractor opts for use of ALTM techniques for detailed survey, he shall be responsible for obtaining necessary clearances / permissions by providing letters or recommendations to the concerned authorities.

2.5 All the bidders shall present their proposal methodology for execution of the work as per specifications and details of the equipment & facilities including softwares available with them within 21 days from date of invitation of bid, based on which the Owner may issue suitable amendments. A pre-bid conference shall also be held within 30 days from date of invitation of bid.

2.6 The work shall be carried out by the contractor using modern surveying techniques. The bidder shall indicate in his offer, the detailed description of the procedure to be deployed. The details of the equipment & facilities including softwares for image processing, computer aided tower spotting etc. available with the bidder or his associates shall also be furnished with the bid.

2.7 The contractor shall also engage services of a reputed geo-technical consultant or experts from independent educational / research institutions for examining stability aspects of the selected transmission line route / locations in hilly terrain and ualacreble wherever required.

2.8 After carrying out the detailed survey and soil investigations, the contractor shall submit documents as per Annexure- B.

2.9 Location Details

2.10 No Technical deviation whatsoever to certain conditions of the bidding documents permitted by the Owner and therefore, the Bidders are advised that while making Bid Proposals and quoting prices these conditions may appropriately be taken into consideration. The Bidder shall complete all the schedules & annexure in the Bid Proposal Sheets, Technical Data Sheets and specified elsewhere. This specification covers the detailing, of survey of EHV class Transmission line and handing over to GETCO including a complete Data

2.11 The above transmission lines are in the State of Gujarat. Bidders may visit the site to acquaint themselves with the terrain etc. For this purpose, they are requested to contact at the following address:

The Supt. Engineer (TR),
Gujarat Energy Transmission Corporation Ltd.,
Circle office,
Jambuva

**3.0 Route Alignment :**

3.1 Route alignment shall be done using satellite imageries of NRSA (PAN & LISS-III merged product of minimum resolution corresponding to 1:25,000 scale) and survey of India topographical maps (scale 1:50,000). In case the required Survey of India, maps are available in digitized form from Survey of India, the same shall be procured and used by the Contractor. The contractor shall identify & examine three alternative route alignments and suggest to the Owner the optimal route alignment between the terminal points.

**3.2 Requirement of Transmission Line Routing**

3.2.1 The alignment of the transmission line shall be most economical from the point of view of construction and maintenance.

3.2.2 Routing of transmission line through protected / reserved forest area should be avoided. In case it is not possible to avoid the forests or areas having large trees completely, then keeping in view of the overall economy, the route should be aligned in such a way that cutting of trees is minimum.

3.2.3 The route should have minimum crossings of Major river, Railway lines, National / State highways, overhead EHV power line and communication lines.

3.2.4 The number of angle points shall be kept to a minimum.

3.2.5 The distance between the terminal points specified shall be kept shortest possible, consistent with the terrain that is encountered.

3.2.6 Marshy and low lying areas, river beds and earth slip zones shall be avoided to minimize risk to the foundations. **& Towers**

3.2.7 It would be preferable to utilize level ground for the alignment.

3.2.8 Crossing of power lines shall be minimum. Alignment will be kept at a minimum distance of 300 m from power lines to avoid induction problems on the lower voltage lines.

3.2.9 Crossing of communication line shall be minimized and it shall be preferably at right angle. Proximity and parallelism with telecom lines shall be eliminated to avoid danger of induction to them.

3.2.10 Areas subjected to flooding such as nalla shall be avoided.

3.2.11 Restricted areas such as civil and military airfield shall be avoided. Care shall also be taken to avoid aircraft landing approaches.

3.2.12 All alignment should be easily accessible both in dry and rainy seasons to enable maintenance throughout the year.

3.2.13 Certain areas such as quarry sites, tea, tobacco and saffron fields and rich plantations, gardens & nurseries which will present the Owner problems in acquisition of right of way and way leave clearance during construction and maintenance should be avoided.

3.2.14 Angle points should be selected such that shifting of the point within 100 m radius is possible at the time of construction of the line.

3.2.15 The line routing should avoid large habitations, densely populated areas to the extent possible.

3.2.16 The areas requiring special foundations and those prone to flooding should be avoided.

3.3 For examination of the alternatives & identification of the most appropriate route, besides making use of informations / data / details available / extracted through Survey of India Topographical maps and computer aided processing of NRSA's satellite imagery, the contractor shall also carry out reconnaissance / preliminary survey as may be required for verification & collection of additional informations / data / details.

3.4 The contractor shall submit his preliminary observations & suggestions along with various informations / data / details collected and also processed satellite imagery data, topographical map data marked with the alternative routes etc. The final evaluation of the alternative routes shall be conducted by the contractor in consultation with Owner's representatives and optimal route alignment shall be proposed by the Contractor. Digital terrain modeling using contour data from topographical maps as well as processed satellite data shall be done by the contractor for the selected route. A fly through perspective using suitable software(s) shall be developed for further refinement of the selected route, if required. Site visit and field verification shall be conducted by the contractor jointly with the Owner's representative for the proposed route alignment.

3.5 Final digitized route alignment drawing with latest topographical and other detail / features (altitude / longitude) including all rivers, railway lines, canals, roads etc upto 8 kms on both sides of selected route alignment shall be submitted by the contractor for Owner's approval along with report containing other informations / details as mentioned above.

**4.0 Detailed Survey:**

4.1 The detailed walk over survey shall be carried out using GPS, total stations, digital theodolites etc. along the approved route alignment. As an alternative, the contractor may also use ALTM (Airborne Laser Terrain Modeling) techniques of equal or better accuracy for the detailed survey and plotting on topo sheet to fix up angle point.

4.1 Soil resistivity, along the route alignment shall be measured in dry weather by four electrode method keeping inter – electrode spacing of 50 mtrs. For calculating soil resistivity formula 2πar (where a=50 m and r=megger reading in ohms) shall be adopted. In case of soil characteristics changes within 2 to 3 km, values shall have to be measured at intermediate locations also. Megger reading and soil characteristics should also be indicated in the soil resistivity results.

**4.2 Route Marking**

The route of the transmission line shall be recorded using GPS of positional accuracy less than 3m.

The co-ordinates of all the angle points as well as other important crossings, landmarks etc. shall be recorded using GPS for easy relocating.

At the starting point of the commencement of route survey the co-ordinates shall be recoded. The co-ordinates of the location of the survey instrument shall also be recorded. Further, the co-ordinates at prominent position at intervals of not more than 750 meter along the transmission line to be surveyed upto the next angle point shall also be recorded. Wherever the line alignment crosses the EHT line, Railway line, P&T line or roads, the contractor shall record co-ordinates on the points of crossing. Wherever line route alignment passes over permanent land marks such as rock, boulders, culverts etc. suitable white paint marks with directional and GETCO markings shall be made and co-ordinates recorded.

4.3 **Profiling**

4.3.1 The complete profiling along the route shall be carried out using surveying equipments viz. total stations, GPS, digital theodolite, long range scanners etc. Reference levels at every 20 meters along the route are to be recorded. R/Ls at other undulations along the route as well as in the route plan and other enroute details viz. crossings, building & structures, trees & other infrastructure etc shall also be recorded. Areas along the route, which in the view of the contractor, are not suitable for tower spotting, shall also be marked.

4.3.2 The complete profiling details shall be digitized and the data shall be prepared & stored in the format compatible to computer – aided tower spotting software.

4.3.3 A printed / plotted output of the digitized profiling shall be submitted by the contractor to Owner's site-in-charge for review before taking up computer- aided tower spotting.

4.4 **Optimization of tower location / tower spotting**:

4.4.1 Optimization of tower locations shall be done by the Contractor using computer-aided tower spotting software (PLS CADD). In order to verify the results of computer aided tower spotting, the contractor shall supply the Owner, one licensed copy of tower spotting & optimization software(s) and shall also furnish sample calculations and manual tower spotting drawings for some typical sections.

**4.4.2** The sag-tension characteristics of the conductor as well as tower spotting data are furnished in Annexure-A for 66kv/132kv/220KV/400kv Sag template curves, if any required for tower spotting shall be prepared by the contractor **on acrylic sheet indicating cold curve, hot curve, ground clearance curve and support footing curve.**

4.4.3 General description of towers (66kv/132kv/220KV/400kv) is enclosed at Annexure–A for information of the Bidders.

**4.4.4 Tower Spotting**

While profiling & spotting the towers, the following shall to be borne in mind:

**(a) Span**

The number of consecutive spans between the section points shall not exceed 12 spans or 4.5 km in plain terrain and 10 spans or 3 km in hilly terrain for 220KV line. A section point shall comprise of tension point with minimum angle of deviation type towers as applicable.

**(b) Extension / Truncation**

An individual span shall be as near to the normal design span as possible. In case an individual span becomes too short with normal supports on account of undulations in ground profile, one or both the supports of the span may be extended by inserting standard body / leg extension. In case of locations where the ground clearance is available, truncated towers may be spotted. The provision kept in the design of towers with respect to body/leg extensions, truncations shall be intimated to the contractor by the Owner during execution stage. Indicative sketch of tower configuration depicting possible body / leg extensions, truncation provisions is enclosed for 66kv/132kv/220KV/400kv at Annexure – A.

**(c) Loading**

There shall not be any upward force on suspension towers under normal working conditions and the suspension towers shall support at least the minimum weight span as provided in the designs. In case uplift is unavoidable, it shall be examined if the same can be overcome by adding standard body extensions to the towers failing which tension towers designed for the purpose shall be employed at such positions.

**(d) Road Crossing**

At all important road crossings, the tower shall be fitted with double suspension or tension insulator strings depending on the type of tower but the ground clearance at the roads under maximum temperature and in still air shall be such that even with conductor broken an adjacent span, ground clearance of the conductor from the road surfaces will not be less than 6.1 Mtr for 66/132KV line, 7.0 mtr for 220KV and 8.84 mtr for 400KV lines. At all national highways tension towers shall be utilized and crossing span shall not be more than 80% of Normal Span meters. Over national highway minimum ground clearance of the conductor from the road surfaces will be 8.0 Mtr for 66KV line, 8.6mtr for 132KV line, 9.8mtr for 220KV and 10.8 mtr for 400KV lines

**(e) Railway Crossings**

All the railway crossings coming enroute the transmission line shall be identified by the contractor. At the time of detailed survey, the railway crossings shall be finalized as per the regulation laid down by the Railway Authorities. The following are the important features of the prevailing regulations (revised in 1987).

i) The crossing shall be supported on large angle Y/D type tower on either side depending on the merits of each case.
ii) The crossing shall normally be at right angle to the railway track.
iii) The minimum distance of the crossing tower shall be at least equal to the height of the tower plus 6 meters away measured from the centre of the nearest railway track.
iv) No crossing shall be located over a booster transformer, traction switching station, traction sub-station or a track cabin location in an electrified area.
v) Minimum ground clearance above rail level of the lowest portion of any conductor under condition of maximum sag shall be maintained at 16.960 Mtr for 66KV line, 17.560 Mtr for 132KV line, 18.460 mtr for 220KV line and 20.260 mtr for 400KV line
vi) The crossing span will be limited to 80% of Normal Span or 250 meters whichever is less.

**(f) River Crossings**

In case of major river crossings, towers shall be of suspension type and the anchor towers on either side of the main river crossing shall be large angle Y/ D type tower. Clearance required by navigation authority shall be provided. For non navigable river, clearance shall be reckoned with respect to highest flood level (HFL). **Minimum ground clearance above the highest flood level river and lowest point of conductor shall be 3.650 Mtr. for 66KV line.** (6.1 mtr for 132KV, 7.0 mtr for 220KV, 8.84 mtr for 400KV lines for non-navigable rivers).

**(g) Power line crossings**

Where this line is to cross over another line of the same voltage or lower voltage, R / A type tower with suitable extensions shall be used. Provisions to prevent the possibility of its coming into contact with other

overhead lines shall be made in accordance with the Indian Electricity Rules, 1956 / Indian Electricity Act, 2003 as amended upto date. In order to reduce the height of the crossings towers it may be advantageous to remove the ground-wire of the line to be crossed (if this is possible and permitted by the owner of the line to be crossed).
Minimum clearance in meters between lines when crossing each other:

| Sr. No. | Nominal system voltage | 66 KV &132 KV | 220 KV | 400 KV |
|---|---|---|---|---|
| 1. | 66 KV &132 KV | 3.05 | 4.58 | 5.49 |
| 2. | 220 KV | 4.58 | 4.58 | 5.49 |
| 3. | 400 KV | 5.49 | 5.49 | 5.49 |

For power line crossings of voltage level of 132 KV and above, an angle towers shall be provided on either side of tangent R /A type tower which can be temporary dead end condition with proper guying.

**(h) Telecommunication Line Crossings**

The angle of crossing shall be as near to 90 degree possible. However, deviation to the extent of 30 degree may be permitted under exceptionally difficult situations. For 220KV – 3.05 m

When the angle of crossing has to be below 60 degree, the matter will be referred to the authority incharge of the telecommunication system. On a request from the contractor, the permission of the telecommunication authority may be obtained by the owner.

Also, in the crossing span, power line support will be as near the telecommunication line as possible, to obtain increased vertical clearance between the wires.

**(i) Details en route**

All topographical details, permanent features, such as trees, building etc. 26 mtr ( total 52 mtr) for 400KV S/C line, 24 mtr ( total 48 mtr ) for D/C 400KV line on either side of the alignment, 17.5Mtr (Total- 35Mtr) for 220KV line on either side of the alignment, 13.5 mtr ( total 27 mtr ) for 132KV line on either side of the alignment and 9 Mtr (Total 18Mtr) for 66KV Line on either side of the alignment shall be detailed on the profile plan

4.5 **Clearance from Ground, Building, Trees etc**.

Clearance from ground, buildings, trees and telephone lines shall be provided in conformity with the Indian Electricity Rules, 1956 / Indian Electricity Act, 2003 as amended upto date.

4.5.1 The contractor shall count, mark and put proper numbers with suitable quality of paint at his own cost on the trees that are to be cut by the Owner at the time of actual execution of the work as detailed below. Contractor may please note that owner shall not pay any compensation for any loss or damage to the properties or for tree cutting due to contractor's work.

4.5.2 To evaluate and tabulate the trees and bushes coming within 26 mtr for 400KV S/c line, 24 mtr for 400KV DC line, 17.5 Mtr. for 220KV line , 13.5 mtr for 132KV line and 9 Mtr for 66KV line on either side of the central line alignment the trees will be numbered and marked with quality paint serially from angle point 1 (1) onwards and the corresponding number will be painted on the stem of trees at a height of 1 meter from ground level. The trees list should contain the following :

a) Girth (circumstances) measured at a height of 1 meter from ground level.
b) Approximate height of the tree with an accuracy of +2 meters.
c) Name of the type of the species / trees.

4.5.3 The bushy and under growth encountered in the within 52 mtr for 400KV S/c line, 48 mtr for 400KV DC line, 35 Mtr. for 220KV line ,27 mtr for 132KV line and 18 Mtr for 66KV line Belt for should also be evaluated with its type, height, girth and area in square meters, clearly indicating the growth in the tree / bush statement

4.5.4 The contractor shall also intimate the owner, his assessment about the likely amount of tree & crop compensation etc required to be paid by the owner during execution stage. This assessment shall be done considering prevailing practices / guidelines, local regulations and other enquiries from local authorities.

**4.6 Preliminary Schedule**

The profile sheets showing the locations of the towers together with preliminary schedules of quantities indicating tower types, wind & weight spans, angle of deviation, crossing & other details etc shall be submitted by the contractor for review & approval by Owner's site in charge.

**4.7 Detailed survey of tower locations**

The detailed survey shall be conducted to locate the tower locations on ground conforming to the approved profile and tower schedule.

The co-ordinates of all the tower locations shall also be recorded using GPS of positional accuracy less than 3m for easy relocating. The positions of all tower locations shall be marked in the final digitized route alignment drawing with relative distances from any permanent bench mark in the area.

The contractor shall also collect required data at each tower location in respect of soil strata, ground water level, history of water table in adjacent areas / surface water and classify the suitable type of foundation at each tower location based on the data collected at each location and detailed soil investigations carried out at selected locations etc. General description of various type / classification of foundations is enclosed at Annexure – A.

**4.8 Contouring at Hilly / undulated locations**

The levels up or down of each pit centre with respect to centre of tower location shall be recorded at intervals of 2m using total stations / GPS / digital theodolite and digitized contour plans shall be made. Based on the digitized elevation plans, the quantities of benching & protection work vis-à-vis possible unequal leg extensions shall be optimized using suitable computer aided techniques / software. Required tower and foundation details, cost data for comparative evaluation of benching & protection work vis-à-vis unequal leg extension shall be provided by the owner to the contractor during execution stage.

4.9 The changes desired by the owner in the preliminary tower schedule or as may be required based on detailed survey of tower locations & contouring by the contractor, shall be carried out by the contractor and the final tower schedule shall be submitted for approval of owner. The tower schedule shall show position of all type of towers, span length, type of foundation for each tower, benching & revetment requirement, unequal leg extensions, deviation at all angles, crossings & other details etc.

**4.10 Survey Methodology & Precision**

All elevations shall be referenced to benchmarks established by the survey of India. Leveling operations shall begin and end at benchmarks approved by the Owner.

During the leveling of the profile, check surveys will be effected at intervals not exceeding 50 kms. with benchmarks of known elevations. The difference in elevations as surveyed by the contractor and as declared by survey of India for these benchmarks shall not exceed the precision required for 3rd order surveys $e \leq 24k$ where k is the distance between benchmarks in km and e is the difference between elevations in mm.

In the absence of suitable benchmarks, the leveling shall be done by two independent leveling parties working in opposite directions along the same line. The difference in elevations between the two surveys shall not exceed the precision required for 3rd order surveys as stated above.

All important objects and features along the transmission line centerline (railways, highways, roads, canals, rivers, transmission lines, distribution lines, telephone lines etc) shall be surveyed and located with a positional accuracy of 1:2000 between points of known horizontal position.

**4.11 Survey Report List of output please refer Annexure – C.**

## 5.0 GEOTECHNICAL INVESTIGATIONS

### 5.1 General

5.1.1 Owner requires that a detailed Geotechnical investigation be carried out at various tower locations to provide the designer with sufficiently accurate information, both general and specific, about the substrata profile and relevant soil and rock parameters at site on the basis of which the foundation of transmission line towers can be classified and designed rationally.

5.1.2 These specifications provide general guidelines for geotechnical investigation of normal soils. Cases of marshy locations and these affected by salt water or saltpeter shall be treated as special locations and the corresponding description in these specifications shall apply. Any other information required for such locations shall be obtained by contractor and furnished to owner.

### 5.2 Scope

5.2.1 The scope of work includes detail soil investigations and furnishing bore log data at various tower locations. The provisional quantities have been indicated in Bill of Quantities. However, during actual execution of work, the quantities shall be decided by Engineer – in – Charge, depending upon the soil strata and terrain. Based on the bore log data / soil parameter / soil investigation results, the contractor shall recommend the type of foundations suitable for each locations and the same shall be got approved by the owner.

5.2.2 These specifications cover the technical requirement for a detailed Geotechnical investigation and submission of a detailed Geotechnical Report. The work shall include mobilization of all necessary tools and equipment, provision of necessary engineering supervision and technical personnel, skilled and unskilled labour, etc. as required to carry out the entire field investigation as well as laboratory tests, analysis and interpretations of data collected and preparation of the Geotechnical Report. Contractor shall also collect data regarding variation of subsoil water table along the proposed line route. The aforementioned work shall be supervised by a graduate in Civil Engineering having at least 5 years of site experience in geotechnical investigation work.

5.2.3 Contractor shall make his own arrangements to establish the co-ordinate system required to position boreholes, tests pits and other field test locations as per the drawings / sketches supplied by Owner. Contractor shall determine the reduced levels (RL's) at these locations with respect to benchmarks used in the detailed survey. Two reference lines shall be established based on survey data / details. Contractor shall provide at site all required survey instruments to the satisfactions of the owner so that the work can be carried out accurately according to specifications and drawings. Contractor shall arrange to collect the data regarding change of course of rivers, major natural streams and nalas etc., encountered along the transmission line route from the best available sources and shall furnish complete hydrological details including maximum velocity discharge, highest flood level (H.F.L), scour depth etc. of the concerned rivers, major streams and nalas (canals).

5.2.4 The field and laboratory data shall be recorded on the proforma recommended in relevant Indian Standards. Contractor shall submit to owner two copies of filed bore logs (one copy each to owner site and corporate office) and all the field records (countersigned by the owner) soon after the completion of each boreholes / test.

5.2.5 Whenever contractor is unable to extract undisturbed samples, he shall immediately inform the owner. Payment for boring charges shall be subject to owner being satisfied that adequate effort has been made to extract undisturbed samples. Special care shall be taken for locations where marshy soils are encountered and contractor in such cases shall ensure that specified number of vane shear tests are performed and the results correlated with other soil parameters.

5.2.6 One copy of all field records and laboratory test results shall be sent to owner on a weekly basis. Owner may observe, all the laboratory testing procedures.

5.2.7 The contractor shall interact with the owner to get acquainted with the different types of structures envisaged and in assessing the load intensities on the foundation for the various types of towers in order to enable him to make specific recommendation for the depth, founding strata, type of foundation and the allowable bearing pressure.

5.2.8 After reviewing contractor's geotechnical investigation draft report, owner will call for discussions, to be held normally within one week at owners site office, in order to comment on the report in the presence of contractor's Geotechnical Engineer. All expenditure associated with the redrafting and finalizing the report, traveling etc. shall be deemed included in the rates quoted for the geotechnical investigations.

5.2.9 Contractor shall carry out all work expressed and implied in clause no. 4.1.2 of these specifications in accordance with requirements of the specification.

5.2.10 The contractor shall prepare and submit soil profile along the transmission line route (in digitized form, with digitized route alignment drawing as base) indicating salient soil characteristics / features, water table etc. based on detailed soil investigations and other details / information collected during detailed survey.

**5.3 General Requirements**

5.3.1 Wherever possible, contractor shall research and review existing local knowledge, records of test pits, boreholes etc., types of foundations adopted and the behavior of existing structures, particularly those similar to the present project.

5.3.2 Contractor shall make use of information gathered from nearby quarries, unlined wells, excavation etc. study of the general topography of the surrounding areas will often help in the delineation of different soil types.

5.3.3 Contractor shall gather data regarding the removal of overburden in the project area either by performing test excavations, or by observing soil erosion or landslides in order to estimate reconsolidation of the soil strata. Similarly, data regarding recent landfills shall be studied to determine the characteristics of such landfills as well as the original soil strata.

5.3.4 The water level in neighboring streams and water courses shall be noted. Contractor shall make enquiries and shall verify whether there are abandoned underground works e.g. worked out ballast pits, quarries, old brick fields, mines, mineral workings etc.

5.3.5 It is essential that equipment and instruments be properly calibrated at the commencement of the work. If the owner so desires. Contractor shall arrange for having the instruments tested at an approved laboratory at their cost and shall submit the test reports to the owner. If the owner desires to witness such tests, contractor shall arrange for the same.

### 5.4 Codes and standards for Geotechnical Investigations

5.4.1 All standards, specifications and codes of practice referred to herein shall be the latest editions including all applicable official amendments and revisions. In case of conflict between the present specifications and those referred to herein, the former shall prevail. Internationally accepted standards which ensure equal or higher performance than those specified shall also be accepted.

5.4.2 All work shall be carried out in accordance with the following Indian Standards and Codes:

| Indian Standards (IS) | Title | International and Internationally Recognized Standard / Code |
|---|---|---|
| IS:1080-1990 | Codes of Practice for Design and construction of simple spread foundations. | |
| IS:1498-1992 | Classification and identification of soils for general engineering purposes. | ASTM D 2487<br>ASTM D 2488 |
| IS:1892-1992 | Code of Practice for Subsurface Investigation for Foundation | |
| IS:1904-1986 | Codes of Practice for Design and Construction of foundation in soils : general requirements | |
| IS:2131-1992 | Method of Standard Penetration Test for soils | ASTM D 1586 |
| IS:2132-1992 | Code of Practice for Thin Walled Tube Sampling of Soils | ASTM D 1587 |
| IS:2720-1992 | Method of Test for Soils (Relevant Parts) | ASTM D 420 |
| IS:2809-1991<br>D 653 | Glossary of Terms and symbols Relating to Soil Engineering | ASTM |
| IS:2911-1980 | Code of Practice for Design and construction of Pile foundations (Relevant Parts) | |
| IS:3025 | Methods of Sampling and Testing (Physical and chemical) for water used in Industry. | |
| IS:3043-1991 | Code of Practice for Earthing | |
| IS:4078-1990 | Code of Practice for Indexing and Storage of Drill Cores. | |
| IS:4091-1987 | Code of Practice for Design and construction of foundations for transmission line tower and Poles. | |
| IS:4434-1992 | Code of Practice for In-situ Vane Shear Test for Soils | ASTM D 2573<br>ASTM D 4648 |
| IS:4453-1992 | Code of Practice for Exploration by Pits, Trenches, Drifts and Shafts. Code of Practice for Presentation of drilling information and core description in foundation investigation | |
| IS:4968(PART-II) 1992 | Method for Subsurface sounding for soils, dynamic method using cone and Bentonite slurry. | |
| IS:5313-1989 | Guide for Core Drilling observations | |
| IS:6403-1990 | Code of Practice for Determination of Allowable Bearing Pressure on Shallow foundation | ASTM D 194 |

| | | |
|---|---|---|
| IS:6926-1990 | Code of Practice for Diamond core Drilling for site Investigation for River Valley Projects. | |
| IS:6935-1989 | Method of Determination of Water level in a Bore Hole. | |
| IS:7422-1990 | Symbols and Abbreviations for use in Geological Maps sections and subsurface Exploratory logs (Relevant Parts) | |
| IS:8009(PART-I) 1993 | Code of Practice for Calculation of Settlements of foundations (Shallow Foundations subjected to symmetrical vertical loads). | |
| IS:8764 – 1991 | Method of Determination of Point Load Strength Index of Rocks. | |
| IS:9143-1991 | Method of determination of Unconfined Compressive Strength of Rock materials | ASTM D 2938 |
| IS:9179-1991 | Method of Preparation of Rock Specimen for Laboratory Testing. | ASTM D 4543 |
| IS:9259-1992 | Specification for Liquid Limit Apparatus | ASTM D 4318 |
| IS:9640-1992 | Specification for split spoon sampler | ASTM D 1586 |
| IS:10050-1991 | Method of Determination of Slake Durability Index of Rocks. | ASTM D 4644 |
| IS:11315 (PART-II) – 1991 | Description of Discontinuities in rock Mass-core recovery and Rock Quality. | |

**5.5 Field Investigation for Soils**

**Quantities considered are indicative and owner at tendency to increase / decrease the quantity to an extent of 100 %.**

5.5.1 Boring – Boreholes are required for detailed soil investigations.

5.5.1.1 General Requirements

a) Boreholes shall be made to obtain information about the subsoil profile, its nature and strength and to collect soil samples for strata identification and for conduction laboratory tests. The minimum diameter of the borehole shall be 150mm and boring shall be carried out in accordance with the provisions of IS:1892 and the present specification.
b) All boreholes shall be 7m deep for normal soil conditions. The depth of boreholes at river crossings and special locations shall be 40m. If a strata is encountered where the Standard Penetration Test Records N values greater than 100, with characteristics of rock, the borehole shall be advanced by coring at least 3m further in normal locations and at least 7m further for the case of river crossing locations with prior approval of the owner. When the boreholes are to be termination in soil strata an additional Standard Penetration. Test shall be carried out at the termination depth. No extra payment shall be made for carrying out Standard Penetration Tests.
c) Casing pipe shall be used when collapse of a borehole wall is probable. The bottom of the casing pipe shall at all times be above the test of sampling level but not more than 15cm above the borehole bottom. In case of cohesion less soils, the advancement of the casing pipe shall be such that it does not disturb the soil to be tested or sampled. The casing shall preferably be advanced by slowly rotating the casing pipe and not by driving.
d) In-situ tests shall be conducted and undisturbed samples shall be obtained in the boreholes at intervals specified hereafter. Representative disturbed samples shall be preserved for conducting various identification tests in the laboratory. Water table in the borehole shall be carefully recorded and reported following IS:6935. no water or drilling mud shall be used while boring above ground water table. For cohesion less soil below water table, the water level in the borehole shall at all times be maintained slightly above the water table.
e) The borehole shall be cleaned using suitable tools to the depth of testing or sampling, ensuring least or minimum disturbance of the soil at the bottom of the borehole. The process of jetting through an open tube sampler shall not be permitted. In cohesive soils, the borehole may be cleaned b using a bailer with a flap valve. Gentle circulation of drilling fluid shall be done when rotary mud circulation boring is adopted.
f) On completion of the drilling, contractor shall backfill ali boreholes as directed by the owner.

**5.5.1.2 Auger Boring**

Auger bring may be employed in soft to stiff cohesive soils above the water table. Augers shall be of helical or post hole type and the cuttings brought up by the auger shall be carefully examined in the field and the description of all strata shall be duly recorded in the field bore log as per IS:1498. No water shall be introduced from the top while conducting auger boring.

**5.5.1.3 Shell and Auger Boring**

5.5.1.3.1 Shell and auger boring may be used in all types of soil which are free from boulders. For cohesion less soil below ground water table, the water level in the borehole shall always be maintained at or above ground water level. The use of chisel bits shall be permitted in hard strata having SPT-N value greater than 100. Chiest bits may also be used to extend the bore hole through local obstructions such as old construction, boulders rocky formations etc. the requirements in Clause 5.5.1.2 shall apply for this type of boring also.

Rotary method may be used in all types of soil below water table. In this method the boring is carried out by rotating the bit fixed at the lower end of the drill rod. Proper care shall be taken to maintain firm contact between the bit and the bottom of the borehole. Bentonite or drilling mud shall be used as drillings fluid to stabilize and protect the inside surface of the borehole. Use of percussion tools shall be permitted in hard clays and in dense sandy deposits.

**5.5.2 Standard Penetration Test (SPT)**

5.5.2.1 This test shall be conducted in all types of soil deposits encountered within a borehole, to find the variation in the soil satisfaction by correlating with the number of blows required for unit penetration of a standard penetrometer.

5.5.2.2 Structure sensitive engineering properties of cohesive soils and silt such as strength and compressibility shall not be inferred based on SPT values.

The test shall be conducted at depths as follows:

| Location | Depths (m) |
|---|---|
| Normal soils | 2.0, 3.0, 5.0, 7.0 |
| River crossings and special locations | 2.0, 3.0, 5.0, 7.0, 10.0 and thereafter at the rate of 3m intervals to 40m |

5.5.2.3 The spacing between the levels of standard penetration testing and next undisturbed sampling shall not be less than 1.0 m equipments, accessories and procedures for conducting the test and for the collection of the disturbed soil samples shall conform to IS:2131.

5.5.2.4 The test shall be carried out by driving a standard split spoon sampler in the bore hole by means of a 650N hammer having a free fall of 0.75m. The sample shall be driven using the hammer for 450mm recording the number of blows for every 150mm. The number of blow for the last 300mm drive shall be reported as N value.

5.5.2.5 This test shall be discontinued when the blow count is equal to 100 or the penetration is less than 25 mm for 50 blows. At the level where the test is discontinued, the number of blows and the corresponding penetration shall be reported. Sufficient quantity of disturbed soil samples shall be collected from the split spoon sampler for identification and laboratory testing. The sample shall be visually classified and recorded at the site as well as properly preserved without loss of moisture content and labeled.

**5.5.3 Sampling**

5.5.3.1 **General**

a) Sufficient number of soil samples shall be collected. Disturbed soil samples shall be collected for soil identification and for conducting tests such as sieve analysis, index properties, specific gravity, chemical analysis etc. Undisturbed samples shall be collected to estimate the physical bearing capacity and settlement properties of the soil.
b) All accessories and sampling methods shall confirm to IS:2132: all disturbed and undisturbed samples collected in the field shall be classified at site as per IS:1498:
c) All samples shall be identified with date, borehole or test pit number, depth of sampling etc. The top surface of the sample in-situ shall also be marked. Care shall be taken to keep the core and box samples vertical, with the mark directing upwards. The tube samples shall be properly trimmed at one end and suitably capped and sealed with molten paraffin wax. The contractor shall be responsible for packing,

storing in a cool place and transporting all the samples from site to the laboratory within seven days after sampling with probe, protection against loss and damage.

5.5.3.2 **Disturbed Samples**

a) Disturbed soil samples shall be collected in boreholes at regular intervals. Jar samples weighing approximately 1 kg shall be collected at 0.5m below ground level and at every identifiable change of strata to supplement the boring records. Samples shall be stored immediately in air tight jars which shall be filled to capacity as much as possible.
b) In designated borrow areas, bulk samples from a depth of about 0.5m below ground level shall be collected to establish the required properties for use as a fill material. Disturbed samples weighing about 25kg shall be collect at shallow depths and immediately stored in polythene bags as per IS:1892. The bags shall be sealed properly to preserve the natural moisture content of the sample and placed in wooden boxes for transportation.

**5.5.3.3 Undisturbed Samples**

In each borehole undisturbed samples shall be collected at every change of strata and at depths as follows:

| Location | Depths (m) |
|---|---|
| Normal soils | 1.0, 4.0, 6.0 |
| Special locations | 1.0, 4.0, 6.0, 11.0 and thereafter at the rate of 3m intervals to 33mm |

5.5.3.3.1 The spacing between the top levels of undisturbed sampling and standard penetration testing shall not be less than 1.0m. Undisturbed samples shall be of 100mm diameter and 450mm in length. Samples shall be collected in a manner to preserve the structure and moisture content of the soil. Accessories and sampling procedures shall conform to IS:1892 and IS:2132.

a) Undisturbed sampling in cohesive soil – Undisturbed samples in soft to stiff cohesive soils shall be obtained using a thin walled sampler. In order to reduce the wall friction, suitable precautions, such as oiling the surfaces shall be taken. The sampling tube shall have a smooth finish on both surfaces and a minimum effective length of 450mm. The area ratio of sampling tubes shall be less than 12.5%. However, in case of very stiff soils area ratio upto 20% shall be permitted.
b) Undisturbed sampling in very loose, saturated, sandy and silty soils and very soft clays:

   Samples shall be obtained using a piston sampler consisting of a cylinder and piston system. In soft clays and silty clays, with water standing in the casing pipe, piston sampler shall be used to collect undisturbed samples in the presence of expert supervision.

   Accurate measurements of the sampling depth, dimensions of sampler, stroke and length of sample recovery shall be recorded. After the sampler is pushed to the required depth, the cylinder and piston system shall be drawn up together, preventing disturbance and changes in moisture content of the sample.
c) Undisturbed sampling in cohesion less soils

   Undisturbed samples in cohesion less soils shall be obtained in accordance with IS:8763. Sampler operated by compressed air shall be used to sample cohesion less soils below ground water table.

**5.5.4 Ground Water**

5.5.4.1 One of the following methods shall be adopted for determining the elevation of ground water table in boreholes as per IS:6935 and the instructions of the Owner:

a) In permeable soils, the water level in the borehole shall be allowed to stabilize after depressing it adequately by bailing before recording its level. Stability of sides and bottom of the boreholes shall be ensured at all times.
b) For both permeable and impermeable soils, the following method shall be suitable. The borehole shall be filled with water and then bailed out to various depths. Observations on the raise or fall of water nor rise is observed shall be considered the water table elevation and confirmed by three successive readings of water level taken at two hours interval.

5.5.4.2 If any variation of the ground water level is observed in any specific boreholes, the water level in these boreholes shall be recorded during the course of the field investigation. Levels in nearby wells, streams, etc. if any, shall also be noted in parallel.

**5.5.4.3 Subsoil water samples (only at special locations)**

a) Sub soil water samples shall be collected for performing chemical analysis. Representative ground water samples shall be collected when first encountered in boreholes and before the addition of water to aid boring or drilling.
b) Chemical analysis of water samples shall include determination of pH value, turbidity, sulphate, carbonate, nitrate and chloride contents, presence of organic matter and suspended solids. Chemical preservatives may be added to the sample for cases as specified in the test methods or in applicable Indian Standards. This shall only be done if analysis cannot be conducted within an hour of collection and shall have the prior written permission and approval of the Owner.

**5.5.5 Dynamic Cone Penetration Test (only at Special locations**)

Dynamic cone penetration test shall be conducted to predict stratification, density, bearing capacity of granular soils etc. The test shall be conducted to the specified depth or refusal, whichever comes first. Refusal shall be recorded when the blow count exceeds 150 for 300 mm penetration. Equipment, accessories test procedures, field observations and reporting of results shall confirm to IS:4968, Part-II. The driving system shall comprise of a 650 kg weight having a free fall of 0.75m. The cone shall be of 65mm diameter provide with vents for continuous flow of bentonite slurry through the cone and rods in order to avoid friction between the rods and soil. On completion of the test the results shall be presented as a continuous record of the number of blows required for every 300 mm penetration of the cone into the soil in a suitable chart supplemented by a graphical plot of blow count for 300 mm penetration vs. depth. On completion of the test, the results shall be presented on the proforma approved by the Owner.

**5.5.6 Vane Shear Test - required for boreholes where UDS is not possible (Only at Special Locations)**

Field vane shear test shall be performed inside the borehole to determine the shear strength and bearing capacity of cohesive soils. Equipment, accessories, test procedures, field observations shall correspond to IS:4434. Tests may also be conducted by direct penetration from ground surface. If the cuttings at the test depth in the borehole show any presence of gravel, sand shells, decomposed wood, etc. which are likely to influence the test results substantially, the test at that particular depth may be omitted with the permission of the owner. However, the test shall be conducted at depth where these obstructions cease to occur. On completion of the test, the results shall be reported in an approved proforma as specified in IS:4434, Appendix-A.

**5.6 Field Investigation for Rock**

**5.6.1 Rock Drilling**

5.6.1.1 If, during the investigations, large hard fragments or natural rock beds are encountered, work shall proceed with core drilling methods. The equipment and procedures for this operation shall confirm to IS:1892. The starting depth of drilling in rock shall be certified by the owner. At the end of the investigation, the hole drilled in rock shall be backfilled with grout consisting of 1-part cement and 3 parts sand by weight.

5.6.1.2 Drilling shall be carried out with NX size tungsten carbide (TC) or diamond tipped drill bits, depending on the type of rock and according to IS:6926. Suitable type of drill bit (TC/Diamond) and core catchers shall be used to ensure continuous and good core recovery. Core barrels and core catchers shall be used for breaking off the core and retaining it when the rods are withdrawn. Double tube core barrels shall be used to ensure better core recovery and to retrieve cores from layers of bedrock. Water shall be circulated continuously in the hollow rods and the sludge conveying the rock cuttings to the surface shall be collected. A very high core recovery ratio shall be aimed at in order to obtain a satisfactory undisturbed sample.

Attempt shall be made to recover cores of 1.5m length. Normally TC bit shall be used. Change over to a diamond bit shall require the specific written approval of the owner and his decision as to whether a TC or a diamond bit is to be used shall be final and binding on contractor.

5.6.1.3 No drilling run shall exceed 1.5m in depth. If the core recovery is less than 80% in any run, the length of the subsequent run shall be reduced to 0.75m. During drilling operations observations on return water, rate of penetration etc. shall be made recorded and recorded as per IS:5313.

a) The colour of return water at regular intervals, the depth at which any change of colour of return water is observed, the depth of occurrence and amount of flow of hot water, if encountered, shall be recorded.
b) The depth through which a uniform rate of penetration was maintained, the depth at which marked change in rate of penetration or sudden fall on drill rod occurs, the depth at which any blockage of drill bit causing core loss, if any, shall be recorded.
c) Any heavy vibration or torque noticed during the drilling should be recorded together with the depth of occurrence.

d) Special conditions like the depth at which grouting was done during drilling, presence of artesian conditions, loss of drilling fluid observations of gas discharge with return water etc. shall also be observed and recorded.
e) All the observations and other details shall be recorded as per daily drill and reported in a proforma as given in IS:5313, Appendix A.

**5.6.2 Core Sampling**

5.6.2.1 Core samples shall be extracted by the application of a continuous pressure at one end of the core with the barrel held horizontally without vibration. Friable cores shall be extracted from the barrel directly into a suitably sized half round plastic channel section. Care shall be taken to extrude the samples in the direction of coring to avoid stress reversal.

5.6.2.2 Immediately after withdrawal from the core barrel, the cores shall be placed in a tray and transferred to boxes specially prepared for this purpose. The boxes shall be made from seasoned timber or any other durably material and shall be indexed on top pf the lid according to IS:4078. The cores shall be numbered serially and arranged in the boxes in a sequential order. The description of the core samples shall be recorded as instructed in IS:4464. Where no core is recovered, it shall be recorded as specified in the standard. Continuous record of core recovery and rock quality designation (RQD) are to be mentioned in the borelog in accordance with IS:1 1315 (Part-II).

**5.7 Laboratory Testing**

5.7.1 **Essential Requirements**

a) Depending on the types of substrata encountered, appropriate laboratory tests shall be conducted on soil and rock samples collected in the field. Laboratory tests shall be scheduled and performed by qualified and experienced personnel who are thoroughly conversant with the work. Tests indicated in the schedule of items shall be performed on soil, water and rock samples as per relevant IS codes. One copy of all laboratory test data records shall be submitted to Owner progressively ever week. Laboratory tests shall be carried out concurrently with the field investigations as initial laboratory test results could be useful in planning the later stages of field work. A schedule of laboratory tests shall be established by contractor to the satisfaction of the owner within one week of completion of the first bore hole.
b) Laboratory tests shall be conducted using approved apparatus complying with the requirements and specification of Indian Standards or other approved standards for this type of work. It shall be checked that the apparatus are in good working condition before starting the laboratory tests. Calibration of all the instruments and their accessories shall be done carefully and precisely at an approved laboratory.
c) All samples, whether undisturbed or disturbed shall be extracted, prepared and examined by competent personnel properly trained and experienced in soil sampling, examination, testing and in using the apparatus in conformance with the specified standards.
d) Undisturbed soil samples retained in liners or seamless tube samplers shall be removed, without causing any disturbance to the samples, using suitably designed extruders just prior to actual testing. If the extruder is horizontal, proper support shall be provided to prevent the sample from breaking. For screw tube extruders, the pushing head shall be free from the screw shaft so that no torque is applied to the soil sample in contact with the pushing head. For soft clay samples, the sample tube shall be cut by means of a high speed hacksaw to proper test length and placed over the mould before pushing the sample into it with a suitable piston.
e) While extracting a sample from a liner or tube, care shall be taken to assure that its direction of movement is the same as that during sampling to avoid stress reversal.

**5.7.2 Tests**

5.7.2.1 Tests as indicated in these specifications and as may be requested by the owner, shall be conducted. These tests shall include but may not be limited to the following:

a) Tests of undisturbed and disturbed samples
   - Visual and engineering classification
   - Sieve analysis and hydrometric analysis
   - Liquid, plastic and shrinkage limits
   - Specific gravity
   - Chemical analysis
   - Swell pressure and free swell index determination
   - Proctor compaction test
b) Tests of undisturbed samples
   - Bulk density and moisture content
   - Relative density (for sand)
   - Unconfined compression test
   - Box shear test (for sand)
   - Triaxial shear tests (depending on the type of soil and field conditions on undisturbed or remoulded samples)
   - Unconsolidated undrained
   - Consolidated drained test

- Consolidation

c) Tests on rock samples
   - Visual classification
   - Moisture content, porosity and density
   - Specific gravity
   - Hardness
   - Stake durability
   - Unconfined compression test (both saturated and at in-situ water content)
   - Point load strength index
   - Deformability test (both saturated and at in-situ water content)

d) Chemical analysis of sub soil water.

**5.7.3 Salient Test Requirement**

a) Triaxial shear tests shall be conducted on undisturbed soil samples, saturated by the application on back pressure. Only if the water table is at sufficient depth so that chances of its rising to the base of the footing are small or nil, the triaxial tests shall be performed on specimens at natural moisture content. Each test shall be carried out on as set of three test specimens from one sample at cell pressures equal to 100, 200 and 300 KPa respectively or as required depending on the soil conditions.

b) Direct shear test shall be conducted on undisturbed soil samples. The three normal vertical stresses for each test shall be 100, 200 and 300 KPa or as required for the soil conditions.

c) Consolidation test shall have loading stages of 10, 25, 50, 75, 100, 200, 400 and 800 KPa. Rebound curve shaft be recorded for all samples by unloading the specimen at its in-situ stress. Additional rebound curves shall also be recorded wherever desired by the owner.

d) Chemical analysis of subsoil shaft include determination of PH value, carbonate, sulphate (both SO3 and SO4), chloride and nitrate contents, organic matter, salinity and any other chemicals which, may be harmful to the foundation material. The chemical contents shall be indicated as parts per million (PPM) based on weight.

**5.8 Geotechnical Investigation Report**

**5.8.1 General**

a) Contractor shall submit a formal report containing geological information of the region, procedures adopted for geotechnical investigation, field observations, summarized test data, conclusions and recommendations. The report shall also include detailed borelogs, subsoil sections, field test results, laboratory observations and test result both in tabular as well as graphical form, practical and theoretical considerations for the interpretation of test results, supporting calculations for the conclusions drawn etc. Initially, contractor shall submit three copies of the report in draft form for Owner's review.

b) Contractor's Geotechnical engineer shall visit owner's corporate office for a detailed review based on Owner's comments in order to discuss the nature of modifications, if any, to be done in the draft report. Contractor shall incorporate in the report the agreed modifications and resubmit the revised draft report for approval. Ten copies of the detailed final approved report shall be submitted to owner together with one set of reproducible of the graphs, tables etc.

c) The detailed final report based on field observations, in-situ and laboratory tests shall encompass theoretical as well as practical considerations for foundations for different types of structures.

**5.8.2 Data to be furnished**

5.8.2.1 The report shall also include the following:

a) A plot plant / location plan showing the locations and reduced levels of all field test e.g. boreholes, trial pits, static cone penetrations tests, dynamic cone penetration tests etc., property drawn to scale and dimensioned with reference to the established grid lines.

b) A true cross section of all individual boreholes and test pits with reduced levels and co-ordinates showing the classification and thickness of individual stratum, position of ground water table, various in-situ tests conducted, samples collected at different depths and the rock stratum, if encountered.

c) Geological information of the area including geomorphology, geological structure, lithology stratigraphy and tectonics, core recovery and rock quality designation (RQD) etc.

d) Observations and data regarding change of course of rivers, velocity, scour depths, slit factor etc., and history of flood details for mid stream and river bank locations.

e) Past observations and historical data, if available, for the area or for other areas with similar soil profile, or with similar structures in the surrounding areas.

f) Plot of Standard Penetration Test (uncorrected and corrected N values) with depth for each test site.

g) Results of all laboratory test summarized according to Table 4.0 (i) for each sample as well as (ii) for each layer, along with all the relevant charts, tables, graphs, figures, supporting calculations, conclusions and photographs of representative rock cores.

h) For all triaxial shear tests, stress vs. strain diagrams as well as Mohr's circle envelopes shall be furnished. If back pressure is applied for saturation, the magnitude of the same shall be indicated. The value of modulus of elasticity (E) shall be furnished for all tests along with relevant calculations.

i) For all conclusions tests, the following curves shall be furnished.

a. e v/s. log p
b. e v/s. p
c. compression v/s. log t or v/s. $\sqrt{t}$

depending upon the shape of the plot, for proper determination of coefficient of consolidation.

The point showing the initial condition (e0, p0) of the soil shall be marked on the curves.

j) The procedure adopted for calculating the compression index from the field curve and settlement of soil strata shall be clearly specified. The time required for 50% and 90% primary consolidation along with secondary settlements, if significant, shall also be calculated.

**Table 4.0**

**SUMMARY OF RESULTS OF LABORATORY TESTS ON SOIL AND WATER SAMPLES**

| | |
|---|---|
| 1 | Bore hole test pit no |
| 2 | Depth (m) |
| 3 | Type of sample |
| 4 | Density (kg/m3) |
| | a) Bulk |
| | b) Dry |
| 5 | Water content (%) |
| 6 | Particle Size (%) |
| | a) Gravel |
| | b) Sand |
| | c) Silt |
| | d) Clay |
| 7 | Consistency properties |
| | a) LL |
| | b) PL |
| | c) PI |
| | d) LI |
| 8 | Soil |
| | a) Classification-IS |
| | b) Description |
| | c) Specific gravity |
| 9 | Strength Test |
| | a) Type |
| | b) C (Cohesion) |
| | c) Ø (angle of internal friction) |
| 10 | Consolidation Test |
| | a) ę |
| | b) Pc |
| | c) Cc |
| | d) DP |
| | e) Mv |
| | f) Cv |
| 11 | Shrinkage limit (%) |
| 12 | Swell Test |
| | a) S.Pr |
| | b) FS |
| 13 | Relative Density (%) |
| 14 | Remarks |

**Notations :**

| | |
|---|---|
| I | For type of Sample: |
| | DB-Disturbed bulk soil sample |
| | DP-Disturbed SPT soil sample |
| | DS-Disturbed samples from cutting edge of undisturbed soil sample |
| | RM-Remoulded soil sample |
| | UB-undisturbed soil sample |
| | US-Undisturbed soil sample by sampler |
| | W-Water sample |
| II | For Strength Test: |
| | SCPT-Static Cone Penetration Test |
| | UCC-Unconfined Compression Test |
| | VST-Vane Shear Test |
| | TUU-Unconsolidated Undrained Triaxial Test |
| | Note: Replace T by D for Direct Shear Test |
| | Tod-Consolidation Drained Triaxial Test |
| III | For Others: |
| | LL-Liquid Limit (%) |
| | PL-Plastic Limit |
| | PI-Plasticity Index |
| | LI-Liquidity Index |

C-Cohesion (kPa)
Ø-Angle of Internal Friction (degrees)
S-Pr.-Swelling Pressure (kPa)
ę- Initial Void Ratio
Pc-Reconsolidation Pressure (kPa)
Cc-Compression Index
DP- Change in Pressure (kPa)
m-Coefficient of Volume Compressibility (m2/KN)
C- Coefficient of Compressibility (m2/hr)

IV For Chemical Test

As per Specifications – Clause 4.8.4

4.8.3 Recommendations

4.8.3.1 Recommendations shall be provided for each tower location duly considering soil type and tower spotting data. The recommendations shall provide all design parameters and considerations required for proper selection, dimensioning and future performance of tower foundation and the following

a) The subsurface material must provide safe bearing capacity and uplift resistance by incorporating appropriate safety factors thereby avoiding rupture under ultimate loads.

b) Movement of the foundation, including short and long term components under transient and permanent loading, shall be strictly controlled with regard to settlement, uplift, lateral translation and rotation.

c) Co-efficient of permeability of various sub soil and rock strata based on in-situ permeability tests. Core resistance, frictional resistance, total resistance, relation between core resistance, Standard Penetration Test N value, and settlement analysis for different sizes of foundation as specified in para 4.1.8.3 (I) based on static cone penetration test.

d) For shallow foundation the following shall be indicated with comprehensive supporting calculations :

i) Net Safe allowable bearing pressure for isolated square footing of sizes 2.0, 3.0 and 4.0 m at three different foundation depths of 1,2 and 3m below ground level considering both shear failure and adopted in the calculation.

ii) Net Safe allowable bearing pressure for raft foundations of which greater than 5m at 2.0, 3.0 and 4.0m below ground level considering both shear failure and settlement criteria.

iii) Rate and magnitude of settlement expected of the structure.

iv) Net safe bearing capacity for foundation sizes mentioned in para (i) above, modulus of subgrade reaction, modules of elasticity from plate load test results along with time settlement curves and load settlement curve in both natural and log graph, variation of modulus of subgrade reaction with size, shape and depth of foundation.

e) The stable slopes for shallow and deep excavations, active and passive earth pressure at rest and angle of repose for sandy soild shall be furnished. The loading of the foundations shall not compromise the stability of the surrounding subsurface materials and the stability of the foundation shall be ensured against sliding or overturning.

f) Depending on the subsurface material, water table level and tower type, either reinforced concrete isolated pad and chimney, case-in-situ bored pile of special foundations shall be installed at a given location.

g) Net Safe allowable bearing pressure and uplift resistance shall be provided for the various sizes of isolated square footing founded at various depths below ground level considering both shear failure and movement criteria, rate and magnitude of movement expected of the structure (settlement, uplift, rotation) shall also be given.

h) In cases where normal open cast/pile foundations appear to be impractical, special pile foundations shall be given due consideration along with the following :

i) Type of pile foundation and reasons for recommending the same duly considering the soil characteristics.

ii) Suitable founding strata for the pile.

iii) Estimated length of pile for 500, 750 and 1000 KN and 4500 KN capacities; end bearing and frictional resistance shall be indicated separately.

iv) Magnitude of negative skin friction or uplift forces due to soil swelling.

i) Where the subsoil water and soil properties are found to be chemically aggressive. Contractor shall take suitable precautions during construction including any protective coating to be applied on the foundations, susceptibility of soil to termite action and remedial measures for the same shall be dealt with;

j) Suitable of locally available soils at site for filling, backfilling and adequate compaction shall be investigated.

k) If expansive soil such as black cotton soil is encountered recommendation of removal or retainment of the same shall be given in the later case, detailed specifications of special requirements shall also be given.

l) Susceptibility of subsoil strata to liquefaction in the event of earthquake and remedial measures, if required, shall be considered.

m) Any other information of special significance such as dewatering schemes etc. which may have a bearing on the design and construction shall be provided.

n) Recommendations for additional soil investigations, beyond the scope of the present work, shall be given if contractors considers such investigations necessary.

4.8.4 **Hydrogeological Conditions**

4.8.4.1 The maximum elevation of ground water table, amplitudes of its fluctuations and data on water aggressively with regard to foundation structure materials shall be reported. While preparing ground water characteristics the following parameters should be specified for each aquifer :

a) bicarbonate alkalinity mg-eq/(deg),
b) pH value
c) content of aggressive carbon dioxide, mg/I;
d) content of magnesia salts, mg/I, recalculated in terms of lons mg+2;
e) content of ammonia salts, mg/I, recalculated in terms of lons NH4+
f) content of caustic alkalis, mg/I, recalculated in terms of lons Na+ and K+
g) content of chlorides, mg/I, recalculated in terms of lons CI-
h) content of sulphates, mg/I, recalculated in terms of lons SO4-2
i) aggregate content of chlorides, sulphates, nitrates, carbonates and other salts, mg/I.

4.9 **Rates and Measurements**

4.9.1 **Rates**

The contractor's quoted rates shall be inclusive of making observations, establishing the ground level and co-ordinates at the location of each borehole, test pit etc. No extra payments shall be made for conducting Standard Penetration Test, collecting, packing, transporting of all samples and cores, recording and submittal of results on approved formats.

4.1.9.2 **Measurements**

Certain tests have to be conducted in bore holes or test pits etc. Such, boreholes, test pits etc. shall be measured only once for payment regardless of the number of tests carried out

4.10 **Specific Requirement for geotechnical Investigation at River Crossings.**

4.10.1 The entire soil investigation work at river crossing locations (if required) shall be carried out in accordance with the relevant parts of the specifications for geotechnical investigation modified to the extent given below.

4.10.2 **Requirements**

4.10.2.1 Boreholes shall be executed to specified depth of 40m (refer clause 4.5.1.1b). If refusal strata is reached (i.e. SPT-N value is greater than 100 continuously for 5m depth) with characteristics of rock the boreholes may be terminated at shallower depth i.e. at 5m in refusal strata, with prior approval of the Owner.

4.10.2.2 Laboratory testing shall be conducted on all soil samples to determine grain size distribution, liquid limit and plastic limit of the different soil strata encountered.

4.10.2.3 Geotechnical Report must furnish the following:

a) Geotechnical investigation scheme.
b) Bore-logs indicating soil stratification, with IS classification, sampling details and SPT 'N' values.
c) Soil cross-sections along various boreholes in two orthogonal directions indicating soil stratification based on field and laboratory tests.
d) Grain size distribution curves.
e) IS classification of soils.
f) Shear tests (UU) to be done on saturated soil samples.
g) Bearing capacity of soil at different levels.
h) Scouring depth of river.

i) Highest flood level (H.F.L.).
j) Maximum discharge, velocity etc. (from authenticated source such as CWC or appropriate State authorities).
k) Recommendations regarding type of foundation to be adopted at the location.

4.10.3 A check list for reporting results of river crossing locational details, detailed soil investigation and river values for river crossing locations is enclosed at Annexure-D.

24.11 **Special Terms and conditions for Geotechnical Investigation in the River bed**

4.11.1 Contractor is required to mobilize a suitable arrangement (floating pontoon, plant, equipment etc,) to carry out Geotechnical investigation work in creek/river locations identifies by the Owner.

4.11.2 In the event of storm or stoppage of work etc., Contractor shall not be paid extra for mobilization/remobilization of floating pontoon, plant, equipment etc.

4.11.3 Contractor shall fully satisfy himself about the conditions of creek/river (depth of water, wave currents, wind conditions etc.) prevailing in the area of proposed investigation and plan the necessary tools and plant to be deployed before quoting. Any claim resulting from lack of data collection in this respect shall not entertained.

4.11.4 Contractor shall make his own arrangements for locating the coordinates and position of boreholes in creek/river with respect to two grid-lines indicated by Purchaser.

4.11.5 Boring in creek or river shall be payable only below the bed level and no payment shall be made for lowering the casing in water.

4.11.6 Contractor shall arrange for necessary transportation on water (e.g. motor boat) to facilitate the supervision of work by officials of Purchaser at its own cost.

4.11.7 Full details of the construction plant. Proposed working method for boring and sampling in water shall be submitted along with the Tender.

4.11.8 The unit rate quoted for underwater boring shall include complete work required as per specification and no separate payment shall be made on any account.

6.0 **STATUTORY REQUIREMENT & STANDARD**

6.1 Contractor is required to follow statutory regulations stipulated in Electricity (Supply) Act 1948, Indian Electricity Rules and other local rules & regulations.

6.2 The codes and standards referred to in these specifications shall govern. In case of a conflict between such codes/standards and these specifications, the provisions of the specifications shall prevail. Such codes, standards referred to shall mean latest revisions, amendments, changes adopted and published by relevant agencies.

6.3 Other Internationally acceptable standards which ensure equivalent or better performance than those specified shall also be acceptable.

## ANNEXURE-A

### GENERAL DESCRIPTION OF TOWERS & FOUNDATIONS FOR TRANSMISSION LINE

### 1.0 DETAILS OF TOWERS

#### 1.1 220KV DOUBLE CIRCUIT TOWER

| Type of Tower | Deviation Limit | Typical Use | |
|---|---|---|---|
| A | 0 deg | To be used as tangent tower | |
| B | 0 deg-15deg | a) | Angle tower with tension insulator string. |
| B | 0 deg | b) | To be used as section tower. |
| C | 15 deg-30deg | Angle tower with tension insulator string. | |
| D | 30 deg-60deg | a) | Angle tower with tension insulator string. |
| | | b) | Dead end with 0 deg to 15 deg deviation both on line and substation side (slack span) |

**220 KV D/C TOWER SPOTTING DATA**

| Sr. No. | Description | TOWER TYPE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2º ( DA ) | | 15º (DB) | | 30º ( DC ) | | 60º ( DD ) | |
| 1. | Deviation not to exceed | 2 | | 15 | | 30 | | 60 | |
| 2 | Vertical load of individual span CON. / GW | 1121/478 | | 1121/478 | | 1121/478 | | 1121/478 | |
| 3 | Vertical load limitations | | | | | | | | |
| a | Maximum weight span | | | | | | | | |
| | Ground wire : Effect of both spans. | 525 | | 525 | | 525 | | 525 | |
| | : Effect of one span | 315 | | 315 | | 315 | | 315 | |
| | Conductor : Effect of both spans. | 525 | | 525 | | 525 | | 525 | |
| | : Effect of one span | 315 | | 315 | | 315 | | 315 | |
| b | Minimum weight span | | | | | | | | |
| | Ground wire : Effect of both spans. | 230 | | 230 | | 230 | | 230 | |
| | : Effect of one span | 138 | | 138 | | 138 | | 138 | |
| | Conductor: Effect of both spans. | 230 | | 230 | | 230 | | 230 | |
| | : Effect of one span | 138 | | 138 | | 138 | | 138 | |
| 4 | Permission sum of adjacent spans | | | | | | | | |
| | for various deviation angles` | 2 | 700 | 15 | 700 | 30 | 700 | 60 | 700 |
| | Based on the condition that required | 1 | 740 | 14 | 776 | 29 | 778 | 59 | 770 |
| | Ground clearance is available | 0 | 780 | 13 | 856 | 28 | 856 | 58 | 840 |
| | | 2 | 402* | 12 | 934 | 27 | 934 | 57 | 912 |
| | | 1 | 686* | 11 | 1020 | 26 | 1012 | 56 | 976 |
| | | 0 | 700* | 10 | 1098 | 25 | 1090 | 55 | 1048 |

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5 | Design load tension | | | | | | | | |
| | : Ground wire | 1285(1315) | | 1285(1315) | | 1285(1315) | | 1285(1315) | |
| | : Conductor | 3950(4360) | | 3950(4360) | | 3950(4360) | | 3950(4360) | |
| 6 | Broken wire condition (Broken on the same side on the same span) | GW / ANY ONE CONDUCTOR | | GW + ANY ONE CONDUCTOR OR ANY OTHER CONDUCTORS | | | | GW + ANY TWO CONDUCTOR OR ALL THREE CONDCUTORS | |

* indicates values for double suspension insulator.

**2.0 General Classifications of Foundations**

The foundation classification shall depend upon the type of soil, sub-soil water level and the presence of surface water which have been classified as follows :

**2.1 Normal dry**

To be used for locations where normal dry cohesive or non-cohesive soils are met.

**2.2 (a)Sandy Dry Soil**

To be used for locations where cohesion less pure sand or negligible cohesive sand mixed with soil are met in dry condition.

**2.2(b) Sandy wet soil condition**

To be used in location where water table is met from top (location in creek area)

**2.3 Wet**

To be used at following locations:

a) Where sub-soil water is met at 1.5 meters or more below the ground level.
b) Which are in surface water for long periods with water penetration not exceeding one meter below the ground level e.g. the paddy fields.

**2.4 Partially Submerged**

To be used at locations where sub-soil water table is met between 0.75 meter to 1.5 meter below the ground level.

**2.5 Fully Submerged**

To be used at locations where sub-soil water table is met between 0.75 meter below the ground level.

**2.6 Black Cotton Soil**

To be used at locations where soil is clayey type, not necessarily black in colour, which shrinks when dry and swells when wet, resulting in differential movement. For designing foundations, for such locations, the soil is to be considered sub-merged in nature.

**2.7 Fissured Rock**

To be used at locations where decomposed or fissured rock, hard gravel, kankar, limestone, laterite or any other soil of similar nature is met. Under cut type foundation is to be used for fissured rock locations.

In case of fissured rock locations, where water table is met at 1.5 meter or more below ground level, wet fissured rock foundations shall be adopted. In case of dry locations, dry fissured rock foundation shall be adopted.

**2.8 Hard Rock**

The locations where chiseling, drilling and blasting is required for excavation, Hard Rock type foundations are to be used. For these locations, rock anchoring is to be provided to resist uplift forces. For design purpose, rock level shall be considered at ground level and no over burden soil weight shall be considered for resisting the uplift.

**2.9 Brakish soil**

To be used in location were salty water is encountered in black cotton soil.

**2.10 River crossing locations**

To be used for river crossing locations after carrying out special soil investigation.

Note :

1. In addition to the above, depending on the site conditions other types of foundations shall also be provided to the Contractor suitable for intermediate conditions under the above classifications to effect more economy.
2. The proposal for these types of foundations shall be submitted by the Contractor based on the detailed soil investigation and approval for the same shall be obtained from the Employer.

## 3.0 TECHNICAL DETAIL

3.1 WIND LOADING :

The wind pressure on tower including insulator string, conductor and ground wire will be as follow.

| Sr. No. | Description | Details |
|---|---|---|
| 1. | On conductor & earthwire | 75 kg/m2 acting on full exposed area. |
| 2. | Wind on tower & insulator (only one insulator string) | 1.5 times the exposed area |

3.2 TEMPRATURE VARIATION :

| Sr. No. | Description | Details |
|---|---|---|
| 1. | Minimum temperature | 0º |
| 2. | Every day temperature | 32º C |
| 3. | Maximum temperature | 67º C for conductors for 220KV<br>53º C for earthwire |

The above values shall be used in accessing the temperature stresses in conductors & ground wires.

3.3 DETAILS OF CONDUCTOR :

| Sr. No. | Description | Details |
|---|---|---|
| 1. | Material | ACSR Zebra-220KV line |
| 2. | Size and standing | 54/3.18 mm Aluminium +7/3.18 steel |
| 3. | Spacing between sub-conductors | NA |
| 4. | Ultimate tensile strength | 130.30 KN |
| 5. | Weight | 1621 kg/km |
| 6. | Overall diameter | 28.62 mm |
| 7. | Area of cross section | 484.5 sq mm |
| 8. | Maximum working tension at :<br>i) 32º C with full wind<br>ii) Minimum temperature with 2/3 x full wind | <br>3950 Kg<br>4360 kg |
| 9. | Maximum sag under :<br>i) Maximum temperature & still wind<br>ii) Minimum temperature still wind (0º C ) | <br>8910 mm( 67º C )<br>6114 mm |
| 10. | Modulus of elasticity | $7.036 \times 10^6$ kg/sq mm |
| 11. | Co-efficient of linear expansion | 19.3 x 10-6/ºC |
| 12. | Factor of safety on conductor :<br>i) 32º C & No wind | <br>4.0 |
| | ii) 3232º C & No wind & full wind | 2.5 |
| | iii) 0º C & 2/3rd full wind | 2.5 |

3.4 DETAIL OF EARTH WIRE :-

| Sr. No. | Description | Details | |
|---|---|---|---|
| 1. | Material | Galvanized stranded steel wire. | Galvanized stranded steel wire. |

| | | | |
|---|---|---|---|
| 2. | Size and standing | 7/3.66 mm (110 kgf quality) | 7/3.15 mm (110 kgf quality) |
| 3. | No. of ground wire | Two | One |
| 4. | Ultimate tensile strength | 68.4 KN | 58.4 KN |
| 5. | Overall diameter | 10.98 mm | 09.45 mm |
| 6. | Area of cross – section | 0.733 cm2 | 0.5455 cm2 |
| 7. | Maximum working tension<br>i) 32º C with full wind<br>ii) Minimum temperature with 2/3 x full wind | <br>1848 kg.<br>1685 kg. | <br>1285 kg<br>1315 kg |
| 8. | Weight | 0.583 kg/ m | 0.426 kg/ m |
| 9. | Maximum sag under :<br>i) Maximum temperature<br>ii) Minimum temperature | <br>10195 mm<br>8700 mm | <br>7300 mm<br>5552 mm |
| 10. | Modulus of elasticity | 1.933 x 10^6kg/cm2 | 1.933 x 10^6kg/cm2 |
| 11. | Co-efficient of linear expansion | 11.5 x 10^-6 / ºC | 11.5 x 10^-6 / ºC |
| 12. | Angle of Shield (Maximum) | 20º | 30˚ |
| 13 | Factor of shifting on earthwire<br>i) 32º No wind<br>ii) 32º & full wind<br>iii) 0º & 2/3rd full wind | <br>4<br>2.5<br>2.5 | <br>4<br>2.5<br>2.5 |

3.5 DETAILS OF INSULATORS STRINGS :

a) 220 KV

| | | | | | | |
|---|---|---|---|---|---|---|
| 1) | Size of discs | 280 x 145 mm AND / OR 305 X 145 mm | | | | |
| 2) | Number of discs | Maximum | | | Minimum | |
| | i) Suspension string | 16 Nos. | | | 14 Nos. | |
| | ii) Tension string | 17 Nos. | | | 15 Nos. | |
| 3) | Insulators strings : | | | | | |
| | Description of string | Electro mechanical strength | Length without hanger in mm | | Weight in | |
| | | Kg. | Max. | Mini. | Max. kg. | Mini. Kg. |
| | a) Single Suspension | 90 KN | 2800 | 2500 | 120 | 105 |
| | b) Double Suspension | 90 KN | 3050 | 2750 | 225 | 225 |
| | c) Single Tension | 120 KN | 2900 | 2500 | 200 | 185 |
| | d) Double Tension | 120 KN | 3200 | 2900 | 450 | 400 |

3.6 DETAILS OF LINE, TOWER & CLEARANCE :

a. Line

| Sr. No. | Description | Details |
|---|---|---|
| 1. | Line voltage | 400 /220 KV |
| 2. | Frequency | 50 c/s |
| 3. | Neutral grounding system | Effectively grounded |

b. Towers

| Sr. No. | Description | Details |
|---|---|---|
| 1. | No. of circuits | Double circuit |
| 2. | Configuration | Barrel type |
| 3. | Factor of safety | Normal con. – 2 condition.<br>Broken wire – 1.5 condition. |

c. Clearances

| Sr. No. | Description | Details 400/220KV |
|---|---|---|
| 1. | Minimum ground clearance of lowest point of lower most power conductor | 8840 /7015mm |

| | | |
|---|---|---|
| a. | Minimum clearance between live parts & tower body & cross – arm members. | - |
| b. | Neutral grounding system | Effectively grounded |
| i) | Suspension insulator strings when deflected upto 22º(400KV) /30˚(220KV)from vertical. | 3050/ 1830mm |
| ii) | Suspension insulator strings when deflected due to wind upto 44˚(400KV)/45˚(220KV) from vertical. | 1860 /1675mm |
| iii) | Tension insulator string<br>a. Deflected due to deviation in plan<br>b. Jumper connection on tension tower when deflected by wind upto 20 deg from vertical | <br>3050/2130 mm<br>3050/2130 mm |
| iv) | Minimum clearance from highest flood level and the lowest point of the lower most power conductor in Non-navigable rivers. | 6400/5100 mm |
| v) | Minimum clearance from highest point of ship or boat and the lowest point of lower most conductor in case of navigable rivers with reference to H.F.L. | 6400/5100 mm |
| c. | Minimum midspan clearance (direct) between ground wire and the nearest conductor at minimum temperature & no wind condition | 9000/8500 mm |
| d. | The jumper depth shall be suitable to meet with the requirement of Electrical clearances | |
| e. | Minimum clearance between the conductor phases.<br>a. Horizontal<br>b. Vertical | <br>9000 /4600mm<br>8000 /5300mm |
| f) | Design span | 400 /350 Mtr |
| g) | Shield angle | 20º/30˚ |
| h) | Wind pressure on wire | 75 Kg/m^2 |
| i) | Wind pressure on tower | 150 Kg/m^2 |

**132KV D/C TOWER SPOTTING DATA**

| Sr. No. | Description | TOWER TYPE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2º(Aa) | | 15º(Bb) | | 30º(Cc) | | 60º(Dd) | |
| 1 | Deviation not to exceed | 2 | | 15 | | 30 | | 60 | |
| 2 | Vertical load of individual span CON / GW | 762/325 | | 762/325 | | 762/325 | | 762/325 | |
| 3 | Vertical load limitations | | | | | | | | |
| (a) | Maximum weight span | | | | | | | | |
| | Ground wire :<br>Effect of both spans | 525 | | 525 | | 525 | | 525 | |
| | : Effect of one span | 315 | | 315 | | 315 | | 315 | |
| | Conductor :<br>Effect of both spans | 525 | | 525 | | 525 | | 525 | |
| | : Effect of one span | 315 | | 315 | | 315 | | 315 | |
| (b) | Minimum weight span | | | | | | | | |
| | Ground wire :<br>Effect of both spans | 230 | | 230 | | 230 | | 230 | |
| | : Effect of one span | 138 | | 138 | | 138 | | 138 | |
| | Conductor :<br>Effect of both spans | 230 | | 230 | | 230 | | 230 | |
| | : Effect of one span | 138 | | 138 | | 138 | | 138 | |
| 4 | Permission sum of adjacent spans for various deviation angles based on the condition that required ground clearance is available. | 2 | 700 | 15 | 700 | 30 | 700 | 60 | 700 |
| | | 1 | 740 | 14 | 776 | 23 | 778 | 59 | 770 |
| | | 0 | 780 | 13 | 856 | 28 | 856 | 58 | 840 |
| | | | | 12 | 934 | 27 | 934 | 57 | 912 |
| | | 2 | 402 | 11 | 1020 | 26 | 1012 | 56 | 976 |
| | | 1 | 686 | 10 | 1098 | 25 | 1090 | 55 | 1048 |
| | | 0 | 700 | | | | | | |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 5 | Design load tension | | | | | | |
| | Ground wire | 1285(1315) | | 1285(1315) | | 1285(1315) | 1285(1315) |
| | Conductor | 3950(4360) | | 3950(4360) | | 3950(4360) | 3950(4360) |
| 6 | Broken wire condition (Broken on the same side on the same span) | GW / ANY ONE CONDUCTOR | | GW + ANY ONE CONDUCTOR OR ANY OTHER CONDUCTORS | | | GW + ANY TWO CONDUCTOR OR ALL THREE CONDUCTORS |

SAG TENSION VALUE

| Sr. No. | Description | Conductor | | | |
|---|---|---|---|---|---|
| | | Sag (meter) | Tension (Kg) | Sag (meter) | Tension (Kg) |
| 1 | 32º & full wind | - | 2800 | - | 1415 |
| 2 | 0º & 2/3 full wind | - | 3050 | - | 1480 |
| 3 | 0º & No wind | 5.343 | 2797 | 4.808 | 1363 |
| 4 | 67º & No wind | 7.950 | 1880 | 6.5 | 1002 |

## 1.0 DETAILS OF TOWERS

### 1.1 400 KV DOUBLE CIRCUIT TOWER

| Type of Tower | Deviation Limit | Typical Use |
|---|---|---|
| R | 0 deg | a) To be used as tangent tower. |
| S | 0 deg-15deg | a) Angle tower with tension insulator string. |
| S | 0 deg | b) To be used as section tower. |
| T | 15 deg-30deg | a) Angle tower with tension insulator string. |
| T | 0 deg | b) To be used for transposition transmission line, if required. |
| Y | 30 deg-60deg | a) Angle tower with tension insulator string. |
| | | b) Dead end with 0 deg to 15 deg deviation both on line and substation side (slack span) |
| Y | 0 deg | |
| | | c) For River crossing anchoring span with 0 deg. Deviation on crossing side and 0 deg. to 30 deg. Deviation on other side. |

The above tower can also be used for longer span with smaller angle of deviations.

### 1.2 TOWER SPOTTING DATA FOR 400 KV D/C TOWER

| Sr. No. | Description | TOWER TYPE | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | | 2º (R) | | 15º (S) | | 30º (T) | | 60º (Y) | |
| 1 | Deviation not to exceed | 2 | | 15 | | 30 | | 60 | |
| 2 | Vertical load of individual span CON. / GW | 1201/175 | | 1201/175 | | 1201/175 | | 1201/175 | |
| 3 | Vertical load limitations | | | | | | | | |
| (a) | Maximum weight span | | | | | | | | |
| | Ground wire : Effect of both spans | 600 (475*) | | 600 | | 600 | | 600 | |
| | : Effect of one span | 300 (237*) | | 300 | | 300 | | 300 | |
| | Conductor : Effect of both spans | 600 (475*) | | 600 | | 600 | | 600 | |
| | : Effect of one span | 300 (237*) | | 300 | | 300 | | 300 | |
| (b) | Minimum weight span | | | | | | | | |
| | Ground wire : Effect of both spans | 200 | | 200 | | 200 | | 200 | |
| | : Effect of one span | 120 | | 120 | | 120 | | 120 | |
| | Conductor : Effect of both spans | 200 | | 200 | | 200 | | 200 | |
| | : Effect of one span | 120 | | 120 | | 120 | | 120 | |
| 4 | Permission sum of adjacent spans for various deviation angles Based on the condition that required Ground clearance is available | 2 | 800 | 15 | 800 | 30 | 800 | 60 | 800 |
| | | 1 | 831 | 14 | 861 | 23 | 859 | 59 | 854 |
| | | 0 | 863 | 13 | 925 | 28 | 922 | 58 | 909 |
| | | | | 12 | 988 | 27 | 983 | 57 | 965 |
| | | 2 | 502* | 11 | 1051 | 26 | 1044 | 56 | 1020 |
| | | 1 | 786* | 10 | 1131 | 25 | 1106 | 55 | 1076 |
| | | 0 | 800 | | | | | | |
| 5 | Design load tension | | | | | | | | |
| | Ground wire | 1848(1685) | | 1848(1685) | | 1848(1685) | | 1848(1685) | |
| | Conductor | 5160 (4971) | | 5160 (4971) | | 5160 (4971) | | 5160 (4971) | |
| 6 | Broken wire condition (Broken on the same side on the same span) | GW / ANY ONE CONDUCTOR | | GW + ANY ONE CONDUCTOR OR ANY OTHER CONDUCTORS | | | | GW + ANY TWO CONDUCTOR OR ALL THREE CONDUCTORS | |

* Indicates values for double suspension insulator.

**1.3 DETAILS OF CONDUCTOR:**

| Sr. No. | Description | Details |
|---|---|---|
| 1. | Material | ACSR Moose- 400KV line |
| 2. | Size and standing | 54/3.53 mm Aluminium +7/3.53 steel |
| 3. | Spacing between sub-conductors | NA |
| 4. | Ultimate tensile strength | 159.6 KN |
| 5. | Weight | 2004 kg/km |
| 6. | Overall diameter | 31.77 mm |
| 7. | Area of cross section | 597 sq mm |
| 8. | Modulus of elasticity | $7.036 \times 10^6$ kg/sq mm |
| 9. | Co-efficient of linear expansion | 19.3 x 10-6/ºC |

**TOWER SPOTTING DATA FOR 66KV D/C TOWER**

| Sr No | Description | Pole type | | | | Remark |
|---|---|---|---|---|---|---|
| | | PP | PQ | PR | PS | |
| 1 | Vertical Load | Downwards | | | | |
| 2 | Maximum Deviation | 2° | 15° | 30° | 60° or DE | |
| 3 | Normal span | 300 | 300 | 300 | 300 | |
| 4 | Maximum individual span | 450 | 450 | 450 | 450 | |
| 5 | Weight span G.W | | Max. | Min | | |
| ( i) | Effect one span | | 270 | 120 | | In B.W.C. |
| ( ii) | Effect both span | | 450 | 200 | | In N.C |
| 6 | Weight span conductor | | | | | |
| ( i) | Effect one span | | 270 | 120 | | In B.W.C. |
| ( ii) | Effect both span | | 450 | 200 | | In N.C |
| 7 | Permissible sum at adjacent spans for reduce angle of deviation | 2°-600<br>1°-651<br>0°-702 | 15°-600<br>14°-650<br>13°-701<br>12°-751<br>11°-802<br>10°-852 | 30°-600<br>29°-649<br>28°-698<br>27°-748<br>26°-797<br>25°-847<br>24°-896 | 60°-600<br>59°-644<br>58°-688<br>57°-733<br>56°-778<br>55°-823<br>54°-868 | 1. sum not to exceed twice the max. individual span.<br>2. consider GW or Cond whichever gives lesser value. |
| 8 | Design long tension<br>GW<br>Conductor | 100%<br>50% | Long component of full tension<br>---------do --------- | | | |
| 9 | Broken wire condition | One cond or | Any two cond or one | Three cond or two cond & | | |

| | | | | | |
|---|---|---|---|---|---|
| | | GW broken | cond and one GW broken | GW broken | |
| 10 | Sag tension value consider in design | CONDUCTOR | | GROUND WIRE | |
| | | Tension in kg. | Sag in meter | Tension in kg. | Sag in meter |
| a. | 0°- 2/3rd F.W | 3139 | - | 1522 | - |
| b. | 32°C F.W | 2763 | - | 1410 | - |
| c. | 75°C | - | 6.34 | - | 4.51 at 53°C |

**1.3 DETAILS OF CONDUCTOR:**

| Sr. No. | Description | Details |
|---|---|---|
| 1. | Material | ACSR Panther- 66KV line |
| 2. | Size and standing | 30/3 mm Aluminium + 7/3 steel |
| 3. | Spacing between sub-conductors | NA |
| 4. | Ultimate tensile strength | 89.67 KN |
| 5. | Weight | 974 kg/km |
| 6. | Overall diameter | 21 mm |
| 7. | Area of cross section | 261.50 sq mm |
| 8. | Modulus of elasticity | 0.8158 x $10^6$ kg/sq mm |
| 9. | Co-efficient of linear expansion | 17.80 x 10-6/°C |

**ANNEXURE- B**

**DOCUMENTS TO BE SUBMITTED WITH TECHNICAL BID.**

| Sr No | Description |
|---|---|
| 1 | Methodology proposed to be adopted for selecting most suitable route. |
| 2 | Details of maps and software provided to be used for marking route and obtain 3-D view and profile terrain. |
| 3 | Methodology proposed for detailed survey along with list of equipments, name of software for tower profile and optimization of tower quantity. |
| 4 | Training program details. |
| 5 | List of work done and sample documents. |
| 6 | Name of geotechnical consultants and soil instigation agency proposed. |
| 7 | BOQ format. |

**ANNEXURE – C**

**LIST OF OUTPUT**

**1. Complete BOQ of transmission line with technical specification at Annexure – B shall be furnished in Survey Report.**

| Sr No | Description |
|---|---|
| **1** | Route alignment carried out by walk over survey with the help of latest modern survey technique using GPS navigation system and indication it on topo sheet of survey of India map and submission the same for approval. |
| **2** | leveling should be taken at every 20 meter. Preparation of field book and submission of the same. The route should be straight as far as possible and number of angle point shall be minimum as far as possible. |
| **3** | Each angle point locations shall be shown with detailed sketches along with latitude-& longitude showing existing close by permanent land marks such as specific tree(s), cattle shed, homes, tube wells, temples, electric pole / tower, telephone pole, canal, roads, railway lines etc. The relative distance of land marks from the angle points and their bearings shall be indicated in the sketch. These details shall be included in the survey report. Also cement concrete block fixed at field for marking of angle point. |
| **4.0** | Information w.r.t infrastructure details available enroute, identification and explanation of route constraints, etc shall also be furnished in the survey report and shall inter alia include the following:-<br>• Information regarding infrastructural facilities available along the final route alignment like access to roads, railway stations, **nearest village**, construction material sources (like quarry points for stone, sand and availability of construction water), labour, existing transport facilities, fuel availability etc shall be furnished in the survey report.<br>• All observations which the contractor thinks would be useful to the construction of the transmission lines mentioned under scope of work are to be reported.<br>• Suggestions regarding the number of convenient zones (line segments / portions) in which the entire alignment can be divided keeping in view the convenience of the line construction, operation, maintenance etc are to be given.<br>• Suggestions regarding location for setting up stores during line construction in consultation with owner representatives shall also be provided by the contractor.<br>• Working moths available during various seasons along the final route alignment, with period, time of sowing & harvesting of different type of crops and the importance attached to the crops particularly in the context of way leave problems and compensation payable shall be stated by the contractor.<br>• Availability of labour of various categories and contractors of civil works shall also be reported.<br>• Some portions of the line may require clearance from various authorities. The contractor shall indicate the portion of the line so affected, the nature of clearance required and the name of concerned organizations such as local bodies, municipalities, P&T (name of circle), inland navigation, Irrigation Department, Electricity Boards and Zonal railways, Divisional Forest Authorities, **State highway, collector office** etc.<br>• All the requisite data for processing the case of statutory clearances such as PTCC, Forest and Railway & **Highway Authority** shall be provided along with the report.<br>• The details pertaining to pollution levels envisaged along the transmission lines.<br>• Six copies of survey reports (Hard & soft) shall be furnished by the contractor to the owner.<br>• Tower spotting on profile as per technical parameter furnished at Annexure- A.<br>• Profiles prepared using PLSCADD software shall be submitted for approval.<br>• Profiles shall be indicating of level, type of tower, line crossing clearance over Railway / Highway/ Line crossing etc on profile base on level and clearance of various crossing.<br>• Separate profiles for river crossing indicating span, HFL level, type of tower proposed, soil investigation report, suggestion for type of foundation to be adopt etc.<br>1) Soil resistivity report at every 3 KM.<br>2) Trial pit shall be excavated at every 3 KM having depth of 3 meter and width of 1x1 meter. Detail of soil table shall be indicated for deciding type of foundation will encountered.<br>3) Soil investigation for river crossing tower shall be carried out and full detail should be submitted.<br>4) EHT line consisting name of line, voltage class and crossing section and type of towers of existing line. |

| | |
|---|---|
| | 5) Railway crossing detail consisting gauge, nearest Railway station, Railway pole detail section where proposed line will cross.<br>6) Forest area, Forest authority etc for submitting proposal for approval during execution of work.<br>7) Detail of OPGW in existing transmission line to be mentioned. |

**ANEXURE- A-1**
**THE BIDDER SHALL SUBMIT FOLLOWING INFORMATION**

| Sr No | Particulars | Details |
|---|---|---|
| a.1 | Relevant past experience | |
| a.1.1 | No of feasibility report/project report completed for transmission system. | |
| b. | Proposed methodology and work plan including deployment of resources. | |
| c | Qualification and experience of key person | As per AnnexureA-2 |

**ANNEXURE- A-2**

**TEAM TO BE DEPLOYED (ON PERMANAT ROLL OF THE COMPANAY)**

| Sr.No | Name of the person | Qualification | Experience | | Job assigned in the team | Remark |
|---|---|---|---|---|---|---|
| | | | No of years | Area | | |
| | | | | | | |
| | | | | | | |
| | | | | | | |

**INDEMNITY BOND**

*(Non Judicial Stamp Paper of Rs. 300/-)*

**KNOW ALL MEN BY THESE PRESENTS that we, Messer's _____**

**_____ (hereinafter called "the Contractor" which expression shall, where the context so admits, include their heirs, executors, administrators and legal representatives, successors and permitted assigns) are hereby held and firmly bind unto the Gujarat Energy Transmission Corporation Ltd (hereinafter called "the GETCO" which expression shall, where the context so admits, include its successors and assigns) to refund the full amount of materials supplied by the GETCO under the terms and conditions of A/T No. _____ _____ dated _____ against any loss damage or deterioration of whatsoever nature occurs to said materials supplied by the GETCO and which are in the custody of the contractor at their works site, on behalf of the GETCO, at (name of line) _____ , and / or if any of the said materials, when inspected by any officer authorized by the GETCO in this behalf, is found to be damaged, lost, deteriorated in quality or quantity, the contractor hereby agrees to bind himself to indemnity and at all times keep indemnified the GETCO against all loss, damage and deterioration to the any material supplied by the GETCO during his custody and shall pay in cash on demand from the GETCO within 30 days the market value of such materials which is lost, damaged or deteriorated in full to the GETCO and shall also hereby authorize the GETCO to deduct the said sum from any sum due to the contractor or any sum which may at any time become due to the contractor under the above referred contract or any other contract entered into by the contractor with the GETCO.**

**AND WHEREAS the contractors do hereby agree to be responsible for the safe custody and protection and preservation of the said materials against all risks, excluding war risks and against loss, damage and deterioration of whatsoever nature in respect of the said materials while it remains in the custody and possession of the contractor.**

**AND WHEREAS the said materials shall at all times be open for inspection by any officer authorized by the GETCO**

**Now the conditions of the above written bond are such that the contractor shall pay the full amount forthwith to the GETCO in the event of loss, damage or deterioration or whatsoever except due to circumstances arising out of war in respect of the materials supplied by the GETCO and shall fully and effectually indemnify and keep indemnified to the GETCO against such loss, damage and deterioration.**

**The contractor shall keep the said materials open at all times for inspection by the officers authorized by the GETCO and produce at any time when demanded.**

**THE WITNESS WHERE OF: We the**

**Said M/S _____**

**_____**

**(Signature of contractor)**

**(Seal of Firm)**

**hereto signed at _____**

**this day _____**

**In the presence of**

**1. _____ Name _____**
**_____address _____ (Signature)**

**2. _____Name _____**
**_____address _____ (Signature)**

**PROFORMA FOR CONTRACT AGREEMENT**

**(Non Judicial Stamp Paper of Rs. 300/-)**

**This Agreement is made at BARODA the_____ day of _____ in the Christian Year Two Thousand Twenty six between M/s. _____ (address of office)___ (hereinafter referred to as "THE CONTRACTOR" which expression shall unless excluded by or repugnant to the contract include its successors or permitted assigns) of the ONE PART and the Gujarat Energy Transmission Corporation Ltd, having their Head office at Vidyut Bhavan, Race Course, Baroda 390 007 (hereinafter called "The GETCO" which expression shall unless excluded by or repugnant to the context include its successors or assigns) of the other part.**

**WHEREAS the aforesaid GETCO has accepted the tender of the aforesaid contractors for _____ _____ as per GETCO's Order No. _____ ___ hereinafter called "the works" and more particularly described and enumerated or referred to in the specification, terms and conditions prescribed in the order letter, covering letter and other letters and schedule of price which for the purpose of identification have been signed by Shri _____ on behalf of the contractors and by ---------- on behalf of the GETCO, a list whereof is made out in the Schedule hereunder written and all of which said documents are deemed to form part of this contract and included in the expression "The works" wherever herein used, upon the terms and subject to the conditions hereinafter mentioned.**

**AND WHEREAS THE GETCO has accepted the tender of contractors for the construction of the said works for the sum of Rs. _____ Rupees (_____ _____) upon the terms and subject to the conditions herein mentioned.**

**NOW THIS AGREEMENT WITNESSESS AND IT IS HEREBY AGREED AND DECLARED THAT.**

1. **The contractors shall do and perform all works and things in this contract mentioned and described or which are implied therein or there from respectively or are reasonably necessary for the completion of the works as mentioned and at the times, in the manner and subject to the terms and conditions and stipulations contained in this contract, and in consideration of the due provision, executions, supply and completion of the works agreed to by the contractor as aforesaid the Board doth hereby covenant with the contractor to pay all the sums of moneys as and when they become due and payable to the contractors under the provisions of the contract. Such payment to be made at such times and in such manner as is provided by the contract.**
2. **The conditions and covenants stipulated here-in-before in this contract are subject to and without prejudice to the rights of the Board to enforce penalty for delays and / or any other rights whatsoever including the right to reject and cancel on default or breach by the contractor of the conditions and the covenants as stipulated in the general conditions, specifications, forms or tender schedule etc. attached with GETCO's Order No. _____ _____.**

   **The contract value, extent of supply & erection works, delivery dates, specifications and other relevant matters may be altered by mutual agreement and if so altered shall not be deemed or construed to mean or apply to affect or alter other terms and conditions of the contract and the general conditions and the contract so altered or revised shall be and shall always be deemed to have been subject to and without prejudice to said stipulation.**

SCHEDULE

**List of documents forming part of the contract:**

1. **GETCO's Tender Specification No. _____ and contractor's offer opened on dated ____/____/2026**
2. **GETCO order No. Dtd. _____ / _____/ 2026**
3. **Contractor's acceptance of order vide letter no. _____.**
4. **Contractor's Partnership Deed dtd. _____.**
5. **Contractor's Power of Attorney / Board Resolution authorizing person to sign on behalf of Firm.**

**In witness whereof the parties here to have set their hands and seals this day and month, year first above written.**

**1) Signed, sealed and delivered by**
**(Signature with name, Designation and official seal)**

**For and behalf of M/s. _____ (Signature)**

_____

**Address: _____**

_____

**In the presence of (Full Name, Address and Signatures)**

**i) _____ (Signature)**

_____

_____

**ii) _____ (Signature)**

_____

_____

**2) Signed, sealed and delivered by**

**(Signature with name, Designation and official seal)**

**for and on behalf of Gujarat Energy Transmission Corporation Ltd**

**Circle Office, Jambuva, BARODA - 390 014.**

**In the presence of name, Full address and Signature:**

**(1)_____**

_____

**(2)_____**

_____

**SAFETY CUM INDEMNITY BOND**

(On Non-judicial Stamp paper of value not less than Rs. 300.00)

KNOW ALL MEN BY THESE PRESENTS that we, _____ by this SAFETY CUM INDEMNITY BOND Executed on this _____ Day of _____ 2026. We Having Registered Office _____(herein after called "THE CONTRACTOR" which expression shall mean and includes my /our heirs, executors, administrators and legal representatives, successors and permitted assigns) do hereby binds myself/ourselves and also our company/firms after having the power to bind by this promise and undertaking in favour of the Gujarat Energy Transmission Corporation Limited (GETCO), Vadodara a State Transmission Utility under The Electricity Act, 2003 having its registered office at Sardar Patel Vidyut Bhavan, Race course, Vadodara.( hereinafter called as GETCO, which expression shall mean and include its legal representative, administrators assigns) has agreed under the terms and conditions of the contract no._____ dated_____made between _____ and _____for the contract of the _____value of Rs. _____ interalia on production of Safety Cum Indemnity Bond.

We do hereby undertake and agree to Indemnify and keep Indemnified GETCO from time to time to the extent of Rs._____ Rupees_____only against any losses or damages, costs, charges and expenses caused to or suffered by reason of the CONTRACTOR while Project, R&M, O&M work including work carried out by outsourcing agency, failing to take proper care or not complying the guidelines given hereunder as per Annexure-A and instructions which may be given from time to time during the continuance of the contract and we further undertake to unconditionally pay the amount claimed by the GETCO on demand and without demur to the extent aforesaid.

Whereas the CONTRACTOR has/have been awarded to execute the job/works under order no._____, dated _____ for _____._____ issued by the GETCO after having observing necessary formalities, the details of which is described in the order no._____ dated _____ and whereas the said job/works will be /likely to be done in places covered under Employees' State Insurance Act,1948 (ESI) and /or the Workmen Compensation Act,1923 and /or other laws relating to the Labour Management and Welfare Act. (Respective Amendments)

And whereas according to the condition of the Contract the CONTRACTOR is under obligation to execute this Safety cum Indemnity Bond before the commencement of actual execution of work.

Now the indenture witnesses that I/We the CONTRACTOR do hereby undertake to follow the guidelines as per Annexure-A prepared by the GETCO.

Further we the CONTRACTOR agree that the GETCO shall be sole judge of and as to whether there has been any breach of the guidelines as per Annexure-A of this bond and as to the extent of the loss, damages, costs, charges and expenses caused to or suffered by the GETCO.

We the CONTRACTOR further agree that our liability under this bond shall not be discharged because of the change in the constitution of the GETCO or for the extension of the time limit or for any other reason.

We the CONTRACTOR further agrees to the given terms and conditions:

a. That the CONTRACTOR undertakes /undertake to indemnify and keep harmless the GETCO from all claims, actions, proceedings and risk, damage danger to any person whether belonging or not belonging to the. CONTRACTOR.

b. That the CONTRACTOR shall keep harmless the GETCO from all claims, compensation, damages any proceedings in respect of any of its employee / workmen under the Workmen Compensation Act or any other laws for the time being in force.

c. That, if during the course of execution of work as stated in the contract order mentioned hereinabove issued by the OBLIGEE, it is found that the CONTRACTOR has not complied with guidelines as per Annexure-A or terms and conditions / formalities within the meaning of Employees' State Insurance Act,1948 (ESI) or Workmen Compensation Act 1923 or any other laws relating to the Labour Welfare for the time being in force, and also has not observed the safety norms in accordance with the law prevailing at the place of work/job to the satisfaction of the GETCO, the GETCO shall have the right to stop the execution of work/job and the period of such stoppage shall not be taken into account for the calculation of the total period of completion of work for which the CONTRACTOR is responsible to complete the work/job and it will be deemed that discontinuance was due to default of the CONTRACTOR .

d. That, if any time, due to exigency, GETCO as the Principle Employer, becomes liable to pay any such compensation mentioned hereinabove, whether on failure of the CONTRACTOR or for any other reason, the GETCO shall have the right to recover the said amount from any amount receivable by GETCO or any bank guarantee deposited or anything payable whether in connection with this contract \ or other contract by the CONTRACTOR to the OBLIGEE.

e. That the CONTRACTOR is/are aware and accept that for the persistent or repeated violation of any guidelines as per Annexure-A and terms and conditions mentioned in this Safety cum Indemnity Bond, GETCO shall have right to terminate the contract of work issued to the CONTRACTOR .
f. In case if any safety related fatal Electrical / Mechanical accident occurred to any employee of agency or outsider due to negligence or non-compliance of GETCO safety norms then in addition to the compensation and liability as per statutory requirement, contractor / agency is hereby agreed to pay the penalty amount as given below:

| Sr. no | Amount of Contract in Rs. | Penalty amount |
|---|---|---|
| 1 | Up to 1 Lac | Rs. 5000/- + applicable taxes (if any) |
| 2 | Above 1 Lac to 10 Lacs | Rs. 40,000/- + applicable taxes (if any) |
| 3 | 10 Lacs to 100 Lacs | Rs. 1,00,000/- + applicable taxes (if any) |
| 4 | More than 100 Lacs | 1.0 % of contract value + applicable taxes (if any) |

g. I/We the CONTRACTOR hereby confirm that in case of any dispute/difference for settlement of claims under this Safety Cum Indemnity bond the courts in Gujarat State wherever job/work is performed or as per GETCO norms shall have the jurisdiction to decide the rights & liabilities of the parties while adjudicating the matter of claims under this Safety Cum Indemnity Bond.
h. This Safety cum Indemnity Bond shall continue and hold good until it is released by the GETCO in Writing on the CONTRACTOR's application after the Contractor has discharged all his obligations under the order mentioned hereinabove and submitted a "NO DEMAND CERTIFICATE" from the GETCO under the said order. The Safety cum Indemnity Bond shall be valid for a CONTRACT PERIOD and renewable thereof (Claim Period).

i. This Safety cum Indemnity Bond and the guidelines as per Annexure-A herein contained are in addition to And not by way of limitation or substitution for any other guarantee, indemnities Hereto before given to the GETCO by the

CONTRACTOR and this Indemnity does not Revoke or limit such indemnities or guarantees. IN WITNESS WHERE OF the Parties hereto have executed this indenture the day the year First hereinabove written.

---
(Signature with seal of The CONTRACTOR)
In the presence of:

1.

2.

**BANK GUARANTEE FOR SECURITY DEPOSIT/PERFORMANCE**

NON JUDICIAL STAMP PAPER OF RS. 300/- (Stamp Paper Validity Six months)

To,
Superintending Engineer
Gujarat Energy Transmission Corporation Ltd
Circle Office, Jambuva
Vadodara-390 014

BG. No.
Issue Date
Expiry Date
Amount

**BANK GUARANTEE FOR SECURITY DEPOSIT/PERFORMANCE**

In consideration of the …….. [Insert name of the Supplier / Contractor / Agency, Address] who have entered into a contract for works specified below :

L.O.I./L.O.A No._____dated_____with Gujarat Energy Transmission Corporation Limited (herein after referred to as GETCO), We ……. [Insert name and address of the bank issuing the guarantee and address of the Registered office] (hereinafter referred to as "Guarantor Bank") hereby agrees unequivocally, irrevocably and unconditionally to pay to the GETCO at Circle Office, Jambuva forthwith on demand in writing from the GETCO or any Officer authorized by it in this behalf, any amount up to and not exceeding Rupees ……only [Insert the amount of the bank guarantee].

This Bank Guarantee shall be valid and binding on the Guarantor Bank up to _____with a right to seek encashment for a period up to 30 days from the said Date (Date of Expiry of BG) and shall in no event be terminable by notice or any change in the constitution of the Bank or the term of the Agreement or by any other reasons whatsoever and our liability hereunder shall not be impaired or discharged by any extension of time or variations or alternations made, given, or agreed with or without our knowledge or consent, by or between parties to the respective agreement.

Our liability under this Guarantee is restricted to Rupees… (Rs. …….. only). Our Guarantee shall remain in force until …… [Insert Date of Expiry of BG]. The GETCO shall be entitled to invoke this Guarantee any time up to thirty (30) days of the last date of the validity of this Guarantee i.e_____ [Date of Expiry of BG + 30 days] by issuance of a written demand to invoke this guarantee.

The BANK GUARANTEE can also be presented at the _____ [hereinafter referred to as Local Branch at Vadodara] of the _____ (Issuing Bank of BG) for its Invocation.

The Guarantor Bank hereby expressly agrees that it shall not require any proof in addition to the written demand from the GETCO, made in any format, raised at the above mentioned address or local branch at Vadodara of the Guarantor Bank, in order to make the said payment to the GETCO at Vadodara. The Guarantor Bank shall make payment hereunder on first demand without demur and without raising any restriction or conditions and notwithstanding any objection by, …… [Insert name of Contractor/Supplier/Agency] and/or any other person.

The Guarantor Bank shall not require the GETCO to justify the invocation of this BANK GUARANTEE, nor shall the Guarantor Bank have any recourse against the GETCO in respect of any payment made hereunder.

This BANK GUARANTEE shall be a primary obligation of the Guarantor Bank and accordingly the GETCO shall not be obliged before enforcing this BANK GUARANTEE to take any action in any court or arbitral proceedings against the _____( Name of party) to make any claim against or any demand on the _____( Name of party) or to give any notice to the _____( Name of party) or to enforce any security held by GETCO or to exercise, levy or enforce any distress, diligence or other process against _____( Name of party)
This BANK GUARANTEE shall be interpreted in accordance with the laws of India and the courts at Vadodara shall have exclusive jurisdiction.

The Guarantor Bank represents that this BANK GUARANTEE has been established in such form and with such content that it is fully enforceable in accordance with its terms as against the Guarantor Bank in the manner provided herein.

This BANK GUARANTEE shall not be affected in any manner by reason of merger, amalgamation, restructuring, liquidation, winding up, dissolution or any other change in the constitution of the Guarantor Bank.

The Guarantor Bank hereby agrees and acknowledges that the GETCO shall have a right to invoke this Bank Guarantee either in part or in full, as it may deem fit.

Any Demand made by GETCO on the Guarantor Bank or its Local Branch at Vadodara shall be conclusive and binding not withstanding any difference between GETCO and _____[Name of Supplier/Contractor/Agency] or any dispute pending before any Court, Tribunal, Arbitrator or any other Authority.

Notwithstanding anything contained hereinabove, our liability under this Guarantee is restricted to Rs. …….. (Rupees. …….. only) and it shall remain in force until ……[Insert date of validity of BG], with an additional claim period of thirty (30) days of the last date of the validity of this Guarantee i.e_____ [Date of Expiry of BG + 30 days]. We are liable to pay the guaranteed amount or any part thereof under this Bank Guarantee only if the GETCO serves upon us a written claim or demand.

In witness whereof the Bank, through its authorized officer, has set its hand and stamp on this …….. day of …… at ……

Witness: 1. ……
Name and Address.
2. ……..
Name and Address

Signature(s) of
_____
Constituted Attorney with POA No. and round seal of Bank
OR
Signature of Two Bank Officials with their sign, sign code nos. & round seal of Bank

Note: The banks shall be the Banks recognized/notified by the Finance Department, Government of Gujarat(GOG) from time to time.

**PARTY TO TAKE NOTE PLEASE BEFORE SUBMITTING THEIR BANK GUARANTEES**

1. A/T no. and date to be written on every page, of Bank Guarantee & its Extension.
2. If B/G amount is more than Rs.50, 000/-, kindly take sign of two bank officer with their respective Employee code no.
3. Valid Confirmation letter of the concerned Bank in an approved format should be attached with every Bank Guarantee & its Extension.
4. Stamp paper should be valid & recent one and date of issuing of stamp paper should not be beyond six months, in any case.
5. Round seal and signature of two Bank officers should be affixed on every B/G paper.

**( FORMATE )**

**BANK GUARANTEE (Extension of Validity)**

(To be executed on non-judicial stamp paper of Rs.300/-)

(Name and address of the Bank issuing the Bank Guarantee extension.)

To,
Superintending Engineer (TR)
Gujarat Energy Transmission Corporation Limited,
Transmission Circle office.
Jambuva, Vadodara - 390 014

EXTENSION OF BANK GUARANTEE NO._____ dtd._____ of Rs._____ (Amt, in words_____)

The validity period of our subject Bank Guarantee issued in your favor on behalf of M/s._____ is hereby extended from date_____ to date_____.

Notwithstanding anything mentioned herein before, our liability under this guarantee is restricted to an amount not exceeding Rs._____ (Rupees_____ _____only) and it will remain in force till _____.( Date of validity / Expiry )

We are liable to pay the guarantee amount or any part thereof under this Bank Guarantee only if you serve upon us a written claim or demand on or before dated _____ ( Date of expiry of BG +30 Days claim period )

All other terms and conditions mentioned in the original Bank Guarantee will remain unaltered. This extension forms an integral part of the above quoted original Bank Guarantee and may be kept thereto.

Place:_____

Date:_____ Round seal & signature of Two Bank Officers with Sign Code No.

ANNEXURE-A

OUR ENDEVOUR - Safety a habit

To create environment where Business Confidence is built through Best Business Practices and is fostered in an atmosphere of trust and respect between providers of goods and services and their users for the ultimate benefit of society a the nation, safety guidelines are agreed upon by the agency as under.

Safety is our prime concern and zero accident is our goal. In order to prevent the accident, while execution of works in indoor and outdoor systems of GETCO, the following guideline and preventive measures are identified.

| Indoor safety precaution | Outdoor safety precaution |
|---|---|
| The method of work required T&P and manpower should be discussed between GETCO supervisor, contractor's supervisor and gang leaders. | The method of work required T&P and manpower should be discussed between GETCO supervisor, contractor's supervisor and gang leaders. |
| Prior to execution of work a joint survey must be conducted by GETCO supervisor, and contractor's supervisor for risk assessment. | Prior to execution of work a joint survey must be conducted by GETCO supervisor, and contractor's supervisor and DISCOM line man in order to identify the following. |
| • Clearly identify the work location, to distinguish between the equipment that is dead and other equipment / part that may be live.<br>• Disconnect the equipment from supply.<br>• Protect against other live parts.<br>• Take special precautions when close to the bare conductors/bus bar | a.HT/LT line or tap line crossing under each span of line of the work.<br>that<br>b. Isolation point of each line crossing.<br>c.Each line crossing & isolation point under each span must be discussed and noted in maintenance register with sketch |
| Following safety guidelines are mandatory for all contractors operating in GETCO premises for Electrical, non-electrical & civil works.<br>1) The contractors must provide advance planning of work to concerned in-charge of substation in writing.<br>2. Before starting any work whether switch yard, "permit to allow to work" must be taken from control room in-charge.<br>3. Utilizing Electrical / non-electrical . equipments, safety rules must be implemented.<br><br>4. If the work is to be carried out on Sunday or public holiday, the necessary permission must be taken in advance, requesting in writing.<br><br>5. Unwanted person including children of labours will not be allowed at working site/ in the switchyard and in the prohibited area.<br><br>6. Any electrical work or electrical connections to equipment for any other work must be carried out by certified electrician/wiremen with adequate size of | Contractor's supervisor and GETCO Supervisor must ensure all isolations physically with adequate earthing technically prior to give clearance to gang leader for taking up job.<br><br>While execution of stringing work, the identified line crossing must be isolated / de-energized and written clearance should . be obtained from concerned DISCOM supervisor.<br><br>The isolation of Tap line must be physically seen and verified by Contractor and GETCO supervisor.<br><br>At D.O. fuse junction contractors person should be posted to ensure that no person restore D.O. supply while work is under execution.<br><br>Contractor's supervisor must ensure that concern officer take LCP for EHV line and power line crossing. |

| | |
|---|---|
| wire through MCB as per I.E. Rule.<br><br>- Live penal area / bus bar must be isolated and sealed / bifurcated with red colour tape for visible warning.<br>- Display Board must hang on LCP panel.<br><br>- Transformer must be switched off whenever and wherever contractor and line workers are not satisfied with isolation, earthing or any equipment performance of GETCO, it will be pointed out and work shall begin only after resolution.<br>Contractor shall not take up job in absence of GETCO authorized person. All wire temporary connection & material whenever erection activity has any connection and disconnection work of bus bar, string bus. | |
| All workers / labour of contractor & supervisors must use personal protective equipment (PPE) during the work like gloves, safety belt, Safety shoes, Helmet, earthing rods, etc, duly approved by GETCO. | All workers / labour of contractor & supervisors must use personal protective equipment (PPE) during the work like , gloves, safety belt, Safety shoes, Helmet, earthing rods, Live line detector etc, duly . approved by GETCO. |
| The local earthing must be done at the place of work before execution of any work. | The local earthing must be done at the place of work before execution of any work. |
| 11 kV breaker in panel must be switched off and racked out only after ensuring no voltage in breaker and without door opening. | Circuit breaker opening is not an isolation and isolator on either side must be opened. No work during rains and cloudy weather condition. |
| | Transmission line activities.<br>1) Used of Voltage detector to ensure outage.<br>2) Earthing at three point, local, left & right side of bus bar / string bus.<br>3) Match line colour code with colour of wrist band. |
| | Local earthing of electrical equipments like filter M/c, welding machine, testing kits etc. is must.<br><br>Crane shall only be used for material handling and erection. Working platform shall only be used for work in switchyard. |

**(TO BE SUBMITED ON FIRM'S LETTER HEAD)**

Ref . No.
Date:

To,
The Superintending .Engineer (TR)
Gujarat Energy Transmission Corporation Ltd,
Circle Office,Jambuva
VADODARA – 390 014

Sub: _____

Ref Order No. _____

We hereby acknowledge, agree and accept your A/T under reference above with terms and conditions mentioned therein.

(Signature)

Designation _____

# SECTION :E

**(E) APPENDICES**
**Gujarat Energy Transmission Corporation Ltd.**

**ANNEXURE –I**

**TENDERER'S EXPERIENCE**

A List of Similar jobs executed by the Contractor &Name with address of a Person whom reference can be made, by the Corporation, if required necessary.
[Tenderers shall submit the information in the Format detailed here under]

| Sr. No | Description of Work | Value Of Work Executed Rs. | Construction Period as per Contract | Actual Construction Period for the Completion of the work | Date Of Completion | Client | Persons to whom Reference may be made | Principal Features |
|---|---|---|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
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| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |

Contractor's Representative legible signature: _____
Name of the person: _____
Seal of the company
Date & place:

**Gujarat Energy Transmission Corporation Ltd.**

**ANNEXURE – II**
**WORKS TENDERED / IN HAND**

Details of other Works, tendered for & in hand , as on the date of the Submission of this tender [Tenderers shall submit the information in the Format detailed here under]

| Sr. No | Name of work with location and address | Work in hand | | | Work Tender for | | | Remarks |
|---|---|---|---|---|---|---|---|---|
| | | Tender Cost | Cost of Remaining work | Anticipated Date of Completion | Estimated Cost | Date when decision Is Expected | Stipulated Date or period Of Completion | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
| | | | | | | | | |
| | | | | | | | | |

Contractor's Representative legible signature: _____
Name of the person: _____
Seal of the company Date & place: _____

**Gujarat Energy Transmission Corporation Ltd.**

**GETCO**
**ANNEXURE-III**
**TENDERER'S DETAILS OF PERSONNEL**

The List of Technical Personnel intended to be placed at the Work by the Contractor.
[Tenderers shall submit in the Format detailed here under]

| **Sr. No.** | **Description &Details of position** | **Name** | **Qualification** | **Professional Experience & details of works carried out** | **Remarks** |
|---|---|---|---|---|---|
| 1 | 2 | 3 | 4 | 5 | 6 |
| | | | | | |

Contractor's Representative legible signature: _____
Name of the person: _____
Seal of the company
Date & place: _____

**Gujarat Energy Transmission Corporation Ltd.**

**ANNEXURE-IV**

**TENDERER'S DETAILS OF MACHINERY**

The List of Technical Personnel intended to be placed at the Work by the Contractor.
[Tenderer shall submit in the Format detailed here under.

| Sr. No. | Description & Details machinery | Capacity | Numbers | Make | Remarks |
|---|---|---|---|---|---|
| | | | | | |
| (a) | (b) | (c) | (d) | (e) | (f) |
| | | | | | |

**Contractor's Representative legible signature: _____**

Name of the person: _____

Seal of the company

Date & place: _____

**Gujarat Energy Transmission Corporation Ltd.**

**ANNEXURE-V**

**PERFORMA, SHOWING THE DETAILS OF SITE VISIT DONE BY AGENCY BEFORE QUOTING THE TENDER.**

[Tenderers shall submit in the Format detailed here under]

| Sr. No. | Name of firm | Name of Authorized representative of firm who has visited the site. | Qualification | Designation / post holding in company. | Remarks. |
|---|---|---|---|---|---|
| (a) | (b) | (c) | (d) | (e) | (f) |
| | | | | | |

**Contractor's Representative legible signature: _____**

Name of the person: _____

Seal of the company

Date & place: _____

**Gujarat Energy Transmission Corporation Ltd.**

**ANNEXURE – VI**
**Qualification Requirement.**

**Contractor must fill up below details & should place at the top of the Technical Bid.**

| **Sr No:** | **List of Documents** | |
|---|---|---|
| 1 | Registration | Class – with valid up to |
| 2 | P.F. No. | GJ/ |
| 3 | Partnership deed/Proprietor (Notarized copy) | |
| 4 | Power of Attorney (Notarized copy) | |
| 5 | Bl. Sheet / P&L A/C, Statement of last three years. | |
| 6 | Latest Solvency certificate. | Rs. Lacs issued by Bank, branch dtd. |
| 7 | GST Registration No. | |
| 8 | PAN NO | |
| 9 | Experience certificate – As per tender Qualification Requirement | |

Signature of Tenderer Company's Round Seal
Date :
Place

**Gujarat Energy Transmission Corporation Ltd.**

**ANNEXURE – VII**
**Qualification Requirement.**

**Contractor must fill up below details**

| | | |
|---|---|---|
| 1. | PRICES: [FIRM ONLY]<br>(Please Specify YES / NO.) | |
| 2. | PENALTY TERMS AGREED<br>(Please Specify YES / NO.) | |
| 3. | SECURITY TERMS AGREED:<br>(Please Specify YES / NO.) | |
| 4. | TERMS AGREED:<br>(Please Specify YES / NO.) | |
| 5. | VALIDITY Of the offer for 180 DAYS From the date of opening of the Technical Bid: AGREED:<br>(Please Specify YES / NO.) | |
| 6. | PAYMENT TERMS AGREED:<br>(Please Specify YES / NO.) | |
| 7. | MOBILE NOS., TELEPHONE NOS. & FAX NO: | |
| 8. | Authorized person of the firm : | |
| 9. | Name of the proprietor, partners, directors [as the case may be], along with address, telephone, fax no. etc. | |

Signature of Tenderer Company's Round Seal
Date :
Place:

## ANNEXURE-VIII
## DECLARATION

In connection with the above subject and reference I/ We confirm the following:

1. I / We, the under signed have read and examined the Tender Specifications in tender mentioned under reference along with the General/ Commercial terms and conditions.

2. I / We, declare that our Technical Bid is strictly in line with the Tender specifications (except the deviations shown in Annexure of Technical Deviations.

3. Further, I / We also agree that additional conditions / deviations, if any, found in the tender terms & conditions (except reference indicated under Annexure iv this tender document), our offer shall be out rightly rejected without assigning any reason thereof.

NOTE: ALL THE DOCUMENTS SHOULD BE PROPERLY FILED AND SHOULD BE GIVEN

FLAG MARKING FOR IDENTIFICATION.

Signature of Tenderer
Date :
Place:

Company's Round Seal

## ANNEXURE –IX

## DECLARATION

(Strike off whichever is not applicable)

This is to declare that Mr/Ms. _____, employee of GETCO at _____(place), is related to our _____ _____(designation & name). OR

This is to declare that none of the Proprietors/ Partners/ Directors are having any relatives employed or working with Gujarat Energy Development Agency at any of its offices or its parent Department i.e. Energy & Petrochemicals Dept., Govt. of Gujarat.

Signature of Tenderer Company's Round Seal

Date :
Place:

**ANNEXURE - X**

**DEVIATION SHEET**

Any deviations offered from the terms and conditions of the Offer should be clearly specified below in this sheet. If there are no deviations offered, it should be clearly mentioned on this page.

| Deviation offered to Chapter No, Clause No. of the tender document | Deviation offered |
|---|---|
| | |
| | |
| | |
| | |

Signature of Tenderer
Date :
Place:

Company's Round Seal

**Firms Letter Head**

**ANNEXURE – XI**

Tender for _____

Tender No._____ Due On: _____

CERTIFICATE – "A"

**I / We_____ authorised signatory of**

**M/s._____hereby Certify that**

**M/s._____ is not related with**

**other firms who have submitted tenders for the same items under this**

**inquiry / Tender.**

**Seal of the Firm**
Place:
Date:

**Signature of the Tenderer**
**With Designation.**

## ANNEXURE – XII

### UNDERTAKING IN REGARD TO STOP DEAL/BANNED FOR USED BUSINESS DEALING / BLACKLIST THERE OF)

**Sub: UNDERTAKING IN REGARD TO STOP DEAL/BANNED FOR USED BUSINESS DEALING / BLACK LIST THERE OF**

Ref:- Tender No._____

All bidders will have to furnish the following undertaking duly filled in, signed and stamped for each quoted item of the tender along with technical bid.

I/We_____
_____Authorized signatory of
M/s._____
_____ and thereby certified that M/s.
_____

and their proprietor/any partner/any director of the firm is not stop deal and /or banned for business dealing and /or black listed by GUVNL/or their any subsidiary company viz. GSECL /GETCO/MGVCL/PGVCL/DGVCL.

Signature of tenderer

Seal of firm

**Placing Vendors/Contractors for Purchase/Works in a Stop deal/Banned for business dealing/blacklisting:**

1.1. Stop deal / banned for business dealing / blacklist means debarment of parties from participating in the tendering process.

1.1.1. Firm will mean Bidder / Licensor / Tenderer / Consultant / Vendor / Contractor.

1.1.2. Reasons for Putting a Firm on Stop deal / banned for business dealing / blacklisting, is to protect the GUVNL and its subsidiary Companies from dealing with undesirable firm.

1.2. The list of indicative reasons for placing the firm in a Stop deal / banned for business dealing / blacklist are as Under.

A Firm will be placed in a Stop deal / banned for business dealing / blacklist, if the Firm-

1.2.1. Has submitted fake, false or forged documents / certificates,

1.2.2. Has revised / withdrawn price bid after opening of Techno – commercial bid, until and unless it is sought for,

1.2.3. Has tampered with the stipulated tendering procedure.

1.2.4. Has refused to accept letter of Acceptance / purchase Order / Work Order after the same is issued by the Company within the validity period and as per agreed terms and conditions,

1.2.5. Has committed breach of contract or has failed to perform a contract or has abandoned the contract,

1.2.6. Has failed to provide suitable expertise for the work as per per-scheduled program.

1.2.7. Has failed to submit all the necessary tests reports / documents within time schedule / as per company's time limit, as mentioned in the LOI, if the letter of Acceptance (LOA) is placed subject to submission of type reports / documents to the firm.

1.2.8. Has indulged in construction and erection of defective works.

1.2.9. Has supplied inferior quality / defective materials and refused to replace with stipulated time frame, as specified by the company,

1.2.10. Has substituted materials in lieu of materials supplied by the company or has not returned or has short returned or has unauthorisely disposed of materials / documents / drawings / tools or plants or equipment supplied by the Company,

1.2.11. Has involved in malpractices such as bribery, corruption, fraud, canvassing and pilferage,

1.2.12. Has unauthorisely obtained official company information or copies of documents, in relation the tender / Contract.

1.2.13. Has failed to follow the stipulated mode of communication, if specified by the tendering authority / purchaser.

1.2.14. Has parted with, leaked or provided confidential / proprietary information of the Company given to the firm only for its use (in discharge of its obligation against an order) to any third party without prior consent of the Company,

1.2.15. Any other ground for which in opinion of the company makes it undesirable to deal with the Firm, and

1.2.16. In case the State Government directs the Company to place a firm in stop dealing / banned for business dealing / banned for business dealing / blacklisting.

1.3. Every bidder should at the time of submission of bid, give a declaration that bidder and / or proprietor / partner / Director of the firm has not been placed on stop dealing / banned for business dealing / blacklisting by GUVNL and It's any subsidiary Companies as per **ANNEXURE-12**

**Signature of Contractor**

**Superintending Engineer (TR)**
**GETCO, CO, Jambuva**

**SCHEDULE - B**

**Name of Work :-** Bi-Annual Rate Contract for carrying out detail survey work of various 66kV/132kV/220kV/400kV class Transmission lines on tower approved under various scheme under various TR Divisions under Jambuva Circle

| Sr.No. | Description | QTY | Unit | Unit Rate in Rs. | Amount in Rs. |
|---|---|---|---|---|---|
| 1 | The work of detail survey, preparation and submission of profiles in 6 copies (PLSCAD as well as hardcopy),<br>Detail scope of Work :-<br>(a) Fixing of tower as per actual requirement, site condition and plotting of line on profile having standard details i.e. span length, lat-long (co-ordinate), chainage, weight and wind span, all dimensions, scale, legends, tower spotting data etc. as per requirement and along with all require details.<br>(c) Preparation and submission of tower schedule as per standard require details with all the Major - Minor crossing details in profile drawing and tower schedule, along with due care of clearance as per prevailing standards i.e., for all electric line with pole, all type of track, river, pond, nala, road, canal etc.<br>(d) Details of Right of Way in profile drawing. i.e. Building, Temple, Well etc.<br>(g) Plotting line on TIKKA-MAP (Revenue Land map) - Required TIKKA-MAP will be provided by GETCO.<br>Importantly, any work other than mentioned will align with the specific requirements outlined by the Engineer-in-Charge.<br><br>Note : The survey report will be submit with sign and stamp of the surveyor agency and engineer in charge.<br><br>Note : The survey report will be submit with sign and stamp of the surveyor agency and engineer in charge.<br>**(SOR 25-26: PART-A-2)** | 400.00 | KM | 10,222.00 | 40,88,800.00 |
| A | | | | Total Rs. | **40,88,800.00** |
| B | Percentage above / below = | | % of (A) above/Below Amount Rs. | | |
| C | | | | Total quoted price (C = A+B) Rs. | |
| D | | | | GST @ 18 % on (C ) in Rs. | |
| E | | | | Grand Total in Rs. ( E= C + D) Rs. | |

**Note :**

**1) Government of India has rolled out GST from 1st July 2017, same shall be charged at actual as per GOI notification, at the time of billing**

**2) Welfare Cess Will be reimbursed on production of documentary evidence of payment.**

**Superintending Engineer (TR)**
**GETCO, Jambuva**

**Notes :**

| | |
|---|---|
| 1 | All the work related to the survey of transmission line should be carried out as per GETCO's standard FQP for transmission line |
| 2 | Route alignment carried out by walk over survey with the help of latest modern survey technique using GPS navigation system and indication it on topo sheet of survey of India map and submission the same for approval. |
| 3 | Leveling should be taken at every 20 meter. Preparation of field book and submission of the same. The route should be straight as far as possible and number of angle point shall be minimum as far as possible. |
| 4 | Each angle point locations shall be shown with detailed sketches along with latitude-& longitude showing existing close by permanent land marks such as specific tree(s), cattle shed, homes, tube wells, temples, electric pole / tower, telephone pole, canal, roads, railway lines etc. The relative distance of land marks from the angle points and their bearings shall be indicated in the sketch. These details shall be included in the survey report. |
| 5 | GST and Workers Welfare Cess will be reimbursed on production of documentary evidence of payment made to appropriate Government Taxation Department as per Govt. /GETCO's rules |
| 6 | To and fro transportation is in the scope of bidder. |
| 7 | **In case of emergency, "Agency finalized under ARC has to carry out the work in to nearby Circle in case of emergency" as per inst. EIC. / (EE (Const.).** |

**SIGNATURE OF CONTRACTOR**
**(With rubber stamp/seal of the company)**

**Superintending Engineer**
**GETCO, Jambuva.**