



# ଓଡ଼ିଶା ବିଦ୍ୟୁତ୍ ଶକ୍ତି ସଂଚାରଣ ନିଗମ ଲିଡ.

## ODISHA POWER TRANSMISSION CORPORATION LIMITED

(A Govt. of Odisha undertaking)

CIN – U40102OR2004SGC007553

REGD. OFFICE: JANPATH, BHUBANESWAR-751022,

OFFICE OF THE GENERAL MANAGER (Elect)

EHT (O&M) CIRCLE, BHUBANESWAR

AT-Grid Sub-Station, Chandaka, PO-KIIT

Bhubaneswar-751024

E-mail - ehtm.cle.bbs@optcl.co.in

E-TENDER SPECIFICATION NO:- EHTM/GM/01/BBS/2023-24

OFFICE OF THE G.M.(Elect.) EHT (O&M) CIRCLE, BHUBANESWAR

FOR

PROVISION OF CONTOUR EARTHING FOR CONTROL ROOMS AND DIPOD AND TRIPOD  
EARTHING OF NCT OF POWER TRANSFORMER OF DIFFERENT GRID SUB-STATIONS  
UNDER EHT(O&M) DIVISION, KHURDA

### PART-I

SECTION-I-	INSTRUCTION TO BIDDERS
SECTION-II-	GENERAL TERMS & CONDITIONS OF CONTRACT
SECTION-III-	LIST OF ANNEXURE
SECTION-IV-	DATASHEETS

### PART-II

PRICE BID & COMMERCIAL BIDS (EXCEL SHEET FORMAT)

Request for online tender documents:	From Dt. 24.04.2023 (16:00 Hrs) To Dt. 09.05.2023 (16:00 Hrs) <b>(extended upto 20.05.2023 16:00 Hrs)</b>
Issue of online tender documents (bid sheets):	From Dt. 24.04.2023 (16:01 Hrs) To Dt. 09.05.2023 (16:01 Hrs) <b>(extended upto 20.05.2023 16:01 Hrs)</b>
Last date of submission of online tender:	Up to Dt. 09.05.2023 (17.00 Hrs) <b>(extended upto 20.05.2023 17:00 Hrs)</b>
Date of opening of Tender	on Dt. 10.05.2023 (11:30 Hrs) <b>(extended upto 22.05.2023 11:30 Hrs)</b>

## **TELEPHONES / CONTACTS**

1. General Manager: 9438907492
2. Manager: 9438907583

### **NOTE: -**

1. In case the due date for opening of tender happens to be a holiday, then tenders would be received & opened on the next working day at the same time.
2. Please note that the tenders against this tender enquiry are being invited **through e-tendering mode**. In case of any clarification the prospective bidders may contact this office as mentioned above.
3. **The prospective bidders are requested to get their digital signatures (Class-3) well in time** for participation in the tender and no request for extension on this account will be entertained.
4. **Manual tenders in any form/case will not be accepted.**



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Bhubaneswar-751024

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For and on behalf of ODISHA POWER TRANSMISSION CORPORATION LTD, General Manager, EHT (O&M) Circle, Bhubaneswar invites Tenders from reputed bidders fulfilling the eligibility criteria and must possess valid PAN , GST registration certificate, for the work of “**PROVISION OF CONTOUR EARTHING FOR CONTROL ROOMS AND DIPOD AND TRIPOD EARTHING OF NCT OF POWER TRANSFORMER OF DIFFERENT GRID SUB-STATIONS UNDER EHT(O&M) DIVISION, KHURDA**”. The interested bidders would be required to enroll themselves on the tender portal [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL). Complete set of bidding documents shall be available at [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) from **From Dt. 24.04.2023 (11:01 Hrs) to Dt. 09.05.2023 (16:01 Hrs)** Interested bidders may visit OPTCL’s official web site <http://www.optcl.co.in> and [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) for detail specification.

N.B:- All subsequent addendums/corrigendum to the tender shall be hosted in the OPTCL’s official web site <http://www.optcl.co.in> and [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) **only**.

**GENERAL MANAGER**

**EHT (O&M) CIRCLE, BHUBANESWAR**



**ଓଡ଼ିଶା ବିଦ୍ୟୁତ୍ ଶକ୍ତି ସଂଚାରଣ ନିଗମ ଲି.ଟି.**  
**ODISHA POWER TRANSMISSION CORPORATION LIMITED**

(A Govt. of Odisha undertaking)

CIN – U40102OR2004SGC007553

REGD. OFFICE: JANPATH, BHUBANESWAR-751022,  
OFFICE OF THE GENERAL MANAGER (Elect)  
EHT (O&M) CIRCLE, BHUBANESWAR  
AT-Grid Sub-Station, Chandaka, PO-KIIT  
Bhubaneswar-751024

E-mail - ehtm.cle.bbs@optcl.co.in

E-TENDER NOTICE NO: 01/BBS/2023-2024

**NOTICE INVITING TENDER**

For and on behalf of the ODISHA POWER TRANSMISSION CORPORATION LTD., the undersigned invites bids from the eligible bidders under **two part bidding** system in **e-tendering mode** only as per the following details.

*Tender Specification No: EHTM/CLE/GM/01/BBS/2023-24*

<b>Request for online tender documents:</b>	<b>From Dt. 24.04.2023 (16:00 Hrs)</b>
	<b>To Dt. 09.05.2023 (16:00 Hrs)</b>
<b>Issue of online tender documents (bid sheets):</b>	<b>From Dt. 24.04.2023 (16:01 Hrs)</b>
	<b>To Dt. 09.05.2023 (16:01 Hrs)</b>
<b>Last date of submission of online tender:</b>	<b>Up to Dt. 09.05.2023 (17.00 Hrs)</b>
<b>Date of opening of Tender</b>	<b>on Dt. 10.05.2023 (11:30 Hrs)</b>

<b>Cost of Tender Spec Document:</b>	<b>Rs. 6,000/ + Rs.1080/- (GST@18%)= Rs. 7080/-</b>
<b>Earnest Money Deposit:</b>	<b>Rs. 20,000/-</b>
<b>Tender Processing Fee:</b>	<b>Rs. 2,239/- (Inclusive of GST)</b>

**ESTIMATED AMOUNT: 18,97,329.00/- (INCLUSIVE OF GST@18%)**

The bidders can view the tender documents from website free of cost.

**ELIGIBILITY FOR SUBMISSION OF BIDS:-**

Bidders should not have any legal suit against OPTCL / GRIDCO Ltd / SLDC are only eligible for submission of Bids. Firms banned / blacklisted for business dealings by any organization are not eligible to participate in the tender. Participation in the tender by suppression of the above facts shall invite penal action, whenever detected.

**The bidders must have in possession of following qualifications for participation in tender:-**

- 1. Experience of having successfully executed similar type of works under Govt. organizations / PSUs / Govt. Autonomous bodies during last 3 years. (Bidder should have experience of executing of above work)**
- 2. GST Registration Certificate.**
- 3. Electrical Contractor HT License certificate.**
- 4. Permanent Account Number (PAN) issued by Income Tax Department.**
- 5. Income Tax return of last Three years.**

The bidders can view the tender documents from website free of cost. The bidders who want to participate in the tender shall have to pay **Rs. 7080/- (Rupees Seven Thousand Eighty only) non-refundable including GST @ 18%** towards the cost of tender document, **in the form of Demand draft** only, drawn in favour of **EHT (O&M) Circle, OPTCL, Bhubaneswar, Payable at Bhubaneswar** and the same is to be submitted to the office of the undersigned on or before the last date & time of submission of tender.

**The bidders shall have to submit a non refundable amount of Rs 2,239/- (Rupees Two Thousand Two Hundred Thirty Nine only) towards the tender processing fee through e-payment gate way.**

*(NOTE: For deposit of tender processing fee to K.S.E.D.C. Ltd. Bangalore, the bidder can use various modes of e-payment facility available through Tender wizard Portal, i.e. by Credit Card, Debit Card, Net Banking)*

The payment acknowledgement slip submitted along with the EMD & tender cost at the office of the undersigned on or before the last date & time of submission of tender.

The bidders shall scan the Demand Draft towards Tender paper Cost and acknowledgement slip for tender processing fee and upload the same in the prescribed form in **.gif** or **.jpg** format in addition to sending the original as stated above.

The prospective bidders are advised to register their user ID, Password, company ID from website [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) by clicking on hyper link “Register Me”.

Any clarifications regarding the scope of work and technical features of the tender can be had from the undersigned during office hours.

**GENERAL MANAGER**  
**EHT (O&M) CIRCLE, BHUBANESWAR**

**PART-I**  
**SECTION-I**  
**INSTRUCTIONS TO TENDERER**

**1. Submission of Bids: -**

The bidder shall submit the bid in Electronic Mode only i.e **www.tenderwizard.com/OPTCL**. The bidder must ensure that the bids are received in the specified website of the OPTCL by the date and time indicated in the Tender notice. Bids submitted by telex/telegram will not be accepted. No request to collect the Bids in physical form will be entertained by the OPTCL.

OPTCL reserves the right to reject any bid, which is not submitted according to the instruction, stipulated above. The participants to the tender should be registered under GST act and other as applicable.

**1. For all the users it is mandatory to avail the Class 3 Digital Signatures.**

2. Manufacturers/ Dealers/ Bidders / Suppliers are requested to follow the below mentioned steps for Registration:

- a. Click “Register”, fill the online registration form.
- b. Pay the amount of **Rs. 2,360/- through E-payment gateway.**
- c. This registration is valid for one year.
- d. Send the acknowledgment copy for verification.
- e. As soon as the verification is being done the e-tender user id will be enabled.

3. After viewing Tender Notification, if bidder intends to participate in tender, he has to use his e-tendering User Id and Password which has been received after registration and acquisition of DSCs.

4. If any Bidder wants to participate in the tender he will have to follow the instructions given below:

- a. Insert the PKI (which consist of your Digital Signature Certificate – Class 3) in your System.  
(Note: Make sure that necessary software of PKI is installed in your system).
- b. Click / Double Click to open the Microsoft Internet Explorer (This icon will be located on the Desktop of the computer).
- c. Go to Start > Programs > Internet Explorer.
- d. Type **www.tenderwizard.com/OPTCL** in the address bar, to access the Login Screen.
- e. Enter e-tender User Id and Password, click on “Go”.
- f. Click on “Click here to login” for selecting the Digital Signature Certificate.
  - Select the Certificate and enter DSC Password.
  - Re-enter the e-Procurement User Id Password

5. To make a request for Tender Document, Bidders will have to follow below mentioned steps.

- a) Click “Un Applied” to view / apply for new tenders.
- b) Click on Request icon for online request.

- c) Enter the required fields including details of DD for tender Processing fee.
6. After making the request Bidders will receive the Bid Documents which can be checked and downloaded by following the steps mentioned below:
  - a) Click to view the tender documents which are received by the user.
  - b) Tender document screen appears.
  - c) Click “Click here to download” to download the documents.
7. After completing all the formalities Bidders will have to submit the tender and they must take care of following instructions.
  - a) Prior to submission, verify whether all the required documents have been attached and uploaded to the particular tender or not.
  - b) Note down / take a print of bid control number once it displayed on the screen
8. Tender Opening event can be viewed online.
9. Competitors bid sheets are available in the website for all.
10. **For any e-tendering assistant contact help desk number mentioned below.**
  - **Bangalore – 080- 40482000.**
  - **Mr. Satamanyu – mob: 09937140591**

## **2. DIVISION OF SPECIFICATION.**

The specification is mainly divided into two parts viz. Part-I & Part-II.

### **Part-I Consists of**

- SECTION-I- INSTRUCTION TO BIDDERS.
- SECTION-II- GENERAL CONDITIONS OF CONTRACT
- SECTION-III- LIST OF ANNEXURE

### **Part-II Consists of**

COMMERCIAL BID and PRICE SCHEDULE (excel sheet)

The Bidders are required to submit the tenders in two part viz. Commercial & Price bid.

## **3. Purchaser Right Regarding Alteration of Quantities Tendered.**

The Bidder may alter the quantities of work at the time of placing orders. Initially the Bidder may place orders for lesser quantity with full freedom to place extension orders for further quantity under similar terms and conditions of the original orders. **Orders may also be split among more than one bidder for Grid wise for the work, if considered necessary in the interest of the OPTCL.**



**4. Purchaser right to accept/reject bids:**

The bidder reserves the right to reject any or all the tenders without assigning any reasons what so ever if it is in the interest of OPTCL, under the existing circumstances.

**5. Mode of submission of Tenders.**

[A] Tenders shall be submitted in electronic mode only. ([www.tenderwizard.com/](http://www.tenderwizard.com/) OPTCL)

[B] **E-mail tenders** shall not be accepted under any circumstances.

**6. Validity of the Bids: -**

The bidders are requested to keep the validity of their offer for a period of **90** days from the date of opening of the tender, failing which the tenders will be rejected.

**7. PRICE: -**

The bidders are advised to quote their rates as per **price schedule**. The price should be firm and shall include the cost of all the materials, labor, and transportation of all the materials to site including mobilization to complete the work in all respect and also shall cover all incidental expenses towards execution of works including T&P etc. Taxes if any to be specified separately.

**8. Bidders to be fully conversant with the clauses of the Specification:**

Bidders are expected to be fully conversant with the meaning of all the clauses of the specification before submitting their tenders. In case of doubt regarding the meaning of any clause, the bidder may seek clarification in writing from the GM (Elect.), EHT (O&M) Circle, Bhubaneswar, This, however, does not entitle the bidder to ask for time beyond due date, fixed for receipt of tender.

**9. e-Reverse Auction process shall be resorted to in the tender as follows:**

**A) STRATEGY FOR E-REVERSE AUCTION**

- (i) Bidders are required to go through the guide lines given below and submit their acceptance to the same.
- (ii) e-Reverse Auction (RA) will be conducted in e-tender portal of OPTCL on specified date and time, while bidders shall quote from their own offices/places of their choice. Internet connectivity shall be ensured by the respective agencies/bidders themselves.
- (iii) Demonstration/ training (if not trained earlier) of bidder's nominated person(s), shall be done by KEONICS to explain all the rules related to e-Reverse Auction/ Business Rule document to be adopted.

## B) Procedure for electronic Reverse Auctioning (e-RA)

- (i) The e-RA shall be conducted on [www.tenderwizard.com/OPTCL](http://www.tenderwizard.com/OPTCL) only.
- (ii) Bidder has to submit letter towards agreement to the Process related Terms & Conditions for e-Reverse Auction, as per (Reverse Auction Process Compliance Form at **Annexure-IVA**). In non-receipt of the same, vendors will not be allowed to participate in e-RA.
- (iii) e-RA shall be carried out after opening of Price bids and completion of Price bid evaluation, which will be intimated only to the techno-commercially qualified bidders by OPTCL as per procedure given below.

Prior intimation/ Notice for RA invitation will be given to techno-commercially qualified bidders regarding the date & time of opening of the e-RA.

The start bid price (SBP) for e-Reverse Auction of each bidder under a particular package shall be the L1 evaluated price for the subject package including Taxes & Duties for the total scope for subject Package. Taking the above discovered L1 price as the upper limit e-RA will be conducted to determine the lowest possible price.

Reverse Auction will be conducted amongst first 50% of the technically qualified bidders arranged in order of prices from lowest to highest, as L1, L2, L3-----Ln, and L1 price will be discovered. Minimum of 3 bidders shall be eligible for e RA. (eg. If 4 bidders are financially evaluated then the L1, L2 and L3 bidders shall be eligible for e-RA). Number of bidders eligible for participating in RA would be rounded off to next higher integer value if number of technically qualified bidders is odd (e.g. if 7 bids are technically qualified, then RA will be conducted amongst L1 to L4).

However, in case only two bidders are found to be responsive, e-RA would be carried out with both the parties without any elimination. However, OPTCL reserves the right to invite the evaluated L1 bidder for negotiation without conducting the e-RA.

In case of price submitted by any bidder is found to be abnormal, OPTCL reserves the right to reject the bid of the bidder(s).

Rank of bidders would be displayed as per the total cost to OPTCL, i.e. including Taxes and Duties payable by OPTCL as per the provisions of the bidding document & after e-RA process is over.

- iv) OPTCL reserves the right to conduct e-RA and it is obligatory on part of bidder(s) invited to participate in e-RA process once they have responded to the techno-commercial bid.
- v) Names of bidders/ vendors shall not be disclosed during the e-RA process. Names of bidders/ vendors shall be anonymously masked in the e-RA process.
- In case of RA, start/ reference price and step value of decrement shall be indicated to the bidders at the start of the auction. Any participating bidder can bid one or multiple step decrement lower than the prevailing lowest bid at that time. The Bidder shall be able to view Bid Start Price, Bid Decrement Value, Prevailing Lowest Bid value, last Bid Placed by him and time left for bidding.
  - The step value of decrement in a package to be offered by bidder (the minimum amount of reduction in the total bid price including all taxes & duties during auction), shall be kept at 0.15% of L1 bidder's final evaluated price (or) at approved amount as decided by OPTCL.
  - Bidders can only quote any value lower than their previous quoted price. However, at no stage, increase in Price will be permissible.
  - At any point during Reverse Auction, bidding price field shall remain enabled for the bidders. The total reverse auction period shall be unlimited and the initial auction period (1<sup>st</sup> slot) will be of thirty (30) minutes with provision of auto extension by ten (10) minutes from the schedule/extended closing time. If any fresh lower bid is received in last ten minutes of auction period or extended auction period, the auction shall get extended automatically for another 10 minutes. In case there is no Bid received during schedule /extended slot, the Auction shall get closed automatically without further extension.
  - However, bidders are advised not to wait till the last minute or last few seconds to enter their bid during the period of e-reverse auction to avoid complication related with internet connectivity, network problem, system crash down, power failure etc.
- vi) After conclusion of e-Reverse Auction i.e (Closing Price in Reverse Auction will be taken as offered price by the L1 bidder), decrease in price of individual head of the template shall be considered proportionately on all individual line items of the respective head of the price schedule of the successful L1 bidder.

Any bid received at the tender wizard server end subsequent to closure of the e-RA shall be summarily rejected and shall not be considered as a valid bid under whatsoever circumstances. For this purpose, tender wizard server log shall prevail.

The bidder shall not involve himself or any of his representatives in price manipulation of any kind directly or indirectly by communicating with other bidders.

During Reverse Auction, If no bid is received within the specified time, OPTCL, at its discretion, may decide to close the reverse auction process/ proceed with conventional mode of tendering [ Evaluation of Part-II (price bid) submitted by bidders earlier].

- vii) Consequent upon completion of e-Reverse Auction, OPTCL's decision on award of contract shall be final and binding on the bidders.

OPTCL shall be at liberty to call the L1 bidder for further process/ negotiation and also at liberty to cancel the e-reverse auction process/ re-tender at any time, without assigning any reason thereof. OPTCL can decide to reschedule or cancel any reverse auction: the bidders shall be informed accordingly.

OPTCL/ Service Provider shall not have any liability to bidders for any interruption or delay in access to the e-Tender site/ Reverse Auction link irrespective of the cause.

#### **10. Documents to Accompany Bids.**

Bidders are required to submit tenders in the following manner:

- i) Declaration Form as per **Annexure-I** (duly signed) to be uploaded in .pdf format.
- ii) Abstract of Terms & conditions in prescribed proforma as per **Annexure-II**. To be entered in the bid sheets provided.
- iii) General Terms & Conditions of contract as per Section-II of the Specification. (All the required documents are to be uploaded.)
- iv) Data on past experience if any **as per** the Specification.(Scanned copy to be uploaded)
- v) GST Registration certificate, **Electrical HT Contractor License certificate** & Civil (C/D-Class ) Contractor License & permanent account number [PAN] of the firm is required under Income tax Act. (Scanned copy to be uploaded).
- vi) Any other document required, is to be uploaded.

#### **11. Conditional Offer:**

Conditional offer shall not be accepted.

#### **12. General: -**

- i) The Bidder must get him registered in tender portal by paying an amount of **Rs. 2360/- through e-payment mode only**. This registration is valid for two years.
- ii) The tender paper cost (Form fee non-refundable) for an amount of **Rs. 7,080/- is to be paid in shape of DD**.
- iii) The tender processing fee for an amount of **Rs. 2,624/- (Non-refundable)** is to be paid in e-payment mode only.
- iv) In the event of discrepancy or arithmetical error in the schedule of price, the decision of the purchaser shall be final and binding on the bidder.
- v) Notice inviting tender shall form part of this specification.

- vi) It should be distinctly understood that the price bid shall contain only details/documents relating to price, as mentioned herein above.
- vii) **The Bidder must submit the cost of tender document in shape of DD in a sealed cover envelope super scribing the Tender Notice No. & Date of opening of tender clearly on the envelope cover. The said envelope is to be submitted in the office of the purchaser/Tenderer on or before the last date and time of submission of tender.**
- viii) **The estimated quantity is indicated in this tender document for reference. The bidders are advised to visit the site; assess the quantum of work involvement and make themselves acquainted with the site conditions before submission of tender.**
- ix) The Bidder must observe all the safety rules while working in EHV environment.

## SECTION-II

### GENERAL TERMS AND CONDITIONS OF CONTRACT [G.T.C.C.]

#### 1. Scope of the contract:

- The scope of contract covers as work of “**PROVISION OF CONTOUR EARTHING FOR CONTROL ROOMS AND DIPOD AND TRIPOD EARTHING OF NCT OF POWER TRANSFORMER OF DIFFERENT GRID SUB-STATIONS UNDER EHT(O&M) DIVISION, KHURDA**” as per the schedule of quantity of **SECTION-IV**
- The contractors must **Construct Tripod/Dipod Earthing and Contour Earthing** as instructed by engineer-in-charge.
- The contractor must ensure that the bentonite powder must get checked by the engineer-in-charge before application of the same.

#### 2. The contractor will have his own T&P and supply of bentonite powder(for earth pit) and other materials required for **Construction Of Tripod/Dipod Earthing And Contour Earthing** .

#### 3. Manner Of Executing The Works:

- **Earth pits** should have at least 300 mm (1ft.) bored holes and are to be filled up with only bentonite slurry. One pit will require 50 Kg. of good quality bentonite.
- **Special type earthing pits** should have at least 300mm(1ft.) bored holes and are to be filled up with only bentonite slurry. One pit will require 100 Kg. of good quality bentonite.
- If earth pits where more than 300 mm dia. is dug, then area beyond 300mm dia. is to be filled up with **black cotton soil**.
- **Details of Pipe type Earthing and Chamber**
  - I. Size of pipe:-3050 mm (For normal earth pit)  
6000 mm (For Special Type earth pit)
  - II. Thickness of Pipe:-**4mm( medium)**
  - III. Dia. of pipe:-**50mm**
  - IV. Material :-Hot dip Galvanised Iron
  - V. Bentonite Powder Use :-50 Kg (For normal earth pit)  
100 Kg (For Special Type earth pit)
  - VI. Chamber Details:-125 mm Thickness of Brick wall (1:6)  
650\*650 mm Size of Earth Pit cover R.C.C. (1:2:4)  
Rod details and other data are according Diagram (ANNEXURE-VII (A))
- **Details of Laying of Earth Mat And Earth Riser**
  - I. Earth Mat Flat Size:-75\*50 mm Hot dip Galvanised Iron
    - The application of bentonite will be 300mm width, 150mm at the bottom and 150mm at the top of the earth mat conductor/flat. Hence the bentonite requirement will be 18Kg per meter
  - II. Earth Riser Flat Size:-50\*6mm Hot dip Galvanised Iron

#### 4. **Definition of terms:**

For the purpose of this specification and General Terms and Conditions of contract [GTCC], the following words shall have the meanings hereby indicated, except where otherwise described or defined.

- 2.1 “Purchaser” shall mean the General Manager, EHT (O&M) Circle, Bhubaneswar for and on behalf of ODISHA POWER TRANSMISSION CORPORATION LTD., Bhubaneswar.
  - 2.2 “The Engineer” shall mean the Engineer appointed by the Purchaser for the purpose of this contract.
  - 2.3 “Purchaser’s Representative” shall mean any person or persons or consulting firm appointed and remunerated by the Purchaser to supervise, inspect, test and examine workmanship and materials of the equipment to be supplied.
  - 2.4 “The supplier” shall mean the bidder whose bid has been accepted by the purchaser and shall include the bidder’s executives, administrators, successors and permitted assignees.
  - 2.5 “Equipment” shall mean and include all machinery, apparatus, materials, and articles to be provided under the contract by the suppliers.
  - 2.6 “Contract Price” shall mean the sum named in or calculated the bid.
  - 2.7 “General Condition” shall mean these General Terms and Conditions of Contract.
  - 2.8 “The Specification” shall mean both the technical as well as commercial parts of the specification annexed to or issued with GTCC and shall include the **schedules** and drawings, attached thereto as well as all samples and pattern, if any.
  - 2.9 “Month” shall mean “Calendar month”.
  - 2.10 “Writing” shall include any manuscript, type written, printed or other statement reproduction in any visible form and whether under seal or under hand.
  - 2.11 “FOR Destination costs” shall mean the cost of equipment and material at the consignee’s store/site. The cost is inclusive of all taxes, packing, forwarding and insurance and freight charges.
  - 2.12 The term “Contract document” shall mean and include GTCC, specifications, schedules, drawings, form of tender, Notice Inviting Tender, covering letter, schedule of prices or the final General Conditions, any special conditions, applicable to the particular contract.
  - 2.13 Terms and conditions not herein defined shall have the same meaning as are assigned to them in the Indian Contract Act, failing that in the ODISHA General Clauses Act.
5. **After completion of the work, the Earth resistance to be measured by agency in presence of Engineer In Charge which must within the desired limit.**

6. **Tender schedule:-**

Schedule of different items of the works to be executed is given in the schedule of quantity. The bidders are required to quote their unit rates which should be inclusive of supply of all required materials at site including cost of materials and transportation to site and cost of all labour to execute the work. Taxes if any should be indicated separately.

7. All material, T&P and labour are to be supplied by the contractor as per the satisfaction of the site in-charge

8. **Programme and Progress of work**

The contractor shall submit the **TENTATIVE WORK ACTION PLAN (BBSR-AP/21)** of work as per the attached format along with the bid document. OPTCL may conduct Review of the work action plan during the tendering process. The final Work action plan shall be submitted before commencement of the work

9. **Language and measures:**

All documents pertaining to the contract including specifications, schedule, notices, correspondence, operating and maintenance instructions, drawings or any other writing shall be written in English language. The metric system of measurement shall be used exclusively in this contract.

10. **Right to reject /accept any tender:**

**The purchaser reserves the right either to reject or to accept any or all tenders if the situation so warrants in the interest of the purchaser.** Orders may also be split up between different Bidders on individual merits of the Bidder. The purchaser has exclusive right to alter the quantities of materials/ equipment at the time of placing final purchase order. After placing of the order, the purchaser may defer the delivery schedule of the materials. It may be clearly understood by the Bidder that the purchaser need not assign any reason for any of the above action[s].

11. **Completion Period:**

The work shall be carried-out & completed within **90** days from the date of issue of Work order. The authority however reserves the right to reschedule the work program.

12. **Extension of time:-**

If the work is not completed within the stipulated period due to any reason beyond the control of bidder, the same should be intimated to the purchaser in writing for an extension of time with detail **justification**. The purchaser on receipt of such notice may agree to extend the work contract if reasonable, but without prejudice to other terms and conditions of this contract.



**13. Guarantee period: -**

13.1 The work done by the contractor shall be guaranteed for a period of 12 months from the date of completion of work against any bad materials used and bad workmanship done for the work. The above guarantee certificate shall be furnished in **triplicate** to this office for approval. Any defects noticed during the period shall be rectified by the Contractor on free of cost to OPTCL upon written notice provided such defects are due to bad materials used and bad workmanship.

13.2 After the Utilization of Sodium Bentonite as Ground Improvement Materials in the GSS, the soil resistance shall be measured and the resistance shall be recorded (say R1ohm) After 12 months, soil resistance shall be measured again (say R2 ohms) for the bidder has to undertake guarantee that because of his utilization of product supplies by his firm, there shall not be a deviation of more than +/- 10% in the earth resistance measured over a time span of 12 months  $(R2-R1)/R1*100$

**14. GSTIN REGISTRATION CERTIFICATE / I.T. PAN CARD / HT CONTRACTOR LICENSE: -**

Clear attested Xerox copies of GST / PAN / HT contractor license issued by Govt. of India/Govt. Of Odisha/Railways /Military, valid on the date of opening of tender should be submitted along with tenders without which tender will be rejected. The Contractor may be requested to produce original PAN card, GST registration certificate/ HT Electrical contractor license and all other relevant documents for verification. **Those who fail to produce the same and found not to be valid on the date of opening of tender, their tenders will be rejected. All documents of the tender should be signed by the authorized signatory.**

Attested legible Xerox copies of Income Tax PAN Card, GSTIN Certificate valid on the date of opening of the tender should be submitted along with tenders without which tender will be rejected at the time of opening. If required, the tenders shall have to produce original documents for verification any time after the opening of tender. Those who fail to produce the same and found not to be valid on the date of opening of the tender, their tenders will be rejected.

**15. Terms of Payment.**

100% payment will be made against satisfactory execution of works subject to detailed verification and completion certificate produced by the concerned consignee.

**16. Price reduction:-**

i). If the Contractor fails to execute the work as stipulated under Clause No. 11 of this tender document or any extension granted thereto, the authority shall recover from the contractor price reduction for a sum of half percent (i.e. 0.5 percent) of the contract price for each calendar week or part thereof of limited to maximum of 5% of cost (exclusive of GST) of contract value.

ii).OPTCL shall recover the price reduction schedule from the bill of the Contractor.

iii). However, if the price reduction schedule remain un-recovered the same shall be recovered from the contract performance Bank Guarantee.

**16. Jurisdiction of the High Court of ODISHA.**

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

**17. Correspondences.**

- i) Any notice to the supplier under the terms of the contract shall be served by Registered Post or by hand at the Supplier's Principal Place of Business.
- ii) Any notice to the Purchaser shall be served at the Purchaser's Principal Office in the same manner.

**18 Outright Rejection of Tenders**

Tenders shall be outrightly rejected if the followings are not complied with:

- 1. Tenders shall be kept valid for a minimum of 180 days from the date of opening of the tender.
- 2. Tenders shall be accompanied with clear valid Xerox copy of GST registration (if applicable), & clearance certificate, PAN card which must be valid on the date of opening of the tender. All copies of documents and each page of the tender must be signed by the authorized representative of the bidders.
- 3. Tenders shall be accompanied with Electrical HT Contractor License.
- 4. Abstract of general terms and conditions of contract.
- 5. The bidders have to unconditionally comply with tender specification.

**Official Address of the Parties to the Contract**

The address of the parties to the contract shall be specified:-

**TENDERER:**      *GENERAL MANAGER (Elect)*  
*EHT (O&M) CIRCLE, BHUBANESWAR*  
*AT-Grid Sub-Station, Chandaka, PO-KIIT*  
*Bhubaneswar-751024*  
[Email-ehm.cle.bbs@optcl.co.in](mailto:Email-ehm.cle.bbs@optcl.co.in)

**BIDDER:**

Address : \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

Telephone/Mobile No: \_\_\_\_\_

E-mail id:- \_\_\_\_\_

### **SECTION-III**

#### **[LIST OF ANNEXURES]**

The following schedules and Performa are annexed to this specification and contained in Section-III as referred to in the relevant clauses.

1	Declaration form	ANNEXURE-I
2	Bidders information	ANNEXURE-II
3	Abstract of terms and conditions to accompany Section-II of Part-I	ANNEXURE-III
4	Reverse Auction Process Compliance	ANNEXURE-IV(A)
5	Schedule of Quantity	ANNEXURE-V
	(A) 220/132/33 KV GSS Atri	ANNEXURE-V(A)
	(B) 132/33 KV GSS Khurda	ANNEXURE-V(B)
	(C) 132/33 KV GSS Banki	ANNEXURE-V(C)
	(D) 132/33 KV GSS Argul	ANNEXURE-V(D)
	(E) 220/33 KV GSS Nayagarh	ANNEXURE-V(E)
6	Schedule of Price	ANNEXURE-VI
	(A) 220/132/33 KV GSS Atri	ANNEXURE-V(A)
	(B) 132/33 KV GSS Khurda	ANNEXURE-V(B)
	(C) 132/33 KV GSS Banki	ANNEXURE-V(C)
	(D) 132/33 KV GSS Argul	ANNEXURE-V(D)
	(E) 220/33 KV GSS Nayagarh	ANNEXURE-V(E)
7	Diagram Details	ANNEXURE-VI
	(A) Earth Pit Diagram	ANNEXURE-VII(A)

(B)	Lay Out of Contour Earthing 220/132/33 KV GSS Atri	ANNEXURE-VII(B)
(D)	Lay Out Diagram of Contour Earthing 132/33 KV GSS Khurda	ANNEXURE-VII(C)
(E)	Lay Out Diagram of Di-Pod/Contour,Bay Kiosk Earthing 132/33 KV GSS Banki	ANNEXURE-VII(D)
(E)	Lay Out Diagram of TriPod/Contour,Bay Kiosk Earthing 132/33 KV GSS Argul	ANNEXURE-VII(E)
(E)	Lay Out Diagram of TriPod/Contour,Bay Kiosk Earthing 220/33 KV GSS Nayagarh	ANNEXURE-VII(F)



**ANNEXURE-II**  
**BIDDER'S INFORMATION**

SL NO	The bidder shall furnish general information in the following format	
NAME OF THE BIDDER		
1	Address:-	
2	City	
3	Pin Code	
4	Contact person's Name :-	
5	Telephone No. office & Residence:-	
6	FAX No:-	
7	EMAIL:-	
9	SERVICE TAX REGISTRATION NO.	
10	PAN NO.	

Place: -

Date: -

Signature of the Bidder  
with seal of the company

**ANNEXURE-III**

**ABSTRACT OF GENERAL TERMS AND CONDITIONS OF CONTRACT  
[COMMERCIAL] TO ACCOMPANY PART-I**

1(a)	Cost of Tender Document: D.D No & Date.	
1(b)	EMD: D.D No & Date	
1(c)	Tender Processing Fee: E-Challan No. & Date.	
2	Attested copy of Pan card :-	<i>Furnished/Not Furnished</i>
3	Attested copy of valid Electrical HT Contractor License :-	<i>Furnished/Not Furnished</i>
4	Attested copy of GSTIN certificate as applicable	<i>Yes/No</i>
5	Contractor's work experience including user's certificate furnished ( if any)	<i>Yes/No</i>
6	<b>Manner of work:</b> - Whether agreeable to OPTCL's desired manner as indicated.	<i>Yes/No</i>
7	Whether agreeable to furnish Composite B.G. in case his tender be successful.	<i>Yes/No</i>
8	<b>Terms of payment:-</b> Whether agreeable to OPTCL's terms regarding payment?	<i>Yes/No.</i>
9	Nature of price:- FIRM	<i>Yes/No</i>
10	<b>Penalty:-</b> Whether agreeable to OPTCL's terms .	<i>Yes/No</i>
11	<b>Validity:</b> - Whether agreeable to OPTCL's terms	<i>Yes/No</i>
12	Whether declaration form duly filled in furnished.	<i>Yes/No.</i>
13	Whether scanned copy of required documents furnished.	<i>Yes/No.</i>
15	Whether scanned copy of Audited Accounts furnished	<i>Yes/No.</i>

Signature of the Bidder

with seal of the company

**ANNEXURE-IV**

**Reverse Auction Process Compliance**

(To be incorporated in the bid document).

(To be submitted on letter head of the bidding company with sign and stamp and along with Technical bid)

To,

The **General Manager (Elect.)**,

EHT (O&M) Circle, OPTCL, Bhubaneswar.

**Sub:** Agreement to the Process related Terms & Conditions for e-Reverse Auction.

Dear Sir,

This letter is to confirm that:

- The undersigned is authorized representative of the company.
- We have studied the Commercial Terms and the Business rules governing the Reverse Auction as mentioned in your tender and confirm our agreement to that.
- We also confirm that we have gone through the auction manual and have understood the functionality of the same thoroughly.
- We, hereby, confirm that we will honour the Bids placed by us during the tendering/ e- Reverse auction process as called as e-RA.
- We also confirm that we will accept our Rank / Position that will be displayed when the Bidding Time for the Online Reverse Auction is over.

With regards, Signature with Designation with company seal



**ANNEXURE-V**

**SCHEDULE OF QUANTITY**

**CONSTRUCTION OF TRIPOD/DIPOD EARTHING AND CONTOUR EARTHING AND PROCUREMENT OF BENTONITE POWDER FOR DIFFERENT GRID SUB-STATIONS OF EHT(O&M) DIVISION, KHURDA UNDER EHT(O&M) CIRCLE, BHUBANESWAR**

**ANNEXURE-VI(A)**

**Construction of Contour earthing of control room at 220/132/33 kV Grid Sub-Station, Atri**

Sl. No	Description of Work	Units	Quantity
1	Pipe earthing including excavation of earth, treatment of bentonate compound, back filling with borrowed earth, termination to earth mat riser by nut bolting, apply of paint where necessary with supply of all Labour and T&P as per ISS-3043) but with excavation of Morrum and laterite layer with cost of earthing pipe (50 mm dia 3050 mm length medium gauge) and (50x6 mm) G.I. Flat.with wxcavation of Morrum and laterite Layer. [Earth pits having at least 300mm(1 ft.) bored wholes are to be filled up with only bentonite slurry requiring 50 kg of good quality bentonite as per O/o of CGM(O&M) vide letter no. 1657 dtd. 02.12.2016]	Per set	10
2	Inter-connection of Earth Pits & connection to common earth mat: - Excavation of earth, welding of different size flats, application of two coats of bituminous paint, wrapping of HT Tapes over it, <i>surrounding earth mat flat with bentonite slurry having dimensions of 300mm width, 150 mm thick at bottom, 150 mm thick at top</i> and back filling of earths (Care should be taken while the excavated earth is covered over this bentonite so that the soil does not penetrate into the bentonite applied) including supply of Welding machine, welding generator, welding rods and all materials, T&P, Labour <b>with supply of GI Flat of size 75 x 10 mm</b> (Bentonite powder will be supplied departmentally @18 kg/metre length of GI flat) (Considering 5% extra on flat towards lapping & wastage)	Per mtr.	193
3	Earthing riser- Connection of GI Flat from earth mat to equipment, welding of flats, application of two coats of bituminous Paint, wrapping of HT Tapes over it (With supply of Labour and T&P) using GI Flat of size 50x6 mm with supply of GI Flat.(Considering 5% extra on flat towards lapping & wastage)	Per mtr.	150

**ANNEXURE-VI(B)**

**Construction of Contour earthing of control room at 132/33 kV Grid Sub-Station, Khurda**

Sl. No	Description of Work(Part -A)	Units	Quantity
1	Pipe earthing including excavation of earth, supply and treatment of bentonate compound, back filling with borrowed earth, termination to earth mat riser by nut bolting, apply of paint where necessary with supply of all Labour and T&P as per ISS-3043) but with excavation of Morrum and laterite layer with cost of earthing pipe (50 mm dia 3050 mm length medium gauge) and (50x6 mm) G.I. Flat.with excavation of Morrum and laterite Layer. [Earth pits having at least 300mm(1 ft.) bored wholes are to be filled up with only bentonite slurry requiring 50 kg of good quality bentonite]	Per set	8

2	Inter-connection of Earth Pits & connection to common earth mat: - Excavation of earth, welding of different size flats, application of two coats of bituminous paint, wrapping of HT Tapes over it, <i>surrounding earth mat flat with bentonite slurry having dimensions of 300mm width, 150 mm thick at bottom, 150 mm thick at top</i> and back filling of earths (Care should be taken while the excavated earth is covered over this bentonite so that the soil does not penetrate into the bentonite applied) including supply of Welding machine, welding generator, welding rods and all materials, T&P, Labour <b>with supply of GI Flat of size 75 x 10 mm</b> (Bentonite powder will be supplied departmentally @18 kg/metre length of GI flat) (Considering 5% extra on flat towards lapping & wastage)	Per mtr.	118
3	Earthing riser- Connection of GI Flat from earth mat to equipment, welding of flats, application of two coats of bituminous Paint, wrapping of HT Tapes over it (With supply of Labour and T&P) using GI Flat of size 50x6 mm with supply of GI Flat.(Considering 5% extra on flat towards lapping & wastage)	Per mtr.	80
4	Breaking of existing concrete foundation with clearing of debris from switchyard as per the Instruction of Engineer Incharge ( including supply of T&P, Laobur etc. necessary for the work)	Cum	1.6

ANNEXURE-VI(C)

**Construction of Dipod earthing for NCTs of 02 Nos. of power transformers & contour earthing of control room at 132/33 kV Grid Sub-Station, Banki**

Sl. No	Description of Work	Units	Quantity
<b>A</b>	<b>Dipod Earthing of NCTs</b>		
1	Picking of 20/40mm hard granite metals from switch yard area and stacking of the same as per instruction of Engineer In charge		
	24mX0.6m=14.4 Sqm.	Sqm	18.4
	1 m X 1m X 4 nos. of earth pit=4 Sqm		
2	Breaking of existing concrete foundation for replacement / renovation work, clearing of debris from switch yard as per the Instruction of Engineer Incharge ( including supply of T&P, Laobur etc. necessary for the work)	Cum	1.38
	24mX0.6m X 0.075m=1.08 Cum		
	1 m X 1m X 0.075m X 4 nos. of earth pit=0.3 Cum		
3	Special type of Pipe earthing including excavation of earth, supply and treatment of bentonite compound, back filling with borrowed earth, termination to earth mat riser by nut bolting, apply of paint where necessary with supply of all Labour and T&P as per ISS-3043) with cost of earthing pipe (50 mm dia 6000 mm length medium gauge) and (50x6 mm) G.I.Flat.[Earth pits having at least 300mm(1 ft.) bored wholes are to be filled up with only bentonite slurry requiring 50 kg of good quality bentonite]	Per set	4
4	Inter-connection of Earth Pits & connection to common earth mat: - Excavation of earth, welding of different size flats, application of two coats of bituminous paint, wrapping of HT Tapes over it, <i>surrounding earth mat flat with bentonite slurry having dimensions of 300mm width, 150 mm thick at bottom, 150 mm thick at top</i> and back filling of earths (Care should be taken while the excavated earth is covered over this bentonite so that the soil does not penetrate into the bentonite applied) including supply of Welding machine, welding generator, welding rods and all materials, T&P, Labour <b>with supply of GI Flat of size 75 x 10 mm (Bentonite powder will be supplied departmentally @18 kg/metre length of GI flat)</b> (Considering 5% extra on flat towards lapping & wastage)	Per mtr.	24
5	Supply and spreading of loose fine, clear good quality river sand / crusher dust in switch yard, including stacking for measurement with supply of all labour and T&P.	cum	0.72
	24mX0.6m X 0.05m=0.72 Cum		

6	PCC up to a height of 75mm in 1:4:8 ratio with proper gradient towards the drain for easy discharge of rain water with 20mm size crushed broken metals.	cum	1.08
	24mX0.6m X 0.075m=1.08 Cum		
7	Spreading of 20mm hard granite metals in switch yard as per the Instruction of Engineer In charge with supply of all Labour and T&P (without supply of metal).	Cum	1.44
	24mX0.6m X 0.1m=1.44 Cum		
<b>B</b>	<b>Contour Earthing</b>		
9	Special type of Pipe earthing including excavation of earth, supply and treatment of bentonite compound, back filling with borrowed earth, termination to earth mat riser by nut bolting, apply of paint where necessary with supply of all Labour and T&P as per ISS-3043) with cost of earthing pipe (50 mm dia 6000 mm length medium gauge) and (50x6 mm) G.I.Flat.[Earth pits having at least 300mm(1 ft.) bored wholes are to be filled up with only bentonite slurry requiring 50 kg of good quality bentonite]	Per set	6
10	Inter-connection of Earth Pits & connection to common earth mat: - Excavation of earth, welding of different size flats, application of two coats of bituminous paint, wrapping of HT Tapes over it, <i>surrounding earth mat flat with bentonite slurry having dimensions of 300mm width, 150 mm thick at bottom, 150 mm thick at top</i> and back filling of earths (Care should be taken while the excavated earth is covered over this bentonite so that the soil does not penetrate into the bentonite applied) including supply of Welding machine, welding generator, welding rods and all materials, T&P, Labour <b>with supply of GI Flat of size 75 x 10 mm (Bentonite powder will be supplied departmentally @18 kg/metre length of GI flat)</b> (Considering 5% extra on flat towards lapping & wastage)	Per mtr.	132

**ANNEXURE-VI( D)**

**Construction of tripod earthing for NCTs of 02 Nos. of power transformers & contour earthing of control room at 132/33 kV Grid Sub-Station, Argul**

<b>Sl. No</b>	<b>Description of Work</b>	<b>Units</b>	<b>Quantity</b>
<b>A</b>	<b>Tripod Earthing</b>		
1	Picking of 20/40mm hard granite metals from switch yard area and stacking of the same as per instruction of Engineer In charge	Sqm	64
	90mX0.6m=54 Sqm.		
	1 m X 1m X 10 nos. of earth pit=10 Sqm		
2	Breaking of existing concrete foundation for replacement / renovation work, clearing of debris from switch yard as per the Instruction of Engineer Incharge ( including supply of T&P, Laobur etc. necessary for the work)	Cum	4.8
	90mX0.6m X 0.075m=4.05 Cum		
	1 m X 1m X 0.075m X 10 nos. of earth pit=0.75 Cum		
3	Special type of Pipe earthing including excavation of earth, supply and treatment of bentonite compound, back filling with borrowed earth, termination to earth mat riser by nut bolting, apply of paint where necessary with supply of all Labour and T&P as per ISS-3043) with cost of earthing pipe (50 mm dia 6000 mm length medium gauge) and (50x6 mm) G.I.Flat.[Earth pits having at least 300mm(1 ft.) bored wholes are to be filled up with only bentonite slurry requiring 50 kg of good quality bentonite. )	Per set	10

4	Inter-connection of Earth Pits & connection to common earth mat: - Excavation of earth, welding of different size flats, application of two coats of bituminous paint, wrapping of HT Tapes over it, <i>surrounding earth mat flat with bentonite slurry having dimensions of 300mm width, 150 mm thick at bottom, 150 mm thick at top</i> and back filling of earths (Care should be taken while the excavated earth is covered over this bentonite so that the soil does not penetrate into the bentonite applied) including supply of Welding machine, welding generator, welding rods and all materials, T&P, Labour <b>with supply of GI Flat of size 75 x 10 mm</b> (Bentonite powder will be supplied departmentally @18 kg/metre length of GI flat) (Considering 5% extra on flat towards lapping & wastage)	Per mtr.	94.5
5	PCC up to a height of 75mm in 1:4:8 ratio with proper gradient towards the drain for easy discharge of rain water with 20mm size crushed broken metals.	cum	4.05
	90mX0.6m X 0.075m=4.05 Cum		
6	Spreading of 20mm hard granite metals in switch yard as per the Instruction of Engineer In charge with supply of all Labour and T&P (without supply of metal).	Cum	5.4
	90mX0.6m X 0.1m=5.4 Cum		
7	Earthing riser- Connection of GI Flat from earth mat to equipment, welding of flats, application of two coats of bituminous Paint, wrapping of HT Tapes over it (With supply of Labour and T&P) using <b>GI Flat of size 50x6 mm</b> with supply of GI Flat.(Considering 5% extra on flat towards lapping & wastage)	Per mtr.	21
<b>B</b>	<b>Contour Earthing</b>		
8	Special type of Pipe earthing including excavation of earth, supply and treatment of bentonite compound, back filling with borrowed earth, termination to earth mat riser by nut bolting, apply of paint where necessary with supply of all Labour and T&P as per ISS-3043) with cost of earthing pipe (50 mm dia 6000 mm length medium gauge) and (50x6 mm) G.I.Flat.[Earth pits having at least 300mm(1 ft.) bored wholes are to be filled up with only bentonite slurry requiring 50 kg of good quality bentonite]	Per set	8
9	Inter-connection of Earth Pits & connection to common earth mat: - Excavation of earth, welding of different size flats, application of two coats of bituminous paint, wrapping of HT Tapes over it, <i>surrounding earth mat flat with bentonite slurry having dimensions of 300mm width, 150 mm thick at bottom, 150 mm thick at top</i> and back filling of earths (Care should be taken while the excavated earth is covered over this bentonite so that the soil does not penetrate into the bentonite applied) including supply of Welding machine, welding generator, welding rods and all materials, T&P, Labour <b>with supply of GI Flat of size 75 x 10 mm</b> (Bentonite powder will be supplied departmentally @18 kg/metre length of GI flat) (Considering 5% extra on flat towards lapping & wastage)	Per mtr.	128.1
10	Breaking of existing concrete foundation for replacement / renovation work, clearing of debris from switch yard as per the Instruction of Engineer Incharge ( including supply of T&P, Laobur etc. necessary for the work)	Cum	6.2
	45mX0.6m X 0.2m=5.4 Cum		
	1 m X 1m X 0.2m X 4 nos. of earth pit=6.2 Cum		
11	PCC up to a height of 75mm in 1:4:8 ratio with proper gradient towards the drain for easy discharge of rain water with 20mm size crushed broken metals.	cum	5.4
	45mX0.6m X 0.2m=5.4 Cum		

**ANNEXURE-VI(E)**

**Making tripod earthing for NCTs of power transformers 1&2 Contour earthing For control room & Bay Kisoks at 220/33 kV Grid Sub-Station, Nayagarh**

Sl. No	Description of Work	Units	Quantity
<b>A</b>	<b>Tripod Earthing</b>		

1	Picking of 20/40mm hard granite metals from switch yard area and stacking of the same as per instruction of Engineer In charge	Sqm	76.2
2	Breaking of existing concrete foundation for replacement / renovation work, clearing of debris from switch yard as per the Instruction of Engineer Incharge ( including supply of T&P, Laobur etc. necessary for the work)	Cum	5.715
3	Pipe earthing including excavation of earth, supply and treatment of bentonate compound, back filling with borrowed earth, termination to earth mat riser by nut bolting, apply of paint where necessary with supply of all Labour and T&P as per ISS-3043) <b>but with excavation of Morrum and laterite layer with cost of earthing pipe (50 mm dia 3050 mm length medium gauge) and (50x6 mm) G.I. Flat.</b> [Earth pits having at least 300mm(1 ft.) bored wholes are to be filled up with only bentonite slurry requiring 50 kg of good quality bentonite]	Per set	12
4	Inter-connection of Earth Pits & connection to common earth mat: - Excavation of earth, welding of different size flats, application of two coats of bituminous paint, wrapping of HT Tapes over it, <i>surrounding earth mat flat with bentonite slurry having dimensions of 300mm width, 150 mm thick at bottom, 150 mm thick at top</i> and back filling of earths (Care should be taken while the excavated earth is covered over this bentonite so that the soil does not penetrate into the bentonite applied) including supply of Welding machine, welding generator, welding rods and all materials, T&P, Labour <b>with supply of GI Flat of size 75 x 10 mm</b> (Bentonite powder will be supplied departmentally @18 kg/metre length of GI flat) (Considering 5% extra on flat towards lapping & wastage)	Per mtr.	141
5	Supply and spreading of loose fine, clear good quality river sand / crusher dust in switch yard, including stacking for measurement with supply of all labour and T&P.	cum	5.715
6	PCC up to a height of 75mm in 1:3:6 ratio with proper gradient towards the drain for easy discharge of rain water with 20mm size crushed broken metals.	cum	5.715
7	Spreading of 20mm hard granite metals in switch yard as per the Instruction of Engineer In charge with supply of all Labour and T&P (without supply of metal).	Cum	7.62
B	<b>Contour Earthing</b>		
8	Pipe earthing including excavation of earth, supply and treatment of bentonite compound, back filling with borrowed earth, termination to earth mat riser by nut bolting, apply of paint where necessary with supply of all Labour and T&P as per ISS-3043) <b>but with excavation of Morrum and laterite layer with cost of earthing pipe (50 mm dia 3050 mm length medium gauge) and (50x6 mm) G.I. Flat.</b> [Earth pits having at least 300mm(1 ft.) bored wholes are to be filled up with only bentonite slurry requiring 50 kg of good quality bentonite]	Per set	5
9	Inter-connection of Earth Pits & connection to common earth mat: - Excavation of earth, welding of different size flats, application of two coats of bituminous paint, wrapping of HT Tapes over it, <i>surrounding earth mat flat with bentonite slurry having dimensions of 300mm width, 150 mm thick at bottom, 150 mm thick at top</i> and back filling of earths (Care should be taken while the excavated earth is covered over this bentonite so that the soil does not penetrate into the bentonite applied) including supply of Welding machine, welding generator, welding rods and all materials, T&P, Labour <b>with supply of GI Flat of size 75 x 10 mm</b> (Bentonite powder will be supplied departmentally @18 kg/metre length of GI flat)	Per mtr.	84
10	Earthing riser- Connection of GI Flat from earth mat to equipment, welding of flats, application of two coats of bituminous Paint, wrapping of HT Tapes over it (With supply of Labour and T&P) using <b>GI Flat of size 50x6 mm</b> with supply of GI Flat.	Per mtr.	69