CHHATTISGARH STATE POWER TRANSMISSION CO. LTD.

(A Govt. of Chhattisgarh undertaking) (A successor company of CSEB)

OFFICE OF CHIEF ENGINEER (PLANNING & PROJECTS)

Third Floor, SLDC Building, CSEB Campus
Dangania, Raipur (C.G.)-492013

CIN- U40108CT2003SGC015820 GSTIN-22AADCC5773E1ZX

TENDER SPECIFICATIONS

TR-20/04

Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)

LAST DATE & TIME OF SUBMISSION OF TENDER
DATE: 15.07.2020 (TIME 15.00 HRS)

DUE DATE & TIME OF OPENING OF TENDER
DATE: 15.07.2020 (TIME 15.30 HRS)

Website: - www.cspc.co.in/csptcl

PRICE Rs.5,600/- (Printed)
Rs.5,900/- (Downloaded)

OFFICE OF CHIEF ENGINEER (PLANNING & PROJECTS)

CHHATTISGARH STATE POWER TRANSMISISON CO. LTD.
DAGANIYA, RAIPUR (C.G.)

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CHHATTISGARH STATE POWER TRANSMISSION CO. LTD.

(A Govt. of Chhattisgarh undertaking) (A successor company of CSEB)

TENDER FORM

TENDER SPECIFICATION TR-20/04

Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)

Tender document SL.No……*
Issued to M/s…… *

Cost of Tender documents Rs…….

D.D.No……..Dtd……..

Name of Bank ……

** Not required in case tender document is downloaded*

Signature & Seal of Issuing Authority
CSPTCL; Raipur

The undersigned hereby tender and offer (subject to CSPTCL's conditions of tendering), the Chhattisgarh State Power Transmission Company to test and supply, plant, machinery, materials, deliver and execute and do the several works and things which are described or referred to in the enclosures & Annexures to the specification **TR-20/04** copies of which are annexed hereto and which under the terms thereof are to be supplied, executed and done by the contractor in a thoroughly good and workman like manner, and to perform and observe the provisions and agreements or the part of the contract contained in or reasonably to the inferred from the said tender documents for the sum and at the rates set out in schedules annexed hereto.

It is confirmed that:

(I) Questionnaire for Commercial terms and conditions.

(II) Questionnaire for Technical specifications of the Equipments, and

(III) All other conditions wherever described in the tender documents have been replied in full giving clear details. It has been noted that in case any reply is not given or any reply is incomplete/ambiguous the Company will have right to take the same to be advantageous for the Company. Company's decision in this regard will be final. The bidder will have no right to furnish any technical or commercial clarification after opening of the bid which may in any way alter the offered prices.

Dated, this …… day of …….

Bidder's Signature

Bidder's Address.

CIN- U40108CT2003SGC015820, **GST No.**22AADCC5773E1ZX

CHHATTISGARH STATE POWER TRANSMISSION CO. LTD
(A Government of Chhattisgarh Undertaking)
Office of the Chief Engineer (Planning & Projects)
Address : Third floor, SLDCBuilding, Danganiya Raipur-492013.
Website :www.cspc.co.in Phone 0771-2574209/12 Fax:0771-2574246

No.02-04/NIT/TR-20/04/415 **Raipur/dtd.30.06.2020**

NOTICE INVITING TENDER

Sealed tenders are invited from experienced Bidders for taking up the following project on turnkey basis-

Sl. N..	Tender No.	Particulars	Cost of Tender Documents (Non-refundable)	Earnest money	Due date of opening of tender
1	**TR-20/04**	Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C Monopole (60-90º dev., bottom cross arm height 23M, dead end) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)	Rs.5,600/- (Printed) Rs.5,900/- (Downloaded)	Rs.88,000/-	15.07.2020

Last date of sale of tender document: One day prior to due date of opening of tender.

NOTE:-

i) In case any of the above date is declared as holiday, then the particular date will automatically get shifted to next working day.

ii) Any notice for extension of due date of tender opening shall not be published in newspapers. It will be displayed only on official website of the company.

TERMS AND CONDITIONS:-

(i) The tender documents can be obtained from the office of the CE (Planning & Project) in person on payment of cost of tender documents in the form of D.D. only made out in the name of MANAGER (RAO : HQ), CSPTCL, Raipur accompanied with firm's application on its letter head. If tender document is required by post, Rs.280/-(i.e., Rs.250/- + 12% GST) shall be paid by D.D. additionally along with the cost of tender document. If more than one tender document is required, separate DDs should be furnished for each tender. CSPTCL shall not be responsible for any postal delay in receipt/ non-receipt of tender documents. No receipt of tender shall be issued in any case.

(ii) The tender document can also be downloaded from official website of CSPTCL "**www.cspc.co.in**'' (go through Chhattisgarh State Power Transmission Co. Ltd. - Tender Notice) and required tender fee Rs. 5,600/- {(i.e. Rs 5,000 /- + 12 % GST) if purchased} or Rs 5,900/- {(i.e. Rs 5,000 /- + 18 % GST) if downloaded} in form of DD in favour of Manager (RAO: HQ), CSPTCL, Raipur payable at Raipur should be submitted along with EMD in envelope containing DD of EMD. The envelope containing DDs of cost of tender document & EMD should be suitably super scribed "DDs containing cost of tender document and EMD". The details of DDs should be mentioned on the outer side of the

envelope also. Please note carefully that in absence of aforesaid requisite tender fee, further bid shall not be considered for opening.

(iii) Tender documents and the detailed specification can be obtained on any working day one day prior to the due date. The tenders duly filled in shall be dropped/get dropped in the specified tender box up to 15:00 Hrs. on the due date. Any other means of delivery shall not be accepted. No receipt of tender shall be issued in any case. The tender box shall be locked/sealed at 15:00 Hrs. on the due date and shall be opened at 15:30 Hrs. on the same date.

(iv) After publication of NIT & before the date of opening of TC Bid, corrigendum/ other information (if any) shall be displayed on our official web only. The bidders are requested to remain in contact with this office or visit our web-site for any development/ clarification/ amendment issued subsequently.

(v) CSPTCL reserves the right to accept or reject any or all the offers, in part or full without assigning any reason whatsoever.

Website:- www.cspc.co.in/csptcl

Sd/-
Chief Engineer (Planning & Projects)
CSPTCL: Raipur

SCOPE OF THE SPECIFICATIONS

GENERAL:-

1. In the transmission system of Chhattisgarh the Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur) is required to be constructed **on turnkey basis.** *This part of 132 KV line is required to be constructed on 132 KV DC Monopole on turnkey basis*. The specification covers the supply of GI Steel Monopole material along with its accessories. The work involves supply and delivery of GI Steel Monopole and Modification of **132 KV DCDS line** as mentioned above for total length of **372 meter** on Turn Key Basis including Supply of Conductor, Ground wire, supply of all line materials i.e. Foundation Bolts, galvanized earthing rods with clamps, danger board, number plate, phase plate, Anti-climbing Devices, conductor and ground wire accessories, insulators, stringing hardware etc. and complete construction i.e**. foundation, erection of monopole, stringing of the line, etc.** required for turnkey project. Cement and reinforcement steel, metal, sand for foundation of monopole shall also be provided by the bidder. The details of work and technical specifications are given in various sections of this specification.

2. The contractor has to carry out dismantling of existing transmission line and transport the dismantled tower parts and other line materials to CSPTCL's area store Bilaspur. Loading and un-loading of dismantled materials shall be carried out by the contractor at his own cost. The rate of dismantling and transportation work will have to be quoted accordingly.

3. This monopole must have been tested as per IS 802 (part-3)-1977in any reputed NABL accredited test bed in India. The design details and type test report of offered monopole will have to be submitted by the bidder. If the bidder do not have steel monopole design and tested as per technical parameters specified in technical of tender document, they may submit their offer including scope of design and testing of steel monopole and in such case, they should not indicate the design and testing charges in schedule A-1. Please note that no additional time will be allowed by CSPTCL for carrying out the design and testing of steel monopole and the entire work will have to be completed within the time schedule specified in clause-1 Section-IV of the tender document and evaluation of all offers will be done at par. The contractor have to provide design manufacturing structural drawings and Bill of Materials of 132 KV monopole and extensions to CSPTCL along with foundation drawings after placement of award in sequence, suiting the project requirement.

4. Bidders are required to quote rates for all materials and works as detailed in the specification. They will furnish full particulars as called for in addition to filling and completing the Annexure of this specification.

5. All the line materials viz; ACSR conductor, ground wire, Monopole, polymer insulators, Stringing Hardware & accessories etc. required for completion of the line shall be supplied by contractor and should be considered for assessing the total of insurance cover.

6. The rates quoted for monopole foundation work should include the cost of Cement, Metal, Sand, Water &curing, backfilling etc. Similarly, the rate of reinforcement will include the cost of foundation bolt &materials also.

7. The general conditions of tendering and commercial conditions for supply of GI Steel Monopole& other line materials and erection of the transmission line have been specified in the tender.
8. As already mentioned elsewhere in the tender documents, the performance guarantee applicable shall be 24 months from the date of commissioning i.e. charging of the line after carrying out the required modification work. In case after commissioning of the transmission line, any operational problem is observed in any material supplied or work carried out by the contractor because of which any major rectification or replacement is done, then the guarantee shall commence from the date of completion of rectification or replacement.

9. Completion Period: - The work for **Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)** is required to be constructed **on turnkey basis** covered under this specification **should be completed in 03 (Three) calendar months including rainy season from the date of order.** The contractor shall ensure to complete the work of line within aforesaid stipulated period.

PRE-BID QUALIFICATIONS

(i) **SCOPE OF WORK**:-Turn Key contract for supply of all line materials such as GI Steel Monopole, Conductor, Transmission Line accessories etc. & Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur) is required to be constructed **on turnkey basis** is required to be constructed on turnkey basis.

(ii) TERMS & CONDITIONS:-

1. GI Steel Monopole& associated materials are to be supplied by the contractor. The ACSR Panther Conductor and 7/3.66mm Ground wire, the stringing hardware, accessories and insulators, GI Nut Bolts, foundation bolts etc. required for the above works would be supplied by the Contractor as per relevant/ latest I.S.S.

2. **PRE-QUALIFYING REQUIREMENTS:-**

The bidder shall comply with the following requirements along with the offer:-

3.1 FINANCIAL CRITERIA OF PQR :-

i) **Net Worth:-** Net Worth of the sole bidder/each partner of joint venture (JV)/ consortium for each of the last three Financial Years (2017-18, 2018-19 & 2019-20) should be positive.

In case audited balance sheet for FY **2019-20** is not available , net-worth as per audited balance sheet of previous three years i.e. **2016-17,2017-18 and 2018-19** should be considered for above criteria, and for this , the bidder should submit the self –declaration countersigned by CA regarding non-availability of audited balance sheet for **FY 2019-20**.

Net worth means the sum total of the paid up capital and free reserves (excluding reserves created out of revaluation) reduced by aggregate value of accumulated losses (including debit balance in profit and loss account for current year) and intangible assets.

ii) **MAAT :-** The sole bidder/partners of joint venture (JV)/consortium collectively must have minimum average annual turnover (MAAT) for best 3 years out of last 5 financial years **(FY 2015-16, 2016-17 , 2017-18, 2018-19 & 2019-20)** equal to **Rs.1.32 Cr.** Self-attested copies (i.e., copies attested by authorised signatory of the tender) of the audited Balance Sheets and profit & loss accounts for last 5 years of sole bidder/each of the partners of the joint venture should be furnished in support, duly certified by chartered accountants of the firm. For calculation of turnover, other income indicated in balance sheet shall not be taken into account. In case where audited balance sheet of FY 2019-20 is not available, a self-declaration of this effect countersigned by a practicing chartered Accountant needs to be attached and in such cases audited balance sheets of financial years for FY 2014-15 to 2018-19 shall be considered.

In case of joint venture/consortium, the lead partner should meet not less than **Rs.0.79 Cr.** of minimum financial criteria regarding turn over requirement. The other partner should meet not less than **Rs.0.33 Cr**. of minimum financial criteria regarding turn over requirement. Both the partners of joint venture/consortium shall collectively meet the minimum financial criteria.

iii) **Liquid Assets:-** The bidders (sole bidder/ members of joint venture collectively) shall currently have liquid assets (LA) or/and evidence of access to or availability of credit facilities of not less than **Rs.0.22 Cr**.

A certificate of Chartered Accountant indicating details (break up) of available liquid assets should be furnished in support of this. *Liquid assets would include cash (and equivalents), bank deposits, securities that can be freely traded and receivables which has general certainty of getting received.*

As regards certificate pertaining to evidence of access to or availability of credit facilities, a certificate from their banker(s) {as perAnnexure-29} indicating various fund based / non fund based limits sanctioned to the bidder/ JV Partners and the extent of utilisation as on date. **Such certificate should have been issued not earlier than 3 months prior to the date of bid opening.** Wherever necessary, CSPTCL may make queries with the bidder's banker.

In case bidder is a holding company, the Financial Position criteria referred above (i.e., Net-worth, MAAT & LA), shall be that of holding company only (i.e. excluding its subsidiary/group companies)

In case bidder is a subsidiary of a holding company, the Financial Position criteria referred above, shall be that of subsidiary company only (i.e. excluding its holding company).

Note :- **For the instant tender, the turnover of last 5 financial years i.e. 2015-16, 2016-17 , 2017-18, 2018-19 & 2019-20 shall be considered for calculation.**

iv) The sole bidder/partners of joint venture (JV)/consortium (each partner of JV) shall give self attested copy (i.e copy attested by authorised signatory of the tender) duly certified by CA that:-

a) The sole bidder/partners of joint venture (JV)/consortium should have discharged all its payment obligations (principal/interest) on outstanding debentures (i.e. debentures which have not yet been redeemed), if any and no such payments as on **31.03.2020** should be outstanding / overdue.

b) The sole bidder/partners of joint venture (JV)/consortium should not be presently in default in payment of any bank loan or interest thereon for more than three months or any loan account of the bidder should not have been classified as NPA (Non performing assets) by the creditor/ lending bank, as on date of issue of NIT.

v) The sole bidder/partners of joint venture (JV)/consortium should not be debarred/ blacklisted by Bank/State Govt/Central Govt./State PSU/CPSU/SEB/public utility as on date of issue of NIT. A declaration in this regard shall be furnished by the bidder.

However, the bid may not be considered for further processing in following cases also:-

i) If sole bidder/partners of joint venture (JV)/consortium is debarred/blacklisted by Bank/State Govt./Central Govt./State PSU/CPSU/SEB/public utility up to date of opening of price bid of the instant tender.

ii) If a case comes to notice regarding submission of forged/fake document in any other tender under process in CSPTCL up to date of opening of price bid of the instant tender.

vi) All the documents / statements / attachments / information submitted by the sole bidder/partners of joint venture (JV)/consortiumin proof of the qualifying requirements must be authentic / genuine /correct and in case, any of the said documents / statements / attachments / information are found to be false / fake / misleading, the bidder will be disqualified and action will be taken against the bidder as per relevant provisions of the tender. A declaration in this regard (as per prescribed **Annexure A-36**) shall be furnished by the sole bidder/ each partner of JV (separately).

vii) The sole bidder/ each partner of JV should not be under process of insolvency or liquidation as on the date of issue of NIT and a certificate in this regard shall be furnished by the bidder. Even if at a later date up to finalization of tender if it comes to

the notice of CSPTCL that the sole bidder/ any partner of JV has been going through the process of insolvency or liquidation, their bid will be rejected.

3.2 TECHNICAL EXPERIENCE CRITERIA OF PQR :-

Sole bidder or Joint Venture / consortium bidder

(A) Project Capability: - Sole bidder or Joint Venture(JV)/consortium bidder should have constructed & commissioned at-least following Transmission line on turnkey basis during last 5 years i.e. FY 2014-15 to FY 2018-19 (between 1st Apl'2014& 31st March'2019)against order issued by the following Indian entities :-

(i) Power utilities owned and controlled by Central or State Govt., **Or**
(ii) PSUs, **Or**
(iii) Govt. organizations'
(iv) Private Independent Power Plant (IPP)/Captive Power Plant (CPP).

- The bidder should have constructed at-least **25km** of route length of 110KV (or above voltage class) transmission line (cumulative) on turnkey basis. Out of this total 25km (or more) the bidder or their JV partner or both partners collectively must have constructed transmission line consisting of minimum 10 No. DC Monopole (cumulatively) of 110KV (or above voltage class) transmission line on steel monopole on turnkey basis. In case the bidder himself is not a manufacturer of monopole, the bidder should submit an Authorization letter of a manufacturer of steel pole as proof of tying up with the manufacturer for all technical support like design, manufacturing, erection supervision, testing and commissioning of steel transmission line pole etc. whichever is required for the smooth execution of the contract. The date of orders should not be older than 7 years from the date of issue of NIT of the instant tender.
- The above line(s) should be successfully commissioned as on date of issue of NIT of the instant tender.

The bidder shall submit detailed order copies & commissioning certificate for satisfactory operation of transmission line issued by the Power Utilities or User Agencies in the name of participating bidder, indicating date of commencement of work and it's commissioning.

The word "Commissioning" here means of energization of Transmission line duly certified by concerned power utility.

Note:-

i. In case of Sole bidder, the experience of the bidder shall be that of "Sole bidder" or "any one of the partner of the Joint Venture/ consortium" in the projects executed by them earlier.
ii. In case the bid is submitted by JV / consortium, either of the JV i.e., the "Lead partner" or the "Other partner" should meet the requirement as required for sole bidder.

The experience of any one of the partners of the joint ventures / consortium (lead partner or other partner) meeting the above 'Project Capability' criteria shall either be as "Sole bidder" or "any one of the partner" of the Joint Venture/ consortium" in the projects executed by them earlier.

The bidder is required to furnish self attested documentary evidence for meeting the criterion mentioned above.

Bidders may note that evaluation of various pre-qualifying experience criteria shall be done on the basis of documents / certificates submitted by the bidder, for which responsibility to furnish essential authentic, genuine & correct documentary proof / statements / attachments / information etc., entirely rests on the participating bidder(s). CSPTCL will not be responsible if the bid is considered non-responsive and rejected in the absence of such documentary proof.

3.3 PRE-CONTRACT INTEGRITY PACT: - The bidder shall have to submit pre contract integrity pact in the format enclosed as **Annexure A-29** on non judicial stamp paper worth Rs.300/- duly signed by the bidder for the project along with techno commercial bid. The validity of this integrity pact shall be from the date of its signing and extended up to 2 years or the complete execution of the contract to the satisfaction of both the Buyer and the Bidder/Seller, whichever is later. In case Bidder is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

4. OTHER ELIGIBILITY CRITERIA:-

i) **Sole bidder or** joint venture / consortium (not more than 2 firms) shall be eligible to participate in the tender.

ii) The sole bidder / lead partner of the joint venture / consortium should submit a certified copy of 'A' class electrical contractor license issued by **C.G. Anugyapan Mandal /CG State licensing Board** along with his offer and the license should be valid as on the date of opening of tender **OR** the bidder shall furnish an Undertaking to submit 'A' class electrical contractor license issued by C.G. Anugyapan Mandal / CG State licensing Board within 30 days after issue of Letter of Award (LOA).

iii) The sole bidder/lead partner of the joint venture/consortium should have EPF code number allotted by EPF Commissioner and copy of same should be submitted with the TC Bid.

iv) The sole bidder/joint venture or consortium partners should collectively have adequate tools & plants, financial and technical resources and infrastructure backed with qualified agencies to execute the work properly and expeditiously within the specified time frame. A declaration in this regard shall be submitted in the Annexure-14.

v) Power of attorney issued to legally authorized signatory should be submitted in the TC bid.

vi) Those bidders which are not registered under GST shall not be allowed to participate in the tender.

vii) Detailed information on any litigation or arbitration arising out of contracts completed or under execution by it over the last five years (counted from the date of bid submission) shall be provided in **Annexure-20**. A consistent history of awards involving litigation against the bidder or any partner of JV may result in rejection of bid.

In case of Joint Venture (JV)/Consortium, the following conditions shall also apply:-

(i) No bidder/member of a JV/consortium can participate in more than one bid.

(ii) One of the partners shall be nominated as lead partner and the joint venture/consortium shall be represented by Lead Partner. An agreement for authorizing one partner to act as "Lead partner" in **proforma 35** (Form of Power of attorney for Joint Venture) signed by legally authorized signatories of both the partners on judicial stamp paper duly attested by Public Notary with seal and revenue stamp affixed thereon should be submitted with the technical bid. The "Lead Partner" shall be authorized to incur liabilities and receive instructions for and on behalf of any and all partners of the Joint Venture/Consortium. The "lead partner" shall be responsible for timely execution & completion of all the activities. Entire execution

of the contract shall be done by the "Lead Partner" and payment under the contract shall be received by the "Lead Partner" on behalf of the Joint Venture/Consortium as per power conferred to him in the Power of Attorney. All the correspondences etc. shall be done exclusively with the "lead partner". The bid document should have been purchased and submitted by the "Lead Partner**"** only.

(iii) The partners of the Joint Venture/Consortium shall be liable jointly and severally for the execution of the Contract in accordance with the Contract terms, and a statement to this effect shall be included in the authorization mentioned under (ii) above as well as in the Bid Form and in the Contract Form (in case of a successful bid). The lead partner shall be authorized to incur liabilities and receive instructions for and on behalf of all the members.

(iv) The agreement entered into, signed by the Joint Venture/Consortium partners, shall be submitted with the bid. Original copy of JV Undertaking in **proforma-34** (form of undertaking by the Joint Venture Partners) on judicial stamp paper duly attested by Public Notary with seal and revenue stamp affixed thereon indicating joint and several liabilities among the parties to the Joint Venture should be provided with the bid. No joint venture will be accepted after submission of the tender bid. The joint venture/consortium shall remain valid for entire contractual period and the same shall be mentioned in the agreement. In case of any breach of contract by any of the joint venture/consortium partners during execution of the contract, the same shall be deemed to be default by both the partners. It will be the sole discretion of CSPTCL to allow the other partner to complete the work or to terminate the total contract.

(v) The bid shall be signed so as to be legally binding upon both the partners of the joint venture/consortium. The non-judicial stamp paper shall be purchased in the name of joint venture and the date of purchase should not be later than six months of date of execution of the undertaking/ agreement shall be signed on all the pages by authorized representatives of each of the partners and should invariably witnessed.

Although details presented in this tender specification have been compiled with all reasonable care, it is the responsibility of the bidder to satisfy himself that the information given in each section are adequate and there are no conflicts between various clauses/sections/specifications. The clarification/ decision of the Executive Director / Chief Engineer (Planning & Projects) shall be final and conclusive.

(vi) "**EXTREMELY IMPORTANT" 'Bidder to note this to avoid bid rejection'** :-

It will be the sole responsibility of the sole bidder/partners of joint venture (JV)/consortium bidder to make sure that all the documents required as per tender are submitted along with bid on or before due date of tender. The bid submission date is cut-off date of submission of all the documents required as per tender and every bidder must adhere to this dead line. No additional documents will be allowed after bid submission.

If a bidder has quoted "NIL" deviations in Annexure-9 (deviation from technical specifications/ conditions) and Annexure-19 (deviation from commercial conditions) this will have an overriding effect on any other conditions noted as deviations elsewhere in the bid.

Please note that in case of any of the required document is not submitted along with the bid, the bid will be rejected without any further correspondence in the matter.

SECTION – I

INSTRUCTIONS TO BIDDERS

1.01 Sealed Tenders in duplicate on two part basis (each complete with all details in the manner specified together with drawings, test reports, descriptive literature if any) and declaration form duly signed by bidder are to be dropped in tender box placed in the office of the Chief Engineer (Planning & Projects), Chhattisgarh State Power Transmission Co. Ltd., Dangania Raipur, for this particular tender No.**TR-20/04** in double sealed cover & super scribed on each of the covers the relevant tender specification number and due date of opening as indicated in the "Notice Inviting Tenders".

In case, the tender is sent through post / courier, it will be responsibility of the bidder to drop/ get dropped the tender in the tender box. Receipt of tenders shall not be given in any case. The tender should be dropped before or up to 3.00 pm on due date of submission. Tender box shall be sealed at 03.00 pm and in no case tenders shall be allowed to be dropped in the tender box after 03.00 pm.

1.02 The Specification is divided into five Sections: -

Part-I Techno Commercial

(i)	Section - I	Instruction to Bidders,
(ii)	Section-II	General Conditions of Contract,
(iii)	Section- III	Commercial Conditions
(iv)	Section-IV	Technical Conditions
(v)	Section-V	Annexures & Formats

Part II Price bid formats.

1.03 Tenders will be opened in the office of C.E. (Planning & Projects), **CSPTCL**, Dangania, Raipur(CG) 492013, in the presence of bidders or their authorized representatives (limited to two persons only with a valid authorization from their employer). At the time of opening, the techno-commercial bid and other relevant details will be read out. Price bid of successful Techno commercial; bidder would be opened at a later date with due information to the successful bidders.

1.04 The bidder may deviate from the specification while quoting if in his opinion such deviation is in line with the manufacturer's standard practice and conducive to a better and more economical offer. All such deviations should however be clearly indicated giving full justifications for such deviation in separate sheet(s) under "Deviations" title in annexure.

1.05 Only those who have purchased the copy of relevant Specification No.**TR-20/04** or downloaded from CSPTCL's official website (Along with cost of document) can submit their tender. Tenders submitted by others will be rejected.

1.06 The **CSPTCL** reserves the right to reject the lowest or any other tenders or all tenders without assigning any reason whatsoever, if it is considered expedient in the overall interest of **CSPTCL**.

1.07 The tender should be in two parts, Part – I for techno-commercial details in DUPLICATE and Part – II for prices in DUPLICATE. The tenders shall be submitted in two parts and should be enclosed in sealed cover both addressed to the Chief Engineer (Procurement & Projects), **CSPTCL**, Dangania, Raipur (CG) 492013. Covers should be sealed and super scribed with tender specification No.**TR-20/04** and date of opening. Tenders being submitted must be signed by a person holding a power of attorney authorizing him to do so. The notarized copy of power of attorney should be furnished. Tenders submitted on

behalf of company registered under Indian Companies Act shall be signed by person duly authorized to sign the tender on behalf of the company and shall be accompanied by notarized copy of resolution / abstract of Article of Association/ special or general power of attorney.

1.08 The bidders are required to submit tenders in the following manner. All documents / information of tender as described below shall be placed in a sealed cover containing four separate sealed covers as mentioned below :-

In certain cases confusion takes place regarding furnishing of earnest money since the Envelopes are not properly super-scribed and sealed by the bidder. It is therefore intimated that FIVE envelopes as under are to be submitted.

a) Envelope - I:-This envelope should contain a covering letter with earnest money along with tender form in original. The cover of envelope should be suitably super-scribed with "**Earnest Money and cost of tender document" should contain the Banker's cheque / demand draft and Goods & Service Tax (GST) Registration Certificate**. The envelope should be sealed properly.

In case, the tender has been download from CSPTCL's official website, the required cost of tender document in the form of MICR DD drawn in favour of Manager (RAO:HQ), CSPTCL, Raipur (C.G.) should also be kept inside this envelope. Please note that in case the cost of tender document & Goods & Service Tax (GST) Registration Certificate is not furnished with the tender, further bids shall not be opened.

b) Envelope - II: - This envelope should contain the Pre Qualification requirements in DUPLICATE with detailed order copy of work executed and their completion certificate.

c) Envelope - III:- This envelope should contain the Technical Bid and Commercial Bid complete in all respects, Pre-contract integrity pact (Annexure-29) and copy of unpriced / unfilled price bid schedule (Schedule A-1, A-2, A-3 & A-4 of tender) in DUPLICATE. In case of difference in original and duplicate bid, the contents of original bid will be taken in to account.

d) Envelope-IV:- This envelope should contain the Price Bid in DUPLICATE, complete in all respects (Price Schedule A-1, A-2 , A-3 & A-4 of tender).

e) Envelope - V: - This large envelope should contain all the above four envelopes.

Any envelope apart from the above mentioned envelopes shall not be entertained.

Discount (if any) offered by the bidder should be kept inside the envelope No. IV. No discount offer shall be considered which is pasted or stapled/enclosed outside the price bid envelope for the purpose of evaluation and comparative statement.

Any envelope apart from the above mentioned envelopes shall not be entertained.

(ii) All the envelopes shall be addressed as under:-

Chief Engineer (Planning& Project),
Chhattisgarh State Power Transmission Company Limited,

(A Successor Company of CSEB), DANGANIA – RAIPUR 492013

(iii) The outer main envelope containing the above envelopes shall bear the following identification:-

"Tender No.**TR-20/04** for Supply of steel monopole& other line materials and Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur) is required to be constructed **on turnkey basis**. The words "**DO NOT OPEN BEFORE ----------"**(date of Bid opening) should also appear on it.

(iv) The outer and inner envelopes shall also indicate the name and full mailing address of the Bidder to enable the Bid to be returned unopened in case it is declared "Late" or otherwise not acceptable.

In case the above instructions are not followed properly and any of their envelope is not available for inspection and opening, no representation at due time of tender opening shall be accepted and such offers shall not be opened.

1.09 Tenders received after due date and time shall not be opened.

1.10 Telegraphic or FAX tenders shall not be accepted under any circumstances.

1.11 **EARNEST MONEY DEPOSIT:-**

The tender shall be accompanied by Earnest Money deposit of **Rs.88,000/- (Rupees eighty eight thousand only).**

The Earnest money Deposit shall be offered in one of the following forms subject to the conditions mentioned below:-

i. Bank Draft to be drawn in favour of "Manager, (RAO:HQ), CSPTCL, Raipur (C.G.)"
ii. No interest shall be paid on Earnest Money Deposit.
iii. No adjustment towards Earnest Money Deposit shall be permitted against any outstanding amount with CSPTCL.
iv. In the case of unsuccessful bidder, the Earnest Money will be refunded after finalization of tender. In case of successful bidder Earnest Money will be refunded only after furnishing security deposit 10% of order value.
v. Earnest money/ security deposit will be forfeited if the bidder fails to accept the letter of intent or purchase order(s) issued in his favour.
vi. Tenders not accompanied by Earnest Money shall be disqualified.
vii. Cost of tender document is non refundable.

1.12 **FORFEITURE OF EARNEST MONEY:-**

The Bid security is required to protect the **CSPTCL** against the risk of Bidder's conduct, which would warrant the Earnest Money's forfeiture, due to following reasons:

a) If a Bidder withdraws his Bid during the period of Bid validity specified.
b) In the event of refusal to accept the Letter of Intent placed by the Purchaser within the validity period.
c) In the case of a successful Bidder if he fails to sign the various Agreements and fails to furnish Security Deposit as specified in the Tender Specification.
The successful Bidder's Earnest Money will be discharged only after the execution of various Agreements and Security deposit by the Bidder (as specified in this tender Specification).

1.13 VALIDITY:-The tenders should be kept valid for a period of 180 days from the date of opening of the tenders as notified in the tender notice and subsequently amendment thereof failing which the tenders will be rejected.

1.14 The contractors are advised to visit the proposed / likely routes of the lines to acquaint himself about topography of the line routes and other details before submitting the bids.

1.15 The successful bidder are required to submit the Project License Certificate from Chief Electrical Inspector & Safety / Industrial Relations Officer of Government of C.G. within one month from the date of acceptance of LOI in respect of the said work; otherwise the same is liable for rejection without notice.

1.16 PRICE-BID & ITS EVALUATION :-

Bidders must quote their price in accordance with the specifications and conditions. Any deviation from the above shall be considered as an alternate bid. The bids will be evaluated based on the main offer only.

i. The tender should be filled either in blue or black ink or preferable type written. For computerised printing the font size shall be at least 10.
ii. Over-writing shall be avoided.
iii. Over-writing, erasures and other changes, if any, shall bear the dated initial of the person signing the tender.
iv. In the event of noticing arithmetical errors viz. multiplication of price & quantity, grand total of total amount etc. these shall be corrected and computation shall be done accordingly.
v. For evaluation the price mentioned in words shall be taken if there is any difference in figures and words in the price bid.
vi. The quoted price should be kept valid for the contractual period/ completion of the project.
vii. All columns shall be completely filled up properly and neatly.
viii. No conditional prices should be quoted.
ix. The evaluation of price bids shall be done by comparing the Grand total (i.e. Total of all the price bid annexures) quoted by the bidder in price schedule Annex-A-1, A-2, A-3 & A-4 of all the items including GST & levies. Based on the comparative evaluation, LOA shall be placed on the L-1 bidder (lowest quoted price for entire project) on final accepted price.
x. The loading of the items for which the prices are not being quoted by bidder, in such cases, the loading will be done at highest prices quoted amongst the participating bidder. But, while ordering, lowest price amongst the bidders will be considered.
xi. If the quantity quoted is less than B.O.Q. /or required, for turnkey completion of the job, the loading will be done on the pro-rata basis.
xii. In case the bidder makes contradictory statement in the Technical & Commerc1ial Bid or for items for which the prices are not being quoted by bidders, loading will be done at highest prices quoted among the participated bidders. But, while ordering, lowest price among the bidders will be offered.
xiii. All the equipments/material, accessories, including charges for erection & commissioning etc required for construction & commissioning of EHV line have been included in the price schedule i.e. A-1,A-2 A-3 & A-4.

xiv. If there is discrepancy between the Unit Price and the total price that is obtained by multiplying the unit price & Quantity, the Unit Price shall prevail and total price shall be corrected accordingly. If there is discrepancy between words and figures the amount in words shall prevail.

xv. The prices for supply of line material & construction charges of line should be quoted as per the break up mentioned here under:-

a) **Supply of Line material:**

The breakup of unit rate, freight and GST should be given in the price bid. Applicable cess @ 1% of the cost shall be borne by the contractor and shall be deducted from each bill for remittance to the concerned government department.

(b) **Construction charges for line:**

The rates for construction charges should clearly indicate the unit rate and GST. Applicable cess @ 1% of the cost shall be borne by the contractor and shall be deducted from each bill for remittance to the concerned government department. The breakup of taxes should be clearly mentioned. In case of any such ambiguous statement, it will be presumed that rates are inclusive of taxes and no claim for such taxes shall be entertained.

xvi. The amount of ex-works price, taxes etc. quoted in the price bids shall be rounded-off upto 2 (two) digits of paise and accordingly the calculation shall be done while evaluation.

xvii. CSPTCL's decision in such cases shall be final.

1.17 **NEGOTIATION OF PRICES:-** CSPTCL reserves the right to hold negotiation with L-1 bidder as deemed necessary. Procedure adopted by CSPTCL for holding negotiation shall be final and binding on all bidders.

1.18 **TIME SCHEDULE & CLARIFICATIONS:-**

In view of the urgency, the date of opening of this tender will not be extended. It is therefore necessary that the tender documents are read by bidders carefully and clarifications, if any, required before furnishing of tenders is promptly obtained. For any delay in this regard, **CSPTCL** will not be responsible and any request for extension of due date will not be entertained.

1.19 **INCOME TAX CLEARANCE CERTIFICATE:**

Income Tax clearance Certificate may be submitted.

1.20 **CLAIMS FOR ITEMS NOT ENTERED IN THE SCHEDULE OF ITEMS:**

Items shown in the schedule of items are purely for the purpose of indicating the type of work to be carried out and no claim shall be entertained for any item or work executed being not mentioned in the aforesaid schedule.

1.21 **SCHEDULES AND ANNEXURES**:

Annexures giving details of various items are enclosed at the end of the specifications **(section V).** Bidder should consult these annexures before filling the tender.

Forms of schedules are also enclosed in the specifications. Bidders are required to go through the complete specification and consult explanatory notes, before filling in various schedules / annexures.

All the points mentioned in schedules and annexures shall be filled in by the bidders and complete information shall be supplied. Incomplete schedules may make his tender liable for rejection.

1.22 **COMPLETENESS OF TENDER:**

Each section of the tender should be complete and include all associated works not specifically mentioned in the schedule / specification etc. but essential for the completeness of the work. The contractor shall not be eligible for any extra charges in respect of such minor works though not specifically included in the tender or contract schedule.

1.23 **DEPARTURE FROM SPECIFICATION:**

If the bidder wishes to depart from the specification in any respect, he shall draw attention to such points of departure, explaining fully the reasons thereof, so that the relative merits of the proposal may be considered. Unless this is done, the requirement of this specification will hold good. Such departures from specification shall be indicated in respective schedules.

1.24 **QUESTIONNAIRE:**

The questionnaire enclosed herewith (Annexure-10) contain a set of questions, and bidder is requested to answer each and every question clearly and without ambiguity.

1.25 **CHECK-LIST:**

The check list (Annexure-32) in respect of various schedules etc is required to be submitted by the bidder without which the tender will be considered incomplete and liable for rejection. The bidder should submit all schedules duly filled in along with this offer.

1.26 **NATURE OF CONTRACT :-**

It will be composite in nature, which shall consist of supply of steel monopole including line materials i.e. Conductor, Earthwire, polymer Insulators, hardware's etc. & all other line materials, Erection work and dismantling of existing line required for turn-key project.

1.27 **CONFLICTING PROVISIONS:-**

Although details presented in this Tender Specification have been compiled with all reasonable care, it is the responsibility of the Bidder to satisfy himself that the information's given in each section are adequate and that there are no conflicts between various clauses/ sections/ Specifications. In case of any variation, the same may be referred to C.E. (P&P) For clarification / decision before due date of submission. The clarification/ decision of C.E. (P&P) shall be final and conclusive.

1.28 **NON RESPONSIVE BID**

CSPTCL reserves the right to reject any Bid, which is:

(a) Not accompanied by the Earnest Money as specified above.
(b) Not received by the due date and time specified.
(c) In variance with specified terms and conditions.

(d) If any time, it is found that a material misrepresentation of facts is made or uncovered.
(e) The Bidder does not respond promptly and thoroughly to the request for supplementary information required for the evaluation of his Bid.
(f) If the Bidder fails to super scribe on the envelope containing the Bid, the details of Earnest Money deposited by him, the Purchaser shall not accept any responsibility and the offers received shall be rejected and shall be returned to the Bidders.

1.29 **TERMINATION**:-

In the event of any breach of the terms of the order, the CSPTCL reserves the right to:-

(i) Cancel the order for part or whole of the materials yet to be supplied or work to be executed on the risk & cost of contractor without any liability on CSPTCL.
(ii) To purchase elsewhere or to execute the work with other agency on the risk & cost of the contractor, part or whole of the materials so affected or work to be executed without any liability on CSPTCL.

1.30 **INTEGRITY PACT**: - The bidder shall have to submit pre-contract integrity pact in the format enclosed as **Annexure-29** on non-judicial stamp paper worth Rs.300/- duly signed by the bidder along with the Techno-Commercial bid. The validity of this integrity pact shall be from the date of its signing and extended up to 2 years or the complete execution of the contract to the satisfaction of both the Buyer and the Bidder/Seller, whichever is later. In case Bidder is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

Although details presented in this tender specification have been compiled with all reasonable care, it is the responsibility of the bidder to satisfy himself that the information given in each section are adequate and there are no conflicts between various clauses/sections/specifications. The clarification/decision of the ED/CE (Planning& Projects) shall be final and conclusive.

1.31.**UNSATISFACTORY PERFORMANCE (Debarred/ blacklisted):-**

The bidder(s) who have been debarred/ blacklisted for future business with CSPTCL/ or any other successor power companies of erstwhile CSEB, or found to be violate any provision(s) contained in the tender document during any stage of bid or during pre contract stage, their bid shall not be considered for further evaluation and the bidder can be disqualified from tender process or the contract, if already awarded, can be terminated for such reason.

SECTION- II

GENERAL CONDITIONS OF CONTRACT

2.01 DEFINITION OF TERMS:-

In writing these General Condition of Contract, the specification and bill of quantity, the following words shall have the meaning hereby indicated, unless there is something in the subject matter content inconsistent with the subject.

- "**CSPTCL**." shall mean the CHHATTISGARH STATE POWER TRANSMISSION CO. LTD. represented through the Chief Engineer (P&P), Raipur.
- The purchaser/owner shall mean the CHHATTISGARH STATE POWER TRANSMISSION CO. LTD. (**CSPTCL**).
- "The Engineer In Charge" shall mean the Engineer or Engineers authorized by the Chief Engineer (P&P) for the purpose of this contract.
- "**CSPTCL** Engineer" shall mean an Engineering person or personnel authorized by the **CSPTCL** to supervise and inspect the material and construction of the Line.
- "The Contractor" shall mean the successful bidder awarded with the contract or their successors and permitted assigns.
- "Contract Price" shall mean the sum named in or calculated in accordance with the provisions of the contract as the contract price.
- "General Conditions" shall mean these General Conditions of Contract.
- "Specification" shall mean the specification annexed to these General Conditions of Contract and shall include the Schedules and drawings attached thereto or issued to the contractor as well as all samples and patterns, if any.
- "Monopole" shall mean the design and type tested Monopole to be supplied by the contractor.

2.02 CONTRACT DOCUMENT:-

The term "Contract" shall mean and include the General Conditions, specifications, Annexures, drawings, work orders issued against the contract Annexures of price or the final general conditions, any special conditions applying to the particular contract specification and drawings and agreement to be entered into. Terms and conditions not here in defined shall have the same meaning as assigned to them in the Indian Contract Act falling that in the C.G. Act.

2.03 MANNER OF EXECUTION: -

a) The manner of execution shall be such that the supply of materials reach the site in a phased manner as per the site progress after due approval from this office. Erection of the 132 KV LINE shall be carried out in an approved manner as outlined in the technical specification or where not outlined, in accordance with latest relevant Indian Standard Specification, to the reasonable satisfaction of the Engineer.

b) The contractor shall within 15 days after the date of acceptance of letter of intent submit to the Engineer, a detail program for the execution of work for his consent.

The contractor shall whenever required by the Engineer also provide in writing for his information if general description of the arrangements and methods which the contractor proposes to adopt for the execution of the work.

c) If at any time it should appear to the Engineer that the actual progress of works does not conform to the program to which consent has been given under **clause 3.05 & 3.09**, the contractor shall produce at the request of the Engineer a revised program showing the modifications to such program necessary to ensure completion of the works within the time of completion.

2.04 **VARIATION, ADDITIONS & OMISSIONS:-**

The **CSPTCL** shall have the right to alter, amend, omit, or otherwise vary the quantum of supply / erection work, by notice in writing to the contractor. The contractor shall carry out such variation in accordance with the rates specified in the contract so far as they may apply and where such rates are not available; those will be mutually agreed between the **CSPTCL** and the contractor.

2.05 **INSPECTION DURING ERECTION:**

The Engineer In Charge or his authorized representative(s) shall be entitled at all reasonable times to inspect and supervise and test the materials / works of Lines. Such inspection will not relieve the contractor from their obligations under this contract.

2.06 **CONTRACTORS DEFAULT LIABILITY:**

The CSPTCL may upon written notice of default to the contractor terminate the contract in circumstances detailed here under:-

(I) If, in the judgment of CSPTCL, the contractor fails to

(i)Complete the contractual formalities within the time specified in the contract agreement or within the period for which extension has been granted by CSPTCL to the contractor

and / or

(ii)Comply with any of the provisions of this contract.

CSPTCL under the provisions of this contract shall take one or more of the following penal actions:-

(a) Terminate the contract

(b) Forfeiture of security deposit, if available or EMD.

(c)Debar the firm for future business with CSPTCL for a period of two years from the date of issue of letter to this effect.

(d) This debarring may be applicable in respect of other Chhattisgarh State Power Companies also as may be decided by their management.

(II) In case the contractor fails to commence the work within the reasonable period as decided by CSPTCL or fails to complete the works within the contractual completion period or the progress is not commensurate with the time period provided for completion of entire project or within a period for which extension has been granted by CSPTCL, one or more of following penal actions may be taken by CSPTCL against the contractor.

(a) Terminate the contract.

(b) Forfeiture of security deposit, if available or EMD.

(c) Debar the firm for future business with CSPTCL for a period of two years from the date of issue of letter to this effect.

(d) This debarring may be applicable in respect of other Chhattisgarh State Power Companies also as may be decided by their management.

(e) The payment of pending RA bills of the instant contract shall be withheld.
(f) The payment of pending RA bills of the other running contracts shall also be withheld.

(III) In case the work of construction of line is not completed in accordance to relevant clause of the tender "completion of work" and CSPTCL does not terminate the contract, the contractor shall continue to execute the work, in which case he shall liable to CSPTCL for deduction of liquidated damages for delay as per relevant clause of this contract until the line is completed.

2.07 FORCE MAJEURE:

The contractor shall not be liable for any penalty for delay or for failure to perform the contract for reasons of FORCE MAJEURE such as acts of God, acts of public enmity, act of Government, cyclones, fires, floods, epidemics, quarantine restrictions, strikes, freight embargoes provided that the contractor shall within 10 (ten) days from the beginning of such delay notify the CSPTCL in writing of the cause of delay and shall also submit evidences in this regard. The CSPTCL shall verify the facts and grant such time extension as facts justify.

If progress is delayed at any time during the term or extended term of this contract by strikes, lockouts, fire accident, delay in approval of drawings, ROW issues, force majeure conditions or any cause whatsoever beyond the control of the contractor, a reasonable extension of time shall be granted.

2.08 REJECTION OF WORKS:

In the event of any of the material supplied/work done by the contractor is found defective in material or workmanship or otherwise not in conformity with the requirement of this contract specification, the CSPTCL shall either reject the material and/or work and request the contractor to rectify the same. The contractor on receipt of such notices rectify or replace the defective material and rectifies the work, free of cost. If the contractor fails to do so the CSPTCL may:

a) As its option replace or rectify such defective materials and/or works and recover the extra cost so involved from the contractor plus fifteen percent from the contractor and/or terminate the contract for balance work/supplies with enforcement of penalty as per contract.

b) Defective materials/workmanship will not be accepted under any conditions and shall be rejected outright without compensation. The contractor shall be liable for any loss / damage sustained by CSPTCL.

2.09 JURISDICTION OF THE HIGH COURT OF CHHATTISGARH:

Suits, if any, arising out of this contract shall be filed by either party in a Court of Law to which the jurisdiction of the High Court of Chhattisgarh extends.

2.10 CONTRACTORS RESPONSIBILITY:

Notwithstanding anything mentioned in the specification or subsequent approval or acceptance of the Line by CSPTCL, the ultimate responsibility for satisfactory performance of the Line shall rest with the contractor.

2.11 NON-ASSIGNMENTS:

The contractor shall not assign or transfer the work orders issued as per this contract or any part thereof without the prior approval of CSPTCL.

2.12 CERTIFICATES NOT TO AFFECT RIGHTS OF CSPTCL:

The issuance of any certificate by CSPTCL or any extn. of time granted by CSPTCL shall not prejudice the rights of CSPTCL in terms of the contract not shall this relieve the contractor of his obligations for due performance of the contract.

2.13 SETTLEMENT OF DISPUTES:

a) Except as otherwise specifically provided in the contract, all disputes concerning question of fact arising under the contract shall be decided by CSPTCL provided a written appeal by the contractor is made to CSPTCL. The decision of CSPTCL shall be final to the parties hereto.
b) Any disputes or difference including those considered as such by only one of the parties arising out of or in connection with this contract shall be to the extent possible be settled amicably between parties. If amicable settlement cannot be reached then all disputes issues shall be settled by Arbitration as provided in this contract.

2.14 ARBITRATION:-

i) No dispute or difference arising between the contractor and the Owner under or relating to or in connection with the Contract shall be referred to Arbitration unless an attempt has first been made to settle the same amicably.

ii) Where any dispute is not resolved amicably then such disputes shall be referred to & settled by Arbitration under and in accordance with the provisions of the Arbitration and Conciliation Act 1996 and any statutory modification thereof, by three Arbitrators. One to be appointed by each party and the third to be appointed by the two Arbitrators appointed by the parties at the commencement of Arbitration proceedings and falling agreement between them, in accordance with said Act, the third Arbitrator so appointed shall act as the presiding Arbitrator. The award shall be final and binding upon the parties. The venue of Arbitration shall be Raipur.

iii) The language of the arbitration proceedings and of all documents and communications between the parties shall be English. Arbitration award shall be speaking, final and binding.

iv) Notwithstanding anything to the contrary contained herein the work under the Contract shall continue during the pendency of any disputes or differences in Arbitration proceedings and no payment due from the Owner shall be withheld on account of such proceedings except to the extent which may be in dispute and the Owner shall be entitled to make recoveries of amounts, if any, due from the Contractor, as per the provisions of the Contract.

2.15 LAWS GOVERNING CONTRACT:

The contact shall be constructed according to and subject to the Laws of India and jurisdiction of the High Court of Chhattisgarh.

2.16 LANGUAGE AND MEASURES:

All documents pertaining to the Contract including specifications, Annexures / schedules, notice correspondence, operating and maintenance instructions, drawings or any other writings shall be written in English language. The metric system of measurement shall be used exclusively in this contract.

2.17 CORRESPONDENCE:

a) Any notice to the contractor under the terms of the contract shall be served by registered mail or by hand to the authorised local representative of the contractor and copy by post to the contractor's place of business.

b) Any notice to CSPTCL shall be served to the ED/CE (P&P), CSPTCL, Dangania, Raipur (CG) 492013 in same manner.

2.18 SECRECY:

The contractor shall treat the details of the specification and other documents as private and confidential and they shall not be reproduced without written authorization from CSPTCL.

2.19 SAFETY PRECAUTIONS:

The contractor shall strictly follow, at all stages of erection of steel structures, the stipulations contained in the latest editions of IS-7205 "Indian Standard Safety code for erection of structural steel work".

2.20 ENGAGEMENT OF WORKERS BY CONTRACTOR:-

a) The contractor shall at his own expense provide or arrange for the provision of footwear for labour doing cement mixing work which the contractor has undertaken to execute under this contract to the satisfaction of Engineer-in-charge.

b) Whenever demanded by the Engineer-in-charge the contractor shall submit a true statement showing :-

i. Number of Labours employed by him on the work
ii. Their working hours
iii. The wages paid to them, and
iv. The accidents that occurred during the working period of which information required stating the circumstances under which they occurred and the extent of damage and injury caused to them. The contractor should intimate all concerned about any accident & take immediate actions as governed by Rules.

Failure to supply such information or supplying materially incorrect statements may amount to breach of contract. The decision of the Engineer-in-charge shall be determining whether a breach has taken place.

c) In respect of all labours directly employed in the works of the performance of the contractors part of this agreement the contractor shall comply with or cause to be complied with all the rules framed by the Government from time to time for the

protection of Health and Sanitary arrangement of the workers employed by the contractors.

2.21 CONTRACTOR TO INFORM HIMSELF FULLY

The contractor shall be deemed to have carefully examined the general conditions of specification, schedules and drawings. If he shall have any doubt as to the meaning of any portion of these general conditions or of the specification, he shall before signing the contract set forth the particulars thereof, and submit them to the Engineer in writing, so that doubt may be removed.

2.22 CONTRACT DRAWINGS:-

a) The contractor shall provide structural drawings and Bill of Materials of 132KV GI steel monopole and extensions to the CSPTCL for approval along with foundation drawings after placement of award in sequence, suiting the project requirement. The contractor shall prepare Workshop drawings for fabrication of monopole promptly.

b) Monopole accessories like number plate, danger plate, phase plate, D-shackle etc. shall be prepared by the Contractor as per drawing of CSPTCL and submitted to the CSPTCL in three copies, along with one reproducible, for record. These drawings shall be prepared in A4 size only.

c) All the drawings shall have a proper name plate clearly displaying the name of CSPTCL on right hand bottom corner. The exact format of the name plate shall be handed-over to the successful bidder for incorporation of the same on all the drawings. Also all the drawings shall carry the following statement and shall be displayed conspicuously on the drawing :-

d) The contractor will submit the drawings & GTP of stringing hardwares, GI Nut Bolts, Conductor, Earthwire, barbedwire and Polymer Insulator etc of the approved sub-vendor alongwith the type test of Govt. approved test laboratory which should not be older than 5 years.

e) The Engineer shall signify his approval or otherwise of the drawing submitted by the contractor within a reasonable time generally not exceeding thirty days, from the date of receipt of such drawings.

f) The drawings when so approved shall not be departed from in any way whatsoever except by the written permission of the Engineer as hereinafter provided. The drawings approved by the purchaser shall be at liberty to use these drawings / designs in any manner it likes for its future lines.

g) During the execution of the works, one of the sets of drawings shall be available with the contractor for reference on the site.

h) The Engineer or his duly authorised representative shall have the right, at all reasonable times to inspect the factory or works of the contractor.

i) The manufacturing of the material shall be strictly in accordance with the approved drawings and no deviation shall be permitted without the written approval of the CSPTCL. All manufacturing and fabrication work in connection with the material prior to the approval of the drawing shall be at Contractor's risk.

j) Approval of drawing/works by CSPTCL shall not relieve the Contractor of his responsibility and liability for ensuring correctness and correct interpretation of the latest revision of applicable standards, rules and codes of practices. The plant shall conform in all respect to high standards of engineering, design, workmanship and latest

revisions of relevant standards. CSPTCL shall have the power to reject any work or material, which in his judgment is not in full accordance therewith.

2.23 MISTAKES IN DRAWINGS:- **(a)** The contractor shall be responsible for, and shall pay for, any alterations of the work due to any discrepancies, errors, or omissions in the drawings or other particulars supplied by him, even if such drawing or particulars have been approved by the Engineer(s). However, such discrepancies, errors or omissions are not due to inaccurate information or particulars furnished to the contractor by the Engineer. The purchaser shall be responsible for drawings and information supplied by the Engineer, and the purchaser shall pay for any alterations of work necessitated by reason of inaccurate information supplied by the Engineer to the Contractor.

(b) Tender specification to override in case of discrepancy with Approved Drawing:- The contractor are required to submit the drawings of the items strictly as per Tender Specifications. However, after approval of drawing at a later stage, if it is detected that due to incorrect/ incomplete/ partially matching drawing with the tender specifications or due to any other reason, the items actually supplied do not fulfill the requirements as per tender specifications the whole lot shall be liable for rejection unless the deviation is specifically approved by CE (P&P).

2.24 PATENT RIGHTS:-In event of any claim or demand being made or action being brought against the purchaser for infringement or alleged infringement of any patent in respect of any material, work, drawing/design or thing used or supplied by the contractor under this contract or in respect of any method using or working by the purchaser on such machine, work, material, drawing/design or thing, the contractor will indemnify the CSPTCL against all costs and expenses arising from or incurred by reason of any such claim. The CSPTCL shall notify the contractor immediately if, any claim is made and that the contractor shall be at liberty if he so desires with the assistance of the CSPTCL, if required, but at the contractors expense, to conduct all negotiations for the settlement of the same or any litigation that may arise there from.

2.25 SUBLETTING OF CONTRACT:-

a) The contractor shall not without the consent in writing of the Engineer or CSPTCL, assign or sublet his contract, or any substantial part thereof, other than for raw materials, for minor details for any part of the work of which the makers are named in the contract, provided that any such consent shall not relieve the contractor from any obligation, duty or responsibility under the contract.

b) The activities which can be allowed for subletting are excavation, transportation of materials, backfilling, de-watering, shoring and shuttering and other minor works. The contractor will inform the site engineer in writing about such subletting of works.

2.26 QUALITY OF MATERIALS:-The line shall be constructed in the best and the most substantial and the most workmen like manner and with materials of the best or of approved qualities for their respective uses.

2.27 (A) PACKING:-The contractor shall include and provide for securely protecting and packing the material so as to avoid damage in transit under proper conditions, and he shall be responsible for all losses or damage caused or occasioned by the any defect in packing. All materials shall be packed in accordance with packing specifications prescribed by the carriers. Packing or transporting methods not following to these specifications must be got approved by the Engineer or his authorised representative before transportation is made.

All bright parts shall be thoroughly protected from rust during transit. The purchaser will take no responsibility for any damage done to the material en-route to the 'site of work' or 'place of delivery' whichever may be specified.

(B) Transportation :- The successful bidder shall ensure that all the required material for project is dispatched to site through vehicles within their permissible load carrying capacity sanctioned by Transport Department of State where vehicle is registered.

2.28 DELIVERY:-The contractor shall quote price for the supply and erection of the material, equipment, and machinery covered by the purchaser specification.

2.29 FENCING, LIGHTING AND APPROACH ROAD:-The contractor shall be responsible for the proper fencing, guarding, lighting and watching of all works comprised in the contract and for the proper provision of temporary roadways, foot-ways, guards and fences as far as the same may rendered necessary by reason of the work for the accommodation and protection of foot passengers or other traffic and of the owners and occupiers of adjacent property and of the public.

2.30 POWER TO VARY OR OMIT WORKS:-

No alteration, amendments, omission, additions, suspensions, or variations of the work(hereinafter referred to as 'Variation') under the contract as shown by the contract drawings or the specification shall be made by the contractor except as directed in writing by the Engineer, but the Engineer shall have full power, subject to the provision, 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 and the contractor shall carry out such variations and be bound by the same conditions, as far as applicable as though the said variations occurred in the specification. If any suggested variations would, in the opinion of the contractor, if carried out prevent him 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 justified. The difference of cost if any, occasioned by any such variation shall be added to or deducted from the contract price as the case requires. The amount of such difference, if any, shall be ascertained and determined in accordance with the rates specified in the schedule of prices, so far as the same may be applicable, and where the rates are not contained in the said schedules, or are not possible, the same may be settled by the Engineer and contractor jointly. But the purchaser shall not become liable for payment of any change in respect of any of the variations, unless the instructions for the performance of the same shall have been given in writing by the Engineer.

In the event of the Engineer requiring any variations, such reasonable and proper notice shall be given to the contractor as will enable him to make his arrangements accordingly and in case where goods or materials are already prepared, or any designs, drawings or patterns made or work done that required to be altered, a reasonable sum in respect thereof shall be allowed by the Engineer.

Provided however, that no variation which involves an increase or decrease of the total price payable hereunder be more than 15 percent shall be made with out the previous consent in writing of the contractor. In case in which the contractor has received instructions from the Engineer as to carrying out the work which either then or later will, in the opinion of the contractor, involve a claim for additional payment, the contractor

shall, as soon as reasonably possible after the receipt of the instructions aforesaid, advise the Engineer to that effect.

2.31 NEGLIGENCE:-

If the contractor shall neglect to execute the work with due diligence and expedition, or shall refuse or neglect to comply with any reasonable orders given to him in writing by the Engineer in connection with the work , or shall contravene the provisions of the contract, the CSPTCL may give seven days 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 a reasonable time from the date of service thereof in the case of a failure, neglect, or contravention capable of being made good within that time, or otherwise within such time as may be reasonably necessary for making it good, then and in such case the CSPTCL shall be at liberty to employ other workman, and forthwith perform such work as the contractor may have neglected to, or if the CSPTCL shall think fit, it shall be lawful for him to take the work wholly, or in part, out of the contractor's hands and re-contract at a reasonable price with any other persons, or provide any other materials, tools, tackles or labour for the purpose of completing the work or any part thereof. In that event the CSPTCL shall, without being responsible to the contractor for fair wear and tear of the same, have the free use of all the materials, tools, tackles, construction plant or other things which may be on the site, for use at any time in connection with the work, to the exclusion of any right of the contractor over the same, and the CSPTCL shall be entitled to retain and apply any balance which may be otherwise due on the contract by him to the contractor or such part thereof as may be necessary to the payment of the cost of executing such work as aforesaid.

If the cost of executing the work as aforesaid shall exceed the balance due to the contractor, and the contractor fails to make good the deficit, the said materials, tools, tackle, construction plant or other things, the property of the contractor may be sold by the CSPTCL, and the proceeds applied towards the payment of such difference and the cost of and incidental to such sale. Any outstanding balance existing after crediting the proceeds of such sale shall be paid by the contractor on the certificate of the Engineer, but when all expenses costs and charges incurred in the completion of the work are paid by the contractor all such materials, tools, construction plant or other things remaining unsold shall be removed by the contractor.

2.32 DEATH BANKRUPTCY ETC.

If the contractor die or commit any act of bankruptcy, or being corporation, commence to be wound up except for reconstruction purposes or carry out its business under receiver, the executors, successors, or other representative in law of the estate of the contractor or any such receiver, liquidator or any person in whom the contractor may become vested, shall forthwith give notice thereof in writing to the CSPTCL for one month, during which he shall take all reasonable steps to prevent a stoppage of works and shall have the option of carrying out the contract subject to his or their providing such guarantee as may be required by the CSPTCL but not exceeding the value of the work for time being remaining-unexecuted. In the event of stoppage of the works, the period of option under this clause shall be fourteen days only. Provided that, should be above option not be exercised, the contract may be terminated by the CSPTCL by notice in writing to the contractor, and the same power and provisions reserved to the CSPTCL in the last proceeding clause on taking of the work out of the contractor’s hands shall immediately become operative.

2.33 INSPECTION & TESTING:-

(a) The Engineer and his duly authorized representative, shall have, at all reasonable times, access to the contractor's premises or works, and shall have the power at all reasonable times, to inspect and examine the materials and workmanship of the plant/Line during its manufacture, construction or erection thereof for which all the reasonable necessary assistance shall be rendered by the contractor without any extra commitment and if part of the material is being manufactured or erected on other premises or works, the contractor shall obtain permission for the Engineer and for his duly authorized representative to inspect as if the materials were manufactured or erected on the contractor's own premises or works.

The Engineer shall on giving seven day's notice in writing to the contractor setting out any grounds of objection which he may have in respect of the work, be at liberty to reject all or any materials or workmanship the subject of any of the said grounds of objection, which in his opinion are not in accordance with the contractor or are in his opinion defective for any reason whatsoever. Such notice shall be sent to the contractor within reasonable time after the ground upon which such notice us based have come to the knowledge of the Engineer. Unless specifically provided otherwise, all tests as per relevant ISS shall be made at the contractor's works before transportation.

The contractor shall give the Engineer 15 (Fifteen) days clear notice of any material being ready for testing and the Engineer or his said representative shall, attend at the contractor's premises or works within a reasonable time. **The contractor should ensure that the material is delivered at site stores within 21 days of clearance. In case material is not received within 21 days from date of issue of Dispatch instructions, the material is liable for re-inspection at the cost of contractor.**

(b) **Fake inspection call: In case, the material is not offered for inspection on the date of inspection offered by the firm, due to any reason the firm shall be required to remit a sum of Rs.5,000/- or actual expenditure incurred in the visit of the inspector, whichever is more.**

2.34 TEST AT CONTRACTOR'S PREMISES:- In all cases where the contract provides for tests, whether at the premises or works of the contractor or of any sub-contractor, the contractor except where otherwise specified shall provide, free of charge, such labour, materials, electricity, fuel, water, stores, apparatus and instruments as may reasonably be demanded necessary to carry out efficiently such tests of the material in accordance with the contract, and shall give facilities to the Engineer or his authorized representative to accomplish such testing.

If specific tests other than those specified in the relevant IS/contract are required by the CSPTCL, the charges for such tests shall be borne by bidder.

When the tests have been satisfactorily completed at the contractor's or sub-contractor's premises or works, the Engineer or his authorized representative shall issue a test certificate to that effect. However, no material shall be transported before such test certificate has been approved and dispatch instructions issued by this office. The satisfactory completion of these tests or the issue of this certificate shall not abide the CSPTCL to accept the material so passed for transportation, if on further tests after erection it is found not to comply with the specification.

2.35 DELIVERY OF MATERIALS AND DISPATCH INSTRUCTIONS:-

Materials may be supplied based on the field requirement so as to avoid blocking of inventory. On receipt and verification of test certificates, CSPTCL will issue a clearance for dispatch of inspected material. No material shall be dispatched before receipt of such dispatch instruction in writing.

2.36ACCESS TO SITE AND WORK ON SITE:-

Suitable access to the site shall be afforded to the contractor by the CSPTCL in reasonable time. The day to day minor problem like free access to the site and other local problems would be solved by the contractor at his own cost. However, the CSPTCL would extend necessary cooperation/assistance in this respect. The necessary road permits required for transportation of men/material would be arranged by the contractor at his own cost.

In the execution of the work no persons other than the contractor, or his duly appointed representative, subcontractors and workman shall be allowed to do work on the site, except by the Special permission, in writing of the Engineer or his representative, but access to the works at all times shall be accorded to the Engineer and his representative, and other authorized official or representatives of the purchaser.

Nevertheless, the contractor shall permit the execution of the work by other contractors of tradesman whose name shall have been previously communicated in writing to the contractor by the Engineer, and afford them every facility for the execution of their several works simultaneously with his own. The contractor shall provide all the skilled and unskilled labour necessary for the erection of work included in the contract.

2.37 ENGINEER'S SUPERVISION:-

All the works shall be carried out under the direction and to the reasonable satisfaction of the Engineer. If supervision of erection or complete erection be included, the contractor shall be responsible for the correctness of the position, levels, and dimensions of the works according to the drawings, notwithstanding that he may have been assisted by the Engineer in setting out the same.

2.38 ENGINEER'S DECISIONS:-

In respect of all matters which are left to the decision of the Engineer, including the granting of or withholding of certificates, the Engineer shall, if required so to do by the contractor, give in writing a decision thereon, and his reasons for such decision.

2.39 **CONTRACTOR'S REPRESENTATIVE AND WORKMEN**:-

The contractor shall employ at least one competent representative, whose name or names shall have previously been communicated in writing to the Engineer by the contractor, to supervise, the erection of the line and the carrying out of the work. The said representative, of if more than one shall be employed, then one of such representatives, shall be present on the site during working hours, and any written orders or instructions which the Engineer or his duly authorized representative whose name shall have been communicated in writing to the contractor shall be deemed to have been given to the contractor.

The Engineer shall be at liberty to object to any representative or person employed by the contractor in the execution of or otherwise about the works who shall misconduct himself or be incompetent or negligent, and the contractor shall remove the person so objected to upon the receipt from the Engineer of notice in writing requiring him so to do and shall provide in his place a competent representative at the contractor's expense.

2.40 LIABILITY FOR ACCIDENTS AND DAMAGE:-

The contractor shall be entirely responsible for all loss, damage, or depreciation of the line until the line is 'taken over' in accordance with relevant clause of specification.

The contractor shall during the progress of the work, properly cover up and protect the line from injury by expose to the weather, and shall take every reasonable, proper, timely and useful precaution against accident or injury to the same from any cause and shall remain answerable and liable for all accidents or injuries thereto which until the same be, or be deemed to be taken over as per relevant clause of this specification, may arise or be occasioned by the acts or omissions of the contractor or his workman or sub-contractor and all losses and damages to the materials arising from such accidents and injuries as aforesaid shall be made good in the most complete and substantial manner by and at the sole cost of the contractor and to the reasonable satisfaction of the Engineer.

Until the line shall be or be deemed to be taken over as aforesaid, the contractor shall also be liable to indemnify the purchaser in respect of all damage or injury to defective design, work, or material, but not otherwise.

Provided that the contractor shall not be liable under the contract for any loss or profit or loss of contract for any claims made against the CSPTCL not already provided for in the contract, nor for any damage or injury caused by or arising from the acts of the purchaser or of others, of (safe as to damage by fire as hereinafter provided) due to circumstances over which the contractor has no control, nor shall his total liability for loss, damage or injury exceed the total value of the contract.

The contractor shall be deemed to have indemnified and saved harmless the purchaser against all actions suits, claims, demands, cost of expense arising in connection with injuries, suffered prior to the date when the line shall have been taken over as per relevant clause of this specification, herein by person employed by the contractor or his sub-contractor on the works whether under the General Law or under the Workman's Compensation Act, 1923, or any other statute in force at the statute of the contract dealing with the question of the liability of employers for injuries suffered by employees for injuries suffered by employees and to have taken steps properly to insure against any claim there under.

On the occurrence of an accident which results in the death of any of the workmen employed by the contractor or which is so serious as to be likely to result in the death of any such workman, the contractor shall, within 24 hours of the happening of such accident, intimate in writing to the concerned legal competent authorities as per rules & act enforce under intimation to Engineer in-charge the fact of such accident. The contractor shall indemnify the **CSPTCL** against all loss or damage sustained by the **CSPTCL** resulting against all loss or damage sustained by the **CSPTCL** directly or indirectly including the penalties or fines if any payable by the **CSPTCL** as a consequence of **CSPTCL**'s failure to give notice to the provisions of said Act in regard to such accidents.

In the event any claims being made or action brought against the purchaser involving the contractor and arising out of the matters referred to and in respect of which the contractor is liable, under this clause, the contractor shall be immediately notified thereof and he shall with the assistance if he so require, of the purchaser, but at the sole expense of the contractor, conduct all negotiations for the settlement of the same or of any litigation that may arise there from. In such case the purchaser shall, at the expense of the contractor, afford all available assistance for any such purpose.

2.41 **Clearance of dues of Sub-vendor and observance of Industrial/ Labour Law :-**

(i) The main contractor shall furnish list of various agencies/sub-vendors proposed to be engaged for execution of different type of works under scope of this work order to the ED/CE (C&LM) CSPTCL, Raipur and concerned Engineer-In-Charge.

(ii) Wages and fringe benefits according to the Labour Law / Industrial Law and fixed by concerned District Collectorate as in force during the execution of the work shall have to be paid by contractor or his appointed sub-vendor. It shall be the sole responsibility of the main contractor for observing the prevailing laws and contractor shall be abided for such statutory requirements absolving CSPTCL fully in case of any dispute, if so arises. Notwithstanding above, CSPTCL reserves the right to make direct payment to the sub-vendor / sub-contractor in case of failure of the main contractor to do so within a reasonable time period on whatever ground and deduct from the bills due to the contractor under this contract or any other contract with CSPTCL including his amount of performance / security for adjusting the aforesaid payment.

(iii) The termination/completion of the sub-vendor's job shall be informed to CSPTCL promptly. The contractor shall furnish a certificate jointly signed by sub-vendor and himself having settled all the dues and liabilities accrued due to sub-vendor's engagement for the execution of tendered work. The B.G. shall be released only after submission of the aforesaid clearance certificate received from all such sub-vendors engaged on execution of tendered work under the scope of this order. The B.G./ final payment shall be released only after submission of aforesaid clearance certificate to the concerned field Division.

(iv) The contractor shall observe Labour Law/Industrial Law and Wages Law strictly with regard to payment and fringe benefits to be delivered to the labors/workers engaged by the Contractor or his sub-vendor. It shall be the sole responsibility of main contractor for arranging due insurance of personnel / materials to meet out any exigencies. It shall be the sole responsibility of main contractor for observing all the prevailing Laws and CSPTCL shall not be held responsible for any liability / disputes or claim in any way if arises due to non-observance of such Laws. However, the decision of Honorable District Court / appropriate court of law shall be final and binding on CSPTCL, Contractor and sub-vendor in case of any dispute.

2.42 REPLACEMENT OF DEFECTIVE WORK OR MATERIAL:-

If during the progress of the work the Engineer shall decide and notify in writing to the contractor that the contractor has executed any unsound or imperfect work, or has supplied any materials inferior in quality or quantity to those specified, the contractor on receiving details of such defects or deficiency shall at his own expenses, within seven days of his receiving the notice, or otherwise within such time as may be reasonably necessary for making it good, proceed to alter, reconstruct, or remove such work or supply fresh materials up to the standard of the specification, and in case the contractor shall fail to do

so, the purchaser may, on giving the contractor, seven days notice in writing of his intension to do so, proceed to remove the work or materials complained of, and at the cost of the contractor, perform all such work or supply all such materials provided that nothing in this clause shall be deemed to deprive the purchaser or affect any rights under the contract which he may otherwise have in respect of such defects of deficiencies.

2.43 DEDUCTIONS FROM CONTRACT PRICE:-

(i) All costs, damages or expenses which the purchaser may have paid, for which under the contract the Contractor is liable, may be deducted by the purchaser from any money due or become due by him to the Contractor under the contract or may be recovered by suit or otherwise from the Contractor as an arrear of land revenue.

(ii) Recoveries For Liabilities Against Other Contract/Order:
Any amount recoverable from the successful Bidder against earlier contracts/orders placed by the CSPTCL on the Bidders shall be adjusted from payment(s) due against this contract that may be awarded against this specification.

2.44CERTIFICATE:-

(i) CERTIFICATE OF ENGINEER:-

Every application to the Engineer for a certificate must be accompanied by a detailed invoice (in duplicate), setting forth in the order of the schedule of prices, particulars of the work executed and/or material ready for dispatch on the date of claim, and the certificate that such material and work is in accordance with the contract, shall be issued by the Engineer within a reasonable time.

The Engineer may, by any certificate make any correction or modification in any previous certificate which shall have been issued by him and payments shall be regulated and adjusted accordingly.

(ii) **CERTIFICATE NOT TO AFFECT THE RIGHTS OF THE CSPTCL OR CONTRACTOR:-**

No certificate of the Engineer on account nor any sum paid on account by the CSPTCL, nor any extension of time for the execution of the works by the contractor under the powers granted by **clause 2.51** shall affect or prejudice the rights of purchaser against the contractor, or relieve the contractor of his obligations for the due performance of contract, or be interpreted as approval of the work done or of the materials supplied and no certificate shall create liability in to the CSPTCL to pay for alterations, amendments, variations or additional work 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 of any sum against the payment of which he is bound to indemnify the CSPTCL, not shall any such certificate nor the acceptance by him of any sum paid on account or otherwise affect or prejudice the rights of the contractor against the CSPTCL.

2.45 S**USPENSION OF WORKS**:- The CSPTCL shall not pay to the contractor any expenses, arising from suspension of the works for any reason whatsoever.

2.46 RESPONSIBILITY OF CONTRACTOR:-

The contractor shall be responsible for carrying out the works covered under the scope of the contract according to the specification, order. For example, the Monopole should be erected according to the position indicated in the approved profiles and the selection of foundation in various types of soils should be done based on the soils actually encountered in the foundation pit. Deviations, if any, from the approved/specified conditions shall be brought to the notice of C E (P&P) CSPTCL, Dangania, Raipur (CG) 492013 through the site Engineer, before taking up the work and his decision shall be final and communicated through site Engineer. If at a later date, it is found that the contractor has carried out some work, not according to the specifications, and without taking specific approval, then in that case, all the payments made to the contractor for carrying out such works shall be recovered and the contractor will have to rectify the same at the rate indicated in the order for carrying out such works without extn. of time.

2.47 LIQUIDATED DAMAGE FOR DELAY IN COMPLETION:-

a. If the contractor fails to perform the work within the specified period given in the order or extension granted thereof, with respect to successful completion of testing & commissioning of transmission line, the Contractor shall pay to CSPTCL as liquidated damages, a sum of half percent (0.5%) of the contract price (supply & erection) for each calendar week or part thereof. However, the amount of liquidated damages for the Contract shall be limited to a maximum of five percent (5%) of the total contract price (supply & erection) for completed and uncompleted portion of the line.

b. The payment or deduction of such damages shall not relieve the contractor from obligations to complete the works, or from any of other obligations and liability under the contract.

2.48 REJECTION OF DEFECTIVE WORK:-

If the complete line, or any portion thereof, before it is taken over as per relevant clause of this specification, be defective, or fails to fulfill the requirements of the contract, the Engineer shall give the contractor notice setting forth particulars of such defects or failure, and the contractor shall forthwith make the defective material good, or alter the same to make it comply with the requirements of the contract. Should he fail to do so within a reasonable time, the purchaser may reject and replace at the cost of the contractor, the whole or any portion of the material, as the case may be which is defective or fails to fulfill the requirements of the contract. Such replacement shall be carried out by purchaser within a reasonable time and at a reasonable price and where reasonably possible, to the same specification and under competitive conditions. The contractor's full and extreme liability under this clause shall be satisfied by the payment to the purchaser of the extra cost, if any, of such replacement delivered and or erected as provided for in the original contract. Such extra cost being the ascertained difference between the prices paid by the purchaser, under the provisions above mentioned, for such replacement and the contract price for the material so replaced including the repayment of any sum paid by the purchaser to the contractor in respect of such defective material. Should the purchaser not so replace the rejected material within reasonable time, the contractor's full and extreme liability under

this clause shall be satisfied by the repayment of all moneys paid by the purchaser to him in respect of such material, in the event of such rejection, the purchaser shall be entitled to the use, of the material in a reasonable and proper manner for a time reasonably sufficient to enable him to obtain other replacement material, during the period the rejected material is used commercially the contractor shall be entitled to a reasonable sum as payment for such use.

2.49 TAKING OVER :-

When all performance tests called for by the specification have been successfully carried out before transportation, the material shall be accepted and taken over when it has been satisfactorily put into operation on site, or within one month of its being ready to be put into operation, whichever shall be the earlier and the Engineer shall forthwith issue a taking over certificate.

The Engineer shall not delay the issue of any taking over certificate contemplated by this clause on account of minor defects in the material which do not materially affect the commercial use thereof provided that the contractor shall undertake to make good the same in due course.

2.50 MAINTENANCE:-

a) For a period of 24 (Twenty Four) calendar months commencing immediately upon the satisfactory completion of the final tests at site and taking over of the line, the contractor's liability shall be limited to the replacement (supply and re-erection) of any defective parts that may develop in transmission line of his own manufacture or those of his sub-contractors approved under **clause 2.06** (Contractor's default liability) under the conditions provided for by the contract under proper use and arising solely from faulty design, materials, or workmanship.

b) If it becomes necessary for the contractor to replace or renew any defective portions of the material under this clause, the provisions of this clause shall apply to the portions of the material so replaced or renewed until the expiration of six months from the date of such replacement or renewal or until the end of the above mentioned period of twenty four months which ever may be later. If any defects be not remedied within a reasonable time, the purchaser may proceed to do the work at the contractor's risk and expense, but without prejudice to any other rights which the purchaser may have against the contractor in respect of such defects.

c) The contractor shall bear reasonable cost of minor repairs carried out on his behalf at site.

d) At the end of the maintenance period, the contractor's liability cease. In respect of goods not covered by this clause, the purchaser shall be entitled to the benefit of any guarantee given to the contractor by the original supplier or manufacturer of such goods.

2.51 REGULATION OF LOCAL AUTHORITIES:-

The purchaser shall, throughout the continuance of the contract and in respect of all matters arising in the performance thereof, serve all notices and obtain consents, way leaves, approvals and permission required in connection with the regulations and bye-

laws of the local or other authority which shall be applicable to the works, However, the contractor shall obtain all the necessary licenses/permissions as per central/state/local statutory bodies at his cost.

All works shall be executed in accordance with the Indian Electricity Rules, 1956, and any statutory modifications thereof, wherever they are applicable, unless otherwise agreed to in writing by the Engineer.

2.52 CONSTRUCTION AS PER CONTRACT ACT:-

The contract shall be in all respects be construed and operate as a contract as defined in Indian Contracts Act, 1872, and all payments there under shall be made in Indian rupee unless otherwise specified.

2.53HEADINGS:-

The subject headings of any clause thereof shall not, in any manner whatsoever, affect the interpretation of such clause.

2.54CONTRADICTORY STATEMENT IN THE TECHNICAL & COMMERCIAL BID :-

In case the bidder makes contradictory statement in the Technical & Commercial Bid, CSPTCL will have full right to interpret / take that statement into consideration which will be in the interest of CSPTCL.

SECTION – III

GENERAL CONDITIONS OF CONTRACT (COMMERCIAL)

3.01 COMPLETION OF WORK:

a) Time being the essence of contract, the work of Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur) covered under this specification should be completed **in 03 (Three) calendar months including rainy season from the date of order.** The contractor shall ensure to complete the work of line within aforesaid stipulated period.

b) **Taking over**:-Upon receipt of intimation about completion of erection of the Line and after inspection, CSPTCL Engineer in charge shall issue a taking over certificate in which he shall certify the date on which the Line has been so taken over. This certificate shall be issued within 30 days of the intimation from the contractor.

The issuance of taking over certificate shall in no way relieve the contractor of his responsibility for the satisfactory operation of the Line in terms of the specifications

3.02 MATERIAL TO BE SUPPLIED BY CONTRACTOR:

All the materials like Monopole & its associated accessories; ACSR Conductor, Ground wire, stringing hard wares, polymer Insulators etc shall be supplied by the Contractor to site stores without any extra cost to the CSPTCL.

3.03 TERMS OF PAYMENT:-

3.03.1 The payment on running bills will be allowed in the following manner to relieve the contractor from financial hardship if any, so as to facilitate him for timely completion of the work :-

a) **SUPPLY** :- The contractor shall present at the end of each calendar month a bill for the materials supplied duly certified by CSPTCL Engineer in charge, during the month at the charges/rates accepted. 90% value of the material supplied every month shall be paid within a period of fifteen (15) days from the date of receipt of bills in Dn. office. Balance 10% shall be retained by the CSPTCL and shall be released after six months on satisfactory completion and handing over of the completed Line by the contractor.

b) **CONSTRUCTION: -** The contractor shall present at the end of each calendar month a bill for the works completed, inspected and duly certified by CSPTCL Engineer in charge, during the month at the charges/rates accepted. 90% value of the work done every month shall be paid within a period of fifteen (15) days from the date of receipt of bills in Dn. office. Balance 10% shall be retained by the CSPTCL and shall be released after six months on satisfactory completion and handing over of the completed Line in all respect by the contractor.

3.3.2 (i)ADVANCE PAYMENT: - If requested by the contractor, CSPTCL may at its option grant an advance payment of maximum 10% of contract value after obtaining approval of competent authority. "The advance shall attract interest at the rate notified by PFC for capital projects of STU's in category under which CSPTCL falls plus a margin of 2%. The interest shall be charged monthly outstanding advance. Presently, CSPTCL is rated as "A^+" and rate notified by PFC for capital works of "A" category STUS is 11.25% p.a.

which implies that **applicable interest rate at present would be 13.25%** to be charged on monthly basis". Separate order shall be issued to this effect. The contractor will furnish an unconditional and irrevocable Bank Guarantee from a Nationalized / Scheduled Bank in favour of CSPTCL for an amount equal to the advance granted plus interest up to the completion period calculated on it. The bank guarantee shall be initially valid till six months (180 days) after expiry of completion period and shall be extended from time to time 180 days as required. This BG may be reduced on pro-rata on quarterly basis based on contractor's request. The advance, if granted, shall be recovered from the running bills along with accrued interest as per CSPTCL's terms and conditions which shall be brought in the order for advance payment. The bank guarantee shall be released on recovery of entire amount of advance granted plus interest.

(ii) **Procedure for reduction in the Advance Payment Security guarantee.** The BG furnished towards advance payment may be considered to be reduced in every three months in case the validity of bank guarantee is more than one year. It should be clearly under stood that reduction in value of advance Bank Guarantee shall not in any way dilute the contractor's responsibilities under the contract including in respect of the facilities for which reduction in the value of securities is allowed.

(iii) **DEDUCTION OF ADVANCE PAYMENT**:- The advance payment with interest accrued on the advance made to the contractor will be adjusted against their running bills. The adjustment of advance will be done from the running bills of the contract proportionately to the extent of 20% in supply of materials and 20% on erection charges only till the total advance plus interest gets adjusted.

3.04 SOURCES OF MATERIALS / ASSOCIATION WITH OTHER FIRMS:

As the specification covers the arrangement of material for structures, fabrication, galvanising and delivery of Monopole, foundation bolts, anchor plate, base plate including bolts and nuts, spring washers, danger board, number plate, phase plate, Galvanized Earthing rod with clamps and anti-climbing arrangement with barbed wire, conductor, earthwire, stringing hardware and polymer insulators etc. and complete erection of the transmission line indicated in the relevant section (part 1 of this specification) including the supply of cement and reinforcement steel by the bidder, the source of procurement of various Monopole accessories, cement and reinforcement steel must be indicated by the bidder in the relevant **Annexure-18**. In case if the CSPTCL wants any change in the source of supply of above material, then the bidder will change the source accordingly. Further if the bidder desires to change the source of procurement of diligence any item, then he will have to take prior approval of the CSPTCL.

3.05 PROGRAMME CHART AND PROGRESS REPORT:

i. The time and date of completion of the work as stipulated in the relevant clause and accepted by the bidder shall be deemed to be essence of the contract. The contractor shall organise his resources and perform his work so as to complete it not later than the date agreed to. The time for completion of the works contracted for shall be reckoned from the date of detail order.

ii. The contractor shall submit a detailed Bar Chart calendar date and month-wise for completion of work consisting of adequate number of activities covering various key phases of the works such as procurement, manufacturing, transportation and/or field

erection activities like survey, soil investigation, excavation, stub setting, erection, stringing activities within 30 (thirty) days from the date of the order. This programme shall also indicate the programme of supply of Mopopole by the contractor and anticipated inter-phase materials and facilities (to be provided by contractor). Contractor shall discuss the programme so submitted with the CSPTCL and the agreed programme which may be in the form as submitted or in revised form in line with outcome of discussion shall be deemed to be a part of the contract.

iii. The above programme shall be reviewed periodically and reports shall be submitted by the contractor as directed by the CSPTCL.

3.06 QUALITY ASSURANCE:

Quality Assurance Programme: To ensure that the equipments and services under the scope of this contract whether manufactured or performed within the contractor's works or at his sub-contractor's works or at the CSPTCL's site or at any other place of work are in accordance with the specifications, the contractor shall adopt suitable Quality Assurance Programme (Q.A.P.) to control such activities at all points, necessary. Such programme shall be outlined by the contractor and shall be finally accepted by the CSPTCL after discussions.

Immediately after the placement of order, the contractor shall submit to the CSPTCL the quality assurance plan covering the manufacture and erection activities of the transmission line. The quality assurance plan shall be approved by the CSPTCL.

The contractor shall follow the approved quality assurance plan in true spirit. If desired by the CSPTCL, he shall give access to all the documents and equipments to satisfy the CSPTCL that quality assurance plan (Q.A.P.) is being followed properly.

All materials including the complete structure shall be subjected to the tests before dispatch, as specified in this tender specification.

3.07 TEST AND TEST CERTIFICATES:

The tests to be conducted by the contractor are divided in three categories:-

TYPE TEST:- These tests should have been conducted as per **clause 4.23** of this specification on the fully assembled structures which the contractor has supplied to other utilities. The reports of these tests shall be submitted by the contractor.

ACCEPTANCE TESTS:-These tests shall be conducted as per latest relevant I.S.S. / Q.A.P. approved by the CSPTCL on each and every lot finished materials, which is ready for dispatch. These tests shall be conducted in the presence of the CSPTCL's authorised representative.

ROUTINE TESTS:-These tests shall be conducted on raw materials, in process material and finished material in accordance with approved Q.A.P. by the contractor himself. However, the details / documents relating to these tests shall be shown to the CSPTCL's representative during acceptance tests or as and when desired by the CSPTCL.

3.08 COMMENCEMENT OF ACTIVITIES:

Commencement of following activities is subject to prior and specific approval of the items mentioned against each:-

S. N.	Activity	Items for which prior approval is necessary from the CSPTCL.
1	Manufacturing of Steel DC Monopole	Drawings of various Steel DC Monopole and their accessories, bill of materials, quality assurance plan and permission to take up manufacturing of Monopole.
2	Dispatch of Steel DC Monopole materials	Acceptance tests and issue of test certificate approval along with the dispatch instructions.
3	Foundation work	Stub setting template, classification of the foundation.
4	Erection of Steel DC Monopole	Quality assurance plan for erection.
5	Stringing of wires	Location-wise Initial and final Stringing chart and stringing method **as per clause 4.33**.

3.09 PROJECT MONITORING:

After the placement of order, the contractor in consultation with company (if necessary) shall prepare a detailed time schedule for each activity and relating various activities with each other in chronological sequence as detailed in **Clause No.3.05** above.

Supply of monopole should be done in such a way that various activities including stringing of line are not delayed for want of monopole. Hence monopole should be fabricated and dispatched in a sequential way. **The contractors are advised to supply all the materials in accordance with the chronological sequence of the work as per requirement in the field to avoid blocking of inventory.**

During the currency of the contract, the contractor shall furnish the following reports to the Engineer:-

Fortnightly progress report (in prescribed formats for the duration from 1^{st} to 15^{th} and 16^{th} to $30/31^{st}$ i.e. last date of the month) of the various activities of erection of line as well as receipt of various materials at site, indicating scheduled and actual progress during the fortnight as well as cumulative. The progress of monopole foundations should also indicate the respective monopole footing resistances.

Monthly progress report in the prescribed formats for the supply of monopole materials indicating quantity offered for inspection, quantity inspected, quantity cleared, quantity rejected and quantity dispatched.

Any other progress report as desired by the CSPTCL.

The format of the above progress reports shall be intimated to the contractor after the placement of order.

Besides above, a periodical review meeting between contractor and CSPTCL shall be held quarterly to analyze the scheduled and actual progress, targets for the next period and to sort out bottlenecks, if any. The contractor will attend the above meetings along with necessary information in respect of supply and erection activities.

3.10 SPECIAL WORKS:

The rates for special works not included in the schedules will be decided upon, when any such necessity arises during the execution of the work, by negotiations between the CSPTCL and the contractor. The contractor shall perform the work on the terms and conditions as mutually agreed upon.

3.11 SCOPE (COMMERCIAL TERMS AND CONDITIONS):-

This section of the specification covers supply delivery at contractor's site stores, unloading and keeping of 132 KV tested monopole and its accessories etc. The work shall be carried out as per the details laid down in the specification. The price for works and material covered under scope of this specification shall be furnished by the bidders in prescribed price schedule appended with this specification. The bidder shall quote for complete work of fabrication and galvanizing, delivery etc. for construction of 132 KV Transmission line on turn-key basis.

3.12 SUPPLY OF MATERIALS

The supply of monopole to be made by the contractor, shall include tubular structure cross arm, foundation bolts, step bolts, nuts and bolts, spring washers, Galvanised Earthing rod with clamps, danger board, number plates, phase plate and such other items which worked be required for completing the monopole in all respect. For manufacturing of these items steel and Zinc will be procured by the contractor.

The supply of hangers/ D shackles for attaching suspension strings and "U" bolts for attaching ground wore suspension assemblies are also included in the scope of supply of monopole.

3.13 PROCUREMENT OF STEEL BY THE CONTRACTOR.

The following provisions shall apply in connection with the procurement of steel by the contractor:-

(a) The steel used for the fabrication of monopole and its extension etc. shall be confirming to IS 2062 grade E-355-JR and wieldable quality and plates less than 6 mm thickness (to be used for pack plate and pack washer) shall be as per IS 1079.

(b) The bidders should take into account the fabrication wastage while quoting the rates. The CSPTCL shall not accept any liability in connection with the actual wastage of steel during fabrication or otherwise.

(c) The steel shall generally be procured from the Main Steel Producers.

(d) The zinc used for galvanizing of fabricated material shall be **electrolytic High Grade Zinc.**

3.14 RESPONSIBILITY FOR PROCUREMENT OF STEEL AND ZINC:

Procurement of steel required for fabrication of monopole and its accessories and procurement of zinc for galvanizing shall be done by the contractor. Necessary authorization or help from purchaser to obtain allocation of steel from the main producers will be given on receipt of written request from the contractor in this regard. Similarly for procurement of zinc from HZL if any authorization is needed the same shall be given by the purchaser. However, responsibility for timely procurement of steel/zinc for supply of monopole will be that of the contractor and no excuse in delivery will be accepted for delay in receipt of these items in spite of our authorization. The contractor will inform the CSPTCL the source of procurement of steel and zinc and their technical particulars before starting of fabrication.

3.15 RATES:

The prices shall be quoted for supply of monopole and its accessories and other line materials etc. on F.O.R. Destination rates must be quoted as under clearly giving break-up of prices in following three elements, otherwise the offers may run the risk of rejection:

i) Ex-factory / Ex-go down prices inclusive of packing and forwarding.

ii) All the taxes shall be applicable as per provision of GST Act 2017 relevant for CSPTCL.

iii) Freight charges for any destination in Chhattisgarh State. The offered freight charges should be on "FIRM" basis only, and should be valid for either road transport or rail transport.

The supply of monopole shall include supply of drawings, fabrication and delivery and the rates quoted for supply of monopole shall include all charges including cost of steel, fabrication and galvanising etc. The prices for fabricated material shall include all works relating to fabrication and delivery ex-contractors stores, unloading and keeping in specified area. The quoted prices shall also include the cost of necessary quantity of steel and galvanising, transit, insurance, freight up to site stores and other indirect charges incurred in connection with supply of finished material. The bidders shall quote ex-works prices and freight including unloading and keeping at stores separately in the relevant schedule. Price shall be quoted on per number basis in relevant schedule.

3.16 PRICES:

The price quoted for all the materials of the associated line i.e. monopole, conductor and all other accessories, civil works and other works on turn-key for completion of line should be **FIRM** basis. The prices quoted in the Price Bid are to be unconditional which is to be noted

carefully by the bidder. The conditional price bids shall not be evaluated by CSPTCL in any case. Bidders are requested to quote their prices in prescribed formats only.

3.17 TAXES :-

The bidder shall quote his GST Registration number in Annexure A-10.

(i) GST and other levies in respect of supplies and services under the Contract should be indicated separately in respective columns in the Price Bid Proposal Sheets. The ITC (Input tax credit) available to bidder should be duly considered while quoting the rate. **Any variation in tax rate during scheduled completion period will be on CSPTCL"s account.**

(ii) Cess under "Building and other Construction Workers Welfare cess Act, 1996:- The contractor for carrying out any construction work in Chhattisgarh State must get themselves registered under section 7 (1) of the "Building and Other Construction Workers Welfare Cess Act, 1996" and rules made there-under by the Chhattisgarh Govt. and submit Certificate of Registration issued by the Registering Officer of the Chhattisgarh Government (Labour Department) for enforcement of the Act. The cess @ 1% on cost of supply of materials and construction charges shall be borne by the contractor and same shall be deducted from each bill. **Any variation in this respect within scheduled completion period shall be to the account of CSPTCL.**

If the rate of applicable cess beyond contractual completion period undergoes upward revision, the payment will continue to be made only on the basis of rates prevailing during completion period. In case the rate of cess undergoes downward revision then the delayed works beyond contractual completion period will attract reduced rate of cess.

(iii) Payment of other taxes/charges which are not described above:-The bidder should be aware of the various taxes, duties, levies imposed by the Central Government, State Government or Local Bodies applicable in this contract as on the date of TC bid opening. Further, in the price bid, it should be specifically stated regarding each tax whether it is inclusive or exclusive. However, if there is no specific mention of any duties/levies as exclusive in the price bid, it will be presumed to be inclusive if it is applicable as on the date of TC bid opening and will not be paid extra.

(iv) Any variation in statutory taxes, including due to amalgamation or restructuring of existing taxes whether upward or downward within stipulated completion period shall be in the account of CSPTCL.

Tax Beyond contractual completion period:- If the rate of applicable taxes / duties beyond contractual completion period undergoes upward revision, the payment will continue to be made only on the basis of rates prevailing during scheduled completion period. In case the rate of statutory levies/ taxes undergoes downward revision then the delayed supplies/ work performed beyond contractual completion period will attract reduced rate of taxes/duties.

(v) Any other new tax: - *But if any new tax/ duty/ levy is imposed either by central Government or by Stat Govt. / local authorities after the date of opening of T.C. Bid, the same shall be payable by CSPTCL extra within stipulated completion period on production of documentary evidence. However, tax due to increase of Turnover or withdrawal of tax exemption earlier available to the vendor etc. will not be reimbursed.*

(vi) The contractor shall be solely responsible for payment of all taxes, duties, license fee etc. if any, for all materials covered under this contract to the concerned authority as may be applicable from time to time.

3.18 EXTENSION OF TIME:

If the completion of line is delayed due to reason beyond the control of the contractor the contractor shall without delay give notice to the CSPTCL in writing of his claim for an extension of time. CSPTCL on receipt of such notice may agree to extend the contract date of the Line as may be reasonable but without prejudice to other terms and conditions of the contract.

3.19 AGREEMENT:

The successful contractor shall have to enter into an agreement with the Engineer in the approved contract agreement form **within 15 days** of the receipt of the individual work orders failing which the contract may be cancelled.

3.20 SECURITY DEPOSIT:-

(a) The contractor shall furnish a bank guarantee from a nationalized / scheduled bank for an amount of 10% (ten percent) of the cost of the contract including GST as a contract security. This bank guarantee shall be submitted within 15 days of receipt of individual orders and shall be kept valid for period exceeding the scheduled completion date by two months or two years from the date of signing of integrity pact whichever is later with additional claim period of six months.

(b) In case, project is delayed (running beyond schedule) on any account the contractor will be required to extend the validity of BG well in advance at least for six months or period of expected delay plus six months claim period, whichever is more. Charges for extension of BG shall be borne by the contractor. The validity of the bank guarantee shall be extended on stamp paper worth Rs. 300/- or as per the prevailing legal requirements. The BG towards any other amount as per the C.G. State Stamp Duty Act shall be from a Nationalized/ Scheduled Bank in the prescribed form of CSPTCL. No interest shall be paid by CSPTCL on the security deposit. In case of non-fulfillment of contractual obligations by the contractor, the security deposit shall be forfeited.

(c) The security deposit will be released only after completion of entire works, issue of No dues/liability certificate from the Executive Engineer in charge of work and after submission of performance B.G.

3.21 GUARANTEE PERIOD:

The work done, material supplied by the contractor as per the contract specification should be guaranteed for satisfactory operation and against any defect in material and workmanship for a period of **24 (Twenty Four)** months from the date on which the Line has been put to service after completion of modification work. The above guarantee

certificate shall be furnished in triplicate to the CSPTCL for approval. Any defect noticed during this period should be rectified by the contractor free of cost to CSPTCL upon written notice. The date of delivery of line as used in this clause shall mean the date of taking over the Line by the Engineer. CSPTCL will arrange 132 **KV** supply to Line within one month from the date of completion of Line. If Line is taken over un-energized condition due to non completion of feeding source then guarantee will be for **30 (Thirty)** months from the date of taking over or 24 (Twenty four) months from the date of energization of Line whichever is earlier.

3.22 PERFORMANCE GUARANTEE :-

(a) After completion of work in all respect (final commissioning etc.) and before issue of final taking over certificate by the Engineer in charge of CSPTCL, the contractor shall provide CSPTCL a Performance Bank Guarantee from a Nationalized/Scheduled Bank for an amount of 5% (FIVE PERCENT) of the contract price in the approved B.G. Proforma of the CSPTCL. This Bank guarantee shall be executed on stamp paper worth Rs.300/- or any other amount as per the C.G. state stamp duty Act and shall be kept valid till completion of the guarantee period mentioned in the foregoing Clause plus six month claim period.

(b) No interest shall be paid by CSPTCL for the aforesaid bank guarantee. In case of non-performance of the line as per the contract specification, the performance bank guarantee shall be forfeited.

3.23 PAYMENT DUE FROM THE CONTRACTOR:

All costs of damages for which the contractor is liable to the CSPTCL will be deducted by the CSPTCL from any money due to the contractor under the contract.

3.24 **RESPONSIBILITY TO RECTIFY THE LOSS AND DAMAGE**:

If any loss or damage happens to the work or any part thereof or materials/plant/equipments for incorporation therein during the period for which the contractor is responsible for the case thereof or from any cause for whatsoever, the contractor shall at his own cost rectify/replace such loss or damage, so that the permanent work conforms in every respect with the provision of the contract to the work/equipment occasioned by him in course of any operation carried out by him during performing the contract.

3.25 **EXTENSION ORDER**:- The extension order up to 50% of the total quantity/value may be placed on the same price, rates, terms & conditions.

3.26 **CONTRACT AGREEMENT SECURITY DEPOSIT AND INDEMNITY BOND:-**

A formal agreement, shall be entered into between the contractor and the purchaser for the due performance and observance of the terms and conditions of the contract

On acceptance of offer the successful bidder will have to deposit as security an amount of 10% of the total value of order in the form of cash/DD or Bank Guarantee.

The successful bidder will also submit the indemnity bond towards the safe custody of various line materials like conductors, ground-wires, hard-wares and accessories etc. equivalent to the cost of materials which will be supplied by the CSPTCL to the

contractor for erection of the line. The cost of materials shall include the cost of the monopole and accessories to be supplied by the bidder.

The proforma for contract agreement, Bank Guarantee for security deposit & Bank Guarantee towards performance are enclosed as **Annexure 23, 24 & 25 and proforma for Indemnity Bond is enclosed in annexure-26.**

3.27 PROCEDURE OF SUPPLY OF MONOPOLE:

i. The payment will be made on certification by the Engineer that the respective consignment of monopole has been duly received in the contractor stores and properly stocked. For this purpose the contractor shall provide office accommodation to our site staff In-charge of store accounting who will be available for verifying and certifying receipt of materials in the contractor's stores as and when the consignment is received.

ii. The payment will be made only against supply of complete set of monopole covered in this Specification.

iii. The delivery of monopole accessories should be made in such a way that the erection work of monopole is not held up for want of these items. It will be the contractor responsibility to supply these items in line with the completion schedule of the work.

3.28 INSPECTION:

(A) INSPECTION OF MATERIALS:-

(i) Each consignment ready shall be offered to the purchaser for inspection before dispatch giving a minimum time of **not less than 7 (seven) days**. Only complete sets of monopole shall be offered for inspection. Monopole materials and accessories shall be subjected to tests as per relevant Indian Standard. The purchaser shall be kept informed about the source of procurement of raw-steel, particularly through re-rollers. The purchaser reserves right to inspect and get the samples of raw-steel tested as per Indian Standard-2062 and relevant standards. The cost of testing shall be borne by the bidder.

(ii) The bidder shall abide by all the statutory provisions, acts such as the Indian Electricity Act, Indian Factory Act, Indian Boiler Act etc., and corresponding rules and regulations as may be applicable and as amended from time to time.

(iii) The purchaser's representative shall be entitled at all reasonable time during manufacture to inspect, examine and test at the bidder's premises the materials and workmanship of the material to be supplied.

(iv) The material shall not be dispatched unless waiver of inspection is obtained or inspected by the purchaser's authorized representative. When the material has passed the specified tests, the purchaser's representative shall furnish a certificate to this effect in writing to the bidder. In any case, while notifying the readiness of the material, the test certificate shall invariably be sent. The material shall not be dispatched unless the test certificates are approved.

(v) Test certificates shall be in accordance with latest version of the relevant Indian Standards.

(vi) If in case on schedule date of INSPECTION, the material is not ready for inspection the call shall be treated as fake call and recovery of Rs.5,000/- or actual expenses for visiting the premises of sub vendor per call whichever is more shall be made from the contractor's bill.

3.29 GENERAL GUIDELINES FOR INSPECTION :-

(A) GI steel monopole set:

(i) Visual examination and quantity verification of pole.
(ii) Dimension, fabrication and trueness verification of pole from fabrication sketch.
(iii) Galvanising test of sample i.e. dip test, hammer test and mass of zinc test.
(iv) Random verification of Zinc coating of galvanized surface by Alko-meter.
(v) Tensile test and bend test of sample.
(vi) Chemical composition test
(vii) Verification of manufacturer's test certificate for mild steel used in monopole.

(B) Foundation Bolts, anchor plates, Bolts-Nuts, Washer, Accessories, and Attachments etc.: to be carried out at Manufacturers works of these items)

(i) Visual examination and quantity verification of offered lot.

(ii) Sample selection from the offered lot as per relevant Indian Standard for each item.

(iii) Dimension, fabrication and trueness verification from fabrication sketch.

(iv) Galvanizing test of each sample.

(v) Other acceptance tests for respective items as per relevant Indian standard.

Since at the time of inspection only fabricated monopole and accessories will be verified, acceptance of it shall in no way relieve the bidder of his responsibility to meet all technical requirements of this specification for monopole. In case any shortcoming is noticed at the time of actual assembly and erection, the purchaser may reject any part or item or accessory and the Bidder will have to assume the responsibility for free replacement/rectification of such defects.

3.30 INSURANCE:

(A)

i) The contractor will supply the monopole to CSPTCL's / their site stores and therefore he will be responsible for the transit risks. It shall be contractor's responsibility to ensure proper packing and safe delivery of the material at the site stores. Any loss or damage caused to the materials during transit due to negligence on contractor's part shall be made good by the contractor free of all charges within one month from the date of consignee's notification, which will be issued within 30 (Thirty) days of receipt of materials at site. Transit insurance is not covered under the scope of this contract.

ii) The Contractor shall arrange, secure and maintain insurance as may be necessary for all such amounts to protect his interests and the interests of the Purchaser, against all risks as detailed herein. The Contractor's failure in this regard shall not relieve him of any of his contractual responsibilities and obligations.

iii) Any loss or damage to the materials during handling, transporting, storage and erection, till such time the material/line is taken over by the Purchaser shall be to the account of the Contractor. The Contractor shall be responsible for preferring of all claims and make good the damage or loss by way of repairs and/or replacement of the portion of the works damaged or lost. The transfer of title shall not in any way relieve the Contractor from the above responsibilities during the period of the contract. The Contractor shall provide the Purchaser with a copy of all insurance policies and Specifications taken out by him in pursuance of the contract. Such copies of Specifications shall be submitted to the Purchaser immediately after such insurance coverage is obtained. The Contractor shall also inform the purchaser in writing at least sixty (60) days in advance, regarding the expiry, cancellation and/or change in any of such Specifications and ensure revalidation/renewal etc. as may be necessary, well in time.

iv) All costs on account of insurance liabilities covered under the contract will be on Contractor's account and will be deemed to be included in Contract price. The Contractor shall cover insurance with Indian Insurance Companies only.

v) The contractor will indicate in questionnaire the cost element of such insurance cover, which he has assumed while quoting the rates. The above cost of material is inclusive of all materials like ACSR Conductor, Ground wire, monopole and its accessories, polymer Insulators and Hardwares for Conductor & Ground wire etc. to be supplied by the contractor. The contractor shall take up proper insurance to cover all the materials required for complete construction of the line to be supplied by the bidder against storage, handling, transportation and erection risks.

vi) The contractor shall arrange above insurance for the total completion period of transmission line (period in months) as quoted by him in the completion schedule. For delay in the completion of the transmission line, up to 3 (three) months, due to any reason whatsoever, the contractor shall bear the charges of extension of insurance policy. For delay beyond 3 (three) months due to the reasons not attributable to the contractor, the CSPTCL shall reimburse the charges of extension of insurance policy to the contractor on presentation of evidence of having paid such amount to insurance company.

vii) Any other insurance including the insurance of erection personnel employed by the Contractor/ his subcontractor shall also be the responsibility of the contractor and shall be arranged, if required, at his own cost.

(B)

(i) The contractor shall insure the line and shall keep it insured against loss by theft, destruction or damage by fire, flood, undue exposure to the weather or through riot, civil commotion, war or rebellion, for the full value of the line from the time of delivery until the line is taken over as per relevant clause of this specification. This insurance shall also cover loss by theft on site.

(ii) The bidder shall ensure following insurances also:-

i) Workmen Compensation Insurance:- This shall protect against claims applicable against workmen's Compensation Act 1948 (Govt. of India). This liability shall not be less than :-

Workmen's Compensation As per Statutory Provisions

Employees Liability As per Statutory Provisions

ii) Comprehensive Automobile Insurance :- This insurance shall be in such a form to protect the contractor against all claims for injuries, disability, disease and death of members of public including purchasers men and damage to property of others arising from use of motor vehicle during on or off the site operation irrespective of ownership of such vehicles.

iii) Comprehensive General liability insurance: It shall protect contractor against all claims arising from injury disability, disease or death of public or damage to property due to act of contractor or his representative.

3.31 SCOPE: COMMERCIAL TERMS AND CONDITIONS OF LINE ERECTION

These specifications provide for supply of monopole and complete modification/erection of the transmission line indicated in "Scope of specification." The work includes of all line materials to be supplied by bidder such as conductors, ground wire, insulators, accessories etc., their complete erection, setting to work, testing and commissioning of the transmission line on turnkey basis.

3.32 PRICES AND QUANTITIES

Prices for various items of erection of transmission line are to be quoted in the manner specified in schedules appended with this specification. The prices will include the cost of labour, all tools and plants except otherwise specifically mentioned in this specification and other incidental charges in connection with the erection work, pertaining to each items as indicated in the schedules, unless otherwise indicated in the specification.

The quantities of line length, no. of monopoles indicated in the price schedule are only provisional and are for comparison purpose. These are only provisional quantities and will vary during actual execution of work. It may be noted that if during the execution of works, at any point of time, it is noticed that there is wide variation in quantity of material / quantum of work viz a viz provision in the contract, the contractor shall intimate the same to the OIC of the work. The OIC of the work in turn shall submit the proposal to the order placing authority for obtaining competent approval. The supply of material/execution of works (in excess of provision in the contract) shall only be carried out after the approval by the order placing authority. The contractor must execute the work based on actual soil conditions encountered and as per final quantities of monopole indicated to him by the Engineer, at the same rates and terms and conditions accepted by the CSPTCL.

In the event of revision of quantity on completion of works, total value of supply of materials and erection charges shall be worked out with the unit rates of other bidders. In case the total value when calculated with unit rate of other bidder (viz L-2 or so on) is found lower than the revised value of order value, the total payment shall be limited to the lower of the two. This condition may be kept in view while quoting the rates.

3.33 COMPLIANCE WITH REGULATIONS

Unless otherwise specified, all works shall be carried out in accordance with the Indian Electricity Act, 1910; Indian Electricity Rules, 1956 with any amendments or revisions thereof which may be issued during the currency of the contract and the requirement of any other Regulations and Acts as applicable in India (including local statutory bodies) which the CSPTCL may be subjected to. Contractor shall also compliance with the Minimum Wages Act 1948 and the payment of Wages Act and the rules made their under in respect of any employee are workman employed are engaged by him or his sub contractor.

All railway tracks, power / communication line, or other important road crossings etc. or routing the line through air field region shall conform to the relevant rules and procedure laid down by railway, communication, aviation or other concerned authorities.

Suitable arrangements for aviation signal shall be provided at the top of the monopole in the vicinity of civil / military aerodromes of air field regions, if any.

3.34 "A" CLASS ELECTRICAL CONTRACTOR LICENSE:-

Contractor will have to submit a certified copy of "A" Class electrical contractor's license issued by C.G. Anugyapan Mandal, Raipur at the time of placement of order. The annual validation of the license shall be obtained by the contractor at his own cost and submitted to the purchaser during the currency of the contract.

3.35 RESPONSIBILITY FOR OBTAINING INFORMATION AND TAKING ACTION IN TIME.

Whenever any information or clarification in respect of construction of line have to be obtained from various authorities, the contractor shall be responsible for taking action well in time so that there are no delays on this account. The completion period offered in the tender shall be deemed to include the time taken for such incidental works. Request for extension of the completion date on such ground will not be entertained.

3.36 PERMITS AND PRIORITIES: Necessary permits, if any, required for the execution of the contract shall be arranged by the contractor himself. The contractor shall obtain the necessary license / permission as per central /state / local statutory bodies at his cost. The CSPTCL may, however, furnish to the contractor such certificates as may be required for the necessary permits / priorities for the execution of the work, if CSPTCL considers demand justified. The CSPTCL will, however, not be responsible for the delay in execution of the contract, if permits / priorities are not granted in time.

3.37 WAY LEAVE:

The bidders is requested to go through the following provisions of payment of way leave and the accepted prices quoted by them shall be deemed to include following expenses and no extra payment on this account shall be made by CSPTCL.

(a) **Payment of compensation of land** :-

In compliance to the CG Govt.'s orders No.F7-7/Seven-1/2014 dtd. 20.02.2015 and dtd. 07.05.2015 &No.F 7-7/Seven-1/2014 dtd. 01.06.2016 regarding payment of compensation towards utilization of the private land for erection of monopole and laying of transmission line, the preparation of cases for payment of land compensation to the owner of land shall be prepared by the Contractor and the approval of the same shall be arranged by CSPTCL. The payment for above compensation shall also be borne & made by the CSPTCL as per the provisions contained in these orders.

(b) **Payment of compensation towards damage of crops** :-

The necessary proposal for payment of compensation towards damage of crops during execution of work, shall be prepared by the contractor. The payment of above compensation shall be borne & made by contractor.

c) **Forest proposal :-**

In case the line is passing through the forest, the preparation of forest proposal, its approval etc. shall be arranged by CSPTCL. The tree cutting and related works in forest land will be arranged by the CSPTCL. Relevant charges shall be borne by the CSPTCL.

(d) **Tree cutting in Revenue/ Govt,/ Private Land:-**

The preparation of proposal for tree cutting and approval thereof in Revenue/ Govt./Private land shall be arranged by the contractor. All Statutory charges & compensation for tree cutting on revenue / govt./ private land will be made by CSPTCL.

However, the tree cutting including related works in Revenue/Govt./ Private land shall be arranged by the Contractor at his own cost.

(e) **Railway crossing :-**

The Railway track crossing cases with drawing, questionnaire etc. will be prepared by the contractor and will be submitted to the Engineer I/C and CSPTCL will arrange the approval. All statutory payment like supervision charges, approval fee etc. will be paid by the CSPTCL directly to the Railway Department. The Railway Block charges if any will be paid by the CSPTCL for maximum of one hour per circuit per crossing. The Railway block charges beyond one hour per circuit per crossing will be borne by the contractor.

(f) **Statutory Payments :-**

In addition to above, statutory payment to all government agencies shall be borne by the CSPTCL. Any payment which becomes due on account of introduction of new policy of Govt. of India / Govt. of CG announced after issue of N.I.T., shall be paid by CSPTCL.

(g) **Payment of damages for access of site :-**

Any payments / charges required for access of site and damage of crops on way to the site shall be to the contractor's account.

(h) **Submission of proposals of way leave etc. :-**

It shall be responsibility of the contractor to submit the required proposal of way leave (viz. land compensation, railway crossing, tree cutting in revenue/private land, crops compensation etc.) in reasonable period, so that work is not hampered due to non availability of these way leaves.

3.38 USE OF PRIVATE ROAD/ APPROACH ROAD TO SITE:

The CSPTCL will help in getting necessary permission for use of private/ forest/ canals for transport of materials and construction personnel, wherever possible under the rules. Any charge levied by the concerned authorities for use of such roads etc. shall be borne by the contractor.

During the erection work, if approach roads are required to be constructed for reaching the construction sites for transportation of men/materials, the cost of construction of such approach roads and any other expenses incurred in obtaining clearance/ permission shall be borne by the contractor.

3.39 (i) MATERIALS TO BE ARRANGE BY THE CONTRACTOR AND PERMITTED EXTRA CONSUMPTION:

(a) The quantity of conductor and earth wire to be incorporated in the line shall be worked as per the following norms:

Quantity of Conductor : Line length as per detailed survey x 3 phases x No. of Circuits.

Quantity of Earthwire : Line length as per detailed survey x 1

(b) The contractor shall make every effort to minimize breakage, losses and wastage of the line materials during erection. However, the Contractor shall be permitted an extra consumption on following line materials only up to the limits specified here in :-

S.No.	Item	% of permitted extra consumption
1	Conductor	1
2	Earthwire	1

All the materials required for completion of line shall be arranged by the contractor as per latest ISS as per actual.

i. In case of conductor and earthwire, the permitted extra consumption limit of one percent is inclusive of sag, jumpering, damage, loss and wastage etc.
ii. However, for hilly terrain, where there is level difference between two locations, consumption shall be allowed equal to the increase in conductor length due to slope effect. Contractor shall prepared detailed consumption statement for such locations for the approval of Engineer-in-charge.
iii. The contractor shall not be required to return to the Owner empty conductor and earthwire drums and shall dispose-off the same at his cost.
iv. Any conductor and earthwire drum which has been opened by the Contractor shall not be taken back by Owner and the unused conductor or earthwire in such drums may be treated as waste permissible within the overall limits.

v. The quantities of line materials to be supplied by the Contractor (i.e. monopole and accessories, conductor, earthwire, insulator, hardware fittings & accessories) as indicated in the bill of quantities are tentative and the actual quantity shall depend upon detailed survey. Contractor shall be responsible for regulating the supplies of Contractor supplied materials on the basis of actual requirements. The Owner shall have right not to take any surplus Contractor's supplied line materials.

(ii) EMPTY CONDUCTOR/EARTHWIRE WOODEN DRUM ETC: Empty conductor/earthwire drums of any material, empty wooden crates/cases of insulators and bags of hardware, accessories, cement, Nut-Bolts etc. shall not be retained by CSPTCL. The bidder should give due weightage / rebate on account of above while quoting the prices.

3.40 MATERIALS TO BE ARRANGE BY THE CONTRACTOR FOR ERECTION WORK:

The supply of cement for foundation work would be made by the contractor of quality as per I.S. 269 (latest revision). The cost of cement, metal & sand shall be deemed to be included in the quoted unit rates of casting of foundation of monopole in different types of soils. The cement used shall be procured from reputed manufacturer.

Metal, sand and stones required for foundation work shall be arranged by the contractor. The transport, octroi, levy or duty on these materials shall be borne by the contractor himself and the CSPTCL will not accept any liability on this account.

The contractor will also arrange steel rods and binding wires for foundation reinforcement. The cost incurred will be borne by him. Materials for grounding of monopole i.e. foundation bolts, anchor plates, galvanized earthing rod, connecting clamps and connecting wires etc. would also be arranged by the contractor as already specified.

Water supply and Electricity for construction work is to be arranged by the contractor at his own cost. Also, storage space for equipments and contractor's site office will be arranged by contractor.

3.41 TOOLS AND PLANTS TO BE ARRANGED BY THE CONTRACTOR:

The contractor shall be required to provide at his own expenses all necessary erection tools and plants for carrying out complete erection of the line. The contractor will have to arrange at his cost all tools and equipments such as earth tester, soil investigation equipment, excavation equipment, form boxed for excavation, winches, ropes and all tools for stringing conductor etc. The contractor will furnish in the relevant schedule, the list of all tools and plants as indicated above, which are available with him. Similarly, contractor will arrange at his cost all machinery and light and heavy vehicles such as jeeps, tractor, compressors for rock drilling, cranes for conductor drum handling, truck etc.

3.42 FORTNIGHTLY PROGRESS :-

The contractor will also have to submit a copy of the fortnightly progress reports along with each erection bill in support of the work done. Thus the progress reports will be prepared by the contractor strictly for the duration from 1^{st} to 15^{th} of the month and 16^{th} to $30^{th}/31^{st}$ (last date) of the month throughout the construction period so that the quantum of work claimed in the bills matches with the completed activity of the works indicated in the progress report.

3.45 STORES FOR SUPPLY OF MONOPOLE AND ITS ACCESSORIES:-

3.45.1 The Contractor shall be required to set up Store along the route of the transmission line.

3.45.2 The cement, reinforcement steel and other line materials (to be supplied by the contractor) shall also be arranged in above stores as per the sequence of the work.

3.45.3 The Contractor shall make arrangements to take delivery of all the materials and stock them properly.

3.45.4 Yards and stores for stocking provided by the Contractor shall be opened for inspection by the Purchaser's representative as and when desired.

3.45.5 The cost of handling and storage shall be deemed to be included in the quoted erection prices and no extra charges towards, loading, transportation, unloading, stocking and storage etc. shall be payable.

3.45.6 In case of materials to be supplied by the Contractor himself, all the above provisions shall also apply. However, shortage and/or damage of the materials shall be made good within a reasonable time and without any extra charge to the Purchaser and without delaying the construction of transmission line.

3.45.7 **CONSTRUCTION POWER AND WATER:-**Water supply and Electricity for construction work is to be arranged by the contractor at his own cost. Also, storage space for equipments and contractor's site office will be arranged by contractor.

3.46 **PAYMENT PROCEDURE FOR ERECTION WORK:**

Payment will be made against monthly erection bills for works completed during the month as certified by Engineer. Each category of the work shall be completed for purpose of payment. Part payment will not be made even if break up rates are available for particular category of work. Hence bill shall be preferred for completed portion of works as under: -

a. The bill for foundation of monopole shall be admitted only after completion of all activities related with foundation work i.e. excavation, earthing, reinforcement, concreting and backfilling with excavated / borrowed earth and consolidation of earth, carriage of surplus earth to the suitable point of disposal as required by the Purchaser or any other activity/related to completion of foundation work.
b. Erection of monopole complete with fixing of all the accessories
c. Fixing of monopole accessories i.e. providing danger, number, phase plates & anti-climbing device
d. Complete stringing (during the month) of conductors including providing of Accessories, jumpering etc.
e. Complete stringing (during the month) of Ground-wire including providing of Accessories (including fixing of copper earth bond (kilometer wise).
f. Miscellaneous works as and when completed during the month such as: -
    a) Counterpoise earthing etc.

3.47 **IDLE / MOBILIZATION / DEMOBILIZATION CHARGES**:- No idle / mobilization / demobilization charges will be payable by the CSPTCL for any reason whatsoever to the contractor for stoppage of work. This may please be noted.

SECTION – IV

TECHNICAL SPECIFICATION FOR STEEL MONOPOLE

4.01SCOPE:

4.01.01 The designs of double circuit steel monopoles for EHV transmission lines and their extensions should be conforming to the design parameter specified herein. The scope also includes supply of design calculations of Monopoles and their foundations with test reports / design vetting by CPRI/top IITs, the detailed structural/shop drawings of monopoles, drawings of foundations in various types of soil, sag templates, sag tension chart for conductor and ground wire.

4.01.02 The fabricated steel poles shall include base plate with its required accessories, monopole body (including extensions, as per site requirement), Cross Arms and arrangement for maintenance like attachments for ladders etc. Monopole shall be joined with friction clip or Flanged joint. Cross Arms shall be Polygonal with structural jointing arrangement. The accessories shall include strain plates, D-shackles with nuts, bolts and washers, U-Bolts with nuts and washers, space washers, links for providing attachment to the E.W. and Conductor, anti climbing devices and any other equipment/ material / article to complete the works as per the scope given in this specification.

4.01.03 The monopoles shall be fully galvanized. Provision will be made at the Cross Arm level for fixing phase plates and Bird guards. The holes for fixing the Earthing bonds at the peak and for grounding the monopoles at bottom or any other holes, which the purchaser may require, shall be provided at the convenient locations on the monopoles.

4.02 TYPEOFDOUBLECIRCUITSTEEL MONOPOLE

4.02.01 The 132kV double circuit steel monopoles will have two circuits (six cross arms), self supporting, designed for the specified loading conditions. The Monopole should be suitable for dead end location. There will generally be following type of Pole:-

i) Pole type EP90: Heavy angle Pole to be used for line deviation from up to 90° and also as dead end Pole with Single/Double tension insulator strings.

4.02.02 The above pole types are indicative and the bidder is required to offer bids as per BoQ and has to carry out work as per site requirement. In the BoQ, each type of pole has been specified with the height of their lower cross arm from G.L. In case of 132kV monopoles, the height of lower cross arm from G.L. shall be 23M.

4.03 DESIGN:

4.03.01 The bidder will furnish a design as per ASCE/SEI 48-11, "Design of Steel Transmission Pole Structures", ASTM A6 and loading conditions as per IS 802(Part-I)-1995 for each of the offered monopoles with extensions based on the loading conditions indicated herein. The suspension monopoles shall be designed with using `I' suspension string.

4.03.02 In case of over lapping of pole sections, minimum overlap shall be 1.5 times the maximum inside diameter of the outer section at the telescopic joint or as per design calculations, whichever is higher. Further, the pole shall be continuously tapered from top to bottom with a uniform slope.

4.03.03 Please note that in case of suspension monopole, full wind condition is to be considered in the design in case of security requirement i.e. transverse load due to wind action on Pole structure, conductors, Groundwire and insulators shall be computed as per clause 12.1.1(i), page 10 of IS 802 (Part-1) 1995. Further the transverse load due to line deviation shall be based on component of 100% mechanical tension of conductor and Groundwire as defined in clause 11.3.2.1 page 10 of IS 802 (Part-1) 1995. The longitudinal loads shall correspond to 50% of mechanical tension of conductorasperclause11.3.2.1,page10ofIS802(Part-1):1995.

4.03.04 The 132kV double circuit monopole will have one conductor per phase (Panther ACSR) in vertical formation and ground-wire of 7/3.66 mm galvanized stranded steel wire of 95kg/sq.mm grade placed on the top of the monopole.

4.03.05 The ground-wire at its suspension point shall provide a shielding angle of 30° with respect to the top most conductors. The drop of ground-wire suspension assembly should be taken into account so as to determine the shielding angle.

4.03.06 The minimum mid-span vertical clearance between ground- wire and Conductor in still air shall be 8.5M.

4.03.09 The conductor and ground-wire parameters to be considered in the design of 132kV poles (ACSR Panther) are asunder:-

ACSR Panther Conductor:		
a.	Stranding and wire diameter	30/3.00mm Al., 07/3.00mm Steel
b.	Total sectional area	261.5 mm²

ACSR Panther Conductor:		
c.	Approximate overall diameter	21.00 mm
d.	Approximate weight	973 kg/km
e.	Approximate calculated breaking load	9127 Kg
f.	Co-efficient of linear expansion	17.73 x10^{-6} per degree C
g.	Final modules of elasticity	0.7034x 10^{6}kg/cm²

95 Kg/mm² Groundwire:		
a.	Stranding and wire diameter	7/3.66mm
b.	Total sectional area	73.65 mm²
c.	Approximate overall diameter	10.98 mm
d.	Approximate weight	583 kg/km
e.	Approximate calculated breaking load	6972 kg
f.	Co-efficient of linear expansion	$11.5x10^{-6}$ per degree C
g.	Final modules of elasticity	1.9329×10^{6} kg/cm²

4.04 CLEARANCES:

The following minimum clearances may be made available between the live parts and the nearest monopole body.

Theclearancesfor132kVlevelaregivenhereunder:

Single Suspension string	**Double Suspension string**	**Jumper in case of tension poles**	**Single/Double Tension string**
Clearance	Clearance	Clearance	Clearance
1530 mm (at 0° & 15° swing)	1530 mm (at 0° swing)	1530 mm (at 0° & 10° swing)	1530 mm
1370 mm (at 30° swing)		1070 mm (at 20° & 30° swing)	
1220 mm (at 45° swing)			
1070 mm (at 60° swing)			

The above clearances are based on maximum and minimum insulator string lengths. If Pilot string is used in case of 60°/90° monopole; swing of the pilot string shall be 15^{o}. The clearance shall be available from grading ring if the same happens to be the nearest to the monopole body at any point of time.

4.05 DESIGNSPANS:

4.05.01 The wind span for the purpose of computing the wind load on conductors and OPGW/ground-wire shall be 335M for 132kV monopoles. The weight span shall be 1.5 times wind span.

4.05.01Negative weight span: Based on site requirement, negative weight span for suspension poles shall be considered. For angle poles negative weight span of (-) 150M shall be considered.

4.06WINDLOAD:

The wind load on conductors, ground-wire, monopoles and insulator strings shall be taken as per recommendations of IS:802 (Part-I) -1995 with latest revision thereof, for following conditions:-

(a) Wind zone	4(Four)
(b) Reliability level	1(one)for132kVdoublecircuitmonopoles
(c) Terrain category	2(Two)
(d) Basic wind speed	47 mtr. Per second

4.07 TEMPERATUREVARIATION:

The maximum working tension of conductor, ground-wire and the uplift conditions shall correspond to the minimum temperature of 0°C.

The maximum conductor sag and ground clearance beneath should correspond to the maximum working temperature of 75° C. The maximum ground-wire temperature shall be taken as 53° C.

4.08 STRUCTURALSTEEL:

The following materials will be used:

Pole shaft:	A572-65 or Equivalent
Base plate:	A572-50 or Equivalent
Ladder & Other:	A572-36 or Equivalent
Anchor bolts:	6.8 Grade (132kV poles) and 8.8 Grade (220/132kV MC poles
Connection bolts:	8.8 Grade
Galvanizing:	ASTM A123 (Structure: Avg. coating 85 micron) / A153 (Hardware)

4.09 LOADS ON MONOPOLES:

Transmission lines are subjected to various loads during their life time. These loads are classified into three distinct categories, namely

a) Climatic Loads: related to the reliability requirements.

b) Failure containment Loads: related to security requirements.

c) Construction & Maintenance Loads: related to safety requirements.

a) Climatic Loads:

These are random loads imposed on monopole, insulator string, conductor & ground wire due to action of wind on transmission line & do not act continuously. Climatic loads shall be determined under either of the following climatic conditions whichever is more stringent:

1) 100percentdesignwindpressureateverydaytemperature(32°C)or

2) 36 percent design wind pressure at minimum temperature(0°C)

b) Failure Containment Loads:

- Anti cascading Loads&
- Torsional & Longitudinal Loads

Anti Cascading Loads:

Cascade failure may be caused by failure of items such as insulators, hardware, joints failures of major components such as monopoles, foundations, conductor due to defective material or workmanship or from climatic overloads sometimes from casual events such as misdirected aircraft, avalanches, sabotage etc. The security measures adopted for containing cascade failures in the line is to provide angle monopoles at specific intervals which shall be checked for anti cascading loads.

Anti cascading checks:

i) Suspension monopoles shall be checked for narrow front wind with a wind speed of 1.5 of basic wind speed.

ii) Angle monopoles shall be checked for the following anti cascading conditions with all the conductors & ground wire intact only on one side ofthe monopole.

- Transverse load: These loads shall be taken under no wind condition.

- Vertical Load: These loads shall be the sum of weight of conductor/ground wire as per weight span of intact conductor/ground wire, weight of insulator strings and accessories.

- Longitudinal Loads: These loads shall be the pull of conductor/ground wire at every day temperature & no wind applied simultaneously at all points on one side with zero degree line deviation.

Torsional & Longitudinal Loads:

These loads are caused by breakage of conductors and/ or ground wire. All the monopoles shall be designed for these loads for the number of conductor(s) and or ground wire considered broken as per provisions of this specification.

b) Construction & Maintenance Loads:

These are loads that are imposed on monopoles during constructions & maintenance of transmission lines.

Computation of Loads & loading combinations: The computation of loads is to be done in line with relevant provisions/ sections of IS 802- 1992 (latest amendment)

Tension Limits:

Conductor/OPGW/ground-wire tension at everyday temperature & without external load, should not exceed the following percentage of the ultimate tensile strength of theconductor:

Initial unloaded tension	22percent
Final unloaded tension	25percent.

Provided that the ultimate tension under everyday temperature & 100 percent design wind pressure or minimum temperature & 36 percent design wind pressure does not exceed 70 percent of the ultimate tensile strength of the conductor/groundwire.

4.10 TRANSVERSELOADS

The transverse loads due to wind on conductors and ground-wire shall be calculated for wind span under normal condition. Under broken wire conditions 50% of the intact span and 10% of the broken span shall be assumed as wind span. In addition to this, transverse loads due to line deviation, wind on poles, and wind on insulator strings should also have to be taken into consideration in the design of the Poles.

4.11 CONDUCTOR SAG:

The maximum sag for the conductor should be calculated for 75° C and no wind with an allowance of 4% of maximum sag to allow for plotting and sagging errors.

4.12 GROUNDCLEARANCE:

The minimum ground clearance of 6.100 Meters shall be available corresponding to the maximum working temperature and normal span.

4.13 BROKEN WIRECONDITIONS:

4.13.01 Following broken wire conditions should be assumed in the design of Poles:-

a. **Suspension monopole-** Any one of power conductor broken or ground-wire broken which ever condition is more stringent for design.

b. **Angle monopole** (0° to 15°/30°) - Any two of power conductors broken on the same side and on the same span or any one of the power conductor broken and ground-wire broken on the same span whichever combination constitutes the most stringent condition for design of a particular member.

c. **Angle monopole**(0°to60°/90°)-Any Three power conductors broken on the same side and on the same span or any two of the power conductor broken and ground-wire broken on the same side and same span whichever combination constitutes the most stringent condition for design. Further, this monopole shall also be designed for dead end condition i.e. all conductors

and OPGW/Groundwire broken on the same side and samespan.

d. **Angle monopole**(0°to90°)-Any Three power conductors broken on the same side and on the same span or any two of the power conductor broken and OPGW/ground-wire broken on the same side and same span whichever combination constitutes the most stringent condition for design.

4.13.01 In all type of monopoles, the power conductor's supports and ground-wire supports should be designed for broken wire conditions also.

4.14 FACTORS OF SAFETY FORMONOPOLES:

The factors of safety for design of monopoles shall be as per IS-802-2015

4.15BOLTS AND NUTS AND WASHERS:

4.15.01 The design of the monopoles should be based on use of HRH mild steel hot dip galvanized bolts grade 6.8 for 132kV monopoles. The spring washers shall be provided for insertion under all nuts. These washers shall be of steel, electro galvanized, positive lock type and of 3.5mmthickness.

4.15.02 The nuts shall be forged and tapped after galvanizing and then lubricated. The nuts shall be chamfered on one face only, the other face shall be machined.

4.15.03 The bolts and nuts shall be free from forging and threading defects such as cuts, splits, burrs, bulging, taper, eccentricity, loosefitetc.

4.15.04 The bolts shall be threaded up to standard length only as per relevant Indian Standard and not to full length.

4.15.05 The bolts and nuts shall confirm to IS-1367-1971 Part-III and Part- IV, IS12427,IS1363-92,IS1367 Part-XIII with latest amendment.

4.15.06 The spring washers after coiling shall be suitably heat treated so as to result in the finished washer having hardness 43 to 50 HRC when tested in accordance with IS 1586-1968.

4.15.07 The surface of the washers shall be free of scales and burrs. The washers shall be coiled without any kinks (except for the shape with turned- up ends). The ends of the washer shall not about when the washers are compressed. The ends shall be so served as to prevent tangling.

4.1 6STEP BOLTS:

Each Pole will be provided, with step-bolts of 16mm dia and 175mm long, spaced not more than 450mm and extending from 3 meters above ground level up to the top portion of the Pole. The step bolts shall conform to Indian Standard1363-1992, Indian Standard10238:1989 and Indian Standard 1367(Part-XIII):1983 or equivalent International Standards.

4.17 DANGER BOARD, NUMBER PLATE AND PHASE PLATES:

4.17.01 Each Pole will be fitted with danger board, number plate and phase plates. The Pole to be supplied shall have provision to fix these plates at a height of about 4 meters above ground level. Necessary provision in Pole for fixing of these items shall be made. The Danger board, number plate and phase plates shall be supplied conforming to following technical details:-

4.17.01 The danger boards shall conform to IS-2551-1982 and their revision, if any except where modified in this specification.

4.17.02 The danger boards, number plates and phase plates shall conform to the drawings provided by CSPTCL.

4.17.03 The colour scheme of the enamel and size of figures and dimensions of lettering shall be as shown in the drawing as also the overall size. The holes as indicated in the drawing shall be provided before enamelling.

4.17.04 The thickness of the plate out of which the danger board, number plateandphaseplatewillbemanufactured,shallnotbelessthan1.6mm.

4.17.05 Theenamellingsshallbedonebyvitreousenamelingprocessonly.

4.17.06 All letterings shall be centrally spaced. The dimensions of the letters, figures and their respective positions shall be as given in drawings. The size of each letter in the word in each language and the spacing between them for the purpose of scribing shall be so chosen that they are uniformly written in the space earmarked forthem.

4.17.07 The corners of the plate shall be rounded off. The location of the fixingholesshallbeaccordingtodrawingannexedwiththisspecification.

4.17.08 The plate shall be made from mild steel at least 1.6mm thick and vitreous enameled white, with letters, figures and the conventional skull and cross-bones in signal red colour on the front side. The rear side of the plate shall also be enameled.

4.18ANTICLIMBING DEVICE WITH BARBED WIRE:

The barbed wire type anti-climbing device shall be supplied for use at a height of approximately 3 meters as an anti-climbing deterrent measure.

4.19 LOAD ON FOUNDATIONS:

4.19.01 The foundations shall withstand the ultimate loads on the superstructure as specified in this specification, for the full footing reactions along the stub angle slopes obtained from the structural stress analysis.

4.19.02 The reactions on the footing shall be composed of the following types of loads for which they shall be required to be checked.

(a) Maximum tension or uplift.
(b) Maximum compression or down-thrust.
(c) Maximum horizontal shear or side thrust.

4.19.03 The additional weight of concrete in the footing below ground level over the earth weight and full weight of concrete above the ground level in the footing and embedded steel parts will also be taken into account adding to the down-thrust.

4.20 STABILITY ANALYSIS:

4.20.01 Thefollowingprimarytypesofsoilresistancesshallbeassumedto act in resisting the loads imposed on the footings in earth:

(a) Resistance against uplift:

The uplift loads will be assumed to be resisted by weight of earth in an inverted frustum of a conical pyramid of earth on the footings pad whose sides make an angle equal to the angle of repose of the earth with the vertical in average soil The weight of concrete embedded in earth and that above the ground will also be considered for resisting the uplift. In case where the frustum of earth pyramids of two adjoining legs super-impose each other, the earth frustum will be assumed truncated by a vertical plane passing through the center line of the pole base.

(b) Resistance against down-thrust

The down-thrust loads combined with the additional weight of concrete above earth will be resisted by bearing strength of the soil assumed to be acting on the total area of the bottom of the footings.

(c) Resistance against side thrust:

The bidder shall describe in detail the methods followed by them to check the stability of foundations for horizontal shears or side-thrust alongwith the relevant reference (IS or other standard) in support of their contentions.

4.20.02 In addition to the strength design, stability analysis of the foundation shall be done to check the possibility of failure by over-turning, uprooting, sliding and tilting of the foundation.

4.21 DESIGN OF FOUNDATIONS:

The bidder is requested to submit the design of foundations. It is recommended to give Single Pile Foundation. The foundation shall be designed considering minimum factor of safety as per IS-802-2015. The foundation shall be designed as per site requirement and shall be submitted after design vetting from the reputed IITs (like IIT Mumbai/Delhi/Chennai/Kanpur/Kharagpur /Roorkee) to ascertain that the same can be used for safe and reliable installation of the monopole.

4.22 FACTORS OF SAFETY FOR FOUNDATION:

The minimum factors of safety/overload factor based on the ultimate strength of the foundation material when the monopoles are under full working loads under various conditions of loadings combined with the other loads specified for the foundations shall be as given below:-

Normal condition	1.5
Broken wire condition	1.5

4.23 TYPETESTS:-

4.23.01 The monopole (110 KV or above) of offered vendor should be type tested from CPRI /Govt./ NABL accredited Laboratory/ test bed in India. The type test report of dead end DC/MC monopole suitable for line deviation up to 90 deg. & height of lower cross arm from GL of minimum 23 meter conducted on any of the above mentioned test beds performed not earlier than 7 years as on date of issue of NIT with minimum factor of safety as per IS-802-2015 should be submitted along with the bid. In case type test report as mentioned above is not submitted, the offer shall be rejected. A Black Double circuit steel monopole of each type with maximum designed extension shall be subjected to design test by first applying test loads equivalent to the specified maximum loads multiplied by specified factor of safety and applied in a manner approved by the purchaser. The monopole should withstand these tests without showing any sign of failure or permanent distortion in any part. The monopole shall be successfully tested for all the conditions considered in the design of monopole as per the procedure specified in IS-802(part-III)-1977/IEC60652.

4.23.02 DEFLECTIONCRITERIA (As per CBIP Manual) 5.0% of the height of pole @ Ultimate Load Condition, 2.0% of the height of pole @ Safety Normal Load Condition.

4.23.03 Other Design of poles: Other design of steel monopoles meeting the loading and testing conditions as stipulated in the technical specification above will also be acceptable.

4.24 LINE MATERIALS:

4.24.2 CONDUCTOR: The conductor used in the line will be ISI marked (IS:398(P-II) 1996 with latest amendment) which will be supplied by the Contractor. The conductor size of ACSR Zebra and Panther is furnished as below:-

S. No.	CONDUCTOR DETAILS	PANTHER
i.	Conductor	ACSR
ii.	Code name	Panther
iii.	Size	130 mm^2 Cu. Eq.
iv.	Nominal Aluminium area	207 mm^2.
v.	Sectional area of aluminium	212.10 mm^2
vi.	Weight per kilometre of 41Conductor	974 Kg.
vii.	Area of cross section of Conductor	261.5 mm2
viii.	Coefficient of linear expansion of Conductor	17.80 x 10^{-6} Kg/mm2
ix.	Modulus of elasticity is to be designed.	8155 kg/mm2
x.	Temp. Variation	
xi.	Calculated DC resistance at 20 deg. Centigrade	0.139 Ohm per km
viii	Material	Aluminium conductor steel reinforced
ix	Conductor Size	30(18+12) /3.00 mm Aluminium + 7 /3 mm Steel
x	Stranding	Yes
xi	Overall diameter	21.00 mm
xii	Ultimate Strength	89.67 KN
xiii	Current carrying capacity	430 Amp. at 45 deg. Cent. Ambient and 30 deg. rise
xiv	DC Resistance of Aluminium wire (Maximum at 20 Deg. Cent.)	4.07 Ohm per Km.
xv	Standard length	1500 Mtr. $\pm$5%
xvi	Net weight of conductor (Approximate)	1461 Kg.
xvii	Breaking load: Aluminium Wire(Min.) Steel Wire(Min.)	 1.11 KN 8.83 KN
xvii i	Galvanisation test of steel wire: Uniformity : Weight :	 237.5 gm per m^2

4.24.3 GROUNDWIRE: The ground wire will be ISI marked (IS:12776 –2002 with latest amendments) 7/3.66 mm, 95 kg/mm^2 quality galvanised steel stranded wire which will be supplied by the Contractor. The standard Technical Particulars of the ground wire shall be as follows:-

S.No	PARTICULARS	PARAMETERS
1.	Materials	Steel
2.	Stranding	7 / 3.66 m.m.
3.	Weight per K.M.	583 Kg.
	Single wire before stranding	
4.	Diameter of Wire :- (a) Nominal (b) Maximum (c) Minimum	 3.66 m.m. 3.75 m.m. 3.58 m.m.
5.	Tolerance	+ / (-) 2%
6.	Minimum elongation in 100 m.m. length	5 m.m.
7.	Minimum breaking load of strand	10.58 KN
8.	Minimum Tensile Strength	95 Kg / mm^2
9.	D.C. Resistance at 20 ° Celsius	17.15 Ohms / KM
	Stranded wire : Length of Lay :-	
10.	**Nominal**	181mm
11.	Maximum	198 m.m.
12.	Minimum	165 m.m.
13.	Minimum breaking Load	6972 Kg.
14.	Overall diameter	10.98 m.m.
15.	Modulus of elasticity	1.933 x 10^6 kg/ cm^2
16.	Coefficient of linear expansion	11.50 x 10^{-6} per °C
17.	D.C. resistance at 20° C	2.5 Ohms / KM
	Zinc coating	
18	Minimum Weight of Zinc coating on wire	260 gms./sq. Meter of uncoated wire surface.
19.	No. of one minute dip and half minute dip respectively	3 & 1 respectively
20.	Minimum purity of zinc	99.95%
21.	Standard length	3000 Mtrs. $\pm$ 5%

4.24.4 GUARANTEED TECHNICAL PARTICULARS FOR GALVANISED SPRING WASHER FOR TRANSMISSION LINE

S.No	Particulars	
1.	ISS number to which spring washer will conform.	IS:3063
2.	ISS to which electro galvanised washer will conform	IS:1573
3.	ISS for tests regarding dimensions and strength etc.	IS:3063
4.	ISS for test for electro galvanising of washer.	IS:1573
5.	ISS for raw material of washers.	IS:4072
6.	Ultimate tensile strength.	0 N/m^2
7.	Hardness of finished washers in HRC after heat treatment as per Rock well hardness test.	43 – 50 HRC

8.	The free height of washers:- After having compressed flat for compression of 52,200N for 16mm size. ii) After compression and removal of pressure and repeated 20 times in quick succession.	5.95 mm 5.95 mm
9.	Method of testing for electro galvanising.	As per IS:1573
10.	Thickness of zinc coating in microns.	38 average, 25 min
11.	Result of twist test.	Passes
12.	Dimension, indicating tolerance of single coil Rectangular section spring washers with flat ends: i) Inside diameter basic tolerance. ii) Maximum outside diameter. iii) Breadth of washers basic tolerance. iv) Thickness of washers basic tolerance. v) Weight of spring washers (kg/1000 Nos. pieces)	 16.2 ± 0.8mm 27.4 mm 5 ± 0.2 mm 3.5 ± 0.2 8.91 kg. approx. as per IS:3063

NOTE: Spring washer should be suitable for use with 16 mm bolts and nuts conforming to IS:1363 and electro galvanising should be as per IS:1573 service condition "3" i.e. minimum thickness of 25 microns and average thickness of 38 microns.

4.24.5 GUARANTEED IS SPECIFICATION TO BE ADOPTED FOR

G.I. NUT BOLTS :-

.No	Particulars	Relevant IS No.
1	IS Specification of BIS for all GI Nut Bolts	IS:12427-2001
2	Minimum sharing strength of bolts (kg per mm sq.)	IS:12427-2001
3	Minimum ultimate tensile strength of Bolts	IS:1367
4	Value of Hardness test: a. Rock well hardness test b. Brinell hardness test	IS:1367
5	Indian standard for bolts & nuts dimensions	IS:12427-2001, IS;6639-1972 and any latest revision thereof for property class 5.6/5
6	Indian standard for threading dimension of bolts & nuts	IS:1367-1967 including IS-1367 (Part-XIII) 1983 &

		any latest revision thereof and IS:4218 (Part-V) 1978.
7	Indian Standard for hot dip galvanising	IS:1367 Part-XIII, 1983
8	Indian Standard for test of bolts & nuts	IS:1367-1967 and any latest amendment thereof.
9	Designation of standard for raw material for bolts & nuts.	IS:2062 Gr.A with latest amendment

4.24.6 GUARANTEED TECHNICAL PARTICULARS FOR GI NUTS AND BOLTS

S. No	**Description**	**Dimensions (in mm) 16 mm bolts, Property class 5.6**
1	Nominal diameter	16.00
1)	1) Maximum diameter of Unthreaded shank	16.7
	ii) Minimum diameter of unthreaded shank.	15.3
3.	Width Across flats Nom/Max./Min.	24.00/24.00/23.16
4.	Width Across corner	26.17
5.	Thickness of bolt head (Max. / Min.)	10.75/9.25
6.	Pitch	2.00
7.	Length of thread	23.00
8.	Zinc coating thickness	Minimum 54 microns.
9.	Mass of coating	Minimum 375g/m^2
10.	Minor diameter. A) Before plating Max/ Min. B) After plating Max.	13.508 /13.204
11.	Nut Thickness Max. / Min.	15.9 / 14.1
12.	Across flat width of nut Max./ Min.	24.00 / 23.16
13.	Across corner width of nut Min.	26.17

NOTE:- The bolts of above specification with different lengths of 35, 40, 45, 50, 55, 60, 65 mm with 50% thread / as per relevant ISS.

4.24.7 GUARANTEED TECHNICAL PARTICULARS OF ISI Mark G.I. STEP BOLTS

S.No	Particulars	Relevant IS No.
1	IS Specification of BIS for GI Step Bolts	IS:10238(2001) and Nuts IS:1363, Pt.III (1992)
2	Minimum ultimate tensile strength of Bolts	IS:1367
3	Value of Hardness test: (i) Rock well hardness test (ii) Brinell hardness test	IS:1367
4	Proof load test	IS:1367-2001
5	Indian standard for bolts & nuts dimensions	IS:10238-1982 and any latest revision thereof
6	Indian standard for threading dimension of step bolts & nuts	IS:4218 (Part-V) - 1978 & any latest revision thereof
7	Indian Standard for hot dip galvanising step bolts & nuts	IS:1367 Part-XIII, 1983 & IS:2629
8	Indian Standard for test of step bolts & nuts	IS:1367-1967 and any latest amendment thereof.
9	Designation of standard for raw material for step bolts & nuts.	IS:2062 Gr.A with latest amendment

4.24.8 TECHNICAL SPECIFICATION FOR POLYMER INSULATORS

4.24.8.01 STANDARDS

Unless otherwise specified elsewhere in this specification, the rating as well as performance & testing of the Polymer Insulators shall conform but not limited to the latest revision & amendments available at the time of placement of order of all the relevant standards as listed hereunder, except as modified in this document.

S. No.	Indian Standard	Title	International Standard
1	IS:731	Porcelain insulators for overhead power lines with a nominal voltage greater than 1000V	IEC:61109-1992
2		Verification of Dimensions of Polymer Insulators	IEC:61109
3	IS:13134	Guide for the selection of insulators in respect of polluted conditions	IEC : 60815
4	IS:2071 Part(I), II, III	Method of High Voltage Testing	IEC:60060-1
5		Characteristics of string insulator units of the long rod type	IEC : 60433

6	IS:2486	Specification for insulator fittings for overhead power lines with a nominal voltage greater than 1000V-General Requirements , Tests, Dimensional Requirements, Locking Devices	IEC-60575 IEC-60120 IEC:60372
7		Hydrophobicity classification guide	STRI guide 1.92/1
8		Standard for insulators– Composite-Distribution Deadend type	ANSI C29 13-2000
9	IS : 8263	Methods of RIV Test of HV Insulators	IEC:60487
10		Standard specification for glass fiber strands	ASTMD 578-05
11		Standard test method for compositional analysis by Thermo gravimetry	ASTME 1131-03
12	IS:8269	Methods for Switching impulse test on HV insulators	IEC:60506
13	IS:2629	Recommended practice for Hot Dip Galvanisation for iron & steel	ISO:1461(E)
14	IS:2633	Testing for Uniformity of Coating of Zinc coated articles	
15	IS:6745	Determination of Weight of Zinc coating on Zinc coated iron and steel articles	BS:443-1969 ISO 1460-1973
16	IS : 4759	Hot dip zinc coatings on structural steel & other allied products	ISO :1459, ISO :1461
17	IS : 4699	Specification for refined secondary zinc	
18	IS : 3203	Methods of testing of local thickness of electroplated coatings	ISO : 2178
19	IS:209	Specification for Zinc	BS:3436
20	IS:206	Method for Chemical Analysis of Slab Zinc	BS:3436

The standards mentioned above are available from:

Reference Abbreviation	**Name and Address**
BS	British Standards, British Standards Institution 101, Pentonvile Road, N - 19-ND, UK
IEC	International Electro technical Commission, Bureau Central de la Commission, electro Technique international, 1 Rue de verembe, Geneva, SWITZERLAND
BIS/IS	Beureau Of Indian Standards. ManakBhavan, 9, Bahadur Shah ZafarMarg, New Delhi -
ISO	International Organization for Standardization. Danish Board of Standardization Danish Standardizing Sraat, Aurehoegvej-12
STRI guide 1.92/1	STRI, Sweden, Website : www.stri.se
NEMA/ANSI C29 13-2000	National Electric Manufacture Association, 155, East 44th Street, New York, NY: 10017 U.S.A
ASTM	American Society for Testing and Materials, 1916 Race St. Phelledelphia, PA19103 U.S.A.

4.24.8.02 Material meeting with the requirements of other authoritative standards, which ensure equal or better performance than the standards mentioned above, shall also be considered. When the material offered by the bidder conforms to other standards, salient points of difference between standards adopted & the standards specified in this specification shall be clearly brought out in the relevant schedules. Three copies of such standards with authentic translation in English shall be furnished along with the bid.

4.24.8.03 CLIMATIC CONDITIONS

The insulators shall be suitable for being installed directly in air with Power ACSR conductors of Double Circuit Double Strung transmission lines. The materials offered shall be suitable for operation in tropical climate & shall be subject to the sun & inclement weather and shall be able to withstand wide range of temperature variations. The topography & climatic conditions in general are as under:-

1	Location in the state	Chhattisgarh
2	2 Maximum ambient air temperature (^{0}C) 50	50
3	Minimum temperature in shade (^{0}C)	1
4	Maximum relative humidity (%)	95 (sometimes approaches satuaration)
5	Average daily ambient air temperature (^{0}C)	32° Centigrade
6	ISOCERANIC Level (days/year) (Average number of thunder storm days)	50
7	Average rainfall(mm)	1250mm
8	Wind Zone as per IS 802(Part-I)-1995	2
9	9Max. Altitudes above mean sea level (meters)	1000M
10	Seismic level (Horizontal acceleration)(g)	0.3

NOTE:- Moderately hot and humid tropical climate conducive to rust and fungusgrowth. The climatic conditions are also prone to wide variations in ambient conditions. Stroke is also present in the atmosphere. Heavy lightening also occurs during June to October.

4.24.8.04 PRINCIPAL PARAMETERS

DETAILS OF POLYMER INSULATORS

A. The Polymer insulator shall be suitable for a three phase 50 Hz, effectively earthed 400 KV, 220 KV and 132 KV transmission system in a moderately polluted atmosphere. They shall be ball and socket type.

B. The specified values and dimensions, impulse and power frequency voltages, electromechanical strength [EMS] of Polymer insulators are as under. The valuesgiven are minimum which apply to all cases. Specified withstand and flashover voltages are referred to standard atmospheric condition.

S. No	**Particulars Value**	**132 KV POLYMER INSULATORS**	
		Suspension	**Tension**
		70 KN	**90 KN**
1	Size and designation of ball & socket	16 mm	16 mm
2	Creep-age distance (mm) (minimum)	4495	4495
3	Power frequency one minute dry withstand voltage kV (rms)	325	325
4	Power frequency one Minute wet withstand voltage kV(rms)	275	275
5	Visible discharge Test voltage kV (rms)	105	105
6	Minimum dry Impulse withstand voltage 1.2x50 micro second wave, positive and negative Kv Peak)	650	650
7	Nominal length (Insulation Spacing) (mm)	1305 mm	1450 mm

C. Polymer Insulators shall have sheds with good self-cleaning properties. Insulator shed profile, spacing, projection etc., and selection in respect of polluted conditions shall be generally in accordance with the recommendation of IEC-60815/IS : 13134

D. Dimensional Tolerance of Composite Insulators

The tolerances on all dimensions e.g. diameter, length and creepage distance shall be allowed as follows in line with-IEC 61109 :

± (0.04d + 1.5)mm when d□ 300mm

± (0.025d+6)mm when d>300mm

Where, d being the dimensions in millimeters for diameter, length or creepage distance as the case may be.

However, no negative tolerance shall be applicable to creepage distance

4.24.8.05 GENERAL TECHNICAL REQUIREMENTS

Core:

The core shall be glass-fiber reinforced epoxy resin rod (FRP) of high strength. Both, glass fiber and resin shall be optimized in the FRP rod. Glass fibers with low content in alkalies shall be boron free E glass or Boron free electrically corrosion resistance (ECR) glass. Use of resin with hydrolysis trend due to water penetration should be prevented i. e. matrix of the FRP rod shall be Hydrolysis resistant. Suitability of Epoxy matrix as well as interface between matrix and fibers is to be considered as design parameter to prevent brittle fracture. The FRP rod should be void free and shall be manufactured through Pultrusion process.

Housing (Sheath):

The core of the Polymer insulator shall be completely covered by a continuous housing consisting of a sheath-weathershed. For moulding of entire weathershed structure on to the rod in a one shot moulding process to be employed to avoid multiple interfaces. Hardware i. e. metal fittings may be installed on the rod prior to moulding of the shedcontrollingmoulding lines. The base polymer shall be 100% Silicon Rubber prior to the addition of reinforcing fillers. The thickness of compounding material on core should be minimum 3 mm. Manufacturer should furnish a description of its Quality Assurance Programme including fabrication, testing and inspection for any material (i.e. rubber), components(i.e. rod) or hardware (i.e. end fittings). The manufacturer has had fabricated by others should also be included. Manufacturing methods and material composition documentation will be a part of Technical Bid to be submitted along with offer. Insulator should have hermetically sealed structure in which the housing material is moulded to cover the interface between the end fittings and the FRP rod. This seal should never be broken during testing or otherwise.

End fittings:

The Polymer insulators shall be socket and ball type with the necessary coupling arrangement such that pin shall move freely in the socket but do not get disengaged while in service under various operating and atmospheric conditions.

The socket & ball type metal end fittings shall be designed to transmit the mechanical load to the core & the end fittings shall maintain uniform and consistent mechanical strength Material and methods used in the fabrication of metal parts shall be selected to provide good toughness and ductility. Metal end fittings shall be made from a quality malleable cast iron or forged steel or Spheroidal Graphite Iron(SGI) and shall be hot dipped galvanized in accordance with IS 2629. Metal end fittings shall be uniform and without sharp edges or corners and shall be free of cracks, flakes, slivers, slag, blow-holes shrinkage defects and localized porosity. The attachment to the FRP rod shall be performed with a symmetrically controlled crimping method control by acquistic method that compresses the metal radically onto the rod without damage to the rod fibers or resin matrix while providing a strength equal to or greater than the defined and specified ultimate strength to the insulator. The material used in fittings shall be corrosion resistant. Nominal dimensions of the pin, ball and socket interior shall be in accordance with the standard . No joints in ball & socket or pin will be allowed. Outer portion of ball or socket should be Zinc sleeved with minimum 99.95% purity of electrolytic high grade Zinc. The finished surface shall be smooth and shall have a good performance The surface shall not crack or get chipped due to ageing effect under normal and abnormal service conditions or while handling during transit or erection. The design of the fittings and the insulators shall be such that there is

no local corona formation or discharges likely to cause the interference to either sound or vision transmission.

GRADING RINGS

Grading rings shall be provided when system voltages are equal to or greater than 220 KV. For 220 KV transmission, grading ring is to be provided at the energized end only. For 400 KV transmission , grading ring is to be provided at both ends of the insulators. All grading rings and brackets shall be designed as an integral part of the insulator assembly with a positive mounting system that allows mounting in one position . The design of the grading ring shall be such that ring can only be mounted with its orientation towards the weather sheds for maximum RIV and Corona control . Grading rings shall be designed in such a manner that the rings can be readily installed and removed with hot line tools without disassembling any other part of the insulator assembly .

Grading ring height (is the distance from the end of the end fitting to the top of corona ring) should be so selected that maximum field minimizes and uniformly distributed along the insulator. Manufacturer should provide reports of successful electric field modeling testing for the specific insulator design. The EFM should be three dimensional with result containing drawing depicting the electric field in various colours , each of a different voltage level. The result of this study should show that the voltage field surrounding the polymer insulators is optimum along the entire length of the insulator , with the effected hot end of the insulator being a critical location . The threshold at which corona may or may not be present should be defined as a figure in KV/mm for the designed insulator.

VERIFICATION OF HOUSING MATERIAL

The manufacturer should provide written verification about housing material, for which base polymer shall be 100% Silicon Rubber prior to the addition of reinforcing fillers considered will provide satisfactory performance in the particular environment It shall meet following requirements Be homogenous, impermeable, with no fissures, bubbles and strange materials inclusions. Be designed in order to avoid formation of localized discharges and to prevent interfaces humid penetration. Be resistant to corona, UV radiation, ozone, atmospheric contamination, water penetration and power arcs.

BALL AND SOCKET DESIGNATION

The dimensions of the Ball and Socket shall be 16mm designation for 70KN and 90KN Polymer insulators and 20 mm designation for 120 KN and 160 KN Polymer insulators in accordance with the standard dimensions stated in IEC:60120/IS:2486(Part-II)

MARKINGS:

Each insulator shall be legibly and indelibly marked with the following details
as per IEC – 61109.

a. Name or trademark of the manufacturer.
b. Voltage and Type.
c. Month and year of manufacturing.
d. Minimum failing load / guaranteed mechanical strength in kilo
Newton followed by the word ‘KN’ to facilitate easy identification.
e. Country of manufacture

One 10 mm thick ring of suitable quality of paint shall be marked on the end fitting of particular strength for easy identification of Polymer insulators. The paint shall not have any deteriorating effect on the insulator performance. Following codes shall be used as identification mark :

For 70KN Polymer insulator : Green
For 90KN Polymer insulator : Blue
For 120KN Polymer insulator : Yellow
For 160KN Polymer insulator : Red.

4.24.8.06 MATERIAL DESIGN AND WORKMANSHIP

GENERAL

(i) All raw materials to be used in the manufacture of these insulators shall be subject to strict raw material quality control and to stage testing/quality control during manufacturing stage to ensure the quality of the final end product. Manufacturing shall conform to the best engineering practices adopted in the field of high voltage transmission. Bidders shall therefore offer insulators as are guaranteed by them for satisfactory performance on 400KV/220 KV and 132kV Transmission lines.

(ii) The design, manufacturing, process and material control at various stages be such as to give maximum working load, highest mobility, best resistance to corrosion, good finish, elimination of sharp edges and corners to limit corona and radio interference voltages.

GALVANISING

All ferrous parts shall be hot dip galvanized in accordance with the latest edition of IS:2629. The zinc to be used for galvanizing shall conform to grade Zn 99.5 as per IS:209. The Zinc coating shall be uniform, smoothly adherent, reasonably bright, continuous and free from impurities such as flux, ash, rust stains, bulky white deposits and blisters. Before ball fittings are galvanized, all die flashing on the shank and on the bearing surface of the ball shall be carefully removed without reducing the designed dimensional requirements**.**

INTERCHANGEABILITY

The Polymer insulators inclusive of the ball and socket fittings shall be of standard design suitable for use with hardware fittings of any make conforming to relevant Indian Standards.

CORONA AND RADIO INTERFERENCE VOLTAGE (RIV) PERFORMANCE

All surfaces shall be even, smooth, without cuts, abrasions or projections. No part shall be subjected to excessive localized pressure. The metal parts shall not produce any noise generating corona under all operating conditions.

4.24.8.07 SUITABILITY FOR LIVE LINE MAINTENANCE

The Polymer insulators shall be compatible for use with hot line or live line maintenance techniques so that usual hot line operations can be carried out with ease, speed and safety.

Suppliers shall indicate the methods generally adopted in routine hot and cold line maintenance of EHV lines for similar Polymer insulators supplied by them. Suppliers shall also indicate the recommended periodicity of such maintenance.

4.24.8.08 TESTS

The following tests shall be carried out on the Polymer insulator:

TYPE TESTS

This shall mean those tests which are to be carried out to prove the design, process of manufacture and general conformity of the material and product with the intents of this specification. These tests shall be conducted on a representative number of samples prior to commencement of commercial production.

ACCEPTANCE TESTS

This shall mean those tests which are to be carried out on samples taken from each lot offered for pre-despatch inspection for the purpose of acceptance of the lot.

ROUTINE TESTS

This shall mean those tests, which are to be carried out on each Polymer insulator to check the requirements, which are likely to vary during production.

STAGE TESTS DURING MANUFACTURE

Stage tests during manufacture shall mean those tests, which are to be carried out during the process of manufacture to ensure quality control such that the end product is of the designed quality conforming to the intent of this specification.

TEST VALUES

For all type and acceptance tests, the acceptance values shall be the value
guaranteed by the Supplier in the guaranteed technical particulars or the acceptance value specified in this specification or the relevant standard whichever is more stringent for that particular test.

TEST PROCEDURES AND SAMPLING NORMS

The norms and procedure of sampling for the above tests shall be as per the relevant Indian Standard or other Internationally accepted standards. This will be discussed and mutually agreed to between the successful Supplier and CSPTCL before placement of order. The standards and norms according to which these tests are to be carried out are listed against each test. Where a particular test is a specific requirement of
this specification the norms and procedure for the same shall be as mutually agreed to between the successful supplier and CSPTCL in the quality assurance programme. The supplier shall offer at least three times the quantity of material required for conducting all the type tests for sample selection. Before sample selection, the supplier shall be required to conduct all the acceptance test successfully in presence of CSPTCL’s representative.

TYPE TESTS

(A) The following type tests shall be conducted on all types of the Polymer insulator with hardware fittings :

a) Power frequency voltage withstand test with corona control rings and arcing horn under (dry/wet) conditions

b) Power frequency voltage flash over test with corona control rings and arcing horn under (dry/wet) conditions

c) Power frequency voltage flash over test without corona control rings and arcing horn under (dry/wet) conditions

d) Switching surge voltage withstand test under wet condition.

e) Impulse voltage withstand test under dry condition.

f) Voltage Distribution test

g) Impulse voltage flash over test under dry condition

h) Corona and RIV Test under dry condition.

i) Mechanical strength test

j) Vibration test.

k) Power Arc Test

l) Salt fog pollution withstand Test

(B) On composite Insulator Unit:-

1. Tests on interface and connection of metal fittings

(a) Dry Power frequency Voltage Test

(b) Sudden Load Release Test

(c) Thermal Mechanical Test

(d) Steep Front Impulse Voltage Test

(e) Dry Power frequency Voltage Test

2. Assembled Core Load Time Test

(a) Determination of the Average failing load of the core of the assembled unit

(b) Control of slope of the strength time curve of the insulator

3. Accelerated Ageing Test of 5000 hours

4. Flammability Test

5. Recovery of Hydrophobic Test

6. Mechanical Load Time Test

7. Brittle Fracture resistance test

8. Test of Housing, Tracking and Erosion Test

9. Test for the Core Material

- Dye Penetration Test
- Water diffusion Test

ACCEPTANCE AND ROUTINE TESTS

On Polymer Insulators following Acceptance & Routine tests shall be conducted:

(A) Acceptance tests:

a) Verification of dimensions IEC:61109-1992

b) Verification of Locking System

c) Galvanising test IS-731

d) Verification of specified Mechanical Load IEC:575

e) Recovery of Hydrophobicity As per annex-A

(B) Routine tests:

a) Visual Inspection IS-731

b) Mechanical routine test

c) Electrical routine test IEC:383

Tests during Manufacture (STAGE TESTS)

On all components as applicable

a) Chemical analysis of Zinc used for galvanizing
b) Chemical analysis, mechanical and metallographic test and magnetic particle inspection for malleable castings
c) Chemical analysis, hardness test and magnetic particle inspection for forgings
d) Crack detection test for metal parts

ADDITIONAL TESTS
The CSPTCL reserves the right for carrying out any other tests of a reasonable
nature at the works of the Supplier/laboratory or at any other recognized laboratory /research institute in addition to the above mentioned type, acceptance and routine tests at the cost of the CSPTCL to satisfy that the material complies with the intent of this specification.

insulator strings, the Supplier is required to produce type test reports to the satisfaction of the CSPTCL. However, in case the CSPTCL desires, the Supplier shall conduct all the type tests on the complete string with relevant hardware fittings. Responsibility of arranging required hardwares for the purpose of type testing will remain with the insulator Supplier.

TEST SCHEDULE
TYPE TESTS
The material offered shall be fully type tested as per this specification and the Supplier shall furnish four sets of type test reports alongwith the offer. These tests must not have been conducted earlier than five years.
For any change in the design/type ,already type tested and the design/type offered against this bid, the CSPTCL reserves the right to demand repetition of some or all type tests without any extra cost.

ACCEPTANCE AND ROUTINE TESTS
All Acceptance and Routine tests as stipulated herein shall be carried out by theSupplier in the presence of CSPTCL's representative.
Immediately after finalization of the programme of acceptance/routinetesting, the Supplier shall give sufficient advance intimation to the CSPTCL, to enable him to depute his representative for witnessing the test.

4.24.8.09 INSPECTION
i) CSPTCL and its representatives shall at all times be entitled to have access to the works and to all places of manufactures where insulators are manufactured and the successful Supplier shall afford all facilities to them for unrestricted inspection of the works, inspection of material, inspection of manufacturing process of insulators and for conducting necessary tests as specified herein.
ii) The successful Supplier shall keep the CSPTCL informed in advance of the time of starting and progress of manufacture of insulators in its various stages so that arrangements could be made for inspection.
iii) No material shall be despatched from its point of manufacture unless the material has been satisfactorily inspected and tested.
iv) The acceptance of any quantity of insulators shall in no way relieve the successful Supplier of his responsibility for meeting all the requirement of this specification and shall not prevent subsequent rejection, if such insulators are later found to be defective.

4.24.8.10 QUALITY ASSURANCE PLAN

The Supplier hereunder shall invariably furnish following information alongwith his offer, failing which the offer shall be liable for rejection. Information shall be separately given for individual type of material offered.
i) Statement giving list of important raw materials, names of sub-suppliers for the raw material, list of standards according to which the raw material are tested, list of tests, normally carried out on raw material in presence of Supplier's representative, copies of test certificates.
ii) Information and copies of test certificates as in (i) above in respect of bought

out items.
iii) List of manufacturing facilities available.
iv) Level of automation achieved and list of areas where manual processing exists.
v) List of areas in manufacturing process, where stage inspections are normally carried out in quality control and details of such test and inspections.
vi) Special features provided in Polymer insulators to make it maintenance free.
vii) List of testing equipment available with the Supplier for final testing of Polymer insulators specified and test plant limitation, if any, vis-a-vis the type, special, acceptance and routine tests specified in the relevant standards.

The successful Supplier shall within 30 days of placement of order submit the following information to the CSPTCL.
i) List of raw material as well as bought out accessories and the name of material as well as bought out accessories and the names of sub-suppliers selected from those furnished alongwith the offer.
ii) Type test certificates of the raw material and bought out accessories.
iii) Quality assurance plan (QAP) with hold points for CSPTCL's inspection. The QAP and CSPTCL's hold points shall be discussed between the CSPTCL and the Supplier before the QAP is finalized.

The successful Supplier shall submit the routine test certificates of bought out items and raw material at the time of routine testing of the insulator.\

4.24.8.11 DOCUMENTATION

The Supplier shall furnish full description and illustrated catalogues of insulators offered, alongwith the bid. The supplier shall also furnish alongwith the bid the outline drawing of Polymer insulator unit including cross-sectional view. The drawing shall include the following information:
i) Shed diameter and unit spacing with manufacturing tolerance.
ii) Creepage distance.
iii)Unit mechanical and electrical characteristics for the complete string suspension and tension. unit
iv) Size and weight of ball and socket part.
v) Weight of Polymer unit.
vi) Materials for the cap and pin.
vii) Identification mark.
viii) Manufacturer's catalogue number.
ix) Brief installation instructions.
x) Relevant technical details of significance.

TEST REPORTS

i) Four copies of type test reports shall be furnished to the CSPTCL within onemonth of conducting the tests. One copy will be returned duly certified by the CSPTCL to the Supplier within three weeks thereafter and on receipt of thesame Supplier shall commence with the commercial production of the Polymerinsulators.
ii) Four copies of acceptance test reports shall be furnished to the CSPTCL.
One copy will be returned, duly certified by the CSPTCL and only thereaftershall the materials be despatched.
iii) All records of routine test reports shall be maintained by the Supplier at hisworks for periodic inspection by the CSPTCL.
iv) All test reports of tests conducted during manufacture shall be maintained bythe Supplier. These shall be produced for verification as and when requestedfor by the CSPTCL.

4.24.8.12 GUARANTEED PARTICULARS AND PERFORMANCE GUARANTEE:

(i) The bidder shall furnish all relevant technical guaranteed particulars of the long rod Polymer Insulators offered. Offers without such details may not be considered.
(ii) The Polymer Insulators shall be guaranteed for satisfactory performance for a period of 24 months from the date of commissioning of line. Any defect due to faulty material or workmanship found during

guarantee period shall be rectified free of cost to the CSPTCL. The replacement will have to be organized expeditiously and within one month from the date of intimation.

The manufacturer shall also guarantee that there shall not be any failure/decapping/ breaking of insulators on line under normal operating condition. In the event of any failure/decapping/ breaking of insulators during first ten years of service, the manufacturer shall supply to the owner/CSPTCL free of cost spare insulators equal to 10 times the failed quantity. Further , in case of decapping/breaking and subsequent line drop , during the first ten years of service , the manufacturer shall also have to pay Rs. 1,00,000/-(Rs. One Lakh only) per dropped string towards expenditure to be incurred by CSPTCL for the line repair.

(iii) In case, the replacement of defective material is not made within one month then apart from operating clause of Penalty, the CSPTCL may also take suitable penal action against the contractor, which may include encashing the Performance Security to the extent required besides debarring the contractor and the manufacturer from all future business with the CSPTCL for a period which will be at the discretion of CSPTCL.

(iv) The defective/ rejected material shall be collected by the contractor from Trans. Stores/Site within one month from the date of intimation at your own cost.

(v) The bidder shall indicate the facilities available at the manufacturer's works to carry out the tests as per relevant ISS. Supplies shall be subject to testing as per IS.

4.24.8.13 PACKING & FORWARDING

i) All Polymer insulators shall be packed in suitable PVC/Plastic tubes/any other suitable packing. The packing shall provide protection against rodents. The supplier shall furnish detailed design of the packing. For marine transportation
crates shall be palleted.

ii) The packing shall be of sufficient strength to withstand rough handling during
transit, storage at site and subsequent handling in the field.

iii) Suitable cushioning, protective padding, or dunnage or spacers shall be provided to prevent damage or deformation during transit and handling.

iv) All packing cases shall be marked legibly and correctly so as to ensure safe arrival at their destination and avoid the possibility of goods being lost or wrongly dispatched on account of faulty packing and faulty or illegible markings. Each case/crate shall have all the markings stenciled on it in indelible ink.

v) The supplier shall guarantee the adequacy of the packing and shall be responsible for any loss or damage during transportation handling, storage and installation due to improper packing indelible ink.

ANNEXURE-II

1.0 Tests on Complete composite Insulator with Hardware Fittings.

1.1 Salt - fog pollution withstand test

This test shall be carried out in accordance with IEC-60507. The salimity level for composite long rod insulators shall be 80 Kg / m3 NACL.

2.0 Composite Long rod Insulator Units

2.1 Brittle Fracture Resistance Test.

Assembled core load time test with container that contains in-HNO3 concentric acid this is applied at the naked rod. The rod should be held at 80% of SML for the duration of the test. The rod should not fail within the 96 hour test duration.

2.2 Recovery of Hydrophobicity Test

(1) The surface of selected samples shall be cleaned with isopropyl alcohol. Allow the surface to dry and spray with water. Record theHC classification. Dry the sample surface

(2) Treat the surface with corona discharges to destroy the hydrophobicity. This can be done utilizing a high frequency corona tester. Holding the electrode approximately 3 mm from the sample surface slowly move the electrode over an area approximately 1'' x 1''. Continue treating this area for 2-3 minutes, operating the tester at maximum output.

(3) Immediately after the corona treatment, spray the surface with water and record the HC classification. The surface should be hydrophilic with an HC value of 6 to 7. If not, dry the surface and repeat the corona treatment for a longer time until an HC of 6 or 7 is obtained. Dry the sample surface.

(4) Allow the sample to recover and repeat the hydrophobicity measurement at several time intervals. Silicone rubber should recover to HC 1 – HC 2 within 24 to 48 hours, depending on the material and the intensity of the corona treatment.

3.0 Test on All components (As applicable).

3.1 Chemical Analysis of Zinc used for Galvanizing.

Samples taken from the zinc ingot shall be chemically analysed as per IS 209-1979. The purity of zinc shall not be less than 99.95%.

3.2 Tests for Forgings.

The chemical analysis hardness tests and magnetic particle inspection for forgings, will be as per the internationally recognized procedures for these tests. The sampling will be based on heat number and heat treatment batch. The details regarding test will be as discussed and mutually agreed to by the Supplier and Owner in Quality Assurance Programme.

3.3 Tests on Castings.

The chemical analysis, mechanical and metallographic tests and magnetic, particle inspection for castings will be as per the internationally recognized Procedures for these tests. The samplings will be based on heat number and heat treatment batch.

The details regarding test will be as discussed and mutually agreed to by the Supplier and Owner in Quality Assurance Programme.

4.0 Power Arc Test:

Three insulators having any one design of end fittings shall be tested for power arc endurance while tensioned horizontally at 3000lb. An arc shall be initiated across the insulator by means of a Copper shorting fuse wire. The arc shall burn 15 to 30 cycles and its current magnitude is determined by ampere- time product(IxT) equal to a minimum of 150kA cycles. Each insulator is only acceptable if there is no exposure of the core, no mechanical separation of the insulator, and no cracks in the housing.

4.24.9 SINGLE SUSPENSION HARDWARE FOR ACSR PANTHER CONDUCTOR WITH PREFORMED ARMOUR RODS :-

S.No.	ITEM	PANTHER
1.	Type of clamp	AGS type
2.	Ball & socket dimension	16mm
3.	Suitable for conductor size	ACSR Panther with amour rods
4.	Breaking strength	7000 kg.
5	Tension clamp & keeper	Alu.alloy GDC
6.	Anchor. Shackle. Ball Link & socket Eye	Forged steel HDG
7.	Bolts, nuts & washers	Galvanised MS
8.	Security clip	R type made of SS/PB
9,	Spring Washer	Electro galvanised spring steel
10.	Galvanising standard	IS:2633
11.	Standard reference	2486 part-I,II & III
12.	Arcing Horn	MS Flat 25x6
13.	Preformed Armour rods	As per standard in No. & size.

The 132 KV double suspension hardware set suitable for ACSR Panther conductor shall consist of following items:-

S.No	ITEM	Qty / Set	Material
1	Ball Hook	1	Forged Steel
2	Socket Clevis	3	Forged Steel
3	Yoke Plate	2	Mild Steel
4	Ball Clevis	2	Forged Steel
5	Arcing Horn	1	M.S. Flat / Steel tube
6	Clevis eye	1	Forged Steel
7	Suspension clamp AGS type	1	Aluminium Alloy
8	Pre formed armour rod	1 Set	Aluminium Alloy

4.24.10 SINGLE TENSION HARDWARE COMPRESSION TYPE SUITABLE FOR ACSR PANTHER CONDUCTOR & EARTHWIRE :-

Single tension string Hardware shall comprise of one `D' Shackle, one Ball Link, one Forged Steel Socket, Socket Clevis Horn holder, one line side Arcing Horn and one Tension Clamp of compression type having before and after compression dimensions strictly as mentioned below:-

S.NO	ITEM	PANTHER	EARTHWIRE
1.	Type of clamp	Compression type	Compression type
2.	Suitable for conductor size	ACSR Panther	7/3.66mm Groundwire
3.	Breaking strength	9100 kg.	7000 kg,
4.	Tension clamp jumper	Ex-Alu.alloy	Forged steel
5.	Steel sleeve, anchor shackle, ball link socket eve	Forged steel HDG	Forged steel HDG
6.	Bolts, nuts and washers	Galvanised MS	Galvanised MS
7.	Security clip	'R' type made of SS/PB	--
8.	Spring washer	Electro galvanised spring wheel	Electro galvanised spring wheel
9.	Galvanised Standard	IS:2633	IS:2633
10.	Standard reference	2486, part – I,II & III	2486, part – I,II & III
11.	Arcing Horn	MS FLAT 25 X 6	--
12.	Standard Length of hardware set without pin and D shackle arrangement	457 m.m.	285 mm
13.	Diameter of aluminiumtube before compression: a) Inner dimension b) Outer dimension	 23 mm 38 mm	--

14.	Diameter of aluminiumtube after compression:- a) Across Flat b) Across Corner	 32 mm 37 mm	
15.	Diameter of steel tube before compression:- a) Inner dimension b) Outer dimension	 9.35 mm 18 mm	 11.5 mm 21.2 mm
16.	Diameter of steel tube after compression. a) Across Flat b) Across Corner	 15.1 mm 17.4 mm	 17.5 mm 20.2 mm
17.	Length of sleeve (Steel/Al.) a) Before compression b) After compression	 203/610 233/660	 230 262
18.	Conductivity	Equal to ACSR Panther	Equal to groundwire
19.	Weight of hardware	As per ISS	As per ISS

In the case of railway / road / river / other transmission line crossing, double suspension / double tension insulators strings will be used with their hardwares and fittings.

4.24.11 DOUBLE TENSION HARDWARE FOR ACSR PANTHER CONDUCTOR COMPRESSION TYPE:-

BALL & SOCKET dimensions:- The ball and socket dimensions of double tension hardware for Panther ACSR Conductor which will be used with 90KN polymer insulator shall conform to dimension 16 mm B.

The double tension string of 132 KV line shall have ultimate breaking strength of not less than 9100 kg. Individual items of the fittings which will be subjected to tension shall also have ultimate breaking strength of not less than 9100 kg. The compression clamp shall have a minimum slipping strength of not less than 95% of breaking strength of conductor with which it is used.

CONDUCTIVITY:- The entire fitting or part thereof shall have the conductivity equivalent to length of conductor.

All the ferrous parts should be hot dip galvanised as per IS 2633 and nut bolt should be galvanised as per IS 5358.

132 KV DOUBLE TENSION HARDWARE for ACSR Panther shall comprise of following items:-

S.No	ITEM	Qty / Set	Material

1	"U" clevis	2	Forged Steel
2	Chain Link	1	Forged Steel
3	Yoke Plate	2	M.S. Plate
4	Ball Clevis	2	Forged Steel
5	Socket Clevis	2	Forged Steel
6	Clevis eye	1	Forged Steel
7	Arcing Horn	1	M.S. Flat / Steel tube
8	Compression tension clamp assembly complete	1	Extruded Al. & Forged Steel.

4.24.12 CONDUCTOR ACCESSORIES:

(A) Armour Grip Suspension Clamp (AGS):

AGS fitting shall consist of 2 Neoprene Halves, a set of Helical rods made of Aluminium alloy, two Aluminium halves casting having inner profile matching with the profile of the Armour rod cage and jointed by supporting strap made of Aluminium alloy.

The Bidder should give complete data on the reduction of the dynamic stresses of the Conductor at the point of AGS support compared to that of bare clamp used with preformed types of Armour rods.

The Bidder will be required to prove the comparative performance in regard to the dynamic flexural stress pattern on the vibrating Conductor on the tensioned span with actual tests on the AGS unit compared to the normal bare clamp with Armour rods. Suitable curves should be furnished along with the bid for the same and also actual reports on the stress/ strain determinations. The Bidder should give the guaranteed value of the power loss of the AGS units offered by them supported by a test certificate of any reputed laboratory of the country. Suitable curves should be furnished along with the bid for the power loss due to AGS unit as well as with the conventional envelope type of Suspension Clamps.

The housing supports and housing straps should provide positive stop closure. AGS unit should have low rotational inertia, strut action of the Armour Cage, resilient cushioning of the neoprene insert, immunity from high compressive and flexural stress and wide area support. Manufacturer is required to guarantee minimum fatigue life of the AGS units and this would be established under actual tests on tensioned Conductor span. The manufacturer is required to guarantee minimum 40 years life of the complete AGS units including Neoprene cushioning and this should be established under actual test on a tensioned Conductor span.

The rubber used with AGS unit must be capable of withstanding desired long out-door performance including the variation of temperature from 0^0C to 75^0C. The Bidder will have to provide certificate from reputed manufacturers that the rubber being supplied by them is suitable for AGS fitting and must have tensile strength of 2000 PSI and minimum ultimate elongation 300%.

The helical retaining rods required for AGS assembly shall be made of Aluminium alloy of HE 20 grade as per IS-6051/19 or equivalent International Standard duly heat treated and shall be suitable to wrap a desired size of Conductor. The tensile strength of the retaining rod material should not be less than 50,000 PSI and the electrical conductivity should not be less than 40% (IACS). The minimum slipping strength of the complete fitting shall not be less than 15% and more than 20% of the UTS of the cable on which it is to be used. The Clamp shall be in 2 parts made of Aluminium and will have inner profile matching with the profile of Armour rod. This Clamp should be made by drop forging process. AGS assembly should be provided with the forged steel socket eye to match with the suspension string and should have UTS not less than 7,000 Kgs.

IT IS ESSENTIAL FOR THE BIDDER TO HAVE SUITABLE HEAT TREATMENT FACILITIES FOR ALUMINIUM ALLOY WIRES IN THE ARMOUR GRIP SUSPENSION UNITS. FORMED ROD BASED ITEMS WILL NOT BE ACCEPTABLE FROM MANUFACTURERS WHO DO NOT HAVE NECESSARY TECHNOLOGY FOR DEVELOPMENT OF ADEQUATE RESILIENCE, ELONGATION UTS AND TWIST TEST FACILITIES BACKED WITH PROPER HEAT TREATMENT SYSTEMS. SUCH OFFERS MAY BE TREATED AS NON-RESPONSIVE.

(B) The AGS Preformed Armour rods set suitable for ACSR Zebra/Panther conductor(as the case may be) shall be used to minimize the stress developed in a conductor due to different static and dynamic loads because of vibration due to wind, slipping of conductor from suspension clamp as a result of unbalance conductor tension in adjacent span and broken wire condition. It shall be made of Aluminium alloy of HE 20 grade as per IS-6051/19 duly heat-treated. The aluminium alloy wires (pre heat treated) for manufacturing of Armour rods can also be used, however bidder should submit the test certificates in support of their claim for using pre heat-treated wires. It shall also withstand power arcs; chafing and abrasion from suspension clamp and localized heating effects due to resistance losses of the conductor.

The pitch length of the rods shall be determined by the supplier but shall be less than that of the outer layer of ACSR conductor and the same shall be accurately controlled to maintain uniformity and consistently reproducible characteristics wholly independent of the skill of lineman.

The preformed armour rod sets shall have right hand lay and the inside diameter of the helices shall be less than the outside diameter of the conductor to grip the same tightly. The surface of the armour rod when fitted on the conductor shall be smooth and free from projections, cuts and abrasions etc.

The length of each rod shall be as per drawing enclosed. The tolerance in length of each rod shall be +/- 25mm. The tolerance in length of the rods in completed sets should be within 13 mm between the longest and shortest rod. The ends of the armour rod shall be parrot billed.

The number of armour rods in each set shall be 11/12. The each rod shall be marked in the middle with paint for easy applications on the line.

The armour rod shall not loose their resilience even after five applications. The conductivity of each rod of the set shall not be less than 40% of the conductivity of International Annealed Copper Standard (IACS). The minimum tensile strength of armour rod should be 35 Kg per sq.mm.

Mid span joints, Repair Sleeves, Flexible Copper Bond etc. should be used as per transmission line practice & latest revision of I.S.S.

(C) STANDARD PARTICULARS FOR MID SPAN JOINTS:-

S. No	Description	Panther ACSR	Earthwire
1	Type of hardware	Compression	Compression
2	Breaking strength	100% of UTS of conductor	100% of UTS of earthwire
3	Conductivity	Equal to ACSR Panther	Equal to earthwire
4			
	Aluminium Joint :- a) Overall Dia before compression (i) Inner dimension (ii) Outer dimension b) Dimension after compression:- (i) Across Flat (ii) Across corner	 23 38 32 37	 - -
	Steel Joint :- a) Overall Dia before compression (i) Inner dimension (ii) Outer dimension b) Dimension after compression:- (i) Across Flat (ii) Across corner	 9.35 18 15.1 17.4	 11.5 21 17.5 20.2
5			
	Al. Sleeve	Extruded 99.5% pure Aluminium	-
	Steel Sleeve	HDG Steel	HDG Steel
6	Standard weight	As per IS with tolerance	As per IS with tolerance
7	Length of aluminium sleeves before and after compression m.m. Length of steel sleeves before and after compression m.m.	610 / 660 mm 203 /233 mm	-
8	Reference	IS 2121	-

(D) STANDARD PARTICULARS OF REPAIR SLEEVES OF PANTHER AND EARTHWIRE

S. No	Description	Panther ACSR	Earthwire
1	Breaking strength of cable with sleeve compressed	100% of UTS	100% of UTS
2	Conductivity of cable with sleeve compressed	Equal to conductor	Equal to earthwire
3	Dimensions before and after compression (flat to flat).	38 / 32 mm	20.8 / 17.5 mm
4	Length of sleeve before & after compression	241/270	254/280
5	The material from which sleeve is made	Extruded Aluminium	HDG Steel
6	Weight of repair sleeve	0.42 kg	

(E) VIBRATION DAMPER FOR PANTHER & EARTHWIRE :-

Vibration dampers (4-R type) shall be used for Conductors &Groundwires.

S.No	Item	Panther	Earthwire
1	Type	4 – R type	4 – R type
2	Suitable for conductor size	21 mm	10.98 mm
3	Material used for clamp	Alu. Alloy GDC as per IS 617	Alu. Alloy GDC as per IS 617
4	Messenger table	High tensile steel stranded galvanised wire	High tensile steel stranded galvanised wire
5	Damper weights	3.2 Kg	1.8 kg.
6	Slipping strength	500 Kg	500 Kg
7	Natural frequency	7.14, 11.36, 25.64,	14.3, 20.4, 27,

	of damper	38.5 Hz.	33.9, 42.6 Hz.
8	No. Of clamps required per span length of 250M, 300M, 350M, 400M, 300 M & 500 M	Upto 400 M, 2 dampers per span; and upto 500 M, 4 dampers per span	Upto 400 M, 2 dampers per span; and upto 500 M, 4 dampers per span
9	Minimum fatigue strength of damper in cycle	10 million cycle	10 million cycle
10	Amplitude of fatigue test at the highest resonant frequency	+ 1 m.m.	+ 1 m.m.
11	Slip strength of clamp	300 kg	250 kg
12	Clamping torque	5 kg-mtr	4 kg-mtr
13	Maximum dynamic strain on the conductor with the damper at clamping points	Less than 150 micro strains	Less than 150 micro strains
14	Standard to which material will be manufactured and tested	IS 98 / 1980	IS 98 / 1980
15	Magnetic power loss in watts	Below 1 watt per damper	Below 1 watt per damper

4.24.13 MISCELLANEOUS ITEMS: Enamelled number plates, phase plates and danger board, bolts and nuts, spring washers, pack washers and other monopole accessories like 'D" shackle, hanger and fasteners shall be provided. Drawing of Anti-climbing devices (including barbed wire) for Gantry shall be submitted by contractor for approval of CSPTCL. No extra payment will be made for this.

4.24.13 VENDOR LIST:

All the materials required for construction of the line shall be supplied strictly as per the "list of vendors" indicated in Annexure A-3 of this tender document **TR-20/04**. This vendor list can also be viewed on CSPTCL's official web-site.The vendor list as on date of issue of NIT shall be applicable for instant tender. No deviation in the vendor list shall be permitted during

execution of the project at any stage. **The materials which are not covered in this vendor list shall be supplied from reputed make with prior approval of CSPTCL.**

4.25 QUANTUM OF WORK:

The quantities indicated in price schedules are based on preliminary assessment and are provisional. Thus, the quantity of Monopole assumed are only provisional as also the number of location in various types of soils, The quantities of various work indicated are also provisional and may vary depending on actual type of soil / conditions encountered in the field depending on survey and approved profile. **The work is to be completed as per actual site conditions (as confirmed by the O.I.C. of the work) and on same prices as offered and on similar terms and conditions.**

4.26 **SOIL INVESTIGATION /GEOTECHNICAL INVESTIGATIONS:-**

General

CSPTCL requires that a detailed Geotechnical investigation be carried out at monopole locations as per requirement of CSPTCL 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 monopole can be classified and designed rationally.

These specifications provide general guidelines for geotechnical investigation of normal soils. Cases of marshy locations and locations affected by salt water or saltpetre 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 CSPTCL.

4.26.1 Scope

4.26.1.1 The scope of work includes detail soil investigations and furnishing bore log data at various monopole locations as per requirement of CSPTCL. The provisional quantities have been indicated in Bill of Quantities. However, during actual execution of work, the location shall be decided by the site engineer in charge, depending upon the soil strata and terrain. Based on the bore log data / soil parameter /soil investigation results, the Contractor/soil investigation agency shall submit the test result for the locations and the approval for soil classification shall be taken from CSPTCL. The decision of CSPTCL is full and final.

4.26.1.2 These specifications cover the technical requirements for a detailed soil investigation 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 interpretation of data and results, preparation of detailed soil report including specific recommendations for the type of foundations. **The aforementioned work shall be done or supervised by any independent educational/research institutions or any govt. department laboratory or any govt./board approved agency having work experience of least 5 years in**

geotechnical investigation work as per technical specification. The approval for the same shall be obtained from CSPTCL.

4.26.1.3 Contractor shall make his own arrangements to establish the co-ordinate system required to position boreholes, tests pits and other field test locations .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).

4.26.1.4 The field and laboratory data shall be recorded on the Performa recommended in relevant Indian Standards. Contractor shall submit to CSPTCL after the completion of each boreholes/test.

4.26.1.5 After reviewing Contractor's geotechnical investigation report, Owner will call for discussions, at Owner's site Office, in order to comment on the report in the presence of Contractor's Geotechnical Engineer. Any expenditure associated with the redrafting and finalizing the report, traveling etc. shall be deemed included in the rates quoted for the geotechnical investigations.

4.26.1.6 Contractor shall carry out all work expressed and implied in these specifications in accordance with requirements of the specification.

4.26.1.7 The contractor shall prepare and submit soil profile along the transmission line route indicating salient soil characteristics / features, water table etc based on detailed soil investigations and other details / information collected during detailed survey.

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

4.26.2 Field Investigation for Soils

Tentative numbers of detailed soil investigation to be done is given in PBS

4.26.2A Boring

Boreholes are required for detailed soil investigations.

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 conducting 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 4mtr 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 atleast 3 mtr further in normal locations and at least 7 mtr 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 bore hole 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 by 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 all boreholes as directed by the Owner.

4.26.2B Auger Boring

Auger boring 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.

4.26.2C Shell and Auger Boring

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 Chisel 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 4.5.1.2 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 drilling fluid to stabilise and protect the inside surface of the borehole. Use of percussion tools shall be permitted in hard clays and in dense sandy deposits.

4.26.2D Standard Penetration Test (SPT)

a. This test shall be conducted in all types of soil deposits encountered within a borehole, to find the variation in the soil stratification by correlating with the number of blows required for unit penetration of a standard penetrometer. Structure sensitive engineering properties of cohesive soils and sifts such as strength and compressibility shall not be inferred based on SPT values.

4.26.2E The test shall be conducted at depths as follows:

Location	Depths (m)
Normal Soils	1.0, 2.0, 3.0, 4.0
River crossings and special Locations.	2.0, 3.0, 5.0, 7.0, 10.0 and thereafter at the rate of 3m intervals upto 40 m or refusal whichever occur earlier.

a. The spacing between the levels of standard penetration test and next undisturbed sampling shall not be less than 1.0m. Equipments, accessories and procedures for conducting the test and for the collection of the disturbed soil samples shall conform to IS:2131 and IS:9640respectively. The test shall be conducted immediately after reaching to the test depth and cleaning of bore hole.

b. 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 0.75 m. The sample shall be driven using the hammer for 450mm recording the bumper of blows for every 150mm. The number of blow for the last 300mm drive shall be reported as N value.

c. 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.

4.26.2F Sampling

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 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.

4.26.2G 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 intervals starting from a depth of 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 (250N) shall be collected 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.

4.26.2H 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	1.0,2.0, 4.0
Special Locations	1.0, 4.0, 6.0, 8.0,10.0 and thereafter at the rate of 3 m intervals up to 33m or refusal whichever occur earlier.

4.26.2I 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 up to 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.

4.26.2J Ground Water

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 rise or fall of water level shall be made at each depth. The level at which neither fall 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.

4.26.2K 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 filed investigation. Levels in nearby wells, streams, etc., if any, shall also be noted in parallel.

4.26.2L Subsoil water samples

a) Subsoil 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.

4.26.3 Laboratory Testing

4.26.3A 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 every 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 borehole;

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.

4.26.3B Tests

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 remolded samples Unconsolidated undrained, Consolidated drained test),

c) Chemical analysis of sub soil water.

4.26.3C Salient Test Requirement

a) Tri-axial shear tests shall be conducted on undisturbed soil samples, saturated by the application of 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 tri-axial tests shall be performed on specimens at natural moisture content. Each test shall be carried out on a 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 analyses of subsoil shaft include determination of PH value, carbonate, sulphate (both SO_3 and SO_4). chloride and nitrate contents, organic matter, salinity and any other chemicals which may be harmful to the foundation material. Their contents in the soil shall be indicated as percentage (%);

e) Chemical analysis of subsoil water samples shall include the determination of properties such as colour, odour, turbidity, PH value and specific conductivity, the last two chlorides, nitrates, organic matter and any other chemical harmful to the foundation material. The chemical contents shall be indicated as parts per million (PPM) based on weight.

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

3. Strength Test
   a. Type (b) C (Cohesion) (c) Ø (angle of internal friction)

d) Angle of repose

e) Consolidation Test
   – $e_{0,}$ Pc, Cc, DP, Mv, Cv

f) Shrinkage limit(%)

g) Swell Test
   – S.Pr, FS

h) Relative Density (%)

i) 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 block 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 UndrainedTriaxial 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), e0 - Initial Void Ratio

Pc - Reconsolidation Pressure (kPa), Cc - Compression Index

DP -Change in Pressure (kPa),

m_v - Coefficient of Volume Compressibility (m2/ KN)

Cv - Coefficient of Consolidation (m2/hr)

IV. For Chemical Test

As per Specifications - Clause 2.4.D

4.26.3D Recommendations

a) Recommendations shall be provided for monopole location duly considering soil type. The recommendations shall provide all design parameters and considerations required for proper selection, dimensioning and future performance of monopole foundations considers such investigations necessary.

4.26.3D Hydro geological Conditions

2.2.A.1The maximum elevation of ground water table, amplitudes of its fluctuations and data on water aggressivity with regard to foundation structure materials shall be reported. While preparing ground water characteristics the following parameters should be specified for each acquifier:

a) bicarbonate alkalinity mg-eq/(deg),
b) pH value
c) content of aggressive carbon dioxide, mg/l;
d) Content of magnesia salts. mg/l, recalculated in terms of ions Mg+2;
e) content of ammonia salts, mg/l, recalculated in terms of ions NH4+
f) content of caustic alkalis, mg/l, recalculated in terms of ions Na+ & K+
g) contents of chlorides, mg/l recalculated in terms of ions Cl-
h) contents of sulphates, mg/l, recalculated in terms of ions SO4-2

i) Aggregate content of chlorides, sulphates, nitrates, carbonates and other salts. mg/l.

4.26.3 E Rates and Measurements

4.26.3 F Rates

The contractor's quoted rates shall be inclusive of mobilization of necessary equipment, providing necessary engineering supervision and technical personnel, skilled and unskilled labour etc. as required to carry out field investigation and tests, laboratory tests, analysis and interpretation of data and results, preparation of detailed soil report including specific recommendations for the type of foundations making etc.

4.26.4 Codes and Standards for Geotechnical Investigations

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.

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

Indian Standards (IS)	**Title**	**International 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 ASTM D2488
IS:1892-1992	Code of Practice for Subsurface Investigation for Foundation	
IS:1892-1992	Code of Practice for Subsurface Investigation for Foundation	
IS:1904-1986	Code 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:3025	Methods of Sampling and Testing(Physical and Chemical) for water used in Industry	
IS:4091-1987	Code of Practice for Design and Construction of Foundations for Transmission Line Towers and Poles.	
IS:4434-1992	Code of Practice for In-situ Vane Shear Test for Soils	ASTM D 2573 ASTM D 4648
IS:4453-1992	Code of Practice for Exploration by Pits, Trenches, Drifts and Shafts.	

Indian Standards (IS)	Title	International Standard/Code
IS:4464-1990	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: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:9259-1992	Specification for Liquid Limit Apparatus.	ASTM D 4318

4.27 MONOPOLE EARTHING:-

(i) For the purpose of earthing, 2 No. GalvanisedEarthing rods (25 mm diameter and 2 metres long) connecting clamps and connecting wire will be provided by the contractor. The GalvanisedEarthing rods are to be hammered preferably in the foundation pits and connected to stub by 7/3.66 mm earth wire and with necessary connecting clamps before concreting the foundation. If it is not possible to tie the rods in the foundation pit i.e. rocky location, they shall be buried near the foundations pit and connected to the stubs. The GalvanisedEarthing rods are to be provided on two legs diagonally of the monopole. Each monopole shall be earthed before the foundation is casted.

(ii) The monopole footing resistance of all monopole shall be measured in dry weather after the erection and before stringing of earth wire the counter poise earthing shall be resorted to, in accordance with the instructions of the site Engineer, in case the resistance exceeds the specified value. It shall be ensured that the monopole footing resistance is less than 10 Ω (ohms). Each monopole footing resistance shall be intimated (along with monopole location number) while submitting the progress report of the foundation.

4.28 COUNTER POISE EARTHING:-

i) In case of high resistivity, counter poise earthing shall be provided which consists of four lengths of galvanized steel stranded wire, each fitted with a leg / clamp for connection to the monopole foundation bolt. The counter poise will be laid radially away from the tower and will normally be 15 metres in length, buried to the depth of 300 mm below ground level. The length of counter poise wire may be increased if the resistance requirements are not met. Connecting clamps shall be buried in the chimney portion of the foundation. The scope of work of connecting counter poise to the

monopole foundation bolt shall be deemed to be included in the cost of laying of counter poise. The counter poise connecting wire and clamps will be arranged by the contractor. The counter poise shall preferably be laid through soft areas if available. The planning of laying counter poise shall be done as per approval of site Engineer. The cost of laying of counter poise shall be inclusive of excavation and back filling work.

i. The contractor shall have to provide GalvanisedEarthing rods at the end of each counter poise wire and this may lead to getting required soil resistivity values. This work of additional GalvanisedEarthing rods shall be done extra which shall include the cost of providing such GalvanisedEarthing rods and clamp etc. cost of materials i.e. connecting arrangements GalvanisedEarthing rods (04 Nos.) and connecting arrangements.

ii. The earthing of monopole to be done as per I.S.S. 5613 Part II & latest revision of I.S.S.

4.29 INSULATOR HOISTING:-

Suspension insulator strings shall be used for suspension Monopoles and tension insulator strings on Angle & Dead end Monopoles. They shall be fixed on all the Monopoles just prior to stringing. Damaged insulators and fittings, if any, shall not be used in the assemblies. Before hoisting all insulators shall be cleaned in a manner that will not spoil, injure or scratch the surface of the insulator, but in no case shall any oil be used for the purpose. Security clips shall be fitted in position for the insulator before hoisting. For checking and soundness of insulator, IR measurement using 5 kV (DC) Megger shall be carried out on 100% insulators. Corona control rings/arcing horn shall be fitted in an approved manner. Torque wrench shall be used for fixing various line materials and components, such as suspension clamp for conductor and earth wire, etc., whenever recommended by the manufacturer of the same.

4.30 HANDLING OF CONDUCTOR AND EARTH WIRE:-

4.30.1 The contractor shall be entirely responsible for any damage caused to the monopoles or conductors during stringing. While running out the conductors, proper care shall be taken ensuring that the conductors do not touch and rub against the ground or objects which could cause scratches or damage to the strands. The conductors shall be run out of the drums from the top in order to avoid damage due to chafing. The drum stand shall be provided with a suitable braking device to avoid damage, loose running out and kinking of conductor. The conductor will be pulled by pull cable and consequently pass over the running out blocks. The groove of the running out blocks will be of such a design that the seat is semi-circular and larger than the diameter of the conductor and it does not slip over or rub against the sides. The grooves shall be lined with hard rubber or neoprene to avoid damage to conductor and shall be mounted on properly lubricated bearings.

4. 30.2 The running blocks shall be suspended in a manner to suit the design of the cross arm. All running blocks especially those at the tensioning end, will be fitted on the cross arm with jute cloth wrapped over the steel work and under the slings to avoid damage to the slings as well as to the protective surface finish of the steel work. The conductor shall be continuously observed for loose or broken strands or any other kind of damage. When

approaching towards end of a drum length, at least three coils shall be left when the stringing operations are to be stopped. These coils are to be removed carefully if another length is required to be run out, new length may be joined to the length already run out by the compression joint in approved manner.

4. 30.3 The conductor joints and clamps shall be erected in such a manner that no bird caging, over tensioning of individual wires or layers or other deformities or damage to the conductor shall occur. Clamps or bracing devices shall under erection conditions allow no relative movement of strands or layers of the conductors. Repairs of conductors, in the event of damage being caused to isolated strands of a conductor during the course of erection, if necessary, shall be carried out during the running out operations, with repair sleeves. Repairing of conductor surface with repair sleeve shall be done only in case of minor damage, scuff marks etc., keeping in view both electrical and mechanical safety requirements. The final conductor surface shall be clean, smooth and shall be without any projections, sharp points, cuts, abrasions etc. Repair sleeves may be used when the damage is limited to the outermost layer of the conductor and is equivalent to the severance of not more than one third of the strands of the outermost layer. No repair sleeve shall be fitted within 30m of tension or suspension clamp or fittings not shall more than one repair sleeve per conductor be normally used in any single span.

4. 30.4 Conductor splices shall be so made that they do not crack or get damaged in the stringing operation. The contractor shall use only such equipment/methods during conductor stringing which ensures complete compliance in this regard.

4. 30.5 The sequence of running out shall be from top to downwards, i.e. the earth wire shall be run out first followed by the conductors in succession. Imbalances of loads on monopole shall be avoided as far as possible.

4. 30.6 The proposed transmission line may run parallel for certain distance with the existing 400/220/132KV lines which will remain energized during the stringing period. As a result there is a possibility of dangerous voltage build up due to electromagnetic and electrostatic coupling in the pulling cables, conductors and earth wire, which although comparatively small in magnitude during normal operations, can be severe during switching and ground fault conditions on the energised lines. It shall be the contractor's responsibility to take adequate safety precautions to protect his employees and others from this potential danger.

4.30.7 Monopole not designed for one sided stringing shall be well guyed and steps taken by the Contractor to avoid damage. Guying proposal along with necessary calculations shall be submitted by the Contractor to Owner for approval. All expenditure related to this work is deemed to be included in the bid price and no extra payment shall be made for the same.

4.30.8 When these **132 KV** transmission lines runs parallel to existing energised power lines, the Contractor shall take adequate safety precautions to protect personnel; from the potentially dangerous voltage built up due to electromagnetic and electrostatic coupling in the pulling wire, conductors and earth wire during string operations.

4.30.9 After being pulled, the conductor / earth wire shall not be allowed to hang in the stringing blocks for more than 96 hours before being pulled to the specified sag.

4.31 REPAIRS TO CONDUCTORS:

4.31.1 **T**he conductor shall be continuously observed for loose or broken strands or any other damage during the running out operations.

4.31.2 Repairs to conductor if necessary, shall be carried out with repair sleeve.

4.32.3 Repairing of the conductor surface shall be carried out only in case of minor damage scuff marks, etc. The final conductor surface shall be clean, smooth and free from projections, sharp points, cuts, abrasions, etc.

4.32.4 The Contractor shall be entirely responsible for any damage to the Monopole during stringing**.**

4.32 CROSSINGS: Derricks or other equivalent methods ensuring that normal services need not be interrupted nor damage caused to property shall be used during stringing operations where roads, channels, telecommunication liens, power lines and railway lines have to be crossed. However, shut down shall be obtained when working at crossings of overhead power lines. The Contractor shall be entirely responsible for the proper handling of the conductor, earth wire and accessories in the field.

4.33 STRINGING OF CONDUCTOR AND EARTH WIRE:-

4.33.1 The stringing of the conductor for **132 KV** shall be done by the control tension method. The equipment shall be capable for maintaining a continuous tension per bundle such that the sag for each conductor is about twenty percent greater than the sag specified in then stringing sag table.

4.33.2 The Contractor shall give to site Engineer in Charge complete details of the stringing methods he proposes to follow. Prior to stringing the Contractor shall submit the stringing charts for the conductor and earthwire showing the initial and final sags and tension for various temperatures and spans along with equivalent spans in the lines for the approval of the Owner at least one month in advance. The stringing shall be carried out as per the stringing chart approved by the purchaser in accordance with the relevant IS. All the tolerances for the line shall be confirm to IS 5613(Part-2/Sec-2) 1995.

4.33.3 A controlled stringing method suitable for simultaneous stringing of the stub conductors shall be used. The two conductors making up one phase bundle shall be pulled in and paid out simultaneously. These conductors shall be of matched length. Conductors or earthwires shall not be allowed to hang in the stringing blocks for more than 96 hours before being pulled to the specified sag.

4.33.4 Conductor creep are to be compensated by over tensioning the conductor at a temperature of 26^0C lower than the ambient temperature or by using the initial sag and tensions indicated in the tables.

4.33.5 Suitable guying arrangement shall be made by the Contractor to ensure safety during stringing & final sagging operation.

4.34 JOINTING :

4.34.1 When approaching the end of a drum length at least three coils shall be left in place when the stringing operations are stopped. These coils are to be removed carefully, and if another length is required to be run out, a joint shall be made as per the recommendations of the accessories manufacturer.

4.34.2 Conductor splices shall not crack or otherwise be susceptible to damage in the stringing operation. The Contractor shall use only such equipment/methods during conductor stringing which ensures complete compliance in this regard.

4.34.3 All the joints on the conductor and earth wire shall be of the compression type, in accordance with the recommendations of the manufacturer, for which all necessary tools and equipment like compressors, dies etc., shall be obtained by the Contractor. Each part of the joint shall be cleaned by wire brush till it is free of dust or dirt etc., and be properly greased with anti-corrosive compound. If required and as recommended by the manufacturer, before the final compression is carried out with the compressors.

4.34.4 All the joints of splices shall be made of at least 30 metres away from the structures. No joints shall be made in span crossing over main roads, Railway, small rivers and tension spans. Not more than one joint per sub conductor per span shall be allowed. The compression type fittings shall be of the self centering type or care shall be taken to mark the conductors to indicate when the fitting is centered properly. During compression or splicing operation; the conductor shall be handled in such a manner as to prevent lateral or vertical bearing against the dies. After compressing the joint the aluminium sleeve shall have all corners rounded, burrs and sharp edges removed and smoothened.

4.34.5 During stringing of conductor to avoid any damage to the joint, the Contractor shall use a suitable protector for mid span compression joints in case they are to be passed over pulley blocks/aerial rollers. The pulley groove size shall be such that the joint along with protection can be passed over it smoothly.

4.35 TENSIONING & SAGGING OPERATIONS:

4.35.1 The tensioning and sagging shall be done in accordance with the approved stringing charts before the conductors and earth wire are finally attached to the monopole through the earth-wire clamps for the earth wire and insulator strings for the conductor. Dynamometers shall be employed for measuring tension in the conductor and earth wire.

4.35.2 The conductors shall be pulled up to the desired sag and left in running block for at least one hour after which the sag shall be rechecked and adjusted, if necessary, before transferring the conductors from the running blocks to the suspension clamps. The conductors shall be clamped within 36 hours of sagging.

4.35.3 The sag will be checked in the first and the last section span for sections up to eight spans, and in one additional intermediate span for sections with more than eight spans. The sag shall also be checked when the conductors have been drawn up and transferred from running blocks to the insulator clamps.

4.35.4 The running blocks, when suspended from the transmission structure for sagging, shall be so adjusted that the conductors on running blocks will be at the same height as the suspension clamp to which hit is to be secured.

4.35.5 At sharp vertical angles, conductor and earth wire sags and tensions shall be checked for equality on both sides of the angle and running block. The suspension insulator assemblies will normally assume vertically when the conductor is clamped.

4.35.5 Tensioning and sagging operations shall be carried out in calm whether when rapid changes in temperature are not likely to occur.

4.36 CLIPPING:-

i. Clipping of the conductors in position shall be done in accordance with manufacturer's recommendation and approved by our Engineer. At suspension location free centre type suspension clamp with armour rod set or A.G.S. type suspension clamps shall be used.

ii. The jumpers at the section and angle monopoles shall be formed to parabolic shape to ensure maximum clearance requirements. Pilot suspension insulator string shall be used, if found necessary, to restrict the jumper swing to the design values.

iii. Fasteners in all fittings and accessories shall be secured in position. The necessary clip shall be properly opened and sprung into position.

4.37 FIXING OF CONDUCTORS AND EARTH WIRE ACCESSORIES :-

Vibration dampers (4R-type) and other conductor and earth wire accessories supplied by the contractor shall be installed by the contractor as per the design requirement and as per instruction of the Engineer. While installing the conductor and earth wire accessories, proper care shall be taken to ensure that the surfaces are clean and smooth and no damage shall occur to any part of the accessories or of the conductors. Torque wrench shall be used for fixing the Dampers, suspension clamps etc. and torque recommended by the manufacturer of the same shall be applied.

4.38 REPLACEMENT:-

If any replacement are to be effected after stringing and tensioning or during maintenance, leg members and bracings shall not be removed without reducing the tension on the monopole with proper guying or releasing the conductor. If the replacement of cross arm becomes necessary after stringing, the conductor shall be suitably tied to the monopole at tension points or transferred to suitable roller pulleys at suspension points.

4.39 ELECTRICAL INSPECTOR'S INSPECTION FEES:-

Electrical inspector's inspection fees to be deposited by the contractor and he has to obtain the clearance from Electrical Inspector before charging the line.

Section-V

Technical Schedules, Annexures & Formats

ANNEXURE-1

FINANCIAL DATA FOR PREVIOUS 5 YEARS (Rs.)				
2015-2016	2016-2017	2017-2018	2018-19	2019-20

Information from Balance Sheet

Particulars	2015-2016	2016-2017	2017-2018	2018-19	2019-20
Total Assets					
Total Liabilities					
Net Worth					
Current Assets					
Current Liabilities					

Note:- Net worth means the sum, total of the paid up capital and free reserves (Excluding reserves created out of revaluation) reduced by aggregate value of accumulated losses (Including debit balance in profit and loss account for current year) and intangible assets.

Information from Income Statement

Particulars	2015-2016	2016-2017	2017-2018	2018-19	2019-20
Total Revenues					
Profits Before Taxes					
Profits After Taxes					

- ❑ Attached are copies of financial statements (balance sheets including all related notes, and income statements) for the last five years, as indicated above, complying with the following conditions.
  - All such documents reflect the financial situation of the Bidder.
  - Historic financial statements must be audited by a certified accountant.
  - Historic financial statements must be complete, including all notes to the financial statements.

  Historic financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

Date:

Signature :
Name :
Status :
Seal of the Tendering Co.

ANNEXURE-2

AVERAGE ANNUAL TURNOVER

Annual Turnover Data for the Last 5 Years	
Year	Amount in Rs.
2015-2016	
2016-2017	
2017-2018	
2018-2019	
2019-20	
Average Annual Turnover	

The information supplied should be the Annual Turnover of the Bidder for each year for contracts in progress or completed.

Date: **Signature :**

Name :

Status :

Seal of the Tendering Co. :

ANNEXURE-3

// VENDOR LIST //

All the materials required for construction of the line shall be supplied strictly as per the "list of vendors" indicated in Annexure A-3 of this tender document TR-**20/04**. This vendor list can also be viewed on CSPTCL's official web-site. The vendor list as on date of issue of NIT shall be applicable for instant tender. No deviation in the vendor list shall be permitted during execution of the project at any stage. **The materials which are not covered in this vendor list shall be supplied from reputed make with prior approval of CSPTCL.**

.

Date : **Signature :**
Name :
Designation

ANNEXURE-4

CURRENT CONTRACT COMMITMENTS

Bidders should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

Current Contract Commitments					
S. No.	Name of Contract	Employer's Contact Address, Tel, Fax	Value of Outstanding Work [Rs.]	Estimated Completion Date	Average Monthly Invoicing Over Last Six Months [Rs.]
1					
2					
3					
4					
5					

Date: **Signature :**

Name :

Status :

Seal of the Tendering Co. :

ANNEXURE-5

DECLARATION FORM

Tender Specification No.TR-20/04

To,

The Chief Engineer (Planning & Projects),
CSPTCL, Raipur

Sir,

Having examined the above specification together with tender conditions referred to therein. I/We the undersigned hereby offer to execute the work contract covered therein complete in all respect as per the specification and general conditions, at the rates entered in the attached contract Annexure of prices in the tender. Our offer is valid up to 180 days from the date of tender opening and the prices, which are on firm basis, will remain valid for two years or date of completion of work from the date of opening of tender whichever is later.

I/We hereby undertake to have the works completed within the time specified in the tender.

I/We certify to have purchased a copy of the specification by remitting cash, demand draft and this has been acknowledged by you in your letter No……. dtd…….

In the event of work order being decided in my/our favour, I/We agree to furnish the Bank Guarantee in the manner acceptable to CSPTCL and for the sum as applicable to me/us as provided in the General conditions of contract (Section-II) of this specification within 30 days of issue of work order, failing which I/We clearly understand that the said work order will be liable to be withdrawn by CSPTCL.

Signed this_____day of _____

Yours faithfully

Date
Place

SIGNATURE OF TENDERER
NAME
DESIGNATION
(SEAL)

(This form should be duly filled up by the bidder & submitted along with the original copy of tender.)

ANNEXURE-6

SCOPE OF WORK OF SOIL INVESTIGATION

Signature :

Name :

Status :

Date : **Seal of the tendering Co.:**

ANNEXURE-7

LIST OF STRINGING EQUIPMENT AVAILABLE WITH THE CONTRACTOR

(Under this schedule, the list of various stringing tools, plants available with the contractor shall be indicated).

S. No.	DESCRIPTION	MAKE & YEAR OF MANUFACTURE.	QUANTITY TO BE USED PER STRINGING GANG.	TOTAL QUANTITY AVAILABLE WITH THE CONTRACTOR .
1	2	3	4	5

Signature :
Name :
Date
Designation:
Seal of the tendering Co.:

ANNEXURE-8

COMPLETION SCHEDULE

S.No.	DESCRIPTION OF WORK	PERIOD IN MONTHS FROM DATE OF ORDER		DATES CALENDAR MONTHWISE	
		Commencement	Completion	From	To
1.	Establishment Of Site Office & Stores.				
2.	Supply Of Foundation Bolts, Anchor Plate, Base Plate etc.				
3.	Supply Of Monopoles & all accessories				
4.	Supply of Insulators				
5.	Supply of conductor				
6.	Supply of ground wire				
7.	Supply of Stringing Hardware				
8	Survey				
9	Foundation Work				
10	Monopole Erection.				
11	Stringing				
12	Testing & Commissioning				

Signature :
Name :
Date
Designation :
Seal of the tendering Co.:
NOTE:- Bar chart showing the commencement and completion of various activities indicated above for completion of line shall be furnished along with this schedule in the offer.

ANNEXURE-9

DEVIATIONS FROM TECHNICAL SPECIFICATIONS /CONDITIONS

S. No.	SUBJECT	CSPTCL's SPECIFICATION CLAUSE REFERENCE AND PAGE NUMBER	PROPOSED DEVIATION BY THE TENDERER	REASONS FOR SUCH DEVIATIONS
1	2	3	4	5

Signature :
Name :
Date :
Designation:
Seal of the tendering Co.:

ANNEXURE-10

QUESTIONNAIRE

Note : The bidders may please note that submission of this questionnaire duly and properly filled in is essential while in entries against the questions given below no reference should be made to comments entered elsewhere in the tender. All quarries should be answered and these answers should be complete in themselves. Please note that none of the column should be left blank and clear reply against all columns should be furnished. In case this is not done the offers will be liable for rejection.

1)	i) Name & Address of the bidder /firm/Company etc. a) Registered office b) Works c) Telex/fax Nos. d) Telephone Nos. (ii) Please mention whether tenderer is a company or proprietorship / partnership firm.	
2)	Bidders to furnish following information :- i) TIN Number ii) PAN iii) Bank details iv) Name of Bank v) A/c No. vi) IFS Code of the bank vii) Copy of cancelled cheque. (attach certified copies of above documents)	
3)	**Goods & Service Tax Registration Number**	
4)	i. Whether you are state or central govt. Undertaking/ unit with 100% government share. ii. If yes whether documentary evidence in support of the above has been enclosed. (in absence of documentary evidence your claim to be State/Central Govt. under-taking shall be ignored.)	
5)	Whether the required earnest money has been furnished by you? If yes, i. In which form. ii. Amount of earnest money furnished.	
6)	Whether agreeable to clause of liquidity damage?	
7)	Please confirm that you are agreeable to payment terms for supply of **Monopoles** / line materials and erection of line on turn key basis as specified in relevant clauses.	

<table>
<tr><td>8)</td><td>(a) whether the rates quoted for supply of Monopole and accessories are :
i. Ex-Works Or Otherwise.
ii. Inclusive Or Exclusive Of Taxes.
(b) Whether following taxes & at what rates are inclusive in the rates offered. If exclusive then at what rate the taxes will be charged extra :-
<table>
<tr><th>S.No</th><th>Name of Tax</th><th>Rate applicable</th><th>Whether inclusive or exclusive</th></tr>
<tr><td>1</td><td>GST</td><td></td><td></td></tr>
<tr><td>1.1</td><td>Steel Monopole</td><td></td><td></td></tr>
<tr><td>1.2</td><td>Conductor</td><td></td><td></td></tr>
<tr><td>1.3</td><td>Other materials</td><td></td><td></td></tr>
<tr><td>2</td><td>Cess under Building and other construction Workers Act 1996.</td><td colspan="2">Should be inclusive</td></tr>
<tr><td>3</td><td>Any other tax</td><td></td><td>Pl. mention</td></tr>
</table></td><td>Remarks</td></tr>
<tr><td>9)</td><td>Whether you are agreeable to payment procedure clause for supply of materials and erection of line of this specification.</td><td></td></tr>
<tr><td>10)</td><td>Whether agreeable to line completion period clause of the tender ?</td><td></td></tr>
<tr><td>11)</td><td>Whether agreeable to guaranteed maintenance period clause of the specification.</td><td></td></tr>
<tr><td>12)</td><td>Whether agreeable to furnish a security deposit of an amount of 10% of the order including GST also indicate the form in which security deposit will be furnished i.e. cash, bank guarantee etc.</td><td></td></tr>
<tr><td>13)</td><td>Whether a list of orders executed by you enclosed with full particulars of nature of work done.</td><td></td></tr>
<tr><td>14)</td><td>Name of 132 KV & above EHV lines with Monopoles as per PQR constructed on turn key with supply of all materials & name of organisation</td><td></td></tr>
<tr><td>15)</td><td>Whether you agree for inspection by CSPTCL’s representative prior to dispatch and bear the testing charges for all tests as per is to be conducted on samples, drawn by CSPTCL’s representative.</td><td>S.No. Orgn. Route length in km. Year of completion</td></tr>
<tr><td>16)</td><td>Whether testing facilities for carrying out the type, acceptance and routine tests as per relevant is specification, ion the materials offered are available with the manufacturer. If so, please furnish the list of testing machines and relevant details.</td><td>yes/no</td></tr>
<tr><td>17)</td><td>Have you taken into account the element of ‘modvat benefit’ on cost of raw material while offering ex-works prices. Will you pass on such benefit on this account to</td><td></td></tr>
</table>

	the CSPTCL?	
18)	Whether details of departures/ deviation from specification have been furnished in the respective schedule.	
19)	Whether profit and loss account and balance sheet for the last 5 years have been furnished.	
20)	Whether details of technical manpower of head office and field organisation furnished in respective schedule.	
21)	Whether agreeable to arrange the storage cum erection insurance of transmission line and materials as per relevant clause of the specification.	
22)	Whether agreeable to bear the cost of any octroi, duty of levy on materials provided by the contractor such as metal, sand etc.	
23)	Please indicate if use of private/forest/canal service of roads for transport of materials and constructional personnel is required, then the charges, if any, levied by the concerned authorities will be borne by you, without any extra cost to the CSPTCL.	
24)	Have you furnished the power of attorney in respect of the person signing the tender on behalf of the bidder?	
25)	Please Confirm That The Angle Sections, Plates Etc. Used In Manufacture Of Monopoles & its accessories Quoted In This Specification Shall Conform To The Relevant latest ISS.	
26)	Whether schedule of check list has been enclosed duly filled in.	
27)	i) Whether Monopole type test certificates is enclosed. ii) If type test certificates not enclosed, whether undertaking is enclosed? (To complete the type testing of Monopole following placement of contract without any extra cost to the CSPTCL) without effecting completion period.	

Note : The bidder may use above questionnaire sheets in original for furnishing reply along with this offer. However if separate sheets are used for this questionnaire, it may please be ensured that the serial order and language of questions is maintained.

Date:

Signature :

Name :

Seal of the bidder Co. :

ANNEXURE-11

Standards / codes

The material and services converted under this specification shall be performed as per the requirement of the relevant standards / codes referred hereunder against each set of equipments and services:-

S. No.	INDIAN STANDARD I.S.	TITLE
1.	IS-209-1992	Zinc Ingots - Specifications.
2.	IS-2062-1992	Steel For General Structural Purposes - Specifications.
3.	IS-850-1994	Natural Sour (Lactic) Casein For Glue Manufacture.
4.	a) IS-802 (Part I) Sec-1-1995 Sec-2-1992 (b) IS:802 – 1990 (Part-2) (c) IS:802 – 1990 (Part 3)	Code of Practice for General Building Construction in Steel in Over Head Transmission Line Towers: Materials, loads and Permissible Stresses Section-1 Materials and loads Section 2 Permissible stresses. Code of practice for use of Structural steel in overhead Transmission Line : Fabrication, Galvanising, Inspection and Packing Code of practice for use of Structural Steel in overload Transmission Line Towers Testing.
5.	IS-1367-1992	Technical Supply Conditions For Threaded Fasteners.
6.	IS-2016-1992	Plain Washers
	IS-2551-1991	Danger Notice Plates
8.	IS-2629-1990	Recommended Practice For Hot Dip Galvanising Of Iron & Steel.
9.	IS-2633-1992	Method Of Testing Uniformity Of Coating Of Zinc Coated Articles.
10.	IS-3063-1994	Single Coil Rectangular Section Spring Washers For Bolts, Nuts, Screws.
11.	IS-5358-1969	Hot Dip Galvanising Coatings On Fasteners.
12.	IS-6610-1991	Specification For Heavy Washers For Steel Structures.
13.	IS-6730-1990	Method For Determination Of Weight Of Zinc Coating Of Zinc Coated Iron And Steel Articles.
14.	IS-5613-II-1993	Code Of Practice For Design, Installation And Maintenance Of Overhead Power Line Section 1 Designs. Section 2 Installation & Maintenance.
15.	IS-961	H.T. Steel
16.	IS-12427-1988	Bolts for Transmission line Towers
17.	IS-269-1967	Ordinary Rapid Hardening And Low Heat Portland

		Cement.
18.	IS-388-19	Coarse And Fine Aggregate From Natural Sources For Concrete.
19.	IS-278-1991	Specification For Barbed Wire.
20.	IS-1573-1986	Specification For Electro Plated Coating Of Zinc.
21.	IS-432-I,II-1966	Mild Steel & Medium Tensile Bars, And Hard Drawn Steel Wire For Concrete Reinforcement.
22.	IS-306-2000	Code Of Practice For Plain And Reinforced Concrete.
23.	IS-800-1991	Code Of Practice For Use Of Structural Steel In GeneralBuilding Construction.
24.	IS-1139-1966	Hot Rolled Mild Steel Medium Tensile Steel And High Yield Strength Steel Deformed Bars For Concrete Reinforcement.
25.	IS-1489	PortlandPuzzolana Cement.
26.	IS-1786-1966	Cold Twisted Steel Bars For Concrete Reinforcement.
27.	IS-1893-1991	Criteria Of Earth Quake Resistant Design Of Structures.
28.	IS-3043-1991	Code Of Practice For Earthing
29.	IS-4091-1967	Code Of Practice For Design And Construction Of Foundation For TransmissionLineTowers& Poles.
30.	IS-2131-1967	Method Of Standard Penetration Test For Soil.
31.	IS-2614-1969	Method Of Sampling Of Fasteners.
32.	IS-4218-VI-1978	Isometric Screw Threads Limits Of Sizes For Commercial Bolts & Nuts.
33.	IS-3218-V-1979	Isometric Screw Thread's Tolerance
34.	IS-1367-III-1991	Mechanical Properties And Test Methods For Bolts, Screws & Studs With Full Load ability.
35.	IS-1367-VI-1994	Mechanical Properties And Test Methods For Nuts With Specified Proof Loads.
36.	IS-1363-III-1992	Specification For Hexagon Head Bolts, Screws And Nut For Product Grade "C" Hexagon Nuts On Property Class 5.
37.	IS-4072-1975	Specification For Steel For Spring Washers (First Revision).
38.	IS-6821-1973	Method Of Sampling Of Non Threaded Fasteners.
39.	IS-3202-1972	Method For Testing Local Thickness Of Electro-Plated Coatings.
40.	IS-1586-1968	Method Of Rockwell Hardness Test ("B" &"C") for Steel (first revision).
41.		Indian Electricity Rules-1956, And Revision Thereof.
42.		Publication No.87/Elec/112/1 Regulation For Electricity Crossing of Railway Tracks, As Amended Up-To-Date.

43.	ISI marked(IS:398(P-II) with latest amendment)	ACSR Conductor
44.	ISI marked (IS:2141/1968 with latest amendments)	Ground wire
30	IS:808-1991	Dimensions for Hot Rolled Steel Beam, Column, Channel and Angle Sections
46	IS:875-1992	Code of Practice for Design Loads (other than Earthquakes for Building and Structures.
47	IS:1477-1990	Code of practice for Painting of Ferrous Metals in Buildings; Part-1 Pre treatment Part-II Painting.
48	IS:1573-1991	Electro-plated coatings of zinc on iron and Steel
49	IS:1852-1993	Rolling and Cutting Tolerances of Hot Rolled Steel Products
50	IS:2074-1992	Ready Mixed Paint, Air Drying, Red Oxide, Zinc Chrome, Priming Specification
51	IS:3757-1992	High Strength Structural Bolts
52	IS:4759-1990	Specification for Hot zinc coatings on structural steel and other Allied products.
53	IS:5369-1991	General Requirements for Plain Washers.
54	IS:6623-1992	High Strength Structural Nuts.
55	IS:6639-1990	Hexagon Bolts for Steel Structure
56	IS:8500-1992	Specification for Weldable Structural Steel (Medium & High Strength Qualities)
57	IS:10238-1989	Step Bolts for Steel Structures.

ANNEXURE-12
LIST OF DRAWINGS

S.No.	PARTICULARS
1	Route Map for **Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C Monopole (60-90º dev., bottom cross arm height 23M, dead end) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)**
2	Out Line Drawing Of 132 KV Single 9 Unit Single Suspension Insulator String.
3	Out Line Drawing Of 132 KV 2x9 Unit Double Suspension Insulator String.
4	Out Line Drawing Of 132 KV Single 10 Unit Single Tension Insulator String.
5	Out Line Drawing Of 132 KV 2x10 Unit Double Tension Insulator String.
6	Earthwire Suspension Assembly.
7	Groundwire Tension Assembly.
8	Details Of Earthing Arrangement For Towers.
9	Number Plate / Circuit Plate For 132 KV Transmission Line.
10	Danger Board / Phase Plate For 132 KV Transmission Line.
11	Caution Notice Plate For 132 KV Transmission Line.

a) The drawing from Sl. No.2 to 7 shall be submitted by the contractor to CE (Planning & Projects) Office for approval before execution of the work.
b) The drawing from Sl. No.8 to 11are enclosed.

ANNEXURE-13

DETAILS OF HEADQUARTERS & FIELD ORGANISATION OF THE TENDERER

(Under this schedule the strength of technical manpower available with the bidder with their qualification and experience shall be indicated, both in respect of head-quarter and field organisation.)

Date:
Signature :
Name :
Status :
Seal of the bidder Co. :

ANNEXURE-14

DETAILS OF PLANT & MANUFACTURING CAPACITY

Declaration-I hereby declared that the details furnished above are true & correct to the best of my knowledge.
Date:
Signature:
Name:
Status:
Seal of the bidder Co.:

ANNEXURE-15

EXPERIENCE IN FABRICATION AND SUPPLY OF MONOPOLES. (INFORMATION SHALL BE GIVEN IN LAST THREE FINAICIAL YEARS)

S.No.	Particulars	Name of the Utility
1.	Name Of The Line And Its Voltage Class.	
2.	Address Of Order Placing Authority.	
3.	Order No. & Date	
4.	Value Of The Order	
5.	Numberof Monopoles Fabricated And Supplied.	
6.	Remark.	

Date:
Signature
Name :

Status :

Seal of the bidder Co. :

ANNEXURE-16

EXPERIENCE IN ERECTION OF 132/110 KV & ABOVE TRANSMISSION LINES ON TURN KEY BASIS WITH SUPPLY OF MONOPOLES AND ALL OTHER MATERIAL (COMPLETED WORKS, WHICH ARE IN SUCCESSFUL OPERATION FOR A PERIOD OF NOT LESS THAN 01 YEAR).

S.No.	Particulars	Name of the Utility
1.	Name Of The Line And Its Voltage Class.	
2.	Double Circuit Or Single Circuit.	
3.	Address Of The Order Placing Authority.	
4.	Order No. & Date	
5.	Scheduled date of completion as per order	
6.	Whether time extn. has been granted	
7.	Value Of The Order.	
8.	Length Of The Line.	
9.	Please Indicate Work-Wise Details.	
10.	Scope Of The Work And Activity Completed. i. Survey (Full/Part) ii. Soil Investigation (Full/Part) iii. Foundation (Full/Part) iv. Monopole Erection (Full/Part) v. Stringing (Full/Part) vi. Supply of Steel Monopoles and line materials vii. Supply of ACSR Conductor viii. Supply of Insulators ix. Supply of Ground wire x. Supply of Stringing Hardware	
11.	Month And Year of commencement and Completion of Erection Work.	
12.	Remark.	

Date:

Signature :

Name :

Status :

Seal of the bidder Co. :

ANNEXURE-17

LIST OF TOOLS AND PLANTS REQUIRED FOR CONSTRUCTION/MODIFICATON OF LINE, TO BE ARRANGED BY THE CONTRACTOR

(Under this schedule, list of tools and plants required for execution of work available with the contractor should be indicated).

S.No.	Name Of Activity	List Of Tools And Plants With Quantity.

Date:
Signature :
Name :
Status :
Seal of the bidder Co. :

ANNEXURE-18

SOURCES OF MATERIALS TO BE ARRANGED BY THE CONTRACTOR FOR THE TRANSMISSION LINE (BEING TENDERED).

S. No.	**Particulars**	**Approximate Quantity**	Name Of The Firm From Which The Contractor Proposes To Procure The Material.
1.	Steel Monopole		
2.	Zinc for galvanisation		
3.	ACSR conductor		
4.	Ground wire 7/3.66		
5.	Danger Board.		
6.	Cement		
7.	Number Plate.		
8.	Phase Plate.		
9.	Bolts & Nuts.		
10.	Spring Washers.		
11.	Packing Washers.		
12.	Anti-climbing Services.		
13.	Barbed Wires.		
14.	Galvanised Earthing Rod With Clamps.		
15.	Counter Poise Wire For Earthing.		
16.	Cement.		
17.	Reinforcement Steel.		
18.	Stringing Hardware		
19.	Insulators 70KN/90KN		

Date:
Signature:
Name:
Status:
Seal of the bidder Co.:

ANNEXURE-19

DEVIATION FROM SPECIFICATION (COMMERCIAL)

The bidder shall state under this schedule, how his offer deviates, varies or departs from the **CSPTCL**'s specification (commercial conditions) mentioned in this specification

S.No.	Subject	CSPTCL's specification clause reference & page	Proposed deviation by bidder	Reasons for such deviations
1.	2.	3.	4.	5.

Date:
Signature :
Name :
Status :
Seal of the bidder Co :

ANNEXURE-20

LITIGATION HISTORY OF THE BIDDER

Name of the bidder:

Bidder should provide information on any history of litigation or arbitration resulting from contracts executed in the last five years or currently under execution.

Year	Name of client, cause of litigation/ arbitration and matter in dispute	Details of Contract and Date	Award for or against bidder	Disputed amount (current value in Rs.)

Date
Place

SIGNATURE OF BIDDER
NAME
DESIGNATION
(SEAL)

ANNEXURE-21

QUALITY ASSURANCE PROGRAMME

The Bidder shall submit here complete details of Quality Assurance Programme required as per terms of the Specification.

Date:

Signature :

Name :

Designation :

Seal of tenderer:

Annexure-22

UNDERTAKING TO BE SUBMITTED BY BIDDER REGARDING MONOPOLE MANUFACTURER

We, M/s (bidder)……. do hereby undertake to outsource & to supply …..Nos. Steel Monopole for the construction of Transmission line (name of line) of Chhattisgarh State Power Transmission Company Limited.

M/s.(Manufacturer).....are the manufacturer of Steel Monopole and if required we will out source …… ……. No. quantity of Steel Monopoles from M/s…….

The out sourcing of……. No. Steel Monopole will in no way affect the terms and conditions of the order including the completion period, Payment terms & Prices etc.

Date:
Place:

(1) Seal, address & Signature of Bidder

(2) Seal, address & Signature of Manufacturer

ANNEXURE -23

AGREEMENT (PROFORMA)

(To be executed on non judicial stamp paper worth Rs.300/- only with a revenue stamp of Rs. 1/- affixed on it)

This Agreement is made this _____ day of _____ between Shri _____ _____ on behalf of the Contractor_____ _____ _____ (hereinafter called the Contractor which expression shall where the context so admits, be deemed to include his heirs, executors, administrators and representatives) of the one part, and the Chhattisgarh State Power Transmission Company Limited, Raipur being the Company constituted under Companies Act, 1956, (hereinafter called the CSPTCL which expression shall, where the context so admits, be deemed to include its successors in office and permitted assigns) of the other part.

WHEREAS in accordance with a Tender no. _____ dtd. _____ issued by Chief Engineer (P&P) of the CSPTCL, the Contractor submitted his tender dated _____ for construction of ……...

All these works on turnkey basis more particularly described, mentioned, enumerated or referred to in the general conditions, specifications, schedules, drawings etc. forming part of tender, covering letters, schedule of prices and further correspondence, a copy of which is hereto annexed and is for purposes of identification signed by the contractor _____ on behalf of the contractor and Chief Engineer (P&P) of CSPTCL and all of which shall be deemed to form part of this agreement as though separately set out herein and are included in the expression "Contract" herein used (herein after referred to as the said works).

AND WHEREAS the CSPTCL has accepted the tender of the Contractor vide following separate work Orders which have been placed by CSPTCL for construction of aforesaid works on turnkey basis for the total net price of _____ upon the terms and subject to the condition hereinafter mentioned.

NOW THEREFORE THIS AGREEMENT WITNESSES AND IT IS hereby agreed as follows:

1. The contractor shall undertake following works :
   (i) Supply of tower parts and all associated line accessories and complete erection of transmission line within the time specified in and in accordance with the terms and conditions specified in the CSPTCL aforesaid Work Orders.
2. The contractor shall commence the works described in the Notice Inviting Tender No. 02-04/NIT/TR-....., dated ....., namely, the construction of …….. line , simultaneously and thereafter execute the works in parallel in accordance with the completion schedule submitted in the format set out in Annexure A-8 of the Tender Specifications No. TR-….., read with the PERT Network / Bar Chart submitted in accordance with clause 3.05 of the tender. The Works shall be completed by the contractor on turnkey basis not later than **03 (Three) calendar months including rainy season *from the date of order*.** In the event the contractor fails to undertake the Works in accordance with the Schedule, the contractor may be liable for penalty at the discretion of CSPTCL in terms of clause clause 2.06 of the tender .
3. In the event of a conflict or contradiction between: (a) any provision(s) in this agreement and any provision(s) in the Tender Specifications No. TR-……, i.e. the tender document, the provision(s) of this agreement shall prevail to the extent of such conflict, and (b) two or

more provisions in the tender document, the provision(s) laying down more stringent obligations on the contractor shall prevail."

4. For the work done under the scope of the CSPTCL Work Orders referred above, the CSPTCL shall pay to the Contractor a total sum of Rs. _____ (In words Rupees _____ _____ _____) or such other sum as may become payable in accordance with the said work order.

5. If at any time, any question, dispute or difference whatsoever arises between CSPTCL and the contractor upon, in relation with or in connection with this contract either party may forthwith give the other party a notice in writing of the existence of such question, dispute or difference and same shall be referred to the adjudication of three Arbitrators one to be nominated by CSPTCL, the other by the Contractor and third to be appointed by the two Arbitrators nominated by the parties at the commencement of arbitration proceedings and failing agreement between them, in accordance with the Arbitration and Conciliation Act 1996, the third Arbitrator so appointed shall act as the Presiding Arbitrator. The award so passed shall be binding on both the parties. The place of arbitration shall strictly be RAIPUR CG.
6. In all matters arising under out of or in relation with this agreement, the terms and conditions contained in the aforesaid Work Orders shall apply and all such matters shall be determined accordingly.
7. This agreement shall be deemed to be entered into at Raipur and all disputes and claims, if any, out of or in respect of this Agreement are to be settled at Raipur or be subject to jurisdiction of competent court situated in Chhattisgarh State.

IN WITNESS whereof the parties hereto have signed this agreement on the dates and year mentioned against their respective signature.

Signature of Witness :	Name & Signature for Contractor
1. Signature : _____	Signature
Address : _____	(On behalf of the Contractor)
	Name : _____
Signature : _____	Designation : _____
Address : _____	Seal _____
Signature of Witnesses :	
1. _____	Signature
	(On behalf of CSPTCL)
2. _____	Name _____
	Designation _____

ANNEXURE -24

PROFORMA FOR BANK GUARANTEE TOWARDS SECURITY DEPOSIT

(To be executed on non-judicial stamp paper of Rs. 300/- and Revenue stamp may be affixed on Bank Guarantee)

Bank Guarantee No…… Dtd……

In consideration of the Chhattisgarh State Power Transmission Company Limited, Raipur (A successor company of Chhattisgarh State Electricity Board, Raipur hereinafter referred to as 'CSPTCL') having agreed to accept this Bank Guarantee in lieu of cash deposit by way of Security for due and faithful performance required from M/s. _____ _____ _____ _____ (herein after referred to as "Contractors", the Bank of _____ hereby agrees unequivocally and unconditionally to pay within 48 hours on demand in writing from the Chhattisgarh State Power Transmission Company Limited or any officer authorized by it in this behalf of any amount upto and not exceeding Rs……..……(in words) …… only to the said Chhattisgarh State Power Transmission Company Limited on behalf of the aforesaid M/s …….. who have tendered and contracted for the supply of materials, equipments or services to the said the Chhattisgarh State Power Transmission Company Ltd, against order No…….. dtd……. for the order value of Rs…….

The beneficiary of this Bank Guarantee shall be Chhattisgarh State Power Transmission Company Limited, Raipur (A Successor Company of CSEB Raipur). The proceeds / encashment of this Bank Guarantee would go in the name of Chhattisgarh State Power Transmission Company Limited, Raipur (A Successor Company of CSEB Raipur).

This agreement should be valid and binding on this bank up to and including _____ 2001 of for such further period as may hereunder be mutually fixed from time to time in writing by the Chhattisgarh State Power Transmission Company Ltd. and the contractor and shall not be terminable by notice or any change in the constitution of the aforesaid bank or the firm of Contractors or by any others reasons whatsoever and the Banker's liability hereunder shall not be impaired or discharged by any extn. of time or variations or alteration made, given conceded or agreed to with or without the Bank knowledge or consent by or between the Chhattisgarh State Power Transmission Company Ltd. and contractor in the existing and / or further tenders and / or contracts.

It is agreed by the Bank with the CSPTCL that if for any reason a dispute arises concerning the Bank's liability to pay the requisite amount to the CSPTCL under the terms of this guarantee the competent court at Raipur alone shall have the jurisdiction to determine the said dispute and that this shall be without prejudice to the liability of the Bank under the terms of this guarantee being unequivocal and unconditional as mentioned above.

The liability under this guarantee is restricted to Rs…… (In words) …… only. This guarantee shall remain in force until ……. Unless a demand to enforce a claim under the guarantee is made under this Bank Guarantee by the CSPTCL to the Bank within six months from that date the rights of the Chhattisgarh State Power Transmission Company Ltd under this guarantee shall be forfeited and Bank shall be relieved and discharged from all liabilities thereunder.

WITNESSES:- SIGNATURES

Authorized Signatories of Bank

1. …… Signed._ _ _ _ _ _ _

2. …… for _ _ _ _ _ _ _ _ _ _ _ Bank

ANNEXURE -25

PROFORMA FOR BANK GUARANTEE TOWARDS PERFORMANCE

(To be executed on non-judicial stamp paper of Rs. 300/- and Revenue stamp may be affixed on Bank Guarantee)

Bank Guarantee No…… Dtd……

In consideration of the Chhattisgarh State Power Transmission Company Limited, Raipur (A successor company of Chhattisgarh State Electricity Board, Raipur hereinafter referred to as 'CSPTCL') having agreed to accept this Bank Guarantee in lieu of cash deposit by way of Security for due and faithful performance required from M/s. _____ _____ _____ _____ (herein after referred to as "Contractors", the Bank of _____ hereby agrees unequivocally and unconditionally to pay within 48 hours on demand in writing from the Chhattisgarh State Power Transmission Company Limited or any officer authorized by it in this behalf of any amount up to and not exceeding Rs……..……(in words) …… only to the said Chhattisgarh State Power Transmission Company Limited on behalf of the aforesaid M/s …….. who have tendered and contracted for the supply of materials, equipments or services to the said the Chhattisgarh State Power Transmission Company Ltd, against order No…….. dtd……. for the order value of Rs…….

The beneficiary of this Bank Guarantee shall be Chhattisgarh State Power Transmission Company Limited, Raipur (A Successor Company of CSEB Raipur). The proceeds / encashment of this Bank Guarantee would go in the name of Chhattisgarh State Power Transmission Company Limited, Raipur (A Successor Company of CSEB Raipur).

This agreement should be valid and binding on this bank up to and including _____ 2001 of for such further period as may hereunder be mutually fixed from time to time in writing by the Chhattisgarh State Transmission Company Ltd. and the contractor and shall not be terminable by notice or any change in the constitution of the aforesaid bank or the firm of Contractors or by any others reasons whatsoever and the Banker's liability hereunder shall not be impaired or discharged by any extn. of time or variations or alteration made, given conceded or agreed to with or without the Bank knowledge or consent by or between the Chhattisgarh State Power Transmission Company Ltd. and contractor in the existing and / or further tenders and / or contracts.

It is agreed by the Bank with the CSPTCL that if for any reason a dispute arises concerning the Bank's liability to pay the requisite amount to the CSPTCL under the terms of this guarantee the competent court at Raipur alone shall have the jurisdiction to determine the said dispute and that this shall be without prejudice to the liability of the Bank under the terms of this guarantee being unequivocal and unconditional as mentioned above.

The liability under this guarantee is restricted to Rs…… (In words)……only. This guarantee shall remain in force until ……. Unless a demand to enforce a claim under the guarantee is made under this Bank Guarantee by the CSPTCL to the Bank within six months from that date the rights of the Chhattisgarh State Power Transmission Company Ltd under this guarantee shall be forfeited and Bank shall be relieved and discharged from all liabilities thereunder.

WITNESSES:- SIGNATURES

Authorized Signatories of Bank

1. …… Signed._ _ _ _ _ _ _

2. …… for _ _ _ _ _ _ _ _ _ _ _ Bank

ANNEXURE -26

Proforma for Indemnity Bond

(To be executed on non-judicial stamp paper worth Rs.300/- with a revenue stamp worth Rs.1/- affixed thereon).

THIS INDEMNITY BOND is made this ……..day of …….20…....By M/s. ……, a company registered under the Companies Act (hereinafter called as 'Contractor' or 'Obligator' which expression shall include its successors and permitted assigns) in favour of Chhattisgarh State Power Transmission Company Limited, Raipur being the Company constituted under Companies Act, 1956, (hereinafter called the CSPTCL) and its project for supply of towers & other line materials and complete erection of ……(hereinafter called "Employer" which expression shall include its successors and assigns):

WHEREAS EMPLOYER has awarded to the 'Contractor' a Contract for supply of towers & other line materials and complete erection of ……transmission line vide Order No…… DTD……. and Amendment No…….(applicable when amendments have been issued) (hereinafter called the "Contract") in terms of which Employer is required to hand over various Material to the 'Contractor' for execution of the Contract.

And WHEREAS by virtue of Clause No…….. of tender specification No……, the 'Contractor' is required to execute an Indemnity Bond in favour of Employer for the Material handed over to it by Employer for the purpose of performance of the Contract/Erection portion of the Contract (hereinafter called the 'Materials').

Now THEREFORE, This Indemnity Bond witnessed as follows:

1. That in consideration of various Material like Monopoles, Polymer Insulators, Stringing Hardware, ACSR Conductor & 7/3.66mm Ground wire as mentioned in the Supply Order No…….. dtd. ……. at clause No……., Valued at (Amount in figures) Rs…….. (amount in words) (Rupees ……..) handed over to the 'Contractor' in installments from time to time for the purpose of performance of the Contract, the 'Contractor' hereby undertakes to indemnify and shall keep Employer indemnified for the full value of the Material. The 'Contractor' hereby acknowledges receipt of the initial installment of the Material as per details in the schedule appended hereto. Further, the 'Contractor' agrees to acknowledge receipt of the subsequent installments of the Material as required by Employer in the form of Schedules consecutively numbered which shall be attached to this Indemnity Bond so as to form integral parts of this Bond. It is expressly understood by the 'Contractor' that handing over of the dispatch title documents in respect of the said Materials duly endorsed by Employer in favour of the 'Contractor' shall be construed as handing over of the Material purposed to be covered by such title documents and the 'Contractor' shall hold such Material in trust as a Trustee for an on behalf of Employer.
2. That the 'Contractor' is obliged and shall remain absolutely responsible for the safe transit/protection and custody of the Material at Employer project Site against all risks whatsoever till the Material are duly used/erected in accordance with the terms of the Contract and the Plant/Package duly erected and commissioned in accordance with the terms of the Contract, is taken over the Employer. The 'Contractor' undertakes to keep Employer harmless against any loss or damage that may be caused to the Material.
3. The 'Contractor' undertakes that the Material shall be used exclusively for the performance/execution of the Contract strictly in accordance with its terms and conditions

and no part of the Material shall be utilized for any other work or purpose whatsoever. It is clearly understood by the 'Contractor' that non-observance of the obligations under this Indemnity Bond by the 'Contractor' shall inter-alia constitute a criminal breach of trust on the part of the 'Contractor' for all intents and purpose including legal/penal consequences.

4. That Employer is and shall remain the exclusive Purchaser of the Material free from all encumbrances, charges or liens of any kind, whatsoever. The Material shall at all times be open to inspection and checking by the Purchaser's Representative or other employees/Agents authorized in this regard. Further, Employer shall always be free at all times to take possession of the Materials in whatever form the Materials may be, if in its opinion , the Materials are likely to be endangered, misutilized or converted to uses other than those specified in the contract by any acts of omission or commission on the part of the 'Contractor' or any other person or on account of any reason whatsoever and the 'Contractor' binds himself and undertakes to comply with the directions of demand of EMPLOYER to return the Material without any demur or reservation.
5. That this Indemnity Bond is irrevocable. If at any time any loss or damage occurs to the Material or the same or any part thereof is misutilized in any manner whatsoever, then the 'Contractor' hereby agrees that the decision of the Purchaser's Representative as to assessment of loss or damage to the Material shall be final and binding on the 'Contractor'. The 'Contractor' binds itself and undertakes to replace the lost and/or damaged Material at its own cost and/or shall pay the amount of loss to Employer without any demur, reservation or protest. This is without prejudice to any other right or remedy that may be available to Employer against the 'Contractor' under the Contract and under this Indemnity Bond.
6. NOW THE CONDITION of this Bond is that if the 'Contractor' shall duly and punctually comply with the terms and conditions of this Bond to the satisfaction of Employer, THEN, the above Bond shall be void, but otherwise, it shall remain in full force and virtue.

IN WITNESS WHEREOF, the 'Contractor' has hereunto set its hand through its authorized representative under the common seal of the Company, the day, month and year first above mentioned.

For and on behalf of

M/s._____

WITNESS

1. 1. Signature ……. Signature…….
   2. Name ……. Name ……..
   3. Address ……. Designation ……..

Authorized representative

2. 1. Signature …….
   2. Name …….

(Common Seal)

3. Address …….

(In case of Company)

* Indemnity Bonds are to be executed by the authorized person having the Power of Attorney issued under common seal of the company with authority to execute Indemnity Bonds. The Original Power of Attorney if it is specifically for this Contract or a Photostat copy of the Power of Attorney if it is General Power of Attorney and such documents should be attached to Indemnity Bond.

ANNEXURE-27

FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CREDIT/ FACILITIES

BANK CERTIFICATE

This is to certify that M/s..... (insert Name & address of the Contractor) ..... who have submitted their bid to ..... (insert name of the Employer) ..... against their tender specification vide ref No. ..... for ..... (insert name of the package alongwith the project name) ..... is our customer for the past ..... years.

Their financial transaction with our Bank have been satisfactory. They enjoy the following fund based and non fund based limits including for guarantees, L/C and other credit facilities with us against which the extent of utilization as on date is also indicated below:

Sl.No.	Type of Facility	Sanctioned Limit as on Date	Utilisaion as on Date

This letter is issued at the request of M/s .....

Signature.....
Name of Bank .....
Name of Authorised Signatory.....
Designation.....
Phone No.....
Address.....

SEAL OF THE BANK

ANNEXURE –28

(Proforma for Deed of Extn. of Bank Guarantee)
(To be executed on N.J. Stamp Rs. 300/-+One Revenue Stamp worth Rs. 1/-)

Extn. Deed No.-------
Date----------

B.G. No. ----------Date----------
C.S. Power Transmission Company Ltd.

Sub:-The Extn. of Bank Guarantee No. -----dated----for the Rs.-- ---------- favouring your self expiring on ----------.

1) At the request of our client M/s ----------we hereby extend our Guarantee No.----------dt.----------given on their behalf for the further period from----------to ----------.
2) The Word CSEB wherever referred in the Bank Guarantee shall be replaced by CSPTCL (A Successor Company of CSEB, hereinafter referred to as CSPTCL).The beneficiary of this Bank Guarantee shall be CSPTCL (A Successor Company of CSEB).
3) Our liability under this guarantee is restricted to Rs. ---------- (Rupees ----------). This guarantee shall remain in force upto ----------. Unless a demand to enforce a claim is made under this Bank Guarantee by the CSPTCL to the Bank within six months from the date i.e. up to ----------the rights of the CSPTCL under this guarantee shall be forfeited and the Bank shall be relieved and discharged from all liability there under.

Witness:- Signed for Bank

1)
2)

ANNEXURE-29
PRE-CONTRACT INTEGRITY PACT

1. GENERAL

1.1 This pre-bid contract Agreement (herein called the Integrity Pact) is made on.....day of the month .....20..., between the CSPTCL acting through Shri.....ED/CE (P&P), CSPTCL (hereinafter called the "BUYER", which expression shall mean and include, unless the context otherwise requires, his successors in the office and assigns) and the First Party, proposes to procure (name of the Stores/Equipment/Work/Service) and M/s.....represented by Shri..... Chief Executive Officer (hereinafter called the "BIDDER/Seller", which expression shall mean and include, unless the context otherwise requires, his successors an permitted assigns) and the Second Party, is willing to offer/has offered.

1.2 WHEREAS the BIDDER is a Private Company/Public Company/ Government undertaking / Partnership / Registered Export Agency, constituted in accordance with the relevant law in the matter and the BUYER is a Ministry/Department of the Government, performing its function on behalf of the CSPTCL.

2. OBJECTIVES

NOW, THEREFORE, the BUYER and the BIDDER agree to enter into this pre-contract agreement, hereinafter referred to as Integrity Pact, to avoid all forms of corruption by following a system that is fair, transparent and free from any influence/prejudiced dealings prior to, during and subsequent to the Contract to be entered into with a view to:-

2.1. Enabling the BUYER to obtain the desired Stores/Equipment/Work/Service at a competitive price in conformity with the defined specifications by avoiding the high cost and the distortionary impact of corruption on public procurement, and 2.2. Enabling BIDDERs to abstain from bribing or indulging in any corrupt practices in order to secure the contract by providing assurance to them that their competitors will also abstain from bribing any corrupt practices and the BUYER will commit to prevent corruption, in any form, by its official by following transparent procedures.

3. COMMITMENTS OF THE BUYER

The BUYER commits itself to the following:-

3.1 The BUYER undertakes that no official of the BUYER, connected directly or indirectly with the contract, will demand, take promise for or accept, directly or through intermediaries, any bribe, consideration, gift, reward, favour or any material or immaterial benefit or any other advantage from the BIDDER, either for themselves of for any person, organization or third party related to the contract in exchange for an advantage in the bidding process, bid evaluation, contracting of implementation process related to contract.

3.2 The BUYER will, during the pre-contract stage, treat BIDDERs alike, and will provide to all BIDDERs the same information and will not provide any such information to any particular BIDDER which could afford an advantage to that particular BIDDER in comparison to the other BIDDERs.

3.3 All the officials of the BUYER will report the appropriate Government office any attempted or completed breaches of the above commitments as well as any substantial suspicion of such a breach.

In case any such preceding misconduct on the part of such official(s) is reported by the BIDDER to the BUYER with the full and verifiable facts and the same prima facie found to be correct by the BUYER, necessary disciplinary proceedings, or any other action as deemed fit,

including criminal proceedings may be initiated by the BUYER and such a person shall be debarred from further dealings related to the contract process. In such a case while an enquiry is being conducted by the BUYER the proceedings under the contract would not be stalled.

4. COMMITMENTS OF BIDDERS

The BIDDER commits itself to take all measures necessary to prevent corrupt practices, unfair means and illegal activities during any stage of its bid or during any pre-contract or post-contract stage in order to secure the contract or in furtherance to secure it and in particular commit itself to the following:-

4.1. The BIDDER will not offer, directly or through intermediaries, any bribe, gift, consideration, reward, favour, any material of immaterial benefit or other advantage, commission, fees, brokerage or inducement to any official of the BUYER, connected directly or indirectly with the biding process, or to any person, organization or third party related to the contract in exchange for any advantage in the bidding, evaluation, contracting and implementation of the contract.

4.2. The BIDDER further undertakes that it has not given, offered or promised to give, directly or indirectly any bribe, gift, consideration, reward, favour, any material or immaterial benefit or other advantage, commission, fees, brokerage, or inducement to any official of the BUYER or otherwise in procuring the Contract of forbearing to do or having done any act in relation to the obtaining or execution of the contract or any other contract with the CSPTCL for showing or forbearing to show favour or disfavour to any person in relation to the contract or any other contract with the CSPTCL.

4.3. The BIDDER further confirms and declares to the BUYER that the BIDDER in the original Manufacture/Integrator/Authorized government sponsored export entity of the stores and has not engaged any individual or firm or company whether Indian or foreign to intercede, facilitate or in any way to recommend to the BUYER or any of its functionaries, whether officially or unofficially to the award of the contract to the BIDDER, nor has any amount been paid, promised or intended to be paid to any such individual, firm or company in respect of any such intercession, facilitation or recommendation.

4.4. The BIDDER, either while presenting the bid or during pre-contract negotiations or before signing the contract, shall disclose any payment he has made, is committed to or intends to make to officials of the BUYER or their family members, agents, brokers or any other intermediaries in connection with the contract and the details of services agreed upon for such payments.

4.5. The BIDDER will not collude with other parties interested in the contract to impair the transparency, fairness and progress of the bidding process, bid evaluation, contracting and implementation of the contract.

4.6. The BIDDER will not accept any advantage in exchange for any corrupt practice, unfair means and illegal activities.

4.7. The BIDDER shall not use improperly, for purpose of competition or personal gain, or pass on to others, any information provided by the BUYER as part of the business relationship, regarding plans, technical proposal and business details, including information contained in any electronic data carrier. The BIDDER also undertakes to exercise due and adequate care lest any such information is divulged.

4.8. The BIDDER commits to refrain from giving any compliant directly or through any other manner without supporting it with full and verifiable facts.

4.9. The BIDDER shall not instigate or cause to instigate any third person to commit any of the acts mentioned above.

5. PREVIOUS TRANSGRESSION

5.1. The BIDDER declares that no previous transgression occurred in the last three years immediately before signing of this Integrity Pact with any other company in any country in respect of any corrupt practices envisaged hereunder or with any Public Sector Enterprise in India or any Government Department in India that could justify BIDDER‟s exclusion from the tender process.

5.2. If the BIDDER makes incorrect statement on this subject, BIDDER can be disqualified from the tender process or the contract, if already awarded, can be terminated for such reason.

6. EARNEST MONEY / SECURITY DEPOSIT

6.1. Every BIDDER while submitting commercial bid, shall deposit an amount as specified in RFP as Earnest Money/Security Deposit, with the BUYER through any of the following instruments:

(i) Bank Draft or a Pay Order in favour of.....

(ii) A confirmed guarantee by an Indian Nationalised Bank, promising payment of the guarantee sum to the .....(BUYER).....on demand within three working days without any demur whatsoever and without seeking any reasons whatsoever. The demand for payment by the BUYER shall be treated as conclusive proof of payment.

(iii) Any other mode or through any other instrument (to be specified in the RFP).

6.2. The Security Deposit shall be valid up to a period till complete conclusion of the contractual obligations to the complete satisfaction of both the BIDDER and BUYER, including warranty period.

6.3 In the case of successful BIDDER a clause would also be incorporated in the Article pertaining to Performance Bond in the Purchase Contract that the provisions of Sanctions for violation shall be applicable for forfeiture of Performance Bond in case of a decision by the BUYER to forfeit the same without assigning any reason for imposing sanction for violation of this Pact.

6.4. No interest shall be payable by the BUYER to the BIDDER on Earnest Money/Security Deposit for the period of its currency.

7. SANCTIONS FOR VIOLATIONS

7.1. Any breach of the aforesaid provisions by the BIDDER or any one employed by it or acting on its behalf (whether with or without the knowledge of the BIDDER) shall entitle the BUYER to take all or any one of the following actions, wherever required:-

(i) To immediately call off the pre contract negotiations without assigning any reason or giving any compensation to the BIDDER. However, the proceedings with the other BIDDER(s) would continue.

(ii) To forfeit fully or partially the Earnest Money Deposit (in pre-contract stage) and/or Security Deposit/Performance Bond (after the contract is signed), as decided by the BUYER and the BUYER shall not be required to assign any reason therefore.

(iii) To immediately cancel the contract, if already signed, without giving any compensation to the BIDDER.

(iv) To recover all sums already paid by the BUYER, and in case of the Indian BIDDER with interest thereon at 2% higher than the prevailing Prime Lending Rate while in case of a BIDDER from a country other than India with Interest thereon 2% higher than the LIBOR. If any outstanding payment is due to the BIDDER from the BUYER in connection with any other contract such outstanding payment could also be utilized to recover the aforesaid sum and interest.

(v) To encash the advance bank guarantee and performance bond/warranty bond, if furnished by the BIDDER , in order to recover the payments, already made by the BUYER, along with interest.

(vi) To cancel all or any other contracts with the BIDDER and the BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such cancellation/rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

(vii) To debar the BIDDER from participating in future bidding processes of the CSPTCL for a minimum period of five years, which may be further extended at the discretion of the BUYER.

(viii) To recover all sums paid in violation of this Pact by BIDDER(s) to any middlemen or agent or broken with a view to securing the contract.

(ix) In cases where irrevocable Letters of Credit have been received in respect of any contract signed by the BUYER with the BIDDER, the same shall not be opened.

(x) If the BIDDER or any employee of the BIDDER or any person action on behalf of the BIDDER, either directly or indirectly, is closely related to any of the officers of the BUYER, or alternatively, if any close relative of an officer of the BUYER has financial interest/stake in the BIDDER's firm, the same shall be disclosed by the BIDDER at the time of filling of tender. Any failure to disclose the interest involved shall entitle the BUYER to rescind the contract without payment of any compensation to the BIDDER.

The term "close relative" for this purpose would mean spouse whether residing with the Government servant or not, but not include a spouse separated from the Government servant by a decree or order of a competent court; son or daughter or step son or step daughter and wholly dependent upon Government servant, but does not include a child or step child who is no longer in any way dependent upon the Government servant or of whose custody the Government servant has been deprived of by or under any law; any other person related, whether by blood or marriage, to the Government servant or to the Government servant's wife or husband and wholly dependent upon Government servant.

(xi) The BIDDER shall not lend to or borrow any money from or enter into any monetary dealings or transactions, directly or indirectly, with any employee of the BUYER, and if he does so, the BUYER shall be entitled forthwith to rescind the contract and all other contracts with the BIDDER. The BIDDER shall be liable to pay compensation for any loss or damage to the BUYER resulting from such rescission and the BUYER shall be entitled to deduct the amount so payable from the money(s) due to the BIDDER.

7.2. The decision of the BUYER to the effect that a breach of the provisions of this pact has been committed by the BIDDER shall be final and conclusive on the BIDDER. However, the BIDDER can approach the Monitor(s) appointed for the purpose of this Pact.

8. INDEPENDENT MONITORS

8.1. The BUYER will appoint Independent Monitors (hereinafter referred to as Monitors) for this Pact.

8.2. The task of the Monitors shall be to review independently and objectively, whether and to what extent the parties comply with the obligations under this Pact.

8.3. The Monitors shall not be subject to instructions by the representatives of the parties and perform their functions neutrally and independently.

8.4. Both the parties accept that the Monitors have the right to access all the documents relating to the project/procurement, including minutes of meetings. The Monitor shall be under contractual obligation to treat the information and documents of the BIDDER/Subcontractor(s) with confidentiality.

8.5. As soon as the Monitor notices, or has reason to believe, a violation of this Pact, he will so inform the Authority designated by the BUYER.

8.6. The Monitor will be submit a written report to the designated authority of BUYER/Secretary in the department/within 8 to 10 weeks from the date of reference or intimation to him by the BUYER /BIDDER and, should the occasion arise, submit proposal for correcting problematic situation.

09. FACILITATION OF INVESTIGATION

In case of any allegation of violation of any provision of this fact or payment of commission, the BUYER or its agency shall be entitled to examine all the documents including the books of Account of the BIDDER and the BIDDER shall provide necessary information of the relevant documents and shall extend all possible help for the purpose of such examination.

10. LAW AND PLACE OF JURISDICTION

This pact is subject to Indian Law, the place of performance and jurisdiction shall be the seat of the BUYER.

11. OTHER LEGAL ACTIONS

The actions stipulated in this integrity Pact are without prejudice to any other legal action that may following in accordance with the provisions of the any other law in force relating to any civil are criminal proceeding.

12. VALIDITY

12.1 The validity of this integrity Pact shall be from the date of its signing and extend up to 2 years or the complete execution of the contract to the satisfaction of both the BUYER and the BIDDER/Seller whichever is later. In case BIDDER is unsuccessful, this Integrity Pact shall expire after six months from the date of the signing of the contract.

12.2. If one or several provision of this pact turn out to be invalid; the remainder of this pact shall remain valid. In such case, the parties will strive to come to an agreement to their original intention.

13. The parties hereby sign this integrity Pact at .....on.....

BUYER	BIDDER
ED/CE(P&P)	CHIEF EXECUTIVE OFFICER
CSPTCL, Raipur	Department/PSU
Witness	**Witness**
(i)……	(i)……
……	……
(ii)……	(ii)……
……	……

Annexure - 30

CHECK LIST

S.No	**ITEMS**	**REFERENCE**	**DECLARATION Strike out which ever is not applicable**
Earnest money enclosed		Covering letter	Yes / No
1	Financial data for previous 5 years	Annexure-1	Yes/No
2	Average annual turnover	Annexure-2	Yes / No
3	List of Sub-vendors	Annexure-3	Yes / No
4	Current contract commitments	Annexure-4	Yes / No
5	Declaration form	Annexure-5	Yes / No
6	Scope of work of soil investigation	Annexure-6	Yes / No
7	List of stringing equipment available with the contractor	Annexure-7	Yes / No
8	Completion schedule	Annexure-8	Yes / No
9	Deviations from technical specifications /conditions	Annexure-9	Yes / No
10	Questionnaire	Annexure-10	Yes / No
11	Standards / codes	Annexure-11	Yes / No
12	List of Drawing	Annexure-12	Yes / No
13	Details of headquarters & field organisation of the bidder	Annexure-13	Yes / No
14	Details of plant & manufacturing capacity	Annexure-14	Yes/ No.
15	Experience in fabrication and supply of towers. (information shall be given in respect of 132 KV DCSS/DCDS & above	Annexure-15	Yes/ No.
16	Experience in erection of 132 KV & above transmission lines on turn key with supply of all material (completed works, which are in successful operation for a period of not less than 01 years).	Annexure-16	Yes/ No.
17	List of tools and plants required for construction of line, to be arranged by the contractor	Annexure-17	Yes/ No.
18	Sources of materials to be arranged by the contractor for the transmission line (being tendered).	Annexure-18	Yes/ No.
19	Deviation from specification	Annexure-19	Yes/ No.

	(commercial)		
20	Litigation history of the bidder	Annexure-20	Yes/ No.
21	Quality assurance programme	Annexure-21	Yes/ No.
22	Undertaking to be submitted by bidder regarding Tower manufacturer	Annexure-22	Yes/No
23	AGREEMENT	Annexure-23	Yes/No
24	BANK GUARANTEE PROFORMA FOR SECURITY DEPOSIT	Annexure-24	Yes/ No
25	PROFORMA FOR BANK GUARANTEE TOWARDS PERFORMANCE	Annexure-25	Yes/ No
26	PROFORMA FOR INDEMNITY BOND	Annexure-26	Yes/ No
27	PROFORMA FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CREDIT/ FACILITIES	Annexure-27	Yes/ No
28	PROFORMA FOR DEED OF EXTN. OF BANK GUARANTEE	Annexure-28	Yes/ No
29	PRE CONTRACT INTEGRITY PACT	Annexure-29	
30	ILLUSTRATION OF CRITERIA FOR PRICE BID EVALUATION	Annexure 31	Yes/ No
31	Proforma for Joint Deed of Undertaking by the Steel Monopole Manufacturer	Annexure 32	Yes/ No
32	PROFORMA FOR BANK GUARANTEE FOR LOSS/DAMAGE TO CSPTCL	Annexure 33	Yes/ No
33	PROFORMA FOR UNDERTAKING BY THE JOINT VENTURE PARTNERS	Annexure 34	Yes/ No
34	PROFORMA FOR POWER OF ATTORNEY FOR JOINT VENTURE	Annexure-35	Yes/ No
35	Declaration by bidder	Annexure-36	Yes/ No

ANNEXURE-31

(Only for illustration, not to be filled by bidder)

ILLUSTRATION OF CRITERIA FOR PRICE BID EVALUATION (Tender No.TR-20/04)				
Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C Monopole (60-90º dev., bottom cross arm height 23M, dead end) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)				
S.No	**PARTICULARS**	**Name of bidder**		
		M/s……	**M/s……**	**M/s……**
1	Cost of supply of materials as per Schedule A-1 (including all taxes , duties &cess)			
2	Cost of construction charges as per Schedule-A-2 (including all taxes &cess)			
3	TOTAL AMOUNT (Sch-A-1 & Sch.A-2) (including all taxes) (1+2) :-			
4	Rebate / discount offered, if any			
5	Total Project Cost after Rebate (3-4) :-			
6	Position of bidder			

ANNEXURE -32

Proforma for Joint Deed of Undertaking by the Steel Monopole Manufacturer alongwith the Bidder / Contractor

(To be executed on non-judicial stamp paper worth Rs.300/- with a revenue stamp worth Rs.1/- affixed thereon).

THIS DEED OF UNDERTAKING executed this ……..day of …….20…....By M/s. ……, a company incorporated under the laws of Companies Act, 1956 and having its Registered Office at …… (hereinafter called the "**Monopole Manufacturer**" which expression shall include its successors, executors and permitted assigns.), and M/s…….. a company incorporated under the laws of India having its Registered Office at ……. (hereinafter called the "Bidder"/ "Contractor" which expression shall include its successors, executors and permitted assigns.) in favour of Chhattisgarh State Power Transmission Co. Ltd., a Company incorporated under the Companies Act, 1956 having its registered office at SLDC Building, Dangania, Raipur-492013 (C.G.) (hereinafter called the "Employer" which expression shall include its successors and assigns).

WHEREAS the "EMPLOYER" invited Tender as per its Specification No…….. for ……. on turnkey basis.

AND WHEREAS Clause No…… Qualifying requirements as on the date of tender opening, Sub Section (III) technical Experience, Section (ii) (Manufacturing facilities), forming part of the Bidding Documents inter-alia stipulates that the Bidder and/or Manufacturer must fulfil the Qualifying Requirements and be jointly and severally bound and responsible for the quality and timely supply of tower parts in the event the Bid submitted by the Bidder is accepted by the Employer resulting in a Contract.

AND WHEREAS the Bidder has submitted its Bid to the Employer vide Proposal No…… dtd…… based on tie-up with the Monopole Manufacturer for supply of Monopole.

NOW THEREFORE THIS UNDERTAKING WITNESSED asunder:-

1.0 In consideration of the award of Contract by the Employer to the Bidder (hereinafter referred to as the "Contract") we, the Monopole Manufacturer and the Bidder/Contractor do hereby declare that we shall be jointly and severally bound unto the Chhattisgarh State Power Transmission Co. Ltd., for the manufacturer, testing, supply of tower parts on FOR destination delivery at site basis in accordance with the Contract Specification.

2.0 Without in any way affecting the generality and total responsibility in terms of this Deed of Undertaking, the Monopole Manufacturer hereby agrees to depute their representatives from time to time to the Employer's Project site as mutually considered necessary by the Employer,

Bidder/Contractor and the Monopole Manufacturer to ensure proper quality, manufacturer, testing and supply on FOR destination delivery at site basis and successful performance of the material in accordance with Contract Specifications. Further, if the Employer suffers any loss or damage on account of non-performance of the material fully meeting the performance guaranteed as per Bid Specification in terms of the contract. We the Monopole Manufacturer and the Contractor jointly and severally undertake to pay such loss or damages to the Employer on its demand without any demur.

3.0 This deed of Undertaking shall be construed and interpreted in accordance with the laws of India and Courts in Raipur shall have exclusive jurisdiction in all matters arising under the Undertaking.

4.0 We, the Monopole Manufacturer/bidder/Contractor agree that this Undertaking shall be irrevocable and shall form an integral part of the Contract and further agree that this Undertaking shall continue to the enforceable till the Employer discharges it. It shall become operative from the effective date of Contract.

IN WITNESS WHEREOF, the 'Monopole Manufacturer and/or the Bidder/Contractor have through their Authorized Representatives executed these presents and affixed Common seals of their respective Companies, on the day, month and year first above mentioned.

(For Monopole Manufacturer)

M/s._____

WITNESS

1. 1. Signature ……. Signature…….
   2. Name ……. Name …….……..
   3. Address ……. Designation …….…..

(Common Seal of Company)

(For Bidder)

2. 1. Signature ……. M/s_____
   2. Name …….
   3. Address …….

Signature ……
Name ……..
Designation…….

(Common Seal of Company)

ANNEXURE – 33
PROFORMA FOR BANK GUARANTEE FOR LOSS/DAMAGE TO CSPTCL

NOTE FOR BIDDERS: (Not to be typed in the Bank Guarantee) To be furnished in non-judicial stamp paper of Rs.300/- applicable as per MP/ Chhattisgarh Duty Act from any Nationalised /Scheduled Bank.

In consideration of the Chhattisgarh State Power Transmission Company Limited, (herein after called "CSPTCL") having agreed to exempt Ms. _____ _____ _____ _____ _____ (herein after called "the said Contractors") from the demand under the terms and conditions of an agreement No. _____ Dated _____ made between _____ And _____ for _____ _____ _____ _____ _____ (herein after called "the said agreement") of security deposit for satisfactory performance of materials (as detailed in the said agreement) and for the due fulfilment by the said Contractor(s) of the terms and conditions contained in the said agreement, on production of a Bank Guarantee for Rs. _____ ____ ____ ____ ___ (Rs._____ _____ _____ _____ _____ Only).

1. We_____ _____ _____ Bank (herein after referred to as "the Bank") at the request of _____ _____ contractor(s) do hereby undertake unequivocally and unconditionally to pay to CSPTCL, an amount not exceeding Rs. _____ (Rs. _____ _____ _____ _____ _____ Only) against any loss or damage caused to or suffered or would be caused to or suffered or would be caused to or suffered by CSPTCL by reason of any breach by the said Contractors(s) of any of the terms or conditions contained in the said agreement.
2. We_____ (indicate the name of the bank) Bank do hereby undertake to pay the amounts due and payable under this guarantee without any lemur, merely on a demand from CSPTCL stating that the amount claimed is due by way of loss or damage caused to or would cause to or suffered by CSPTCL by reason of any breach by the said Contractor(s) of any of the terms or conditions contained in the said agreement or by reasons of the Contractor(s).
3. We, the _____ (indicate the name of the bank) do hereby further undertake unequivocally and unconditionally pay the amount due and payable under this Guarantee without demure, merely on demand from CSPTCL stating that the amount claimed is due by was of loss or damage caused to or would be caused to or suffered by CSPTCL by reason of each breach by the said Contractor(s) of any of the terms or conditions and failure to perform said Bid. Any such demand made on the Bank shall be conclusive as regards the amount due and payable by the Bank under this guarantee. However, our liability under this guarantee shall be restricted to an amount not exceeding Rs._____.
4. We, the _____ (indicate the name of the bank) further agree that the guarantee herein contained shall remain in full force and effect during the aforesaid period of _____ days _____ and it shall continue to be so enforceable till all the dues of the CSPTCL under or by virtue of the said Bid have been fully paid and its claims satisfied or discharged or till **Chief Engineer (P&P), CSPTCL** certifies that the terms and conditions of the said Bid have been fully and properly carried out by the said Contractor(s) and accordingly discharge this guarantee. Unless a demand or claim under this discharges from all liability under this guarantee thereafter.

5. We, the _____ (indicate the name of the bank)further agree with the CSPTCL that CSPTCL shall have be fullest liberty without our consent and without affecting in any manner our obligations here under to vary any of the terms and conditions of the said Bid or to extend time of performance by the said Contractor(s) from time to time or to postpone for any time or from time to time only of the powers exercisable by CSPTCL against the said Contractor(s) and to forebear or enforce any of the terms and conditions relating to the said Bid and we shall not be relieved from our liability by reason of any such variation postpone or extension being granted to the said Contractor or for any forbearance, act or omission on the part of CSPTCL or any indulgence by CSPTCL to the said Contractor(s) or by any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have effect of so relieving us.
6. The beneficiary of this Bank Guarantee shall be Chhattisgarh State Power Transmission Company Limited, Raipur (A Successor Company of erstwhile CSEB Raipur). The proceeds / encashment of this Bank Guarantee would go in the name of Chhattisgarh State Power Transmission Company Limited, Raipur (A Successor company of erstwhile CSEB Raipur).
7. It is agreed to by the Bank with the CSPTCL that if for any reason a dispute arises concerning the Bank Liability to pay the requisite amount to the CSPTCL under the terms of this guarantee the competent court at Raipur alone shall have the jurisdiction to determine the said dispute and that this shall be without prejudice to the liability of the Bank under the terms of this guarantee being unequivocal and unconditional. The beneficiary of this Bank Guarantee shall be Chhattisgarh State Power Transmission Company Limited, Raipur (A Successor Company of erstwhile CSEB Raipur).
8. We, the _____ (indicate the name of the bank) lastly undertake not to revoke this Guarantee during its currency except with the previous consent of CSPTCL in writing.
9.

Dated, the _____ days of _____ _____.

WITNESS (SIGNATURE WITH NAME & ADDRESS)

1.

2.

For _____

(Indicate name of Bank)

ANNEXURE –34

PROFORMA FOR UNDERTAKING BY THE JOINT VENTURE PARTNERS

(To be executed on Non-Judicial Stamp Paper worth Rs. *100.00 &Rs. 1.00 revenue stamps)*

THIS JOINT DEED OF UNDERTAKING executed on this……. day of…….. Two Thousand and……..... by …… a company incorporated under the laws of …… and having its Registered Office at .....(hereinafter called the "Lead Partner" which expression shall include its successors, executors and permitted assigns) and M/s…… a company incorporated under the laws of ……..……and having its Registered Office at ……..…… (hereinafter called the "Other partner" which expression shall include its successors, executors and permitted assigns) for the purpose of making a bid and entering into a contract [hereinafter called the "Contract"{in case of award)] against the Specification No **TR-___** for …… *(insert name of the project)* of C.S. Power Transmission Co. Ltd, a Company incorporated under the Companies Act of 1956 having its registered office at Dangania, Raipur (hereinafter called the "CSPTCL").

AND WHEREAS CSPTCL invited bids as per the above mentioned Specification for construction of ……stipulated in the bidding documents under Specification No **TR- -** ____*(insert nameof the project)*

AND WHEREAS Qualification Criteria of the specification stipulates that an Undertaking of not more than two firms as partners, meeting the requirements of Qualification Criteria, as applicable may bid, provided, the Joint Venture fulfills all other requirements of Qualification Criteria and in such a case, the Bid Forms shall be signed by both the partners so as to legally bind the Partners of the Joint Venture, who will be jointly and severally liable to perform the Contract and all obligations hereunder.

The above clause further states that this Undertaking shall be attached to the bid and the Contract performance guarantee will be as per the format enclosed with the bidding document without any restrictions or liability for either party.

AND WHEREAS the bid is being submitted to CSPTCL vide proposal No……..dated ……..... by the "Lead Partner" based on this Undertaking between both parties; under these presents and the bid in accordance with the requirements of Tender specification & Qualification Criteria has been signed by both the parties.

NOW THIS UNDERTAKING WITNESSETH AS UNDER:-

In consideration of the above premises and agreements the parties of this Deed of Undertaking do hereby declare and undertake:

1. In requirement of the award of the Contract by the CSPTCL to the Joint Venture Partners, we, the Parties do hereby undertake that M/s…… shall act as "Lead Partner" and further declare and confirm that we the parties to the Joint Venture shall jointly and severally be bound unto the CSPTCL for the successful performance of the Contract and shall be fully responsible for the design, supply, erection, testing, commissioning and successful performance of the project in accordance with the Contract.

2. In case of any breach or default of the said Contract by the Lead Partner of the Joint Venture, the other partner do hereby undertake to be fully responsible for the successful performance of the Contract and to carry out all the obligations and responsibilities under the Contract in accordance with the requirements of the Contract.

3. Further, if the CSPTCL suffers any loss or damage on account of any breach in the Contract or any shortfall in the performance of the equipment/ material in meeting the performances guaranteed as per the specification in terms of the Contract, the Party(s) of these presents undertake to promptly make good such loss or damages caused to the CSPTCL, on its demand without any demur. It shall not be necessary or obligatory for the CSPTCL to proceed against Lead Partner to these presents before proceeding against or dealing with the other Party(s), CSPTCL can proceed against other partner who shall be jointly and severally liable for the performance and all other liabilities/obligations under the Contract to the CSPTCL.

4. The financial liability of the Parties of this Deed of Undertaking to the CSPTCL, with respect to any of the claims arising out of the performance or non-performance of the obligations set forth in this Deed of Undertaking, read in conjunction with the relevant conditions of the Contract shall, however not be limited in any way so as to restrict or limit the liabilities or obligations of any of the Partners of this Deed of Undertaking.

5. It is expressly understood and agreed between the parties to this under taking that the responsibilities and obligations of each of the parties shall be as delineated in the tender to this Deed of Undertaking. It is further undertaken by the parties that the above sharing of responsibilities & obligations shall not in any way be a limitation of joint and several responsibilities of the parties under the contract.

6. It is also understood that this Undertaking is provided for the purposes of undertaking joint and several liabilities of the partners to the Joint Venture for submission of the bid and performance of the Contract and that this Undertaking shall not be deemed to give rise to any additional liabilities or obligations, in any manner or any law, on any of the Parties to this Undertaking or on the Joint Venture, other than the express provisions of the Contract.

7. This Undertaking shall be construed and interpreted in accordance with the provisions of the Contract.

8. In case of an award of a Contract, we the parties to this Deed of Undertaking do hereby agree that we shall be jointly and severally responsible for furnishing a Contract performance security from a bank in favour of the CSPTCL in the currency/currencies of the Contract.

9. It is further agreed that this Deed of Undertaking shall be irrevocable and shall form an integral part of the bid and shall continue to be enforceable till the CSPTCL discharges the same or upon the completion of the Contract in accordance with its provisions, whichever is earlier. It shall be effective from the date first mentioned above for all purposes and intents.

IN WITNESS WHEREOF, the Parties to this Deed of Undertaking have through their authorized representatives executed these presents and affixed Common Seals of their companies, on the day, month and year first mentioned above.

Seal of ……. For "Lead Partner"
has been affixed in my/ our For and on behalf of M/s
presence pursuant to Board of ……..
Director's Resolution dated …….
Name …….. (Signature of the authorized
Designation ……. Representative)
Signature …….

WITNESS :

I.……

II. ……

Seal of ……. For "other Partner"
has been affixed in my/ our For and on behalf of
presence pursuant to Board of M/s……..
Director's Resolution dated …….
Name …….. (Signature of the authorized
Designation ……. representative)
Signature …….

WITNESS :

I.……
II. ……

Note :

1. The non-judicial stamp papers of appropriate value shall be purchased in the name of Joint Venture and the date of purchase should not be later than six months of date of execution of the Undertaking.
2. The Undertaking shall be signed on all the pages by the authorized representatives of each of the partners and should invariably be witnessed.

ANNEXURE –35

PROFORMA FOR POWER OF ATTORNEY FOR JOINT VENTURE

(To be executed on Non-Judicial Stamp Paper worth Rs. *100.00 &* Rs.*1.00 revenue stamps)*

KNOW ALL MEN BY THESE PRESENTS THAT WE, the Partners whose details are given hereunder ..... have formed a Joint Venture under the laws of ..... and having our Registered Office(s)/Head Office(s) at ..... (hereinafter called the 'Joint Venture' which expression shall unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) acting through M/s ..... being the "Lead Partner" do hereby constitute, nominate and appoint M/s..... a Company incorporated under the laws of .....……..... and having its Registered/Head Office at ..... as our duly constituted lawful Attorney (hereinafter called "Attorney" or "Authorized Representative" or "Partner In-charge") to exercise all or any of the powers for and on behalf of the Joint Venture in regard to Specification No **TR-**..... the bids for which have been invited by Executive Director (Procurement & Projects), Dangania, Raipur of C.S. Power Transmission Co. Ltd. (CSPTCL) to undertake the following acts :

i) To submit proposal and participate in the aforesaid Bid Specification of the CSPTCL on behalf of the "Joint Venture".
ii) To negotiate with the CSPTCL the terms and conditions for award of the Contract pursuant to the aforesaid Bid and to sign the Contract with the CSPTCL for and on behalf of the "Joint Venture".
iii) To do any other act or submit any document related to the above.
iv) To receive, accept and execute the Contract for and on behalf of the "Joint Venture".

It is clearly understood that the Lead Partner shall ensure timely execution of the Contract. In case of any breach of contract by any of the joint venture/consortium partners during execution of the contract, it will be the sole discretion of CSPTCL to allow the other partner to complete the work or to terminate the total contract.

It is expressly understood that this Power of Attorney shall remain valid binding and irrevocable till completion of the Maintenance Period in terms of the Contract.
The Joint Venture hereby agrees and undertakes to ratify and confirm all the whatsoever the said Attorney/Authorized Representatives/Partner in-charge/Lead Partner quotes in the bid, negotiates and signs the Contract with the CSPTCL and/or proposes to act on behalf of the Joint Venture by virtue of this Power of Attorney and the same shall bind the Joint Venture as if done by itself.

IN WITNESS THEREOF the Partners Constituting the Joint Venture as aforesaid have executed these presents on this ..... day of ……..... under the Common Seal(s) of their Companies.

For and on behalf of the
Partners of Joint Venture
.....
.....
.....
The Common Seal of the above Partners of the Joint Venture:

The Common Seal has been affixed there unto in the presence of:
WITNESS

1. Signature.....	2. Signature.....
Name .....….....	Name
Designation .....….....	Designation
Occupation .....….....	Occupation

Note:

1. The non-judicial stamp papers of appropriate value shall be purchased in the name of Joint Venture and the date of purchase should not be later than six months of date of execution of the Agreement.
2. The Agreement shall be signed on all the pages by the authorized representatives of each of the partners and should invariably be witnessed.

ANNEXURE –36

DECLARATION BY THE BIDDER

(*To be furnished the Sole bidder/ Lead partner as well as other partner of the JV Separately*)

(Please ensure the language of the format is maintained to avoid bid rejection)

Name of the bidder (Sole bidder / JV partners) :

1) (Name of the bidder) M/s…… is not debarred/ Blacklisted by Bank / State Govt./ Central Govt. /State PSU/CPSU/SEB/ Public utility as on date of issue of NIT.

2) All the document/ statements/ attachments/ information submitted by (Name of the bidder) M/s ……in proof of qualifying requirements are authentic/ genuine/ correct and in case, any of the said documents/ statements/ attachments/ information is found to be false / fake/ misleading, the bid will be disqualified and action will be taken as per relevant provisions of the tender.

Date ……. SIGNATURE OF BIDDER

place ……Name ……

Designation……..

(Seal of Company)

PRICE BID SCHEDULE – A-1
SUPPLY OF MATERIALS

PRICE BID SCHEDULE for Supply of Materials for Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)

(Amount in Rupees)

S. NO.	PARTICULARS	Unit	Qty.	Unit rate (Ex-works price)	GST @ 18% on Sl. No.5	Freight	GST @ 18% on Sl. No.7	**Total Unit Rate (FORD) = 5+6+7+8**	**Total Amount = Sl. No.4 x Sl.No.9**
1	*2*	*3*	***4***	*5*	*6*	*7*	*8*	*9*	*10*
1	**Supply of Monopole**: Supply of Hot-Dip-Galvanized Tension Monopole (60-90^0) dead end type with necessary hardwares (Bottom Conductor Height 23.00 Mtr.) and **Foundation** Bolts M39/1500 long along with required Anchor Plate, Base plate etc.	No.	**1**						
2	**ACSR Panther_Conductor**	K.M.	**2.5**						
3	7/3.66mm G.I. Ground wire	K.M.	**0.4**						
4	Double Tension H/W for ACSR Panther conductor	Nos.	**12**						
5	Vibration Dampers for ACSR Panther conductor	Nos.	**12**						
6	Mid-Span Joints for ACSR Panther conductor	Nos.	**1**						
7	Repair Sleeve for ACSR Panther conductor	Nos.	**1**						

S. NO.	PARTICULARS	Unit	Qty.	Unit rate (Ex-works price)	GST @ 18% on Sl. No.5	Freight	GST @ 18% on Sl. No.7	**Total Unit Rate (FORD) = 5+6+7+8**	**Total Amount = Sl. No.4 x Sl.No.9**
1	*2*	*3*	***4***	*5*	*6*	*7*	*8*	*9*	*10*
8	Tension Assembly for Earth wire.	Nos.	**2**						
9	Vibration Dampers for Earth wire	Nos.	**2**						
10	Mid-Span Joints for Earth wire	Nos.	**1**						
11	Repair Sleeve for Earth wire	Nos.	**1**						
12	90 KN composite Polymer Insulator	Nos.	**12**						
13	Enamelled Danger Board 132 KV	Nos.	**1**						
14	Enamelled Number Plate	Nos.	**1**						
15	Phase Plate (‘R’, ‘Y’ & ‘B’) Per loc	Per Loc.	**1**						
16	Anti-Climbing Device complete set including barbed wire on Monopole Per loc	Per Loc.	**1**						
17	Earthing Set (Earthing Rod with clamps and G.I. Wire – (2 Nos. in each Monopole)	set	**1**						
18	Counterpoise earthing Per loc	set	**1**						
19	Copper Earth Bond	Per Loc.	**2**						

S. NO.	PARTICULARS	Unit	Qty.	Unit rate (Ex-works price)	GST @ 18% on Sl. No.5	Freight	GST @ 18% on Sl. No.7	**Total Unit Rate (FORD) = 5+6+7+8**	**Total Amount = Sl. No.4 x Sl.No.9**
1	*2*	*3*	***4***	*5*	*6*	*7*	*8*	*9*	*10*
	Total (Rs.)								

NOTE:-

1. Please be noted, it is obligatory to quote rates in above prescribed format. In case break-up of ex-works & taxes (GST) etc are not given, the tender bid may be rejected**.**
2. The above quantities are provisional & estimated for comparison of bid. The quantities may vary during actual execution of the work as per profile approved.
3. The rates for all the materials will be FIRM.
4. The rate should be quoted considering the taxes and duties as per tender clause 3.17.
5. Payment of other taxes/duties/levies/charges which are not described above: The bidder should be aware of the various taxes, duties, levies imposed by the Central Government, State Government / local bodies applicable in the present contract as on the date of TC bid opening. Further, in the price bid, it should be specifically stated regarding each tax / duty whether it is inclusive or exclusive. However, if there is no specific mention of any duties/levies as exclusive in the price bid, it will be presumed to be inclusive if it is applicable as on the date of TC bid opening and will not be paid extra.
6. The cess under "Building and other Construction Workers Act, 1996 @ 1% of the cost of supply of materials shall be borne by the contractor which shall be deducted from each bill. **Any variation in this respect within scheduled completion period shall be to the account of CSPTCL.**
7. **Any other new tax:** - I*f any new tax/ duty/ levy is imposed either by central Government or by Stat Govt. / local authorities after the date of opening of T.C. Bid, the same shall be payable by CSPTCL extra within stipulated completion period on production of documentary evidence. However, tax due to increase of Turnover or withdrawal of tax exemption earlier available to the vendor etc. will not be reimbursed*.

Signature : Name : Date : Designation :

PRICE BID SCHEDULE – A-2

CONSTRUCTION CHARGES

PRICE BID SCHEDULE for Supply of Materials for Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)

(Amount in Rupees)

S.N.	PARTICULARS	Unit	Quantity	Unit rate	GST @ 18% on unit rate	Total Unit Rate = 5+6	Total Amount = Sl. No.4 x Sl.No.7
1	2	3	4	5	6	7	8
1.	Check survey	KM	1				
2.	Soil investigation	Loc.	1				
3.	Excavation in :-						
A	Dry Soil (Normal +BC+ Sandy)	Cu.M.	10				
B	Wet Soil (Wet+PS+FS)	Cu.M.	2				
C	Soft Rock (DFR+SFR)	Cu.M.	48				
D	Hard Rock	Cu.M.	1				
4	Setting of foundation plate and associated work	No.	1				
5	cost of concreting M10	Cu.M.	5				
6	cost of concreting M15	Cu.M.	3				

S.N.	PARTICULARS	Unit	Quantity	Unit rate	GST @ 18% on unit rate	Total Unit Rate = 5+6	Total Amount = Sl. No.4 x Sl.No.7
7	Special type foundation for Monopole structure Caisson / Raft on multiple piles / on Raft with M25 grade concrete.	No.	01				
8	Erection of steel monopole (60-90^0 deviation) dead end type- Erection of monopole with necessary Hardware above ground level including tightening, punching of nuts and bolts	No.	1				
9	Stringing of 6 no. Panther conductor with all accessories during shut down period (with crossing of fly over bridge)	job	**1**				
10	Earthing of monopole	Loc.	**1**				
11	Final checking and fixing of ACD, Danger Board & number plate and Copper Earth bond.	Loc.	**1**				
Total:-							

(Rupees _____ _____ _____ _____ _____ _____ _____ only.

NOTE:-

i) Please be noted, it is obligatory to quote rates in above prescribed format. In case break-up of ex-works & taxes (GST) etc are not given, the tender bid may be rejected **.**

ii) The cess under "Building and other Construction Workers Act, 1996@ 1% of the cost of construction work shall be borne by the contractor which shall be deducted from each bill. **Any variation in this respect within contractual completion period shall be to the account of CSPTCL.**

iii) The above quantities are provisional & estimated for comparison of bid. The quantities may vary during actual execution of the work as per approved profile.

iv)The rate will be FIRM during entire contractual period and no any other charges/duties other than mentioned above will be payable by CSPTCL.

v) Payment of other taxes/duties/levies/charges which are not described above. The bidder should be aware of the various taxes, duties, levies imposed by the Central Government, State Government / local bodies applicable in the present contract as on the date of TC bid opening. If there is no specific mention of any duties/levies as exclusive in the price bid, it will be presumed to be inclusive if it is applicable as on the date of TC bid opening and will not be paid extra.

vi**) Any other new tax:** - I*f any new tax/ duty/ levy is imposed either by central Government or by Stat Govt. / local authorities after the date of opening of T.C. Bid, the same shall be payable by CSPTCL extra within stipulated completion period on production of documentary evidence. However, tax due to increase of Turnover or withdrawal of tax exemption earlier available to the vendor etc. will not be reimbursed*.

Signature : Name : Date : Designation :

SHEDULE – A-3

PRICE SCHEDULE FOR DISMANTLLING WORK

PRICE BID SCHEDULE for Supply of Materials for Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)

(Amount in Rupees)

S. NO.	PARTICULARS	Unit	Qty.	Unit rate (Ex-works price)	GST @ 18% on Sl. No.5	**Total Unit Rate (FORD) = 5+6**	**Total Amount =Sl. No.4 x Sl.No.7**
1	2	3	4	5	6	7	8
1	Dismantling of existing 132 KV Tower at existing location (DN60+0)	MT	7				
2	De-stringing of 4 no. Panther conductor during shut down	job	1				
3	Transportation of dismantled tower parts, conductors, earth wire and other materials to area store Bilaspur (Approx. 1.5 km from Location to Area Store, CSPTCL, Bilaspur	MT	10				
4	Loading and un-loading of dismantled materials	MT	10				
	Total						

(Rupees _____ _____ _____ _____ _____ _____ _____ only.

Signature : Name : Date : Designation :

SCHEDULE – A-4

PRICE BID SUMMARY

Modification of 132 KV Railway Traction line Bilaspur (From existing Loc. no. 02 to Gantry) on Steel D/C dead end type Monopole (60-90º deviation, bottom cross arm height 23M) due to construction of proposed Fly Over Bridge at Tifra (Bilaspur)

S.No.	PARTICULARS	Schedules	Total Amount
1.	Cost of supply of materials	Schedule A-1	
2.	Construction charges	Schedule-A-2	
3.	Cost of dismantling work	Schedule-A-3	
	TOTAL AMOUNT		

(IN WORDS RUPEES----------)

Signature : **Name :** **Date :** **Designation :**