

**☎: 0755 - 2588296**  
**FAX : 0755 - 2588296**

**OFFICE OF THE SUPERINTENDING ENGINEER (T&C)**  
**MP POWER TRANSMISSION CO. LTD. BHOPAL**



**TENDER SPECIFICATION NO. 73250/TS-02/2018**

**For Dismantling Erection & commissioning of 220 & 132 KV Isolator and its  
associated works at 220 KV S/s Sarni**

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**LAST DATE OF SALE (UP TO) : 07.05.2018 (ON ALL WORKING DAYS)**

**LAST DATE OF SUBMISSION : 08.05.2018 UPTO 15:00 HRS**

**DUE DATE OF OPENING : 08.05.2018 AT 16:00 HRS**

**SUPERINTENDING ENGINEER (T&C)**  
**MP POWER TRANSMISSION CO. LTD. BHOPAL**

**Price: 560 + 150/- (Postal charges).**

**OFFICE OF THE SUPERINTENDING ENGINEER  
(TESTING & COMMUNICATION)  
M.P. POWER TRANSMISSION CO. LTD. BHOPAL**

**TENDER SPECIFICATION NO. 73250/TS-02/2018**

**Dismantling, erection & commissioning of 220 & 132 KV Isolator and its associated  
works at 220 KV S/s Sarni**

**I N D E X**

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**M.P.POWER TRANSMISSION COMPANY LIMITED:  
T&C CIRCLE GOVINDPURA BHOPAL 462-023  
TENDER NOTICE**

**PHONE:0755-2588296**

**FAX:- 0755-2588296**

Sealed tenders are invited against **TENDER SPECIFICATION NO. 73250/TS-02/2018** For Dismantling, erection & commissioning of 220 & 132 KV Isolator and its associated works at 220 KV S/s Sarni

**COST OF TENDER DOCUMENTS:** Rs.560 +Postal Charges **150/-** for one set of tender.

**QUALIFYING REQUIREMENTS:**

The bidder should have adequate tools & plants, financial & technical resources and infrastructure backed with qualified agencies to execute the work within specified time frame. **The bidder should have "A" class contractor's certificate issued by Govt. of M.P., E.P.F. No., GST Registration Number and adequate experience of construction/erection works of EHV CLASS TRANSFORMER and associated works at EHV Sub-Stations in MPPTCL/MPSEB/MPGENCO which should include of the following:**

**i. Erection of 220 KV Transformer bay and feeder bay in EHV S/s.**

Such bidders who are bidding for the first time i.e. not fulfilling the qualifying requirement mentioned above (having no past experience), may also be considered subject to condition that they will engage a supervisor, who is a retired officers of MPSEB/MPPTCL/MPGENCO of the rank of JE/SUPERVISOR/AE & above and who has been associated with similar construction activities at EHV Sub-stations, till completion of work. The details of work carried out by him along with a copy of agreement with the contractor may be enclosed along with tender.

**PURCHASE OF TENDER DOCUMENTS:** The tender documents can be obtained from the office of the undersigned on payment by sending DEMAND DRAFT only drawn in favour of **R.A.O, MPPTCL, BHOPAL**, payable at Bhopal. The tender documents shall be issued on any working day during office hours up to **07.05.18** (last date of sale). It is obligatory for the bidders to purchase tender specification otherwise offer(s) received from them will not be opened / accepted. The Tender enquiry & Tender Document is available on the website of MPPTCL having web address. The Tender Document can be downloaded from the website.

If the tender form is downloaded from the website, payment of **Rs 560/-** as the cost of the document must be made in the office of Superintending Engineer(T&C)Circle MPPTCL Bhopal in the form of demand draft/ Banker's cheque in favour of RAO MPPTCL Bhopal payable at Bhopal before submitting the Tender & receipt should be kept in the envelope containing earnest money otherwise it will be liable to be rejected.

**TENDER RECEIPT AND OPENING:** The offers against above tender should reach this office not later than **15:00 HRS** on **08.05.18** which shall be opened on the same day at **16:00 HRS**.

**SAVE ELECTRICITY**

**SUPERINTENDING ENGINEER(T&C)  
MPPTCL : BHOPAL**

# TENDER FORM

TENDER SPECIFICATION NO. 73250/TS-02/2018

For Dismantling Erection & commissioning of 220 & 132 KV Isolator and its associated works at 220 KV S/s Sarni

Tender document Sl. No. -----

Issued to -----

Cost of Tender document ` -----

Received vide DD No. -----

Drawn on Bank -----

Signature & Seal of  
issuing officer.

**MADHYA PRADESH POWER TRANSMISSION CO. LTD.  
BHOPAL- M.P. (INDIA)**

The undersigned hereby tender and offer (subject to Company's conditions of tendering) the **M.P. POWER TRANSMISSION COMPANY LIMITED (hereinafter referred to as 'Company')** to test and supply the plant, machinery and materials, deliver and execute and do the several works and things which are described or referred to in the enclosures and schedules to the specification **No.73250/TS-02/2018** 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 be inferred from the said tender documents for the sums 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 specification of equipments/ material and (iii) All other conditions- wherever described in the tender document 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 the right to take the same to be advantageous for the Company. Company's decision in this regard will be final. The tenderer will have no right to furnish any technical or commercial clarifications after opening of the bid, which may in any way alter the offered prices.

Signed this -----day of -----2018.

**Bidders Signature  
with Seal of the Company:  
Bidders Address:**

(Note: This form must be returned at the time of submitting tender form duly signed on each page of tender documents).

## **TENDER CONDITIONS & INSTRUCTIONS TO TENDERER**

### **SECTION-I**

<b>Clause No.</b>	<b>TITLE</b>
1.03	Earnest Money
1.04	Tender Procedure
1.05	Qualifying Requirements
1.20	Due date for receipt and Opening of tender.

## SECTION-I

### "TENDER CONDITIONS AND INSTRUCTIONS TO TENDERERS"

**1.01** Tender complete with all prescribed particulars, schedules and tender forms duly filled-in, enclosed in sealed cover and addressed to the SUPERINTENDING Engineer (T&C), M.P. Power Transmission Company Ltd, Transco complex, Bijli Nagar, Govindpura, Bhopal-462023 shall be delivered in this office on or before the due date and within specified timings as per the tender notice.

**1.02 The tender should be submitted in four envelopes as under :-**

- Envelope-1 :** Earnest Money (Part-I)  
EMD alongwith **Schedule-1 & Schedule-7** shall be kept in this envelope
- Envelope-2 :** Qualifying requirement (Part-II)  
Details relating to qualifying requirement along with **Schedule-2(A) & Schedule- 2(B)** shall be kept in this envelope.
- Envelope-3 :** Technical & Commercial conditions (Part-III)  
**Schedule-3, 4 & 6** shall be kept in this envelope.
- Envelope-4 :** Price-bid (Part-IV)  
**Schedule-5** shall be kept in this envelope.

These envelopes shall further be placed in a separate cover. The tender cover and each envelope shall be prominently super scribed as "Tender Specification **No.73250/TS-02/2018 For Dismantling, erection & commissioning of 220 & 132 KV Isolator at 220 KV S/s Sarni**

### **1.03 EARNEST MONEY**

**1.03.1 The Bidder shall deposit the Earnest Money of Rs 10000/-(Ten Thousand only)**

**1.03.2** The required earnest money in the proper form should be deposited by the bidders in a separate cover (envelope-1) duly super scribed "**Earnest money against Tender specification No.73250/TS-02/2018 due on 08.05.18**". The details of earnest money shall be indicated in **Schedule-1** and be kept in the same **Envelope-1 (Part-I)** of earnest money.

**1.03.3** The Bidders are permitted to quote for any number of works from the list and required to pay earnest money proportionate to total quoted value of the works on the basis of slabs specified above.

**(b)** By Bank Draft/Banker's cheque payable at Bhopal which shall be drawn in favour of **Regional Accounts Officer, MPPTCL, Bhopal.**

No offer will be accepted without Earnest Money Deposit. If on opening of enquiry, it is revealed that EMD amount is inadequate or any discrepancy is noticed, the enquiry shall be rejected and returned to the bidder.

**1.03.4** It may please be noted that in no case whatsoever the condition of submitting the earnest money will be waived or relaxed.

**1.03.5** Price bid covers will not be opened if on opening of the earnest money cover, it is revealed that the same is not furnished in proper form and in such cases, the enquiry covers will be returned un-opened.

**1.03.6** If, Earnest money amount is not submitted or the same is inadequate than the required for corresponding value of the offer, the offer shall be summarily rejected and shall not be read out.

**1.03.7** If the bidder obtains the earnest money, bank draft etc. prior to the due date but submits the same after the specified time, his offer will not be eligible for consideration even if the earnest money, bank draft etc. has been delayed in post. The furnishing of bank draft No. & date will not be considered adequate. It will therefore be observed that both earnest money as well as offers should be submitted before the specified time, otherwise offer will not be considered.

**1.03.8** The offer shall be valid for a period of **five months** from the date of opening. The Company reserves the rights to forfeit the earnest money in case offer is withdrawn after the opening date or in the event of refusal to accept the letter of intent placed by the Company within the validity period. The earnest money deposit will be refunded to the unsuccessful bidders.

#### **1.04 TENDER PROCEDURE :**

The tender shall be submitted in following four separate envelopes. These four envelopes may further be placed in a separate cover. The offers shall be opened in following manner :-

- Part-I Earnest Money  
(Envelope-I)
- Part-II Qualifying Requirement  
(Envelope-II)
- Part-III Technical & Commercial Conditions.  
(Envelope-III)

It should contain tender form and shall comprise all sections except schedule-5 (schedule of quoted rate) and will invariably include information as sought in the specification.

Part-IV Price Bid - This part shall comprise the schedule of quoted price '**Schedule-5**' and any other relevant information which the tenderer may deem fit and may affect the financial commitment.

The Part-I, II and III of the tender shall be opened on due date (indicated in the tender notice) in the chronological order. If Part-I "Earnest Money" is found satisfactory, Part-II "Qualifying Requirement" of the tender shall be opened. If part-II "Qualifying Requirement" is found satisfactory, Part-III "Technical & Commercial Conditions" of the tender shall be opened. However, in case of any dispute regarding Part-II, if instantaneous decision can not be taken, Part-III of the tender shall be provisionally opened on the same day. Consequent upon the final decision in this regard, the Part-IV 'Price bid' of such of the tenderers as found technically acceptable and who accept all our commercial terms & conditions as per the tender, shall be opened on a date & time which shall be intimated to all the participants separately. Price-bid of the tenderers who do not qualify terms & conditions in regard to experience shall be returned un-opened. The opening date of the tender could, however, be extended at the discretion of the Company and will be duly notified to the concerned. The discretion in this respect shall entirely be with the Company and binding on all the tenderers.

#### **1.05 QUALIFYING REQUIREMENT :**

**1.05.01** The tenders are invited from reputed parties only having adequate tools & plants, financial and technical resources and infrastructure backed with qualified agencies to execute the erection work at EHV Sub-stations properly and expeditiously within specified time frame. The evidence shall consist of written details of capacities and present commitments (excluding the work under this specification) of the Bidder and shall be mentioned in **Schedule-2(A)** (Details of past erection work).

**1.05.02** The bidder shall furnish full details of the head-office, field service organization for field erection and management services required to successfully execute the work as envisaged in

this tender specification and shall be mentioned in **Schedule-2(B)** (Details of Head Quarter & Field Organisation).

**1.05.03** The bidder should have following:

- i. **Valid `A' class electrical contractor's license from Govt. of M.P. in his own name/ in the name of Firm.**
- ii. **EPF code number in his own name/ in the name of Firm.**
- iii. **G.S.T. number in his own name/ in the name of Firm.**
- iv. **The bidder should have adequate experience of erection work in EHV Substations of MPPTCL/MPSEB/MPGENCO which should be as follows.**

<b>a. <u>Erection of 220KV Transformer and feeder bay in EHV S/s.</u></b>
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Such bidders who are bidding for the first time i.e. not fulfilling the qualifying requirement mentioned above (having no past experience), may also be considered subject to condition that they will engage a supervisor, who is a retired officers of MPSEB/MPPTCL/MPGENCO of the rank of JE/SUPERVISOR/AE & above and who has been associated with similar construction activities at EHV Sub-stations, till completion of work. The details of work carried out by him along with a copy of agreement with the contractor may be enclosed along with tender.

**1.05.04** The experience of the bidder, who has worked as a sub-contractor to the main contractor will also be considered provided the experience certificate is issued by the ordering authority/ supervising authority of the level of Executive Engineer (under whose jurisdiction the work had been carried out) of the power utility of the main contractor. The certificate from the main contractor or copy of the order placed on the main contractor will not be considered. This may please be specifically noted. **It is reiterated that experience certificate in respect of sub-contractor shall be valid only if the same is issued by the order placing authority/ supervising authority of power utility for whom the work had been executed.**

**1.05.05** The bidder shall submit the required details in Part-II of the tender in respect of the above requirement with the documentary evidence. The bidder shall indicate clearly order-wise list of works completed with quantum of each type of work done so far. If against some order, work is yet to be completed the present position of work shall be indicated. **This may please be noted that bidders who do not submit the photo copies of orders executed by them in past (in support of past experience) may not be considered.**

**1.06** The tender shall be valid for a period of **five months** from the date of opening. The Company reserves the right to forfeit the earnest money in case the tender is withdrawn after the opening date or in the event of refusal to accept the letter of intent placed by the Company within the validity period. The earnest money deposit will be refunded to the unsuccessful bidders.

**1.07** While submitting the tender, it shall be ensured that the schedules are strictly in the prescribed form. The bidders may use the original forms of schedules supplied with the tender specification or may use separate sheets.

In any case, the tender form bearing the seal of this office should be filled in and submitted in original. The tender should be complete with all schedules attached to the specification including the questionnaire etc. **Each question of questionnaire should be**



**answered in full. These conditions are very essential otherwise the tender is liable to be rejected.**

**1.08** The tenderer is requested to go through the specification, schedules, notes and all enclosures carefully. Doubts, if any, should be got clarified well in time by writing to the Superintending Engineer (T&C), MPPTCL, Govindpura, Bhopal. Responsibility of submitting the tender in time shall rest with the bidders.

**1.09** The Company reserves the right to the following:

(i) To reject any or all tenders or to accept any tender considered advantageous to the Company whether it is the lowest tender or not and

(ii) To split the quantities against the tender on more than one form for the same items/works.

No reasons will be assigned by the Company for above and it will be binding on the bidders.

**1.10** Tender will not be considered unless it is accompanied by the income tax payment certificate in the form prescribed for the purpose by the Income Tax Deptt.

**1.11** In case the date of opening / selling of the tender is declared a holiday, the tender will be received and opened on the following working day at the specified timings.

**1.12** When tenders are delivered by special messenger, they should be deposited in the tender box kept in the Office of the SUPERINTENDING Engineer (T&C), MPPTCL, Bhopal on working days between **14.00 PM to 17.00 PM** except due date of opening. Nobody is authorized to receive or grant receipt for tender delivered by hand.

**1.13** Telegraphic offers will not be considered. Tender received after specified hours and date will not be considered and will be returned unopened.

**1.14** The Company will not be responsible for the postal delay in delivery of the tender.

**1.15** The bidders or his authorized representative (having documentary evidence for such representation) may be present at the time of opening tender if they so desire.

**1.16** The price paid for buying the tender specification shall not be refunded under any circumstances whatsoever.

**1.17** The tender of those tenderers who have not purchased tender specification shall not be considered.

**1.18** Satisfactory evidence (in the form of power of attorney) of authority of the person signing on behalf of the tenderer shall be furnished with the tender.

**1.19** Correction/ changes made in the offer (bid) by the bidder shall bear the initial of the person signing the tender.

## **1.20 MODIFICATION & WITHDRAWAL OF BIDS:**

**1.20.01** Under no circumstances, the bidders are allowed to modify their prices once their price offer is submitted. Further, no discount letter would be accepted after submission of price offer.

**1.20.02** No bid may be withdrawn in the interval between the dead line for submission of bids and the expiration of period of bid validity specified. Withdrawal of bid during this interval shall result in the forfeiture of bidder's Earnest Money.

**1.21 DUE DATE FOR RECEIPT AND OPENING OF TENDER :**

(i) Tender and earnest money shall reach the O/o SE (T&C), MPPTCL, Bhopal on or before **15:00 HRS** on specified date of tender opening.

It is the responsibility of the tenderer to ensure that the tender and the earnest money are delivered in the above office before the specified time.

(ii) The tenders will be opened in the O/o SE (T&C), MPPTCL, Govindpura, Bhopal at **16:00 HRS** on specified date.

**1.22** The quantities indicated in **Schedule-5 (Prices & quantities)** are tentative and may vary during actual execution of works. Further, a few activities (out of those listed therein) may not require to be executed due to modification in the drawings / lay out of Sub-station and may be deleted while placing detailed order. While submitting their offer, the tenderer shall take note of the same.

**1.23** As per the requirement, the Company may reduce or increase the quantum of work as the case may be. Additional works, if required, shall have to be executed on accepted rates, terms & conditions at the same location.

**1.24** The offer made for part of individual work will not be accepted and rejected summarily.

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## **SECTION-II GENERAL CONDITIONS OF CONTRACT**

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<b>Clause No.</b>	<b>Name of the Clause</b>
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2.02	CONTRACTOR TO INFORM HIMSELF FULLY
2.03	CONTRACT, AGREEMENT AND SECURITY DEPOSIT
2.04.	SUB-LETTING OF CONTRACT
2.05	PATENT RIGHTS
2.06	FENCING & LIGHTING
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2.27	REGULATIONS OF LOCAL AUTHORITIES
2.28	ARBITRATION
2.29	CONTRACT
2.30	HEADINGS

## GENERAL CONDITIONS OF CONTRACT

**2.01 DEFINITION OF TERMS:**

In construing these general conditions and the annexed specification, the following words shall have the meanings herein assigned to them unless there is something in the subject or context inconsistent with such construction:-

(i) The 'Company' shall mean the Madhya Pradesh Power Transmission Company Ltd., Bhopal and include his successor in office and permitted assigns/ authorized representative.

(ii) The 'Contractor' shall mean the tenderer whose tender shall be accepted by the Company and shall include the tenderer, heirs, executors, administrators, representative and assigns.

(iii) The 'Sub-contractor' shall mean the person names in the contract for any part of the work or any person to whom any part of the contract has been sublet with the consent in writing with the consent in writing heirs, executors, administrators, representative and assigns of such person.

(iv) The 'Engineer' shall mean the SUPERINTENDING Engineer, Madhya Pradesh Power Transmission Company Ltd. or such other officer as may be duly authorized and appointed in writing by the Company to act as Engineer for the purpose of the contract. In cases where no such Engineer has been so appointed, the work "Engineer" shall mean the Company or his duly authorized representatives.

(v) Plant, work or works shall mean and include plant and materials to be provided and work to be done by the contractor under the contract.

(vi) The 'Contract' shall mean and include the general conditions, specification, schedules, drawings, form of tender, covering letters schedule of prices or the final general condition, any special conditions applying the particulars contract specification, and drawings and the agreement to be entered into under clause 3 of these general conditions.

(vii) The 'Specification' shall mean the specification annexed to these general conditions and the schedules there to (if any).

(viii) The 'Site' shall mean the site of the proposed plant/line/sub-station where work is to be executed under the contract.

(ix) 'Test of Completion' shall mean such tests as prescribed by the specification to be made by the contractor before the work is taken over by the Company.

(x) 'Commercial Use' shall mean that use of the work which the contract contemplates or of which it is to be commercially capable.

(xi) 'Month' shall mean calendar month.

(xii) 'Writing' shall include any manuscript, typewritten or printed statement, under or over signature or seal as the case may be.

(xiii) 'EHV Sub-station' shall mean Extra High voltage sub-station.

(xiv) 'Approved' or 'To approval' shall mean as approved by or approval of the Engineer or Company.

(xv) 'Contract price' shall mean, if there is a formal agreement, the prices referred to in the agreement or if there is no formal agreement, the price agreed to be the value of the 'contract'.

(xvi) 'Date of Contract' shall mean the calendar date on which the Company and Contractor have signed the 'Contract Agreement'. The period of completion of the project shall be counted from the date on which project site is handed over to the contractor.

(xvii) 'Contract period' shall mean the period during which the 'Contract' shall be executed as agreed between the contractor and Company in the 'Contract Agreement'. The contract shall be counted from the date on which the project site is given to contractor by 'Engineer' for commencement of work.

(xviii) 'Performance tests' shall mean such tests as are prescribed in the 'Specification' to be carried out by the contractor before the plant is taken over by the Company.

(xix) 'Minor Modification' as applied to equipment erection contracts only, shall mean the modification work required to be done on the 'Equipment' and 'Works', which need a maximum of 48 man hours per item of work.

(xx) 'Major Modification' as applied to equipment erection contract only, shall mean the modification work required to be done only 'Equipment' and 'Work' needing more than 48 man hours per item of work, where such work is required to be done for no fault of the 'CONTRACTOR'.

(xxi) 'Drawings' shall mean all :-

(a) Drawings furnished by the COMPANY as a basis for proposals.

(b) Supplementary drawings furnished by the COMPANY to clarify and to define in greater details the intent of the 'Contract'.

(c) Drawings submitted by the CONTRACTOR with his proposal provided such drawings are acceptable to the COMPANY.

(d) Drawings furnished by the COMPANY to the CONTRACTOR during the progress of the work, and engineering data and drawings submitted by the CONTRACTOR during the progress of the work provided such drawings are acceptable to the COMPANY.

(xxii) Word 'importing persons' shall include firms, companies, corporations, and other bodies whether incorporated or not.

(xxiii) Words importing the singular only shall also include the plural and vice versa when the context requires.

## 2.02 CONTRACTOR TO INFORM HIMSELF FULLY :

The contractor shall be deemed to have carefully examined the general conditions of specification, schedules and drawings. If he has any doubt as regard 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, in order that such doubt may be removed.

## 2.03 CONTRACT AGREEMENT AND SECURITY DEPOSIT :

**2.03.01** A formal agreement shall be entered into between the contractor and the Company within 10 days from the date of receipt of order for the due performance and observance of the terms and conditions of the contract.

**2.03.02** On acceptance of offer, the successful tenderer will have to deposit the required amount of security deposit in the form of the pay order, demand draft or bank draft in favour of Regional Accounts Officer, MPPTCL, Bhopal. The amount of security deposit shall be as under:-

	Initial security deposit	Deduction from running bills	Total security deposit
i. For the work contract upto `25 lacs.	2%	8%	10%
ii. For work contract more	2%	3%	5%

than `25 lacs.

**2.03.03** The earnest money amount deposited in the form of DD / BC. shall be retained towards initial security deposit and tenderer will have to give balance amount of initial security deposit. Interest will not be allowed on deposit. The security deposit shall be returned to the successful tenderer only after expiry of the guarantee period, if any, faithful performance of terms and conditions of the order, satisfactory completion of contract and, if, there is no claim for recovery against the tenderer.

**2.04 SUB-LETTING OF CONTRACT :**

It is not expected that the work under the contract will be subletted. The contractor shall not, without the consent in writing of the Engineer or Company, which shall not be unreasonably withheld, assign or sub-let his contract, or any substantial part thereof, other than for minor details or for any part of the work of which the makers are named in the contract. Contractor shall submit the information about the sub-contractor to sub-contract, part of the work and extent of such work. Prior sanction of the Company shall be obtained in subletting of contract. Approval from the Company for sub-contracting/subletting part of the work shall not relieve contractor from any of his obligation or responsibility under this contract.

**2.05 PATENT RIGHTS :**

The Company has complete rights over the design and drawings of structures/sub-station and is their sole proprietor. The contractor shall not copy or use these for any purpose other than erection of the S/S for which the work contract is awarded to him by the Company.

**2.06 FENCING AND LIGHTING:**

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, footways, guards and fences as far as the same may be 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 innocent property and of the public.

**2.07 POWER TO VARY OR OMIT WORKS :**

No alterations, amendments, omissions, additions, suspensions or variations of the work (hereinafter referred to as "variations") under the contract as shown by the contract drawings on 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 variations 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 variations, shall be added to or deducted from the contract price as the case may require. The amount of such difference, if any shall be ascertained and determined in accordance with the rates specified in the schedules 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, they shall be settled by the Engineer and contractor jointly. But the Company shall not become liable for the payment of any charge in respect of any variations, unless the instruction 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 cases where goods or materials are already prepared or any designs, drawings or patterns made or work done that require to be altered.

#### **2.08 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 Company may give seven days notice in writing, to the contractor to make good the failure, neglect, or contravention complained of and 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 Company shall be at liberty to employ other workmen and forthwith perform such work as the contractor may have neglected to or if the Company shall think fit, it shall be lawful for him to take the work wholly, or in part, out of contractor's hands and re-contract at a reasonable price with any other persons, or provide any other materials, tools, tackle or labour for the purpose of completing the work or any part thereof and in that event the Company shall without being responsible to the contractor for fair wear and tear of the same, have the free use of all the materials, tools, tackle, 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 Company shall be entitled to retain and apply and 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.

In case work is not completed by the contractor within the completion period or extended period if any, or any failure to complete the work or neglect the work etc. noticed, Company may at its option can get the work done through some other agency at the cost and risk of the contractor or complete the balance work done departmentally and recover the expenditure so incurred from the contractor or terminate the order without any liability on Company side.

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 Company and proceeds applied towards the payment of such difference and the cost of any 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 cost 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.

#### **2.09 DEATH BANKRUPTCY, etc.**

If the contractor shall die or commit any act of bankruptcy or being a corporation, commerce to be wound-up for reconstruction purposes or carry on its business under a receiver, the executors, successors, or representatives in law of the estate of the contractor any such receiver, liquidator or any person in whom the contract may become vested, shall forthwith give notice thereof in writing to the Company and shall for one month during which he shall take all responsible steps to prevent a stoppage of the works have to option of carrying out the contract subject to his or their providing such guarantee as may be required by the Company but not exceeding the value of the work for the time being remaining unexecuted. In the event of stoppage of the works, the period of the 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 Company by notice in writing to the contractor, and the same power and provisions reserved to the Company in the last proceedings clause on the taking of the work out of the contractor's hands shall immediately become operative.

## **2.10 INSPECTION :**

The Engineer and his duly authorized representatives, shall have at all reasonable times access to the contractors premises or works, and shall have the power at all reasonable times, to inspect and examine the materials and workmanship of the work during erection.

The Engineer shall on giving seven days 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 part of the work, workmanship connected with such work, which in his opinion are not in accordance with the contract or are in his opinion defective for any reason whatever.

## **2.11 WORK ON SITE :**

In the execution of the work, no persons other than the contractor, or his duly appointed representatives, approved sub-contractors and workmen shall be allowed to do works on the site except by the special permission, in writing of the Engineer or his representative. The access to the works at all times shall be accorded to the Engineer and his representative and other authorized officials or representatives of the Company.

Nevertheless, the contractor shall permit the execution of work by other contractors or tradesmen whose names shall have been previously communicated in writing to the contractor by the Engineer and afford them every facility for the executions 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.

## **2.12 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.

## **2.13 ENGINEER'S DECISION :**

In respect of all matters which are let to the decision of the Engineer, including the granting of or with-holding of certificates, the Engineer shall, if required so to do by the contractor, give in writing decision thereon and his reasons for such decision. All decisions of the Engineer shall be subject to the right of arbitration reserved by these general conditions.

## **2.14 CONTRACTOR'S REPRESENTATIVE AND WORKMEN :**

If supervision of erection or complete erection be included 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 sub-station and the carrying out the work. The said representative, or if more than one shall be employed then one of such representatives, shall be present on the site during working hours, and any written order or instructions which the Engineer or his duly authorized representative whose name shall have been previously communicated in writing to the contractor, may give to the said representative of 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 upon receipt from the Engineer of notice in writing required him so to do and shall provide in his place a competent representative at the contractor's expense.



## **2.15 LIABILITY FOR ACCIDENTS AND DAMAGE:**

In the case of complete erection contract, the contractor shall be entirely responsible for all loss, damage or depreciation of sub-station equipment/any other material etc. until the sub-station is taken over in accordance with the relevant clause of the specification.

The contractor shall, during the progress of the work, properly protect the substation from injury which also include theft and shall take every reasonable, proper, timely, and useful precaution against accident or injury to the same from any cause and shall be and remain answerable and liable for all accidents or injury to the same from any cause and shall be and remain answerable and liable for all accidents or injuries thereto which until the same be or be deemed to be taken over under clause of this specification may arise or be occasioned by the acts or omission of the contractor or his workmen or sub-contractor, and all losses and damages to the substation 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.

In the case of loss or damage to any portion of the substation arising from or occasioned by other causes, the same shall, if required by the Company, be made good by the contractor in like manner but at the cost of the Company at a price to be agreed between the contractor and the Company or in default of agreement, settled by arbitration as per relevant clause of this specification, thereof and the Company shall pay to the contractor the contract value of the portion of the sub-station so lost or damaged or any balance of such contract value remaining unpaid as the case may be.

Until the work shall be or be deemed to be taken over as aforesaid, the contractor shall also be liable to indemnify the Company in respect of all damage or injury to any person or to any property of the Company or of others occasioned by the negligence of the contractor or workmen or sub-contractors or by defective work but no otherwise.

Provided that the contractor shall not be liable under the contract for any loss or profit or loss of contract or any claims made against the Company not already provided for in the contract, nor for any damage or injury caused by or arising from the acts of the Company or 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 Company against all actions, suits, claims, demands, cost or expenses arising in connection with injuries suffered prior to the date when the plan shall have been taken over under clause of this specification herein by persons employed by the contractor or his sub-contractor on the works whether under the General Law or under the Workmen's Compensation Act, 1923 or any other statute in force at the date of the contract dealing with the question of the liability of employers 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 employees by the contractor or which is so serious as to be likely to result in the death of any such workmen, the contractor shall, within 24 hours of the happening of such accident intimate in writing to the concerned Engineer of the Electricity Company the fact of such accident. The contractor shall indemnify the Company against all loss or damage sustained by the Company resulting directly or indirectly from his failure to give intimation in the manner aforesaid including the penalties or fines if any payable by the Company as a consequence of Company's failure to give notice under the Workmen's Compensation Act or otherwise to confirm to the provisions of the said Act in regard to such accident.

In the event of any claim being made or action brought against the Company 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 Company, at the sole expense of the contractor, conduct all negotiations for the sole settlement of the same or of any litigation that may arise there from. In such case the Company shall, at the expense of the contractor, afford all available assistance for any such purpose.

## **2.16 REPLACEMENT OF DEFECTIVE WORK:**

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, the contractor on receiving details of such defects or deficiency shall at his own expense 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 and in case the contractor shall fail to do the

Company may on giving the contractor seven days notice in writing of his intention so to do, proceed to remove the work provided that nothing in this clause shall be deemed to deprive the Company of or effect any right under the contract which he may otherwise have in respect of such defects or deficiencies.

## **2.17 DEDUCTIONS FROM CONTRACT PRICE :**

All costs, damages or expenses which the Company may have paid for which under the contract the contractor is liable may be deducted by the Company from any money due or becoming due by him to the contractor under the contract or may be recovered by action at law or otherwise from the contractor as an arrear of land revenue.

## **2.18 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 the certificate as to such work is in the reasonable opinion of the Engineer in accordance with the contract, shall be issued within fourteen days if possible or within such time of the application for the same as is reasonably necessary for communication with the site.

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.

## **2.19 CERTIFICATE NOT TO AFFECT RIGHTS OF THE COMPANY OR CONTRACTOR**

No certificate of the Engineer on account, nor any sum paid on account by the Company, nor any extension of time for the execution of the works by the contractor under prejudice the rights of the Company against the contractor or relieve the contractor of his obligations for the due performance of the contract, or be interpreted as approval of the work done and no certificate shall or liability in the Company 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 Company, nor shall any such certificate nor the acceptance by him of any such paid on account of otherwise affect or prejudice the rights of the contractor against the Company.

## **2.20 RESPONSIBILITY OF CONTRACTOR :**

The contractor shall be responsible for carrying out the works covered under the scope of the contract according to the specifications/order. For example all the work of erection, installations should be done accordingly as per drawing. Deviations, if any, from the approved/specified conditions shall be brought to the notice of the SE(T&C), MPPTCL, Bhopal 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 rate indicated in the order for carrying out such work without extension of time.

## **2.21 RESPONSIBILITY FOR PROPER HANDLING OF EQUIPMENTS :**

The contractor shall pay compensation or bear the expenses towards replacement/repair of the equipment/materials arising out of improper handling of the equipment/material by the contractor.

## **2.22 EXTENSION OF TIME FOR COMPLETION :**

The time for complete erection starts from receipt of the order by the contractor, together with all necessary information and drawings to enable the work to be put in hand. If the work delayed at any time during the term or extended terms of this contract by strikes, lockouts, fire, accident or any cause whatsoever beyond the control of the contractors a reasonable extension of time shall be granted as may be mutually agreed upon. The request for such extensions should be made in writing to the Company immediately after the occurrence along with the cause of delay supported by documentary proofs. In absence of such details, the case for extension in completion period shall not be considered.

## **2.23 DAMAGES FOR DELAY IN COMPLETION :**

If the contractor fails to complete the works or any part of works in the contract within the time therein specified or any extension of such time granted hereunder, then and in any such event the Company in its discretion may deduct compensation at the rate of half percent (1/2%) per week or part thereof of contract value of the work but shall not in any case exceed 10 (Ten) percent of the value of the unexecuted portion of work.

## **2.24 TESTS ON COMPLETION :**

Wherever possible, all tests shall be carried out in presence of the contractor's representative within one month of the completion of erection. Should the results of these tests not come within the margin specified, the tests shall, if required be repeated within one month from the date the work is ready for retests and the contractor shall reply to the Company all reasonable expenses to which he may be put by such tests.

## **2.25 REJECTION OF DEFECTIVE PLANT :**

If the complete work or any portion thereof before it is taken over under 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 work good, or later the same to make it comply with the requirements of the contract. Should he fails to do so within a reasonable time, the Company may reject and replace at the cost of the contractor, the whole or any portion of the work as the case may be, which is defective or fails to fulfill the requirements of the contract, such replacement shall be carried out by the Company within a reasonable time, and at a reasonable price and where reasonable 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 Company 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 price paid by the Company under the provisions above mentioned for such replacement and the contract price for the work so replaced and the replacement of any sum paid by the Company to the contractor in respect of such defective work should the Company not so replace the rejected plant within a reasonable time the contractor's full and extreme liability under this clause shall be satisfied by the repayment of all money paid by the Company to him in respect of such plant.

## **2.26 TAKING OVER:**

The completed work shall be accepted and taken over when it has been satisfactorily completed including due testing and commissioning 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.

## **2.27 REGULATIONS OF LOCAL AUTHORITIES:**

The Company shall through-out 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 permissions required in connection with the regulations and byelaws of the local or other authority which shall be applicable to the works.

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.

The contractor shall possess or obtain a valid working license from the concerned State Electricity Authority/Inspectors for carrying out the Electricity Installation work in the region before commencing the work.

**2.28 ARBITRATION:**

If at any time any question, dispute or difference whatsoever shall arise between the purchaser/ Company the engineer and the contractor upon or in relation to, or in connection with the contract, either party may forthwith give to the other notice in writing of the existence of such question, dispute or difference and the same shall be referred to the adjudication to the CMD, MPPTCL or to any other person nominated by him in his behalf and his decision in writing shall be final and binding on the contractor / Engineer and conclusive. This submission shall be deemed to be a submission to arbitration within the meaning of the Indian Arbitration Act, 1940 or any statutory modification thereof. Upon every or any such reference, the cost of an incidental to the reference and award respectively shall be in the discretion of the arbitrator who may determine the amount thereof, or direct the same to be taxed as between solicitor and client or as between party and shall direct by whom and in what manner the same shall be borne and paid.

Work under the contract shall be continued by the contractor during the arbitration proceedings unless otherwise directed in writing by the purchaser or the engineer or unless the matter is such that the work can not possibly be continued until the decision of the arbitrator is obtained and except as those which are otherwise expressly provided in the contract no payment due or payable by the purchaser shall be withheld on account of such arbitration proceeding unless it is the subject matter or one of the subject matter thereof.

In case of any dispute the law applicable shall be the law in force in India. The Courts of Bhopal shall have exclusive jurisdiction in all matters of disputes.

**2.29 CONTRACT :**

The contract shall in all respects be construed and operated as a contract as defined in the Indian Contract Act, 1972 and all payments there under shall be made in rupees unless otherwise specified.

**2.30 HEADINGS :**

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

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## **SCOPE OF WORK AND COMMERCIAL CONDITIONS OF CONTRACT**

### **SECTION-III**

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**SCOPE OF WORK AND COMMERCIAL CONDITIONS OF CONTRACT**

**3.01 SCOPE :**

**3.01.01** This specification covers following works

- a) Transportation of equipments and material from one place to other i.e. from site stores to site.(if required).
- b) Erection of structures viz. gantry, bus bars, equipments etc.
- c) Stringing of gantry, bus bars & shielding wires.
- d) Installation of outdoor electrical equipments in the yards & also of indoor equipments in the control room building.
- e) Inter equipments connections.
- f) Installation of cable trays in the cable trenches in outdoor switchyard.
- g) Laying of control cables on the cable trays in the outdoor switchyard and the control room building, laying of cables in buried cable trenches.
- h) Construction of earth mat, earthing pits including work of grounding electrodes and risers.
- i) Erection of other equipments & materials required.

**3.01.02** The extent of installation/construction works covered under this contract include all items shown in the drawings mentioned in specification or its schedules, not withstanding the fact that such items may have been omitted from the specification or schedules. Such of the items not specifically indicated in the specifications or drawings but which are required to complete the work shall also be deemed to be within the scope of work of the contractor.

**3.01.03** Contractor shall carry-out and complete the work in every respect in accordance with the contract and to the satisfaction of the Company and the manufacturer representative where their services have been provided by the Company.

**3.01.04** The details of materials to be supplied by the Company are also covered in this specification.

**3.02 GENERAL CONDITIONS OF CONTRACT:**

All works covered under this specification will be carried out in accordance with "General conditions of contract" with such modifications as are applicable to the respective types of works covered in the specification.

**3.03 PRICES AND QUANTITIES:**

**3.03.01** The estimated scope of work under each item of work such as erection of structures, laying of control cables in cable trenches/racks/control room, erection of indoor & outdoor equipments, overhead stringing from gantry to gantry, earthing of structures and equipments etc. has been indicated in **Schedule-5**. The rates are to be quoted for different items.

**3.03.02** Contractor shall furnish unit rates as required in **Schedule-5** (enclosed). The unit quoted price by the contractor shall include salaries of skilled, semi-skilled and un-skilled laborers, Technical staff, and storekeeper, watch & ward, the cost of all the required tools and tackles and various consumable items etc. necessary to carry-out the work.

**3.03.03** Contract price shall also include all traveling expenses to and from the site, allowances, living expenses, wages, salaries, overtime, benefits and all compensations for his skilled and unskilled workmen, supervisors, engineers, clerical staff, watch and ward staff, storekeepers etc. Insurance carried by contractor for his workers, workmen's compensation, third party liability and any other insurance required by the specification, cost of all licenses and permits, loading, transport and unloading of all his material, tools and tackles, instruments and construction aids to and from the site, cost of providing office, tools room, quarters, canteen, workshops and all facilities at site as may be required, under the contract and satisfactorily executing the complete work under the contract.

**3.03.04** The quantities indicated in **Schedule-5** are tentative only and unit rate shall apply to actual qty. measured for complete work in accordance with the specification drawing. **The contractor is entitled for payment on the basis of actual work done.** In the event of reduction in scope of work than given in the order, no compensation etc. is payable by the Company.

#### **3.04 RATES :**

The quoted rates should be FIRM basis and valid for entire contractual completion period or extended period if any and no increase in these rates shall be allowed under any circumstances. The payment in respect of work done against each item of work will be released at the rates accepted in our order.

#### **3.05 IDLING CHARGES :**

No idle charges will be payable by Company for any reason whatsoever to the contractor for stoppage of work. This may please be noted.

#### **3.06 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.

#### **3.07 DEPARTURES FROM SPECIFICATION :**

**3.07.01** No deviation / departure from the tender specification in any respect is allowed. In **questionnaire (schedule-4)**, tenderer must confirm that all the terms & conditions of this tender specification are agreeable to them in toto. In case of any departure the price-bid will not be opened and will be returned unopened.

**3.07.02** Tenderer or his representative shall be deemed to have inspected and examined the site and surroundings before submitting his tender and shall obtain necessary information as to risks, contingencies and other circumstances which may influence/ effect his tender.

#### **3.08 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 revision thereof which may be issued during the currency of the contract and the requirement of any other Regulations and Acts in India which the Company may be subjected to.

#### **3.09 TAXES, DUTIES AND LEVIES:-**

The contract covers the erection work on above Sub-station. Any royalties, octroi, levy, duties or taxes as per statutory requirements on such contract shall be borne by contractor:

- i. The deduction of Income Tax as per statutory requirement of this contract shall be made from monthly bills.
- ii. The payment/deduction of various taxes duties shall be made as per prevailing rules and statutory requirement of this contract as given hereunder:-

- (a) **GST shall be payable extra at prevailing rates if the same has been raised in the bill [the Bill/ Invoice strictly in format enclosed as per Annexure-III] and if GST No. of your firm is indicated in the bill.** As per Circular issued by CFO, MPPTCL, Jabalpur vide No. CFO/Transco/Tax/GST-3/52 dt. 15/07/2018, the present rate of GST w.e.f. 01-07-2018 onwards is @18%
- (b) The deduction of income tax as per statutory requirement of this contract shall be made at the rate/as per prevailing rule from bills to be submitted by the firm.
- iii. Every employee shall have to be enrolled for the membership of employees provident fund in accordance of the provision of "employee provident fund" and misc. provision Act.1952 with all the amendments as may be enacted by the provident fund commissioner from time to time. The contractor shall be responsible for deduction towards EPF contribution from workers and remittance to EPF authorities together with an equal amount contribution by himself.

### **3.10 PAYMENT TERMS :**

Subject to any deduction which the Company may be authorized to make under the contract, the contractor shall on the certificate of the Engineer, be entitled to payments as follows :

- i) 90% payment will be payable for various items of work done on receipt of certificate given by the Company's Engineers.
- ii) 10% of contract value as retention money will be released within a month of completion of "defect liability period" or within a month after commissioning of the power transformer.

### **3.11 PAYMENT PROCEDURE :**

**3.11.01** Payment will be made against bills for Rs.50,000/- and above for works certified as completed by engineer as per terms laid-down in clause for terms of payment. "Each category of the work shall be completed for the 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 work as under :-

- i) Erection of structure complete with punching of bolts, providing name plate / feeder name etc. (Metric tonne-wise).
- ii) Complete overhead stringing of conductors including provision of accessories (meter wise).
- iii) Complete stringing of shield-wire including provision of accessories (meter-wise).
- iv) Erection of equipments with all associated works complete in all respect.
- v) Fixing of cable tracks, laying of cables complete in all respect.
- vi) Earthing of structures and equipments with laying of earth mat complete in all respect.

**The contractor will not be allowed to claim for part work completed in any of the above category.**

**3.11.02** The contractor shall be permitted to submit maximum four running bills in a month each of minimum of 50,000/- and above except for the final bill it will be preferred if one running bill is submitted for each month. Measurement shall be recorded by the Engineer in-charge in measurement register kept with the contractor and copy of the same will be recorded by him in his own M.B. The contractor shall prepare bills for payment on the basis of recorded measurement in his own register and shall submit the bill to the Executive Engineer in triplicate. This register will be issued to the contractor by the Executive Engineer under his own signature with no. & date for the work. The register shall also contain such instructions that may have to be passed on to the contractor by the Engineer in-charge of the work for its compliances. The payment of R.A. bills shall be made in 30 days on received of invoices complete in all respect by **concerned Operating Dn.** The R.A. bill (s) for an amount above 2.00 lacs duly passed by concerned Regional/ Sr. Accounts Officer shall be forwarded by the **concerned Operating Dn.** to this office. If amount of R.A. bill (s) is up to 2.00 lacs, the payment shall be made through concerned Regional/ Sr. Accounts Officer.

In any case, for delay in payment, the Company shall not be liable for any interest.



**3.11.03** Mobilization advance and idle labour / truck charges will not be payable by Company.

**3.11.04** No over run charges will be payable by the Company.

**3.12 PROGRAMME CHART AND PROGRESS REPORT :**

**3.12.01** The contractor shall submit a detailed PERT network for completing the work within the contractual completion period within fifteen (15) days after the date of acceptance of notice of award of contract. This network shall also indicate the inter-phase materials and facilities to be provided by the Company, and the dates by which such materials and facilities are needed. Contractor shall discuss the PERT network so submitted with the Company authorities and the agreed network which may be in the form as submitted or in the revised form in line with the outcome of discussion shall be deemed to be the part of the contract agreement.

**3.12.02** The above PERT network shall be reviewed and periodic review reports shall be submitted by the Company.

**3.12.03** The contractor shall submit regular progress reports on the various phase of execution of the contract. Progress report may be weekly or monthly as required by the Company.

**3.12.04** The format for the above progress reports shall be intimated to the contractor after the award of contract, if required.

**3.12.05** Besides above, a periodical review meeting between contractor and Company shall be held to analyse the scheduled and actual progress targets for the next period and to sort-out bottlenecks, if any. The contractor will attend the above meetings alongwith necessary information in respect of erection activities.

**3.13 PAST EXPERIENCE AND TECHNICAL/FINANCIAL RESOURCES :**

Past experience of the tenderer in the erection of 400/220/132 KV (as the case may be) sub-station as indicated in Section-I is absolutely essential and will be taken into account while deciding the tender. The tenderer shall give a list of such execution of works carried-out by him in the past in relevant schedules.

**3.14 TECHNICAL RESOURCES :**

The tenderer shall furnish full details of technical manpower of head office and field organization to check the adequacy of the tenderer to carry-out the proposed erection work. The qualification and experience of such manpower shall be furnished in relevant schedule.

**3.15 RESPONSIBILITY FOR OBTAINING INFORMATION AND TAKING ACTION IN TIME:**

Whenever any information or clarifications in respect of construction of sub-station have to be obtained from various authorities the contractor shall be responsible for taking action well in time so that there is no delay on this account. The completion period offered in the tender shall be deemed to include the time taken for such incidental works. Requests for extension of the completion dates on such grounds will not be entertained.

**3.16 PERMITS AND PRIORITIES / LICENCE :**

**3.16.01** Necessary permits / license, if any, required for the execution of the contract shall be arranged by the contractor himself.

**3.16.02** The Company may, however, furnish to the contractor such certificates as may be required for the necessary permits/ priorities / license for the execution of works, if Company considers the demand justified.

**3.16.03** The Company will, however, not be responsible for the delay in execution of contract, if permits/ priorities / license are not granted in time.

### **3.17 USE OF PRIVATE ROADS / APPROACH ROAD TO SITE :**

**3.17.01** The contractor shall obtain necessary permission for use of private/forest/canal service roads for transportation 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.

**3.17.02** 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.

### **3.18 PERMISSIBLE WASTAGE OF MATERIAL:**

The maximum percentage of wastage that will be allowed on various items to be supplied by the Company are as follows :-

<b>MATERIAL</b>	<b>QTY. WITH WASTAGE</b>
a) Cables	: Actual + 2% wastage
b) Structural steel weight	: Actual, No extra
c) Cables trays / racks	: Actual + 2% wastage
d) ACSR conductor & G/wire.	: Actual + 1.25% on length extra towards sag, jumpers and wastage.
e) Conductor & Groundwire accessories.	: Actual + 2% wastage
f) Nuts, Bolts, Washers	: Actual + 2% extra.
g) Earthing rods,connecting clamps & wire etc.	: Actual + 1% extra.
h) Insulator strings	: Actual + 1% wastage
i) Minor Accessories	: Actual + 2% wastage
j) Transformer oil	: Actual + 1% wastage

If the tenderer desires to provide for wastage of any other items, such items with respective wastages shall be listed in the offer.

In case the wastage exceeds the percentage stipulated in the contract, compensation for the excess wastage will be recovered from the contractor or its bills.

### **3.19 LAY-OUT OF SUB-STATION / DRAWINGS :**

**3.19.01** The contractor will be supplied two copies of all relevant layout drawings, control wiring diagram, cable termination detailed cable schedules and one copy of equipment supplier's approved drawing and literature for carrying-out installation work of these copies, the contractor will have to preserve one copy marked with all field revisions for submission to the Company for effecting changes in the original.

**3.19.02** Cable terminations shall be done with reference to the wiring diagram of different equipments furnished by equipments suppliers and the same will not be repeated in the cable schedules.

**3.19.03** The "Cable Schedules" will be released in a phased manner to suit the commissioning of the substation/switchyard and will be based on system-wise installation.

**3.19.04** The Company reserves the right to make minor additions or deletions or modifications to the particulars and details given on the drawing depending on actual site requirement as and when necessary. Contractor shall carry-out the installation work in accordance with such requirements.

### **3.20 MANUFACTURER'S DRAWINGS & INSTRUCTION MANUALS:**

**3.20.01** Manufacturer's drawings, instructions and recommendations shall be correctly followed in handling, setting/ alignment of equipment and extreme care shall be exercised in handling equipment to avoid distortion to stationary structures, the marring of surface finish, damage to delicate instruments and electrical parts.

**3.20.02** In accordance with the specific installation instructions as indicated on manufacturers drawings or catalogues or as directed by the Company, the contractor shall handle, assemble, install, wire, test and put in to commercial use all equipments and works included in this contract. The equipment shall be installed in a neat manner so that it is level plumb, square and properly aligned and oriented. Tolerance shall be as established in manufacturer's drawing or as stipulated by the Company. No equipment shall be grouted or permanently bolted down to the foundation or structure until the alignment has been checked and found acceptable to the Company.

**3.20.03** In case of any doubt/ mis-understanding as to the correct interpretation of manufacturer's drawings or instructions, necessary clarifications shall be obtained from the Company. The contractor shall be held responsible for any damage to the equipment consequent to the non-following of manufacturer's instructions correctly.

### **3.21 SUPPLY OF TOOLS, TACKLES AND OTHER MATERIALS :**

**3.21.01** For full completion of the work, contractor shall, at his own expense ensure availability of all necessary erection tools, machine tools, power tools, tackles, hoists, cranes, derricks, ropes, cables, slings, skids, scaffolding, work benches, tools for rigging, cribbing and blocking, welding machine, spanners, crowbars, hooks, tummys, hammers, punches etc. and all associated protective equipment, instruments, appliances, materials and supplies required for unloading, transporting / shifting, storing, erection, that may be required to accomplish the work under contract unless otherwise provided for. The cranes trailers, tractors, with necessary tools & tackles for loading, unloading, handling and transportation if any fabricators to erection site and erection thereof shall also be arranged by contractor. Adequacy of such tools will be subject to final determination of Company.

**3.21.02** The Company may furnish to contractor, for use on the project, such equipment, tools and tackles that could be spared by him at the time of request for the same by contractor, at his standard rental charges. Such rental charges shall be deducted by Company from contractor's progress payments are made.

**3.21.03** Contractor shall also furnish all necessary expendable devices like anchors, grinding and abrasive wheels, raw plugs, hacksaw blades, taps, dies, drills, reamers, chisels, files, carborundum, wire, brushes, necessary bamboo scaffolding, ladders, wooden planks, timbers, sleepers and consumable, material like oxygen, acetylene, argon, lubricating oils, greases, cleaning fluids, cylinder oil, graphite powder and flakes, fasteners, gaskets, temporary supports, stainless steel shims of various thickness as required, cotton waste, cheese cloth and all other miscellaneous supplies of every kind required for carrying out the work under the contract.

**3.21.04** Contractor shall provide all reasonable facilities including tools, personnels, etc. and ensure co-ordination with Company and equipment supplier's erection supervisors to enable them to carry-out all supervision, measurements, checks etc. in a satisfactory manner.

**3.21.05** Contractor shall not dispose of, transport or withdraw any tools, tackles, equipment and material provided by him for the contract without taking prior written approval from the Company and Company at all times shall have right to refuse permission for disposal, transport or withdrawal of tools / tackles, equipment and material if in his opinion, the same will adversely affect the efficient and expeditious completion of the project.

### **3.22 CONSTRUCTION ELECTRIC POWER, AIR & WATER:**

**3.22.01** Electric power, air and water will be available for use by contractor free of cost or to be intimated to the successful tenderer. These supplies will be made, where available at one central point in the site convenient to Company and all piping for air and service water to work area, office ware-house, store room, canteen, labour rest room, welding and fabrication sheds, etc. and lodging area for labour shall be furnished, installed and maintained by contractor at his own expense. He shall also furnish, install and maintain at his cost the power lines, junction boxes and any other electrical receptacles, apparatus or equipment from the central point to his work area including office, warehouse, storeroom, canteen, labour rest room, welding and fabrication shed etc. and lodging area for labour. Company's built accommodation, if any, to be rented to contractor shall have electric power and drinking water supply unless otherwise specified.

**3.22.02** Company will not charge contractor for his own un-rented ground. Company shall, on no account, be responsible for the expenses incurred by contractor for hired ground or water obtained from elsewhere.

### **3.23 DEPARTMENTAL STORES AND DISTRIBUTION OF MATERIAL :**

**3.23.01** All sub-station equipments will be supplied to the contractor at Substation site.

**3.23.02** The contractor shall intimate the Company item-wise quantity of each materials which he proposes to receive from above store. This information should be supplied sufficiently in advance (atleast one month) so that the materials could be arranged accordingly. Efforts will be made to arrange the materials in required quantities but in case of minor variation the contractor will have to lift the materials from any of the departmental stores where these items are available without any extra cost. In case of any difficulty in availability of structures and equipments matter should be referred to the order placing authority of the Company.

**3.23.03** The contractor shall be responsible for the proper handling and maintenance of the materials received by him from the date of their receipt till the end of completion of work.

### **3.24 UNLOADING, INSPECTION AND STORING OF CONSIGNMENTS:**

**(i)** Unless excluded in the specification, contractor shall promptly unload from the carriers all the structures, conductor, earth wire hard wares & accessories covered under this contract. It is contractor's sole responsibility to keep in touch with Company and others to inform himself of the expected date and time of arrival of the carriers at site and ensure that his men and aids are available in time to unload the materials and promptly release the carriers. Any demurrage charges incurred due to the delay in unloading the above material and releasing the carriers shall be charged to the contractor's account. Contractor shall plan in advance his requirements of jacks, cranes, sleepers etc., required to unload the material / equipment promptly and efficiently.

(ii) Unless excluded in the specification, contractor shall safely shift the material/equipment to the storage area and store the same in systematic manner with tags for easy identification and retrieval. He shall also maintain all required stores records and furnish all required reports.

(iii) All material and equipments received at site, shall be handed over to the contractor and there-upon contractor shall inspect the same and furnish a receipt to Company. The protection, safety and security of the material so taken over by contractor shall thereafter be the responsibility of contractor until it is handed over to Company after erection and/ or commissioning. Any and all the material / equipment covered under the scope of this contract, received at site after contractor arrives at site, unless otherwise specified in the specification, shall be unpacked, inspected, checked against invoices by contractor in presence of Company's representative. He shall furnish shortages and damages report to Company within a week of receipt of material and assist Company in lodging claims with the insurance companies. In case Company incurs a loss due to the delay in lodging insurance claims, which are attributable to contractor, all such losses shall be deducted from contractor's bills. Contractor shall repack material / equipment as required and store the same in an orderly manner.

The site store with all the required facilities and proper watch and ward shall be maintained by the contractor. Periodic inspection of materials/ equipments released to the contractor shall be inspected by the Company's Officers.

(iv) Contractor shall also inform Company in right time regarding the repairs / replacement required towards the items damages/ lost in order to enable Company to arrange for repairs/ replacements well-in-time and avoid delays due to non-availability of equipment and parts. Contractor shall arrange for periodic inspection of material/equipment in his custody until taken-over by Company and shall carry-out all protective and preservative measures required thereupon.

### **3.25 MATERIALS RECONCILIATION SCHEDULE :**

(a) The contractor shall be responsible for ensuring safe storage of balance/wastage of all items such as cables, structural steel, conduits, pipes, cable trays, conductor and pipe fittings and switchyard materials, hard wares and accessories. These shall be properly accounted for and handed-over to the Company every month and / or on completion of the work.

(b) The contractor shall also submit a monthly material reconciliation schedule to the Company's representative for assessing the usage and wastage of various items during the progress of work which shall be signed by contractor's and Company's representatives.

(c) The material reconciliation schedule shall list in its **column (1)** the items with numbers as assigned and arranged in the schedule of "Quantities, Price & Delivery". The condition of the material/equipment at the time of receipt shall also be indicated. In parallel columns the following details for each item shall be provided :-

**Column (2) :** Quantity received from supplier/manufacturer.

**Column (3):** Quantity incorporated in work (as determined by joint measurement by contractor and Company).

**Column (4):** usable balance,  
(These items shall be handed-over to the Company accompanied by a delivery note listing such item against which a receipt will be provided by the Company).

**Column (5) :** Quantity actually wasted during the installation work.

(Quantity in Column (2) MINUS quantity in Column (3) and quantity in column (4).)

**Column (6) :** Percentage of maximum wastage for the item.

**Column (7) :** Quantity of excess wastage.

(d) The contractor shall also submit a material reconciliation schedule on the completion of the Electrical installation work.

### **3.26 STORAGE OF MATERIAL :**

**3.26.01** The contractor shall be required to set-up stores at suitable place(s) at / near the sub-station site to receive and stores the materials.

**3.26.02** The contractor shall make arrangements to take delivery of all the materials and stock them properly. While doing so, the contractor will check the materials and equipments for its healthiness. If any damage or defect is noticed later on, due to mishandling of materials / equipments, the entire cost of repair/replacement, as decided by Company shall have to be borne by the contractor.

**3.26.03** Yards and stores for stocking provided by the contractor shall be open for inspection by the Company's staff as and when esired.

**3.26.04** The cost of handling and storage shall be included in the quoted erection prices.

### **3.27 TRANSIT & STORAGE-CUM ERECTION INSURANCE/ WORKMEN INSURANCE:**

**3.27.01** The Company has made separate own reserve funds for covering damage to equipments / materials during transit and storage-cum erection. However, the contractor shall inspect all the material received at destination store and furnish a loss/damage report to the Company within a week of receipt of material at site and provide all required assistance to the Company's representative in this regard. In case of loss to Company due to delays in submitting the loss/damages report by contractor, the Company will be within its right to deduct such losses from the contractor's progressive payments. The contractor shall take all the necessary precautions for safe transportation of equipment/materials and for safe custody of equipments/ materials during storage-cum erection. In the event of loss damage to any equipment / material during transit or storage-cum-erection due to reasons of negligence, improper storage, handling etc. of contractor, the Company shall be deducting suitable amount from bills of contractors.

**3.27.02** Contractor shall promptly report in writing to Company all cases of accidents and damages however caused and wherever occurring execution of the contract and shall make adequate arrangements to render all possible aids to the victims of all such accidents and damages.

**3.27.03** Company shall have full power and right at his discretion to defend or compromise any suit or pay claim or demand brought or made against him as aforesaid whether pending or the rated, as it may consider necessary or desirable and shall be entitled to recover from contractor all sums of money including the amount of damages and compensation and all legal costs charges and expenses in connection with any compromise or award which shall not be called in to question by contractor and shall be final and binding upon him.

**3.27.04** Contractor shall reinstate all damages of every sort mentioned in this clause so as to deliver the whole of the contract works completed and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.

**3.27.05** The Contractor shall, however, take by himself **insurance policy as required under workmen's compensation act**, common law or any other status enforce in respect of workers/ employees of the contractors executive the works on behalf of the contractor. This will deemed to be included in the award and contract price. The contractor shall indemnify the Company against any claims which may be made under the workmen's compensation act 1923 or any statutory modification or otherwise for or any damages or compensation payable in consequence of any accident or injury sustained by any workman or other

person(s) by amount of compensation so paid and without prejudice to the right of the Company under **sub-section-12** of the said act. The Company shall be at liberty to recover such amount or any part thereof by deducting it from security deposit or from any sum due by the Company to contractor whether under contract or otherwise. The Company shall not be bound to consider any claim made against it under section 12 sub-section (i) of said act, except upon written request of contract and upon his giving the Company full security for all costs for which the Company might become liable in consequence of contesting such claims.

**3.27.06** Contractor shall ensure compliance with all status, laws, rules and regulations of the Central or State Government or any other authority such as the Workmen's Compensation Act-1923, payment of wages Act-1948, Employees State Insurance Act, Employees Provident Fund Act, etc., and any and all statutory modifications thereof in connection with employees engaged by him or his sub-contractors in the work. The contractor shall be responsible for payment of wages to each worker employed by him as contract labour in accordance with the provision of Law. A representative duly authorized by the principal employer shall be present at the time of disbursement of wages by the contractor and certify the amount paid as wages. The contractor shall ensure the disbursement of wages in the presence of authorized representative of the principal employer.

In case the contractor fails to make payment of wages or remittance of EPF contribution in accordance with provision of the Law, the principal employer shall be liable to make payment of wages full or the unpaid balance due, as the case may be for the contract labour employed by the contractor to the EPF Commissioner Authorities and recover the amount so paid from the contractor either by deduction from any amount payable to the contractor, under any contract or as a debit payable by the contractor.

**3.27.07** Contractor shall conform to **the provisions of Indian Factory Rules, Indian Electricity Act and any other acts of legislature relating to the work** and to the regulations and by laws of any authority and of water, lighting and other companies and / or authorities with whose systems the Plant / Structures is proposed to be connected and shall, before making any variations from the Drawings or Specification that may be necessitated by so conforming, give to Company written notice, specifying the variations proposed to be made and the reason for making it and apply for instructions thereon.

**3.27.08** Contractor shall arrange to give all notices required by the said Acts, Regulations or Bye-laws to be given to any authority or to any Public Officer and pay all fees that may be properly chargeable in respect of the works and lodge the receipts with Company. Obtaining all permits and licenses required thereupon is the responsibility of contractor.

**3.27.09** The contractor shall be responsible for safety of his or his sub-contractors property / men, any loss or damage injury etc. for any reasons whatsoever, the same is not the responsibility of the Company.

**3.27.10** The contractor shall obtain necessary license and competency certificate from the electrical inspectorate to handle the substation equipment by the workers employed by him.

### **3.28 EXTRA WORKS :**

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

### **3.29 SPLITTING OF ORDER:**

**3.29.01** The Company reserves the right to accept all or any portion of tenders and split-up the work among more than one contractor, if so desired.

**3.29.02** The tenderer shall specifically indicate whether order for part work as indicated above will be acceptable to him or not.

**3.30 ACCEPTANCE OF OFFER:**

The Company will communicate acceptance of offer to successful tenderer through a telegram or a letter of intent and this will be followed by a detailed order or formal contract, which will be binding on the contractor.

**3.31 COMPLETION PERIOD:**

**3.31.01** The permitted completion period for the above work shall be **2 months (60 days)**. The completion period shall be reckoned from the date of handing over of site. The time and the date of completion of works as stipulated and accepted by the tenderer shall be deemed to be the essence of the contract.

**3.31.02** The contractor shall organize the erection activities and commence the work in full swing soon after the award of contract, as per priority decided by Company so as to achieve completion of erection of Sub-station works within targeted schedule. The **completion schedule (Schedule-3** of the specification) shall be submitted duly filled-in for the work.

**3.32 SCHEDULES AND ANNEXURE :**

- i) Annexure giving details of various items is enclosed at the end of specification. Tenderers should consult this annexure before filling the tender.
- ii) Schedules are also enclosed in the specification. Tenderers are required to go through the complete specification and consult explanatory notes, before filling in various schedules.
- iii) All the schedules shall be filled-in by the tenderers and complete information shall be supplied. Incomplete schedules may take his tender liable for rejection.

**3.33 QUESTIONNAIRE :**

The questionnaire (**schedule-4** ) enclosed herewith contains a set of questions and tenderer is requested to answer each and every question clearly and without ambiguity.

**3.34 CHECK-LIST :**

The check list in respect of various schedules etc. required to be submitted by the tenderer without which the tender will be considered incomplete and liable for rejection. The tenderer should submit all schedules duly filled-in alongwith their offer.

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**SECTION-IV**  
**TECHNICAL CONDITIONS OF CONTRACT**

**CONTENTS:**

<b>CLAUSE NO.</b>	<b>NAME OF CLAUSE</b>
4.01	SCOPE OF WORK
4.02	ERECTION OF SUB-STATION STRUCTURE
4.03	DISMANTLING OF STEEL WORKS
4.04	SAFETY PRECAUTIONS
4.05	INSTALLATION INTER CONNECTION OF EQUIPMENTS
4.06	ERECTION OF EQUIPMENTS
4.07	STRINGING OF BUS BARS AND GANTRIES.
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**TECHNICAL CONDITIONS OF CONTRACT****4.01 SCOPE OF WORK :**

The contractor is required to carry-out erection of bays as stipulated in this tender specification which involves various construction activities viz. erection of structures, erection & installation of all out-door and in-door equipments laying of control cable, overhead stringing of conductor, ground wire, earthing etc. The contractor shall provide following for satisfactory execution of the work:

- i. Supervision at all the time during execution of electrical installation works covered under the contract.
- ii. Providing of skilled, semi-skilled and unskilled labours and engineers to other agencies as required by the Company for assisting in carrying out necessary testing commissioning and commercial operation of the equipments.
- iii. The contractor shall also properly co-ordinate such supervisory staff of the Company and / or various equipment suppliers, who may be present at site at the time of erection, testing and commissioning of the equipments supplied by them, in order to provide necessary guidance and supervision of erection.

**4.02 ERECTION OF SUBSTATION STRUCTURE:**

**4.02.01** Assembly/erection of the structures shall have to be carried-out by the contractor strictly as per directions given in the structural drawings to be provided by the Company to the successful tenderer.

The work of assembly and erection includes fixing and alignment of templates for grouted/bolted type structure foundations alongwith tightening of structural parts with nut-bolts and washers including alignment and leveling of structures as stipulated in structural drawings. Mismatching of holes, if any, noticed in the structural parts by the contractor during assembly/erection shall be rectified by the contractor free of cost by re-punching the holes, as per dimensions and layouts indicated in the structural drawing.

**4.02.02** All steel work shall be efficiently and sufficiently protected against damage in transit from any cause whatsoever. Distorted steel received during the transport to the erection site shall not be used for erection unless the distortion are minor, which in the opinion of the site engineers can be removed by acceptable methods. The cost of work of all such straightening shall be borne by the tenderer within his quoted prices.

**4.02.03** While erection of structures on their foundations, the top surface of base concrete shall be thoroughly cleaned. The top surface of concrete and base plate of structure should match perfectly to avoid any gap in between resulting in pointed loading on foundation.

**4.02.04** The contractor shall arrange, through his own resources, all T&P items used for erection such as derrick, ropes, spanners, crowbars, hooks, tummys, hammers, punches etc. The cranes trailers, tractors, with necessary tools & tackles for loading, unloading, handling and transportation if any fabricators to erection site and erection thereof shall also be arranged by contractor.

**4.02.05** The contractor shall be responsible for the stability of the structures at all stages of its erection at site and shall make all necessary measures by the additions of temporary bracing and guying to ensure adequate resistance to wind and also the loads due to erection of equipment and their operation. Guying and bracing shall be done in such a way that it does not interfere with the movement of working of other agencies working in the area. For the purpose of guying, the contractor shall not use other structures in the vicinity which are likely to be damaged by the guy. The quoted price shall include provision of such bracings and their removal.

#### **4.03 DISMANTLING OF STEEL WORKS :**

In case it is found that certain erected structures are to be dismantled for any reason whatsoever, this shall be done only with the written order of the engineer in-charge, such structures are lowered down to the ground.

The work of additions, alterations and modifications includes cutting out certain portions or gouging of welds, cutting, grinding, fabrication welding, drilling holes, specifically for the work, straightening, removal of bends painting and touch of painting. Additions, alterations and modifications as required either before erection or after erection may have to be carried out at site. The quoted prices shall include these operations.

#### **4.04 SAFETY PRECAUTIONS :**

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

#### **4.05 INSTALLATION AND INTERCONNECTION OF EQUIPMENTS**

- i. Taking delivery of equipment at storage yard / sheds.
- ii. Transportation of the material to the site of erection and proper storage till commencement of erection.
- iii. Shifting the equipments to the location of installation for proper storage till commencement of erection.
- iv. All equipments shall be assembled and mounted at their proper locations.
- v. Minor civil works like chipping / punching the foundations, placing the equipments on the foundations/structures (or in the control room building in case the equipment are indoor type) aligning, plumbing and grouting if required.
- vi. Inter equipment connections using ACSR conductor.
- vii. Providing safety earthing for the equipment.
- viii. Cable terminations, as per manufacturer's instructions and applicable standards and handing over to the company after installation for testing and commissioning.
- ix. Cable laying as per manufacturer's instructions and applicable standards and handing over to the Company after installation for testing and commissioning.

In case of power transformer, this will be supplied by the supplier the directly to the side. This will have to be unloaded and placed on plinth by the supplier. The contractor shall quote rates considering above.

#### **4. 06 ERECTION OF EQUIPMENTS :**

##### **4.06.01 SCOPE :**

This specification in details is the guide line for erection of electrical equipments. The work shall, however, at all times be carried-out strictly as per the instructions of the Company / manufacturer.

##### **4.06.02 CODES AND STANDARDS :**

Electrical Installation work shall comply with all currently applicable statutes to the Indian Electricity Rules,. Fire Insurance Regulations and safety codes in the locality where the equipment will be installed. Nothing in this specification shall be construed to relieve the tenderer on this responsibility. Unless otherwise specified, installation work shall comply with the requirements of latest editions of applicable Indian Standards.

**4.06.03** In accordance with the specific installation instructions, as shown in the MANUFACTURER'S drawings or as directed by the ENGINEER, the CONTRACTOR shall unload/shift, erect, install, all the electrical equipment included in the contract. Equipment shall be installed in a neat, workman like manner so that it is level, plumb, square and properly aligned and oriented. Tolerances shall be as established in the MANUFACTURER'S drawings or as stipulated by the ENGINEER. No equipment shall be permanently bolted down to foundation or structure until the alignment has been checked and found acceptable by the COMPANY'S engineer.

**4.06.04** The CONTRACTOR shall furnish all supervision, labour, erection tools, and equipment, rigging materials and incidental materials such as bolts, wedges, anchors, concrete inserts etc. required to completely install and adjust the equipment.

**4.06.05** The MANUFACTURER'S drawings, instructions and recommendations shall be correctly followed in handling, setting of all equipment and care shall be exercised in handling to avoid destruction to stationary structures, the marring of finish or damaging of delicate instruments or other electrical parts. Adjustment shall be made as necessary to the stationary structures for plumb and level, for the sake of appearance or to avoid twisting of frames, binding of hinged members etc.

**4.06.06** The COMPANY may engage the MANUFACTURER'S erection engineers to supervise the erection of the relevant equipment. The CONTRACTOR shall carry out erection work as per instructions of the erection engineer(s) and shall extend full co-operation to him for commissioning of the equipments.

**4.06.07** In case of any doubt / misunderstanding as to correct inter-pretation of the MANUFACTURER'S drawings or instructions, necessary clarifications shall be obtained from the Company. The CONTRACTOR shall be held responsible for any damage to the equipment consequent to not following the MANUFACTURER'S instructions correctly.

**4.06.08** The CONTRACTOR shall move all equipment into the respective buildings through the regular doors or floor openings provided specifically for lifting the equipment. The CONTRACTOR shall make his own arrangement for lifting of the equipment. **Crane for lifting arrangement shall not be provided by the Company.** No part of the structure shall be utilized to lift or erect any equipment without prior permission of the Company.

**4.06.09** Where assemblies are supplied in more than one section, the CONTRACTOR shall make all necessary mechanical and electrical connections between sections including the connection between buses. The CONTRACTOR shall also do necessary adjustments/alignments necessary for proper operation of circuit breakers, isolators and their operating mechanisms. All insulators and bushings shall be protected against damage during handling and installation. Insulators or bushings chipped, cracked or damaged due to negligence or carelessness of the CONTRACTOR shall be replaced by him at his own expense.

**4.06.10** Inspection, storage, installation of transformer shall be in accordance with the Indian Standard Code of practices IS:1866 and the Manufacturer's instructions. All commissioning tests as applicable, shall be carried out by the Company/ Manufacturer Firm but contractor has to provide skilled / semi skilled and unskilled labourer as required for assistance.

**4.06.11** Care shall be taken during handling of insulating oil to prevent ingress of moisture or foreign matter. In the testing, circulating, filtering or otherwise handling of oil, rubber hose shall not be used. Circulation and filtering of oil, the heating of oil by regulated short circuit current during drying runs and sampling and testing of oil shall be in accordance with the MANUFACTURER'S instructions and IS code of practice IS:1886.

**4.06.12** Switchgear and control panels/ desks shall be installed in accordance with Indian Standard code of practice IS:3072 and the MANUFACTURER'S instructions. The switchgear panels shall be installed on finished surface or concrete or steel sills. The CONTRACTOR shall installed/ align channel sills forming part of the foundations. In joining shipping sections of the switchgear / panel / control centres together, adjacent housing or panel sections of flanged

threat section provided shall be bolted together when alignment has been completed. Power bus, enclosures, ground and control splices of conventional nature shall be cleaned and bolted together, being drawn up with through torque wrench of proper size or by other approved means. Tap or compound shall be applied where called for by the manufacturer's drawings. Bays of out door type unit shall be sealed in an approved manner to prevent increase of moisture.

**4.06.13** The CONTRACTOR shall take utmost care in handling instruments, relays, other delicate mechanisms & equipments. Wherever the instruments and relays are supplied separately, they shall be mounted only after the associated control panels/ desks have been erected and aligned. The blocking materials/ mechanisms employed for the safe transit of the instruments and relays shall be removed after ensuring that the panel/ desks have been completely installed and no further movement of the same would be necessary any damaged to relays and instruments shall be immediately reported to the Company or its representative.

**4.06.14** The contractor shall under take the work of filling of SF6 gas in the circuit breakers. Induction motors shall be installed as per IS code of practices IS:900 and the MANUFACTURER's instructions.

**4.06.15** Care shall be taken during handling SF6 gas cylinder/ gas filling trolley. the SF6 gas and gas filling equipment shall be provided by the Company.

**4.06.16** The MANUFACTURER's installation tests shall be carried out by the CONTRACTOR, who shall make all necessary adjustments as specified by the manufacturer for proper functioning of the equipments.

**4.06.17** Foundation work for transformers, switchgears and other equipments will be carried out by company. However, minor modifications to foundations, wherever found necessary for proper installation, shall be carried out by the contractor at no extra cost.

**4.06.18** Equipment furnished with finished coats of paint shall be touched up by the CONTRACTOR if their surface is soiled or marred while handling .

**4.06.19** The CONTRACTOR shall supply the normal consumables, filling compounds, touch up paints etc. where required.

**4.06.20** Petroleum conducting jelly shall be applied for current carrying joints, connections, clamps etc. to avoid corrosion.

**4.06.21** Silicon polish (water repellent) shall be applied on all insulation, stacks, bushings etc. after installation and before commissioning to avoid tracking.

**4.06.22** After installation of all power and control wiring the contractor shall perform operating tests on all switchgear and panels to verify proper operation of switchgear / panels and correctness of the interconnections between various items of the equipments. This shall be done by applying normal AC or DC voltage to the circuits and operating the equipments. Megger tests for insulation, polarity checks on the instruments transformers, operating tests on equipments and the MANUFACTURER's installation tests shall be carried out by the CONTRACTOR, who shall make all necessary adjustment as specified by the MANUFACTURER for proper functioning of the equipments.

**4.06.23** All switchgear, control panels, desks, etc. shall be made absolutely vermin proof.

#### **4.07 STRINGING OF BUS-BARS AND GANTRIES:**

##### **4.07.01 SCOPE OF WORK - SPECIFIC REQUIREMENTS :**

- i. Taking delivery of material like Zebra ACSR conductor, disc insulators, hardware fitting, Earth wire etc. from Company's Stores / Storage yard / sheds or the place of delivery.
- ii. Transportation of the material to the site of erection and proper storage till commencement of erection.

- iii. Carrying-out assembly of insulator strings, using appropriate number of disc insulators, hard wares etc.
- iv. Stringing the buses, gantries (providing appropriate number of spacers) as also of overhead shielding wires.

#### **4.08 CABLES, CABLE LAYING AND CABLE CONNECTION :**

The contractor shall carry-out the work of cable laying for connection between indoor / outdoor equipments switchyard / control room as per the cable schedule in cable routes (trenches / open / vertical race ways) as defined in separate section. **The contractor shall also quote for laying of cables through buried cable trench.**

##### **4.08.01 INSTALLATION OF CABLE TRAYS AND CABLES:**

**The contractor's scope shall comprise of :-**

##### **4.08.02 CABLE RACKS :**

- i. Installation of cable racks in cable trenches, vertical cable race ways and cable galleries.

##### **4.08.03 CABLE INSTALLATION :**

**The contractor's scope shall comprise of :-**

- i. Shifting the cables to the erection site.
- ii. Pulling and laying cables on cable trays racks, vertical race ways etc. pulling through pipes/conduits clamped on wall or ceiling columns or beams.
- iii. Dressing the cable and cleating /clamping on the supports including supply of cable dressing material such as cleats, clamps and hardware.
- iv. Termination of power and control cables at either end. cable glands and cable lugs, wherever not available , shall be supplied by the contractor. Appropriate cable compounds, sealing and jointing kits shall be supplied by the contractor.
- v. Cable jointing shall be carried out only if essentially required with the approval of Engineer in-charge.
- vi. Testing the cable installations.

##### **4.08.04 CONTROL CABLE LAYING AND TERMINATION:**

- i. Contractor shall install, connect and test the cables supplied by the Company through Manufacturers.
- ii. Following types of cable will be furnished by the Company to the contractor, quantities and sizes of each type are given in price **Schedule-5** :-

##### **4.08.05 SPECIFICATION OF CABLES TO BE PROVIDED BY COMPANY:**

- i. 2 core, 2.5 sq mm, stranded copper conductor, armored/un-armored control cable.
- ii. 4 core, 2.5 sq mm, stranded copper conductor, armored/un-armored control cable.
- iii. 8 core, 2.5 sq mm, stranded copper conductor, armored/un-armored control cable.
- iv. 12 core, 2.5 sq mm, stranded copper conductor, armored/unarmoured control cable.
- v. 14 Core, 2.5 sq mm, stranded copper conductor, armored/unarmoured control cable
- vi. 19 core, 2.5 sq mm, stranded copper conductor, armored control cable.
- vii. 4 core, 4 sq mm, control cables
- viii. Coaxial cables

#### **4.08.06 CABLE LAYING :**

The cables shall be laid on cable racks in cable trenches ,vertical race ways, pulled through pipes and conduits, clamped on walls/ceilings/steel structures etc.

The unit rates to be quoted for cable laying shall include laying /pulling cables as above, proper dressing of cables on cable trays/racks and fixing on structures and Cable trays using clamps.

#### **4.08.07 CABLE TERMINATION:**

All cable that will be laid by the contractor shall be connected at both ends to equipments, local instruments or marshalling box terminals as the case may be. The unit rate for termination at each end shall include dressing and connection of all the cores of the cable. The following shall also be included on the scope of work:-

" Taking out gland plate ,making required number of holes in the gland plates, re-fixing of gland plates, installation of cable glands, fixing the cable gland , putting cable lugs in each core, crimping of cable lugs and connection to proper terminal as per manufacturer/ company's wiring diagram. The requisite quantity of cable plates, cable glands, cable lugs, ferrules etc. shall be arranged by the contractor at his cost."

The cable termination shall be solder less crimping type, proper crimping tools of Dowell or equivalent shall be used by the contractor. The crimping tools to be used shall be arranged by the contractor and shall be subject to company's approval.

#### **4.09 DETAILED SPECIFICATION FOR INSTALLATION OF CABLES :**

**4.09.01** The contractor shall install the cables in accordance with the instructions issued by the Company, cables shall be laid on cable racks/ trays. The contractor's scope of work includes shifting , laying, fixing, jointing, bending and termination of cables. The contractor shall also supply necessary materials for jointing of and termination of cables. Installation and testing of copper insulated cables shall be in accordance with Indian standard code of practice IS:1255.

All cable work shall be arranged to minimize risk of fire and any damage which might be caused in the event of fire. Wherever cables pass through floor or through wall openings or other partitions, suitable bushes of approved type shall be supplied and put into position by the contractor. If required by the Company, the contractor shall seal the bushes after laying the cable, using fire resistance material to prevent spreading of fire through each partition. Inspection on receipt , unloading, storage and handling of cables shall be in accordance with IS : 1255 and other Indian standards code of practice.

Standard cable grips and reels shall be utilized for standard cable pulling . In using woven gasket type grips on lead sheathed cable, care shall be taken to avoid damage to the cable and seal , which shall be made up and maintained during cable installation. If unduly difficult pulling occurs, the contractor shall check pull required and shall suspend further pulling, until further procedure has been approved by the purchaser. Maximum full tension shall not exceed recommended value for the cable measured by tension dynamometer.

**4.09.02** After pulling cable, the contractor shall record cable identification and data neatly with water proof ink on lineal tags and shall securely attach such identification tags at such cable and for all cables.

In lieu thereof, or in addition there to at the option of the Company, the contractor shall cut the same information with suitable die or stamp on durable fiber cable identification tags . Identification tags shall be attached to each cable with non corrosive wire. Said wire must be on non-ferrous material on single core power cables. Tags may be further required at intervals on long runs of cables, in cable trays and in pull boxes, cable and joint markers and PRC warning covers shall be provided, wherever required.

**4.09.03** Sharp bending and kinking of cables shall be avoided. The bending radius for the PVC insulated 650/1100 V grade, single core/ multi core armored /un-armoured type cables shall not be less than 10 D, where D is the over all diameter of the cable.

If shorter radius appears necessary, no bend shall be made until clearance and instructions have been received from the Company.

**4.09.04** Power and control cables shall be laid in separate cable trays, when laid in trenches, the order of laying of cables shall be as specified below :-

- (i) AC power cables and AC control cables on lower most tiers.
- (ii) CT and CVT/PT cables on the next upper tiers.
- (iii) DC and the associated control cable on the top most and the remaining tiers.

**4.09.05** When power cables are laid in the proximity of communication cables, minimum horizontal and vertical separation between power and communication cables shall be normally 600 mm. but in any case not less than 460 mm for single core cables and 300 mm for multi core cables. Power and communication cable shall as far as possible cross at right angles to each other.

**4.09.06** Where cables cross roads, the cable shall be laid in reinforced spun concrete or steel pipes. The pipe for the cables shall be buried at not less than one meter depth.

**4.09.07** In each cable run, some extra length shall be kept at a suitable point to enable one or two straight through joints to be made, if the cables develop fault at a later date.

**4.09.08** Jointing of cables shall be in accordance with relevant Indian Standard code of practices and the manufacture's special instructions. Materials and tools required for cable jointing work shall be arranged by the contractor. Cable shall be firmly clamped on either sides of a straight through joint at not more than 300 mm away from the joints, identification tags shall be provided at each tag and at all cable terminations. Single core cable joints shall be marked so that phase identify at each joint and can be determinate easily . The joints shall be located at the most suitable places. There shall be sufficient overlap of cable to allow for the removal of cable ends which may have been damaged.

Joint holes or pits shall be of sufficient dimensions to allow the jointers to work with a much freedom as possible, when one or more cables are laid together, joints shall be arranged to be staggered by about 3 meters.

Cables seals shall be examined to ascertain if they are intact and also that cable ends are not damaged. If the seals are found to be broken or lead sheath punctured, the cable ends shall not be jointed until after the due examination and testing by the purchaser. Before jointing is commenced, insulation resistance of both sections of cables to be jointed shall be checked to be satisfactory by megger and insulation value recorded.

**4.09.09** Special tools , clips and saddles, glands. seals, PVC sealing compound etc. wherever required shall be arranged by the contractor. The cable shall be bent using special bending tools, approved by the Company, cable shall not be fastened or clamped close to the point of entry to the equipment which may vibrate severely. Special instructions furnished by the manufacturer shall be strictly followed :-



**4.09.10** All new cables shall be meggered before commissioning, using a 1000 Volt megger.

**Cable core shall be tested for :-**

- (a) Continuity.
- (b) Absence resistance to earth.
- (c) Insulation resistance to earth.
- (d) Insulation resistance between conductors.

**4.10 CABLE ACCESSORIES AND SUPPORTS :**

Cable shall either be run on racks embedded in concrete, trenches or run overhead, supported from building steel, floor slab etc.

Cables shall be clamped to the cable racks in the horizontal runs by 18 gauge GI wires for vertical runs the cable shall be clamped on suitable site fabricated clamps.

**4.11 CHECKS TO BE CARRIED OUT:**

The following checks shall be carried out as part of the installation work :-

**4.11.01 GENERAL CHECKS:**

- i. Check for physical damage. Any damage to the equipment at the time of receipt shall be reported to the owner/purchaser.
- ii. Check from the name plates/packing list that all items are as per order and specifications.
- iii. Check tightness of all joints, clamps and connecting materials.
- iv. For oil filled equipments, check for oil leakage, if any, also check oil level and top up, wherever necessary.
- v. Check earth connections.
- vi. Check cleanliness of insulator bushings.
- vii. All checks specified by the manufacturers in their drawings and manuals, literatures, as well as all in the relevant codes of standards.

**4.11.02 POWER TRANSFORMER:**

**(I) PRELIMINARY CHECKS :**

- 1. Compare name plate details with the specifications.
- 2. Checks for any physical damages, in particular of bushings.
- 3. Checks tightness of all bolts, clamps & connecting terminals.
- 4. Check cleanliness of bushings.
- 5. Check of oil leakage & oil level.
- 6. Breather condition, check whether breathing line is free, silicagel is reactivated, oil is available at bottom.
- 7. Checks for clearances, particularly in case of bus ducts.
- 8. Water tightness of terminal boxes & bus ducts.
- 9. Earthing of transformer tank & neutral bushings.
- 10. Ensure that all cooler & cooler header valves are opened.
- 11. Releasing of Air from bushings, buchholz relay.
- 12. Check the bushings horn gap.
- 13. Check that the transformer is correctly installed with reference to its phasing

**(II) COMMISSIONING CHECKS :**

This shall be carried out by the Company/Manufacturer's Engineer but contractor has to provide skilled/semiskilled and unskilled labourer for assistance.

**4.11.03 CONTROL PANELS:**

**(I) PRELIMINARY CHECKS :**

- 1. Check name plate details every associated equipments according to specification.
- 2. Check for physical damage.
- 3. Check tightness of all bolts, clamps and connecting terminals.

4. Check cleanliness.
5. Check earth connections.

**(II) COMMISSIONING CHECKS :**

This shall be carried out by the Company/Manufacturer's Engineer but contractor has to provide skilled/semiskilled and unskilled labourer as required for assistance.

**(III) RELAYS :**

1. Check name plate details according to specification.
2. Check for physical damage.
3. Megger all terminals to body.
4. Megger AC to DC terminal.

Further, test and calibration shall be carried out by the Company/ Manufacturer Engineer but contractor has to provide skilled/semiskilled and unskilled labourer as required for assistance.

**4.11.04 CIRCUIT BREAKERS :**

**(I) PRELIMINARY CHECKS :**

1. Check name plate details according to specification.
2. Check for physical damage.
3. Check tightness of oil bolts, clamps and connecting terminals.
4. Check oil level , air pressure and leakage(whenever applicable).
5. Check of SF6 gas pressure and its leakage (whenever applicable).
6. Check earth connections.
7. Check cleanliness of insulators and bushings.
8. Check all moving parts are properly lubricated.
9. Check heaters provided.

**(II) COMMISSIONING CHECKS :**

This shall be carried out by the Company/Manufacturer's Engineer but contractor has to provide skilled/semiskilled and unskilled labourer for assistance.

**4.11.05 ISOLATORS :**

1. Check name plate details according to specification.
2. Check for physical damage.
3. Check tightness of all bolts, clamps and connecting terminals.
4. Check cleanliness of insulators.

**4.11.06 VOLTAGE TRANSFORMER/CAPACITIVE VOLTAGE TRANSFORMERS.**

1. Check name plate details according to specification.
2. Check for any physical damage.
3. Check cleanliness of insulators.
4. Check tightness of all bolts, clamps and connecting terminals.
5. Check earthing connections.

Further test and calibrations shall be carried out by the Company/Manufacturer's Engineer but contractor has to provide skilled/semiskilled and unskilled labourer as required for assistance.

**4.11.07 CURRENT TRANSFORMERS :**

1. Check name plate details according to specification.
2. Check for physical damage.
3. Check tightness of all bolts, clamps and connecting terminals.
4. Check for oil level and leakages.
5. Check cleanliness of insulators and bushings.

#### **4.11.08 Lightning Arrestor:**

- i. Physical checking of various parts/ equipment.
- ii. Check for connections to ground and line.
- iii. Continuity check (in case of metal oxide silicon type only).
- iv. Operation check of discharge counter.

#### **4.11.09 CABLES :**

1. Check details as per specification.
2. Check for physical damage.
3. Meggar test between each core and armour/sheath.
4. Continuity check.
5. Connections

#### **4.12 INSTALLATION OF EARTHING SYSTEM :**

##### **4.12.01 SCOPE :**

This section covers detailed specification for installation of earthing system associated with the substation. The contractor's scope shall include :

- i. Supply of required materials for installation of earthing system including shifting of materials to the location of installation.
- ii. Welding/brazing/bolting of joints as required and joints with appropriate paint as specified.
- iii. Installation of earthing conductor(for the main earthing mat/Grid/M.S. flat of size 75 X 8 mm or 65 X 8 mm or 50 X 6 mm for the outdoor switchyard area. These shall be buried in ground at a depth of 500 mm . The unit rate for the work shall include excavation and backfilling per cubic meter, laying the conductor, brazing the joints and providing the risers, wherever necessary.
- iv. Installation of earth riser (M.S.Flat of size 75X8 mm or 65 X 8 mm or 50 x 6mm) connection leads to the equipments and risers on steel structures wall etc. The position cleating and clamping at regular intervals, welding/brazing of riser/leads as required to the main earth grid and providing bolting joints at the equipment earthing terminals. All welded and brazed joints of riser conductor shall be coated with bituminous paint. Galvanized steel conductors shall be touched up with the zinc rich paint where holes are drilled at site for bolting to the equipment/structures.
- v. Installation of earthing rods comprising of 25 mm dia M.S rods of 2 meter length :  
Contractor's unit rate shall include installation of these rods in earth by making drilling of 6" dia and test pits, providing connection to the main earthing grid, excavation and back filling of earthing pits with bentonite soil and all materials as required, placing the rod in position, and connecting to main earth grid conductors.
- vi. The material like earthing conductor, earth electrodes /pipes, accessories and fitting such as bolts , washers, nuts, screw ,cleats, clamps, anchors , fasteners, etc. will be supplied by the Company.

#### 4.12.02 DETAILS OF EARTHING SYSTEM :

ITEM	SIZE	MATERIAL
1. Main earthing conductor.	75X8mm or 65X8mm Or 50X6mm Flats	Mild steel.
2. Earthing rods for equipments, structures cable trays.	-do-	Steel
3. Earthing rod electrodes	25 mm dia 2000mm long rod.	Mild steel
4. G.I.Pipe of 40 mm dia 3000mm length	4 Nos to be used one earth pit & interconnect to each other as per standard practice.	

#### 4.12.03 DETAILED SPECIFICATION FOR INSTALLATION OF EARTHING SYSTEM:

(i) The Contractor shall install earthing conductor required for the system and individual equipment earthing. All work such as cutting, bending, clamping, bolting and connecting into structures, pipes, equipment frames terminals, rails or other devices shall be in the contractor's scope of work. The contractor shall also carry-out the excavation and trenching work involved. The contractor shall be responsible for maintaining excavation, bracing shoring, pumping and disposal of water without damage to the property. The CONTRACTOR shall also back-fill and reinstate the trenches after installation of earthing conductors.

(ii) Earthing shall conform to the latest editions of the Indian Standard code of practice IS:3043 and Indian Electricity Rules Installation work shall be in accordance with the Company's drawings and any change in routing, size of conductors etc. shall be subject to the prior approval of the Company.

(iii) All earthing conductors to be buried in ground shall be laid 500 mm below ground level, unless otherwise stated in the drawings. Backfill materials to be placed over buried / over earth conductor shall be free from stones and other harmful mixtures. Back fill materials shall be placed in layers of 150 mm, uniformly spread along the ditch, and tempered utilizing tampers or other approved means. Planks or other protections shall be placed over conductors in hazardous areas, after layer of earth has been placed over the conductor, but before placement of balance of backfill. If the excavated soil is found unsuitable for back filling, the CONTRACTOR shall arrange for suitable soil from outside without any expense to the Company.

(iv) Ground wells shall be constructed according to the stipulations of IS:3043. Unless otherwise mentioned in the drawings, the earth electrodes shall be 25 mm dia, 2 meter long M.S round flat. Minimum spacing between two adjacent earth electrodes shall not be less than 6 meters, ground electrodes shall be housed in concrete inspection boxes with suitable lids with facilities for periodic testing of earth receptivity. Electrodes shall, as far as practicable, be embedded below permanent level.

(v) Metallic frames of all electrical equipments shall be earthed by two separate and distinct connections with earthing system.

(vi) Neutral point of EHV transformer shall be earthed not less than two separate and distinct connections with earthing system.

(vii) The CONTRACTOR shall Co-ordinate with the civil contractor and shall install the earthing wires before the commencement of concrete work.

(viii) Cranes and track rails shall be bonded with the rail Company and connected to the earthing system. Railway tracks shall be bonded across fish plates.

(ix) Cable sheaths and armour shall be bonded to earthing system as stipulated in code of practice IS:1255. Metal pipes and conduit through which cables run shall be sufficiently

bonded and earthed. For conduits, armored cable and metal raceways, the connections to the earthing system shall be as near possible to the point where conductors in the raceways receive supply.

**(x)** Shield wire in substations shall be connected to the earthing grid at every alternative switchyard postal tower.

**(xi)** All underground connections for the earthing system shall be brazed/welded, connection to equipments and devices shall be normally of the bolted type.

**(xii)** Earthing of portable tools, appliances and welding equipments shall conform to the code of practice for earthing, IS : 3043.

**(xiii)** Neutral connection shall never be used for the equipments earthing.

**(xiv)** An earthing pad shall be provided under each operating handle of the isolator. Operating handles of the isolator and supporting structure shall be bonded together by a flexible connection and converted to the earthing grid.(If specifically asked to carry-out).

**(xv)** A separate earth electrode bed shall be provided adjacent to structures supporting lightning arrestor and coupling capacitors. Earth connections shall be as short and as straight as practicable. For lightening arrestor mounted near transformers, earth conductors shall be located the tank and collar.

**(xvi)** On completion of the installation, continuity of all conductors and efficiency of all bonds and joints shall be tested. The earth resistance shall be tested in the presence of the Company's representative. All equipments necessary for the test shall be arranged by the contractor.

**(xvii)** The welding equipments and consumable items such as welding rods required for installation of the earthing system shall be arranged by the CONTRACTOR.

\*\*\*

**DETAILS OF EARNEST MONEY**

**(TO BE KEPT IN ENVELOPE -1)**

1. Name and Address of the bidder : -----  
-----
2. Name and Address of the Firm/ Company etc. : -----  
a. Registered office : -----  
b. Postal Address : -----  
c. Fax No. : -----  
d. Telephone number : -----
3. Details of Earnest Money:  
i. Amount of E.M.D. - `-----  
ii. D.D.No./ Banker's cheque No. - -----  
iii. Issuing bank/ drawn on bank - -----
4. Approximate value of the offer. - `-----

Place:

Date:

SIGNATURE OF BIDDER:

NAME IN FULL :

STATUS :

SEAL OF TENDERING COMPANY:

**SCHEDULE OF QUALIFYING REQUIREMENTS  
(TO BE KEPT IN ENVELOPE -2)**

1. Whether a copy of “A” class Electrical Contractor’s certificate in the Name of Bidder/ Firm is enclosed. - Yes/No
2. Whether copy of EPF code No. in the Name of Bidder/ Firm is enclosed. - Yes/No
3. Whether copy of Certificate of Service Tax No. in the Name of Bidder/ Firm is enclosed. - Yes/No

4. DETAILS OF PAST EXPERIENCE OF ERECTION WORKS:

S. No.	Particulars of works executed	Order placing authority Name & Address	Order No. & date and quantum of work	Value of contract, contractual completion period & actual period of completion

Date :

Place :

Signature :

Name :

Seal of the tendering Co.

- Note:**
1. The tender of such bidders who are not found to fulfill aforementioned qualifying requirement shall not be considered for price bid opening and evaluation of tender.
  2. The list of past works carried out in respect of 33 KV and above voltage category, needs to be given.
  3. If required addl. sheets may be used to furnish above information.

**DETAILS OF HEADQUARTER AND FIELD ORGANISATION  
AS ALSO T&P AND VEHICLES AVAILABLE WITH TENDERER  
(To be kept in envelope-2)**

- (1) Details of H.Q. & Field Organisation:**  
The strength of technical manpower available with the tenderer with their qualification and experience shall be indicated, both in respect of headquarter and field organisation.
- (2) Details of T&P available:**  
Following T&P are available with me/us which I/ We proposed to be utilised in carrying -out the work.
- (3) Details of vehicles available :**  
Following vehicles owned by me / us which I/ We proposed to be utilised in carrying out the work.
- (4) Details of experience, if any, other than the details furnished in Schedule-2(A).**

Date :  
Place :

Signature :  
Name :  
Seal of the tendering Co.



**COMPLETION SCHEDULE**

**(To be kept in envelope-3)**

**TO BE SUBMITTED SEPARATELY FOR EACH WORK**

<b>Sr. No.</b>	<b>Description of work</b>	<b>Period in weeks from the date of order</b>	
		<b>Commencement</b>	<b>Completion.</b>
1	Dismantling & shifting of complete 3 Phase isolator with mechanism box, inter connecting piping work, all accessories of the equipment, opening jumper & stacking of designated place in the yard		
2	Shifting & placement of complete 3- Phase isolator on structure. Erection / mounting of mechanism box, interconnection piping, alignment of contacts and all associated activities to make the installation completed including checking of successful technical and electrical operation and making all jumpers		

Date :

Place :

Signature:

Name :

Seal of the tendering Co.

**Note:** Above information shall be given considering completion period as specified in, Clause-3.31 of Section-III, at Page-31.

**QUESTIONNAIRE**  
**(To be kept in envelope-3)**

**NOTE:** The tenderers may please note that submission of this Questionnaire duly and properly filled-in is essential while making entries against the questions given below. No reference should be made to comments entered elsewhere in the tender. All queries 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. Name and address of tenderer. : -----
- 2.(i) Whether you are State/ Central  
Govt. Undertaking/ Unit with  
100% Government share. : (Yes/No)
- (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.  
Undertaking shall be ignored). : (Yes/No)
3. Indicate the validity period of  
your offer (the offer should be  
valid for a minimum period of 5  
months) (Clasue-1.06, page-4). : -----
4. Whether the required Earnest  
Money has been furnished  
by you as per clause- 1.03, Page-1,  
If yes, : (Yes/No)
- (i) In which form. : -----
- (ii) Amount of Earnest Money furnished. : -----
5. State whether the quoted prices are  
FIRM, as per clause-3.04, page-20. : Firm/ variable.
6. i. Please indicate the rebate if offered  
by you mentioning clearly the  
percentage of rebate offered. : ----- %
- ii. It may be noted that conditional rebates :  
may or not be excepted or considered for  
evaluation depending upon acceptability  
of quoted condition to the company.
7. i. State whether GST is : (Yes/No)  
chargeable extra (clause-3.09, Page-21).
- ii. If yes, please indicate the applicable rate  
of GST, surcharge on GST : -----
- iii. Any other tax if applicable. : -----
- iv. Indicate GST Registration No. : -----
8. Whether agreeable to company payment  
terms clause No.3.10, page-21 ? : (Yes/No)  
If not, please indicate terms of payment.

9. Whether agreeable to Company's penalty clause-2.23, page-16 stipulated in the specification. : (Yes/No)
10. Are you agreeable to payment procedure defined in the tender under clause-3.11: page-21. (Yes/No)
11. Are you agreeable to accept the order for part work as per clause-3.29, page-30. : (Yes/No)
12. Whether agreeable to accept extension order on the same rates, terms & conditions ( at the same location), if extension order is placed within 12 months from the date of acceptance and placement of detailed order. : (Yes/No)
13. Whether agreeable to furnish security deposit as per clause-2.03.02, page-9 in the form as indicated in the tender : (Yes/No)
14. Please refer to clause-3.31,page-31 for completion period and confirm whether the same is acceptable to you. : (Yes/No)
15. Please confirm whether Income-Tax clearance certificate has been furnished (Clause-1.10, Page-5). : (Yes/No).
16. Whether a list of orders executed during last 24 months from State Elec. Boards / State Govt. / DGS&D is enclosed with full particulars of nature of work done. : (Yes/No)
17. Whether certificate of competent authority as a proof of having successfully completed orders has been furnished. : (Yes/No).
18. Whether details of technical manpower of head office and field organisation (Schedule-2-B) furnished. : (Yes/No)
19. Have you furnished the power of attorney in respect of the person signing the tender on behalf of tenderer : (Yes/No)
20. Whether details of departure / deviation (Schedule-6) from specification has been furnished. : (Yes/No)

21. (i) Whether your firm is :  
partnership firm. : (Yes/No)

(ii) If so, indicate the name(s), :  
complete address and designation  
of all partners.

22. Whether you agree to clause for :  
arranging T&P & vehicles. : (Yes/No)

23. Whether photo copy of following documents  
(duly revalidated ) has been furnished:

i. 'A' class electrical contractor certificate : (Yes/No).

ii. EPF Account No. : (Yes/No).

iii. GST Registration No. : (Yes/No).

Date :

Place :

Signature :

Name :

Seal of the tendering Co.

**NOTE:-** (i) The tenderer may use above questionnaire sheets in original for furnishing reply alongwith his 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.

(ii) The tenderer shall necessarily depute the authorised representative who should be present on due date and time of opening of tender. This representative should be authorised signatory of tenderer and should furnish reply on tenderer firm's letter head in case of clarification, if any, sought on the offer after tender opening, if requested. The offer shall be rejected in case the aforesaid instructions are not complied. The authorised representative should stay in Bhopal for two days.

**SCHEDULE OF DEPARTURE/ DEVIATION FROM SPECIFICATION**

We have carefully gone through the Technical specification. We have satisfied ourselves and hereby confirm that our bid conforms strictly to the requirements of technical specification except for the deviations, which are given below:

S. No	Descriptions & Clause No. of the specification & page number	Stipulation in specification	Deviation offered	Remarks regarding justification of the deviation.
1	2	3	4	5

Signature :  
Name :  
Seal of the :  
tendering Co.

**CHECK-LIST**  
**(To be kept in envelope-1)**

Sr. No.	Items enclosed	Reference	Declaration (strike-out whichever is not applicable)
<b>1</b>	Tender form:		Yes / No
<b>2</b>	Earnest Money Enclosed	Schedule-1	Yes / No
<b>3</b>	Tenderers qualifying requirement: (i) Copy of “A” class electrical contractor’s certificate. (ii) Copy of EPF code no. (iii) Copy of certificate of service tax no. (iv) Details of past erection works.  (v)Details of Headquarter/ field organisation as a T&P and vehicles available with tenderer enclosed.	<div style="display: flex; align-items: center; justify-content: center;"> <div style="font-size: 3em; margin-right: 10px;">}</div> <div style="text-align: center;"> <p>Schedule-2(A)</p> <p>Schedule-2(B)</p> </div> </div>	<p>Yes / No</p> <p>Yes / No</p>
<b>4</b>	Completion schedule enclosed duly filled-in.	Schedule-3	Yes / No
<b>5</b>	Questionnaire enclosed duly filled-in.	Schedule-4	Yes / No
<b>6</b>	Schedule of departure / deviation	Schedule-6	Yes / No

Date :

Place :

Signature :

Name :

Seal of the :  
tendering Co.

**SCHEDULE V**

**TENDER SPECIFICATION NO. 73250/TS-02/2018 DUE ON 08.05.18  
SCHEDULE FOR QUOTED PRICES AND QUANTITIES FOR Dismantling Erection & commissioning of  
220 & 132 KV Isolator & ITS ASSOCIATED WORKS AT 220 KV S/s SARNI**

SRNO	DESCRIPTION OF WORK	QTY	UNIT	UNIT RATE (IN RS.)	AMOUNT (IN RS.)
1	2	3	4	5	6
<b>A</b>	Dismantling of existing old 220 KV Isolator work includes				
	<ul style="list-style-type: none"> <li>i) Opening / disconnection of existing both side jumpers /pipe from its both terminals.</li> <li>ii) Dismantling of fixed / moving contacts /moving blades/ pipe.</li> <li>iii) Dismantling of all post Insulator / polycon Insulators and its base channel, all interconnecting pipes /operating mechanism in all respect</li> <li>iv) Removing all copper /MS flat earthing arrangement of Isolators</li> <li>v) Shifting and staking of all Dismantled material to suitable place in yard as decided by officer in charge without any damage.</li> </ul>	13	No.		
<b>B</b>	Erection of new 220 KV Isolator work includes:-				
	<ul style="list-style-type: none"> <li>i) Shifting of new Isolator with all material/Insulators/ mechanism box to work place.</li> <li>ii) Erection and alignment of new 220 KV Isolator on existing isolator structure in all respect as per drawing &amp; design to make it fully operational.</li> <li>iii) Necessary minor structure adjustment / making of hole by drill/ Gas cutter in structure/ cutting &amp; welding as necessary is also included in scope of work.</li> <li>iv) Necessary earthing of all phases of Isolator channels / Operating mechanism/ operating handle is also included in scope of work. However earthing material viz. Ms Flat / flexible copper strip for handle shall be supplied by MPPTCL.</li> <li>v) Necessary civil foundation for operating mechanism box may also be required in some design of Isolator structure in place of fabrication &amp; fixing on structure legs is also included.</li> <li>vi) This work also includes jumpering and fixing of clamps from Isolator to associated equipment/ Bus.</li> </ul>	13	No.		
<b>C</b>	Dismantling of existing old 132 KV Isolator work includes				
	<ul style="list-style-type: none"> <li>i) Opening / disconnection of existing both side jumpers /pipe from its both terminals.</li> <li>ii) Dismantling of fixed / moving contacts /moving blades/ pipe.</li> <li>iii) Dismantling of all post Insulator / polycon Insulators and its base channel, all interconnecting pipes /operating mechanism in all respect</li> <li>iv) Removing all copper /MS flat earthing arrangement of Isolators</li> <li>v) Shifting and staking of all Dismantled material to suitable place in yard as decided by officer in charge without any damage.</li> </ul>	25	No.		

<b>D</b>	Erection of new 132 KV Isolator work includes:-				
	i) Shifting of new Isolator with all material/Insulators/ mechanism box to work place. ii) Erection and alignment of new 220 KV Isolator on existing isolator structure in all respect as per drawing & design to make it fully operational. iii) Necessary minor structure adjustment / making of hole by drill/ Gas cutter in structure/ cutting & welding as necessary is also included in scope of work. iv) Necessary earthing of all phases of Isolator channels / Operating mechanism/ operating handle is also included in scope of work. However earthing material viz. Ms Flat / flexible copper strip for handle shall be supplied by MPPTCL. v) Necessary civil foundation for operating mechanism box may also be required in some design of Isolator structure in place of fabrication & fixing on structure legs is also included. vi) This work also includes jumpering and fixing of clamps from Isolator to associated equipment/ Bus.	25	No.		
<b>TOTAL RS.:</b>					
<b>SAY TOTAL RS.:</b>					
<b>TOTAL COMMITMENT IN RUPEES ( IN WORDS)</b>					

**Note:-** Please note that above mentioned quantities are tentative and may vary during actual execution of works. Further, a few quantities out of those mentioned above may not be required to be got executed due to modification in the drawing/laying of sub-station.

Signature :

Name :

Seal of the tendering Co.: