4. Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories at NIPER.

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Description of Items</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td><strong>TECHNICAL BID</strong></td>
<td></td>
</tr>
<tr>
<td>1.</td>
<td>Index</td>
<td>1</td>
</tr>
<tr>
<td>2.</td>
<td>Notice Inviting e-Tender</td>
<td>2</td>
</tr>
<tr>
<td>3.</td>
<td>Check List</td>
<td>3</td>
</tr>
<tr>
<td>4.</td>
<td>Form 6 for e-Tendering</td>
<td>4 - 7</td>
</tr>
<tr>
<td>5.</td>
<td>Information &amp; Instructions for Bidders</td>
<td>8 - 9</td>
</tr>
<tr>
<td>6.</td>
<td>Tender &amp; Contract</td>
<td>10 – 11</td>
</tr>
<tr>
<td>7.</td>
<td>Integrity Pact</td>
<td>12 – 18</td>
</tr>
<tr>
<td>8.</td>
<td>Special Conditions</td>
<td>19 – 22</td>
</tr>
<tr>
<td>9.</td>
<td>General Conditions of Contract</td>
<td>23 - 67</td>
</tr>
<tr>
<td>10.</td>
<td>Technical Specifications</td>
<td>68 - 88</td>
</tr>
<tr>
<td>11.</td>
<td>Single Line Diagram (SLD) for reference only</td>
<td>89</td>
</tr>
<tr>
<td>12.</td>
<td>Approved Makes</td>
<td>90</td>
</tr>
<tr>
<td>13.</td>
<td>Technical Compliance Sheet</td>
<td>91 - 95</td>
</tr>
<tr>
<td></td>
<td><strong>PRICE BID</strong></td>
<td></td>
</tr>
<tr>
<td>14.</td>
<td>Schedule of Quantity</td>
<td>96 - 108</td>
</tr>
</tbody>
</table>
NOTICE INVITING e-TENDERS

The National Institute of Pharmaceutical Education & Research (NIPER), Sector-67, S.A.S. Nagar-160062 invites online item rate bids on behalf of the Director NIPER, S.A.S. Nagar from agencies enlisted/registered with CPWD, State PWD, MES, PSUs and Railways or any govt institutions dealing in similar type of jobs on two bid system (Eligibility Bid & Financial Bid) for the following work:

NIT No.: T4/2020, Name of Work: Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories at NIPER, S.A.S Nagar, Estimated Cost: Rs. 115.13 Lakh, Earnest Money : Rs. 2,30,260/-, Period of Completion: Six months, Last date and time of submission of bid: 06.08.2020 Upto 5:00 PM, Last date & time for submission of Original EMD: 06.08.2020 upto 5:00 PM, Date and time of opening of Eligibility bid: 07.08.2020 at 11.00 AM, Date and time of opening of Financial bid: Define later.

The original EMD as scanned & uploaded shall be deposited physically by all the intending bidders in Tender Box held in Purchase Section, NIPER, S.A.S. Nagar as per above schedule failing which the bid shall be treated as invalid.

The tender forms and other details can be obtained from the website: http://tenderwizard.com/niper and official website of the NIPER, S.A.S. Nagar at http://niper.gov.in. Press notice is also available on NIPER website. The contractors are requested to get their firm registered on the website http://tenderwizard.com/niper, for participating in e-tendering process.
CHECK LIST FOR CONTRACTORS FOR SUBMISSION OF TENDERS ONLINE:

1. The contractor must upload the necessary documents as mentioned in List of Documents to be scanned and uploaded within the period of bid submission at page 8 of bid documents.

2. If any discrepancy is noticed between uploaded EMD at the time of submission of bid and original EMD submitted physically by the bidders in the office of bid opening authority, the bid submitted shall become invalid.

3. Tender to be witnessed at specified page of tendered documents at the time of drawing agreement with the successful bidder.

4. The tender / tenders containing conditions contrary to those specified in this document shall be summarily rejected.

5. The intending bidder shall quote his item rates in figure only. The item rates in words & amount is generated automatically. Therefore, the item rate quoted by the bidder in figures is to be taken as correct.

6. The contractor(s) shall quote the rates keeping in mind, general conditions of contract, technical specifications, special conditions of contract etc.

7. The bidder can upload his bid only after submission of e-tender processing fee as mentioned at page 5 of the bid documents.

8. Once the bid uploaded by the bidder is withdrawn, he will not be allowed to resubmit his bid, however, he can edit his bid any number of times but before last date & time of submission of bid.
1. Bids are invited on behalf of the Director NIPER, S.A.S. Nagar from the Specialized agencies dealing in similar type of jobs for the work of “Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories at NIPER, S.A.S Nagar”.

1.1 The work is estimated to cost **Rs. 115.13 Lakh**. This estimate, however, is given merely as a rough guide.

1.2 Contractors who fulfill the following requirements shall be eligible to apply. Joint ventures are not accepted

1.2.1 Intending bidders is eligible to submit the bid provided he has definite proof from the appropriate authority, which shall be to the satisfaction of the competent authority, of having:-

**Average annual financial turnover during the last 3 years ending 31st March of previous financial year should be at least **Rs. 57.57 lakhs**.**

Should not have incurred loss in more than 2 years during the last 3 years ending 31st March of previous financial year.

Satisfactorily completed three similar jobs each costing not less than **Rs 46.05 Lakh** OR two similar jobs each costing not less than **Rs. 69.08 Lakh** OR one similar jobs costing not less than **Rs. 92.10 Lakh** in last 7 years ending previous day of last date of submission of bids. (**Similar jobs shall mean "Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories or S/I/T/C of LT Panels, HV Panels in substation in CPWD/MES/State PWD/ Railways/ PSUs or any Govt. institution”**).

The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to last date of receipt of applications for bids.

1.2.2 **To become eligible, the bidders shall have to furnish an affidavit as under:**

I/We undertake and confirm that eligible similar works(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of Department, then I/we shall be debarred for bidding in NIPER, S.A.S. Nagar in future forever. Also, if such a violation comes to the notice of Department before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee. (**Scanned copy to be uploaded at the time of submission of bid**)

1.2.3 The bidders should have Valid PAN No.
1.2.4 The bidders should have Certificate of Registration for GST.
1.2.5 The bidders should have ESI & EPF No.
1.2.6 The bidders should have valid 11 KV Electrical License issued by State/ Centre Electrical Licensing Authority.
1.2.7 The bidders should have financial certificate from CA for the last three financial years.
1.2.8 The bidders should have copy of work experience.
1.2.9 The bidders should have partnership deed/ Proprietorship/Ltd company as applicable.
1.2.10 The bidders should have to arrange an undertaking on their letter head for giving the name of firm, from whom, he will fabricate TTA Panel.
1.2.11 The bidders should have to arrange an undertaking from the firm on firm’s letter head for association with the contractor for fabrication of TTA panel.
1.2.12 The bidders should have to arrange an authorization certificate of the firm for manufacturing of TTA Panels from OEM (L&T/Schneider/ Siemens).
1.2.13 The bidders should have to arrange CPRI test certificate 70 KA from the firm (who will associate with the contractor for fabricating the TTA panel).

1.2.14 It is presumed that all the bidders who have submitted the bid have gone through the entire bid documents including integrity pact and that all the terms & conditions are acceptable to them.

1.2.15 If any agency/contractor has more than 2 (two) projects pending for more than 1 (one) year after schedule date of completion or has any 1 (one) project pending for more than 2 (two ) years after schedule date of completion at NIPER, S.A.S. Nagar, he is not eligible for tendering.

2. Agreement shall be drawn with the successful bidders on General Conditions of Contract which is available with the concerned office and official website of the Institute http://niper/gov.in, and the bidders shall quote his rates as per various terms and conditions of the said form subject to the exclusions / modifications attached at along with amendments uploaded on the official website of the Institute which will form part of the agreement.

3. The time allowed for carrying out the work will be six months from the period of 15 days after the date of award of order or from the first date of handing over of the site, whichever is later, in accordance with the phasing, if any, indicated in the bid documents.

4. The site for the work is available.

5. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents except General Conditions of Contract Form can be seen on website http://tenderwizard.com/niper and official website of the NIPER, S.A.S. Nagar at http://niper/gov.in, free of cost.

6. After submission of the bid the contractor can re-submit revised bid any number of times but before last time and date of submission of bid as notified.

7. While submitting the revised bid, contractor can revise the rate of one or more item(s) any number of times (he need not re-enter rate of all the items) but before last time and date of submission of bid as notified.

8. When bids are invited in three stage system and if it is desired to submit revised financial bid then it shall be mandatory to submit revised financial bid. If not submitted then the bid submitted earlier shall become invalid.

9. Earnest Money in the form of Demand Draft or Pay order or Banker’s Cheque or Deposit at Call Receipt or Fixed Deposit Receipt (drawn in favour of Director, NIPER, S.A.S. Nagar) shall be scanned and uploaded to the e-Tendering website within the period of bid submission.

A part of earnest money is acceptable in the form of bank guarantee also. In such case, minimum 50% of earnest money or Rs. 20 lac, whichever is less, shall have to be deposited in shape prescribed above, and balance may be deposited in shape of Bank Guarantee of any scheduled bank having validity for six months or more from the last date of receipt of bids which is to be scanned and uploaded by the intending bidders.

The original EMD as scanned & uploaded shall be deposited physically by all the intending bidders in Tender Box held in Purchase Section, NIPER, S.A.S. Nagar upto 05.00 PM on 06.08.2020 failing which the bid shall be treated as invalid.

Interested contractor who wish to participate in the bid has also to make following payments within the period of bid submission:

e-tender processing fee - Rs. _________/- plus GST as applicable shall be payable to M/s ITI Limited through their e-gateway by credit /debit card, internet banking or RGTS/NEFT facility.

Copy of certificate of work experience and other documents as specified in the press notice shall be scanned and uploaded to the e-Tendering website within the period of bid submission. However, certified copy of all the
scanned and uploaded documents as specified in press notice shall have to be submitted by the lowest bidder within a week physically in the office of tender opening authority.

Online bid documents submitted by intending bidders shall be opened only of those bidders, who has deposited e-Tender Processing Fee with M/s ITI Limited and Earnest Money Deposit and other documents scanned and uploaded are found in order.

10. The bid submitted shall be opened on 07.08.2020 at 11.00 AM

(i) The bid submitted shall become invalid and e-Tender processing fee shall not be refunded if:

(ii) The bidder does not upload all the documents (PAN No. & GST registration etc.) as stipulated in the bid document.

(iii) If any discrepancy is noticed between the documents as uploaded at the time of submission of bid and hard copies as submitted physically by the lowest bidder in the office of bid opening authority.

(iv) The intending bidder does not deposit original EMD physically as scanned & uploaded upto _____ AM on ______.

(v) If a tenderer does not quote any percentage above / below on the total amount of the tender or any section/ sub head, the tender shall be treated as invalid and will not be considered as lowest tenderer.

(vi) If a tendered amount works out to "Zero" as per percentage quoted by the bidder, the tender shall be treated as invalid and will not be considered as lowest tenderer.

11. The contractor whose bid is accepted, will be required to furnish Performance Guarantee of 5% (Five Percent) of the tendered amount within the period specified. This guarantee shall be in the form of Deposit at Call receipt of any scheduled bank/Banker’s cheque of any scheduled bank/Demand Draft of any scheduled bank/Pay order of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the prescribed form. In case the contractor fails to deposit the said performance guarantee within the stipulated period including the extended period if any, the Earnest Money deposited by the contractor shall be forfeited automatically without any notice to the contractor. The Earnest Money deposited along with bid shall be returned after receiving the aforesaid performance guarantee.

The contractor whose bid is accepted will also be required to furnish either copy of applicable licenses/registrations or proof of applying for obtaining labour licenses, registration with EPFO, ESIC and BOCW Welfare Board including Provident Fund Code No. if applicable and also ensure the compliance of aforesaid provisions by the contractor, if any engaged by the sub contractor for the said work and Programme Chart (Time and Progress) within the Period specified.

Performance guarantee shall be released to the contractor only after the release of any liability with respect to completion status of works/workers/manpower engaged under this contract and satisfactory handing over the site to the NIPER, S.A.S. Nagar.

12. The description of the work is as follows:

“Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories at NIPER, S.A.S Nagar”

Intending Bidders are advised to inspect and examine the site and its surroundings and satisfy themselves before submitting their bids as to the nature of the ground and sub-soil (so far as is practicable), the form and nature of the site, the means of access to the site, the accommodation they may require and in general shall themselves obtain all necessary information as to risks, contingencies and other circumstances which may influence or affect their bid. A bidders shall be deemed to have full knowledge of the site whether he inspects it or not and no extra charge consequent on any misunderstanding or otherwise shall be allowed. The bidders shall be responsible for arranging and maintaining at his own cost all materials, tools & plants, water, electricity access, facilities for workers and all other services required for executing the work unless otherwise specifically provided for in the contract documents. Submission of a bid by a bidders implies that he has read this notice and all other contract documents and has made himself aware of the scope and specifications of the work to be done and of conditions and rates at which stores, tools and plant, etc. will be issued to him by the Government and local conditions and other factors having a bearing on the execution of the work.
13. Director, NIPER, S.A.S. Nagar does not bind itself to accept the lowest or any other bid and reserves to itself the authority to reject any or all the bids received without the assignment of any reason. All bids in which any of the prescribed condition is not fulfilled or any condition including that of conditional rebate is put forth by the bidders shall be summarily rejected.

14. Canvassing whether directly or indirectly, in connection with bidders is strictly prohibited and the bids submitted by the contractors who resort to canvassing will be liable for rejection.

15. Director, NIPER, S.A.S. Nagar reserves to himself the right of accepting the whole or any part of the bid and the bidders shall be bound to perform the same at the rate quoted.

16. The contractor shall not be permitted to bid for works in the Institute’s Engineering Department (responsible for award and execution of contracts) in which his near relative is posted as Divisional Accountant or as an officer in any capacity between the grades of Assistant Engineer (both inclusive). He shall also intimate the names of persons who are working with him in any capacity or are subsequently employed by him and who are near relatives to any gazetted officer in the Institute. Any breach of this condition by the contractor would render him liable to be removed from the approved list of contractors of NIPER.

17. No Engineer or other officers employed in Engineering or Administrative duties in Institute is allowed to work as a contractor for a period of one year after his retirement from Institute’s service without the previous permission of the competent authority in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of the competent authority as aforesaid before submission of the tender or engagement in the contractor’s service.

18. The bid for the works shall remain open for acceptance for a period of Ninety (90) days from the date of opening of bids. If any bidders withdraws his tender before the said period or issue of letter of acceptance, whichever is earlier, or makes any modifications in the terms and conditions of the bid which are not acceptable to the department, then the Institute shall, without prejudice to any other right or remedy, be at liberty to forfeit 50% of the said earnest money as aforesaid. Further the bidders shall not be allowed to participate in the rebidding process of the work.

19. **SIGNING OF CONTRACT**
   The successful tenderer/contractor, on acceptance of his tender by the Accepting authority shall, within 15 days from the stipulated date of start of the work sign the contract consisting of:
   i) The notice inviting tender, all the documents including drawings if any forming the tender as issued at the time of invitation of tender and accepting thereof together with any correspondence leading thereto.
   ii) Standard form as mentioned consisting of:
      a) Various standard clauses with corrections up to date as stipulated along with annexure thereto.
      b) Safety codes.
      c) Model rules for the protection of health, sanitary arrangements for the workers employed by the contractor.
      d) Contractor’s labour regulations.
         List of acts and omissions for which fines can be imposed.

20. **For Composite Bids (Not Applicable)**

21. All the payments to the contractor shall be deposited in their bank account through RTGS and the contractor shall submit the detail of his bank account & IFSC code after award of work including any statutory details required if any as applicable.

22. In case, date for opening of Eligibility / Financial bid is declared/happens to be public holiday, the Eligibility / Financial bid will be opened on the next working day.
On behalf of the Director, NIPER, S.A.S. Nagar invites **online item wise rate bids** from the Specialized agencies dealing in similar type of jobs on two bid system for the following work:-

<table>
<thead>
<tr>
<th></th>
<th>1. NIT No.</th>
<th></th>
<th>2. Name of work &amp; Location</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>T4/2020</td>
<td></td>
<td>&quot;Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories at NIPER, S.A.S Nagar&quot;</td>
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<td></td>
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<td>3. Estimated cost put to bid</td>
<td>Rs. 115.13 lacs</td>
<td></td>
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<td></td>
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<td>4. Earnest Money</td>
<td>Rs. 230260/-</td>
<td></td>
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<td>5. Period of Completion</td>
<td>Six Months</td>
<td></td>
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<td>6. Last date &amp; time of submission of bid, EMD, e-tender processing fee and other documents as specified in the press notice</td>
<td><strong>06.08.2020</strong> upto 5:00 PM</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>7. Last date &amp; time for submission of Original EMD:</td>
<td><strong>06.08.2020</strong> upto 5:00 PM</td>
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<td></td>
<td></td>
<td>8. Date &amp;Time of opening of Eligibility bid</td>
<td><strong>07.08.2020</strong> at 11.00 AM</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>9. Date &amp;Time of opening of financial bid</td>
<td>Define Later</td>
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</table>

1. Contractors who fulfill the following requirements shall be eligible to apply.
   a) Joint ventures are not accepted
   b) Should have satisfactorily completed the jobs as mentioned below during the last Seven years ending previous day of last date of submission of bids.

   Three similar jobs each costing not less than **Rs. 46.05 Lakh** OR two similar jobs each costing not less than **Rs. 69.08 Lakh** OR one similar jobs costing not less than **Rs. 92.10 Lakh** in last 7 years ending previous day of last date of submission of bids. (Similar jobs shall mean "Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories or S/I/T/C of LT Panels, HV Panels in substation in CPWD/MES/State PWD/ Railways/ PSUs or any Govt. institution").

   The value of executed works shall be brought to current costing level by enhancing the actual value of work at simple rate of 7% per annum; calculated from the date of completion to last date of receipt of applications for bids.

2. The intending bidder must read the terms and conditions of Form-6 carefully. He should only submit his bid if he considers himself eligible and he is in possession of all the documents required.

3. Information and Instructions for bidders posted on website shall form of bid document.

4. The bid document consisting of plans, specifications, the schedule of quantities of various types of items to be executed and the set of terms and conditions of the contract to be complied with and other necessary documents can be seen and downloaded from the website: [http://tenderwizard.com/niper](http://tenderwizard.com/niper) and official website of the NIPER, S.A.S. Nagar at [http://niper/gov.in](http://niper/gov.in) free of cost.

5. But the bid can only be submitted after depositing Processing Fee in favour of ITI Limited and uploading the mandatory scanned documents such as Demand Draft or Pay order or Banker’s Cheque or Deposit at call Receipt or Fixed Deposit Receipts and Bank Guarantee of any Scheduled Bank towards EMD in favour of Director, NIPER, S.A.S. Nagar and other documents as specified.
6. Those contractors not registered on the website mentioned above, are required to get registered beforehand. If needed they can be imparted training on online bidding process as per details available on the website.

7. The intending bidder must have valid class-III digital signature to submit the bid.

8. On opening date, the contractor can login and see the bid opening process. After opening of bids he will receive the competitor bid sheets.

9. Contractor can upload documents in the form of JPG format and PDF format.

10. Contractor must ensure to quote item wise rate in the Schedule of Quantity. The column meant for quoting item wise rate in figures appears in pink colour and the moment rate is entered, it turns sky blue.

11. The Eligibility bid shall be opened first on due date and time as mentioned above. The financial bid of contractors qualifying the eligibility bid shall be opened at a later date as mentioned in the Press Notice Inviting Tender.

12. The agency shall submit the status of his firm w.r.t. proprietary firm / partnership firm or Limited company as per detail given below:-

   If the bidder is a proprietary firm, a self undertaking of the proprietorship shall be uploaded by the bidder.

   If the bidder is a firm in partnership, the bid documents shall be signed by all the partners of the firm above their full typewritten names and current addresses, or, alternatively, by a partner holding power of attorney for the firm. In the later case a certified copy of the power of attorney should be uploaded. In both cases a certified copy of the partnership deed and current address of all the partners of the firm should also be uploaded.

   If the bidder is a limited company or a corporation, the bid documents shall be signed by a duly authorized person holding power of attorney for signing the bid documents accompanied by a copy of the power of attorney / Authorization Letter. The bidder should also furnish a copy of the Memorandum of Articles of Association duly attested by a Public Notary.

13. **LIST OF DOCUMENTS TO BE SCANNED AND UPLOADED WITHIN THE PERIOD OF BID SUBMISSION: (Eligibility Criteria)**
   a. Scanned copy of DD of EMD.
   b. Scanned copy of Enlistment/ Registration.
   c. Scanned copy of PAN Card.
   d. Scanned copy of EPF/ESI.
   e. Scanned copy of registration of GST.
   f. Scanned copy of financial certificate from CA for the last three financial years.
   g. Scanned copy of work experience.
   h. Scanned copy of Power of Attorney.
   i. Scanned copy of Tender Acceptance Letter.
   j. Scanned copy of Class A 11 KV Electrical Contractor License.
   k. Scanned copy of partnership deed/ Proprietorship/Ltd company as applicable.
   l. Scanned copy of undertaking by the contractor on the letter head for giving the name of firm, from whom, he will fabricate TTA Panel.
   m. Scanned copy of undertaking by the firm on the firm’s letter head (who will associate with the contractor for fabricating the TTA panel) for association with the contractor for fabrication of TTA panel.
   n. Scanned copy of authorization certificate of the firm for manufacturing of TTA Panels from OEM (L&T/ Schneider/ Siemens).
   o. Scanned copy of CPRI test certificate 70 KA of the firm (who will associate with the contractor for fabricating the TTA panel).
   p. Technical Compliance Sheet duly filled by the Agency.
TENDER AND CONTRACT

SECTION-V

Item wise Rate Tender & Contract For Works

Tender for the work of “Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories at NIPER, S.A.S Nagar” only.

(i) To be submitted online - **06.08.2020** upto 5:00 PM
(ii) Original EMD to be submitted Physically **06.08.2020** upto 5:00 PM
(iii) Eligibility Bid To be opened online - **07.08.2020** at 11.00 AM
(iv) Financial Bid To be opened online - Define Later

TENDER

I/we have read and examined the notice inviting tender, Drawings and Designs, General Rules and Directions, conditions of Contract, clauses of contract, special conditions, additional terms & conditions & specifications, schedule of rate and other documents and rules referred to in the conditions of contract and all other contents in the tender documents for the work.

I/we hereby tender for the execution of the work specified for the Institute within the time specified in relevant clause. schedule of quantities and in accordance in all respects with the specifications, designs, drawings and instructions in writing referred to general rules and Directions and in relevant Clauses of the conditions of contract and with such materials as are provided for, by, and in respects in accordance with, such conditions so far as applicable.

I/we agree to keep the tender open for 90 days from the due date of opening of financial bid and not to make any modifications in its terms and conditions.

A sum of **Rs. 2,30,260/-** is hereby forwarded in the shape of deposit at call receipt of a scheduled bank/ demand draft of a scheduled bank/ Fixed deposit receipt of scheduled bank in favour of the Director, NIPER, payable at Chandigarh/S.A.S. Nagar as earnest money. If I/We, fail to furnish the prescribed performance guarantee within prescribed period. I/We agree that the said the Director, NIPER or his successors, in office shall without prejudice to any other right or remedy, be at liberty to forfeit the said earnest money absolutely. Further, if I/We fail to commence work as specified, I/We agree that Director NIPER or the successors in office shall without prejudice to any other right or remedy available in law, be at liberty to forfeit the said earnest money and the performance guarantee absolutely. The said performance guarantee shall be a guarantee to execute all the works referred to in the tender documents upon the terms and conditions contained or referred to therein and to carry out such deviation as may be ordered upto maximum of the percentage mentioned in tender documents and those in excess of that limit at the rates to be determined in accordance with the provision contained in tender form. Further, I/We agree that in case of forfeiture of Earnest Money & Performance Guarantee as aforesaid, I/We shall be debarred for participation in the re-tendering process of the work.

I/We undertake and confirm that eligible similar work(s) has/have not been got executed through another contractor on back to back basis. Further that, if such a violation comes to the notice of institute, then I/We shall be debarred for tendering in NIPER, S.A.S. Nagar in future forever. Also, if such a violation comes to the notice of institute before date of start of work, the Engineer-in-Charge shall be free to forfeit the entire amount of Earnest Money Deposit/Performance Guarantee.
I/We hereby declare that I/We shall treat the tender documents drawings and other records connected with the work as secret/confidential documents and shall not communicate information/derived there from to any person other than a person to whom I/We am/are authorized to communicate the same or use the information in any manner prejudicial to the safety of the Institute.

Dated:-

Signature of Contractor

Postal Address:

Witness:

Address:

Telephone No.:

Fax No.:

Occupation:

E-Mail.:

**ACCEPTANCE**

The above tender (as modified by you as provided in the letters mentioned hereunder) is accepted by me for and on behalf of the Institute for a sum of Rs.______________________________

The letters referred to below shall form part of this contract agreement:

i) ______________________________________________________________________

ii) _____________________________________________________________________

iii) ____________________________________________________________________

For & on behalf of the Director,

Dated_______

NIPER, S.A.S. Nagar.
To,

………………………..,
………………………..,
………………………..

Sub: NIT No. __________ for the work “Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories at NIPER, S.A.S Nagar”.

Dear Sir,

It is here by declared that NIPER, S.A.S. Nagar is committed to follow the principle of transparency, equity and competitiveness in public procurement.

The subject Notice Inviting Tender (NIT) is an invitation to offer made on the condition that the Bidder will sign the integrity Agreement, which is an integral part of tender/bid documents, failing which the tenderer/bidder will stand disqualified from the tendering process and the bid of the bidder would be summarily rejected.

This declaration shall form part and parcel of the Integrity Agreement and signing of the same shall be deemed as acceptance and signing of the Integrity Agreement on behalf of the Institute.

Yours faithfully

For & on behalf of the Director,
NIPER, S.A.S. Nagar.

Dated_______
To,

NIPER, S.A.S. Nagar,

………………………..,
………………………..

Sub: Submission of Tender for the work of “Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories at NIPER, S.A.S Nagar”

Dear Sir,

I/We acknowledge that NIPER, S.A.S. Nagar is committed to follow the principles thereof as enumerated in the Integrity Agreement enclosed with the tender/bid document.

I/We agree that the Notice Inviting Tender (NIT) is an invitation to offer made on the condition that I/We will sign the enclosed integrity Agreement, which is an integral part of tender documents, failing which I/We will stand disqualified from the tendering process.

I/We acknowledge that THE MAKING OF THE BID SHALL BE REGARDED AS AN UNCONDITIONAL AND ABSOLUTE ACCEPTANCE of this condition of the NIT. I/We confirm acceptance and compliance with the Integrity Agreement in letter and spirit and further agree that execution of the said Integrity Agreement shall be separate and distinct from the main contract, which will come into existence when tender/bid is finally accepted by NIPER, S.A.S. Nagar. I/We acknowledge and accept the duration of the Integrity Agreement, which shall be in the line with Article 1 of the enclosed Integrity Agreement.

I/We acknowledge that in the event of my/our failure to sign and accept the Integrity Agreement, while submitting the tender/bid, NIPER, S.A.S. Nagar shall have unqualified, absolute and unfettered right to disqualify the tenderer/bidder and reject the tender/bid is accordance with terms and conditions of the tender/bid.

Yours faithfully

(Duly authorized signatory of the Bidder)
INTEGRITY AGREEMENT

This Integrity Agreement is made at ............. on this ........ day of ........20...... BETWEEN
Director, NIPER, S.A.S. Nagar (Hereinafter referred as the (Address of Division) ‘Principal/Owner’, which
expression shall unless repugnant to the meaning or context hereof include its successors and permitted assigns)
AND
.................................................................................................................................................... (Name and Address of the
Individual/firm/Company) through .................................................................................. (Hereinafter referred to as the (Details
of duly authorized signatory) “Bidder/Contractor” and which expression shall unless repugnant to the meaning or
context hereof include its successors and permitted assigns) Preamble WHEREAS the Principal / Owner has floated
the Tender (NIT No.................................) (hereinafter
referred to as “Tender/Bid”) and intends to award, under laid
down organizational procedure, contract for ..................................................................................
(Name of work) hereinafter referred to as the “Contract”.

AND WHEREAS the Principal/Owner values full compliance with all relevant laws of the land, rules, regulations,
economic use of resources and of fairness/transparency in its relation with its Bidder(s) and Contractor(s).

AND WHEREAS to meet the purpose aforesaid both the parties have agreed to enter into this Integrity Agreement
(hereinafter referred to as “Integrity Pact” or “Pact”), the terms and conditions of which shall also be read as integral
part and parcel of the Tender/Bid documents and Contract between the parties.
NOW, THEREFORE, in consideration of mutual covenants contained in this Pact, the parties hereby agree as follows
and this Pact witnesses as under:

Article 1: Commitment of the Principal/Owner

1) The Principal/Owner commits itself to take all measures necessary to prevent corruption and to observe the
following principles:

(a) No employee of the Principal/Owner, personally or through any of his/her family members, will in connection
with the Tender, or the execution of the Contract, demand, take a promise for or accept, for self or third person, any
material or immaterial benefit which the person is not legally entitled to.

(b) The Principal/Owner will, during the Tender process, treat all Bidder(s) with equity and reason. The
Principal/Owner will, in particular, before and during the Tender process, provide to all Bidder(s) the same
information and will not provide to any Bidder(s) confidential / additional information through which the Bidder(s)
could obtain an advantage in relation to the Tender process or the Contract execution.

(c) The Principal/Owner shall endeavour to exclude from the Tender process any person, whose conduct in the past
has been of biased nature.

2) If the Principal/Owner obtains information on the conduct of any of its employees which is a criminal offence
under the Indian Penal code (IPC)/Prevention of Corruption Act, 1988 (PC Act) or is in violation of the principles
herein mentioned or if there be a substantive suspicion in this regard, the Principal/Owner will inform the Chief
Vigilance Officer and in addition can also initiate disciplinary actions as per its internal laid down policies and
procedures.

Article 2: Commitment of the Bidder(s)/Contractor(s)

1) It is required that each Bidder/Contractor (including their respective officers, employees and agents) adhere to the
highest ethical standards, and report to the Institute all suspected acts of fraud or corruption or Coercion or Collusion
of which it has knowledge or becomes aware, during the tendering process and throughout the negotiation or award of a contract.

2) The Bidder(s)/Contractor(s) commits himself to take all measures necessary to prevent corruption. He commits himself to observe the following principles during his participation in the Tender process and during the Contract execution:

a) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm, offer, promise or give to any of the Principal/Owner’s employees involved in the Tender process or execution of the Contract or to any third person any material or other benefit which he/she is not legally entitled to, in order to obtain in exchange any advantage of any kind whatsoever during the Tender process or during the execution of the Contract.

b) The Bidder(s)/Contractor(s) will not enter with other Bidder(s) into any undisclosed agreement or understanding, whether formal or informal. This applies in particular to prices, specifications, certifications, subsidiary contracts, submission or non-submission of bids or any other actions to restrict competitiveness or to cartelize in the bidding process.

c) The Bidder(s)/Contractor(s) will not commit any offence under the relevant IPC/PC Act. Further the Bidder(s)/Contractor(s) will not use improperly, (for the purpose of competition or personal gain), or pass on to others, any information or documents provided by the Principal/Owner as part of the business relationship, regarding plans, technical proposals and business details, including information contained or transmitted electronically.

d) The Bidder(s)/Contractor(s) of foreign origin shall disclose the names and addresses of agents/representatives in India, if any. Similarly Bidder(s)/Contractor(s) of Indian Nationality shall disclose names and addresses of foreign agents/representatives, if any. Either the Indian agent on behalf of the foreign principal or the foreign principal directly could bid in a tender but not both. Further, in cases where an agent participate in a tender on behalf of one manufacturer, he shall not be allowed to quote on behalf of another manufacturer along with the first manufacturer in a subsequent/parallel tender for the same item.

d) The Bidder(s)/Contractor(s) will, when presenting his bid, disclose (with each tender as per proforma enclosed) any and all payments he has made, is committed to or intends to make to agents, brokers or any other intermediaries in connection with the award of the Contract.

3) The Bidder(s)/Contractor(s) will not instigate third persons to omit offences outlined above or be an accessory to such offences.

4) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm indulge in fraudulent practice means a willful misrepresentation or omission of facts or submission of fake/forged documents in order to induce public official to act in reliance thereof, with the purpose of obtaining unjust advantage by or causing damage to justified interest of others and/or to influence the procurement process to the detriment of the Institute interests.

5) The Bidder(s)/Contractor(s) will not, directly or through any other person or firm use Coercive Practices (means the act of obtaining something, compelling an action or influencing a decision through intimidation, threat or the use of force directly or indirectly, where potential or actual injury may befall upon a person, his/ her reputation or property to influence their participation in the tendering process).

**Article 3: Consequences of Breach**

Without prejudice to any rights that may be available to the Principal/Owner under law or the Contract or its established policies and laid down procedures, the Principal/Owner shall have the following rights in case of breach of this Integrity Pact by the Bidder(s)/Contractor(s) and the Bidder/Contractor accepts and undertakes to respect and uphold the Principal/Owner’s absolute right:
1) If the Bidder(s)/Contractor(s), either before award or during execution of Contract has committed a transgression through a violation of Article 2 above or in any other form, such as to put his reliability or credibility in question, the Principal/Owner after giving 14 days notice to the contractor shall have powers to disqualify the Bidder(s)/Contractor(s) from the Tender process or terminate/determine the Contract, if already executed or exclude the Bidder/Contractor from future contract award processes.

The imposition and duration of the exclusion will be determined by the severity of transgression and determined by the Principal/Owner. Such exclusion may be forever or for a limited period as decided by the Principal/Owner.

2) Forfeiture of EMD/Performance Guarantee/Security Deposit: If the Principal/Owner has disqualified the Bidder(s) from the Tender process prior to the award of the Contract or terminated/determined the Contract or has accrued the right to terminate/determine the Contract according to Article 3(1), the Principal/Owner apart from exercising any legal rights that may have accrued to the Principal/Owner, may in its considered opinion forfeit the entire amount of Earnest Money Deposit, Performance Guarantee and Security Deposit of the Bidder/Contractor.

3) Criminal Liability: If the Principal/Owner obtains knowledge of conduct of a Bidder or Contractor, or of an employee or a representative or an associate of a Bidder or Contractor which constitutes corruption within the meaning of Indian Penal code (IPC)/Prevention of Corruption Act, or if the Principal/Owner has substantive suspicion in this regard, the Principal/Owner will inform the same to law enforcing agencies for further investigation.

Article 4: Previous Transgression

1) The Bidder declares that no previous transgressions occurred in the last 5 years with any other Company in any country confirming to the anticorruption approach or with Central Government or State Government or any other Central/State Public Sector Enterprises in India that could justify his exclusion from the Tender process.

2) If the Bidder makes incorrect statement on this subject, he can be disqualified from the Tender process or action can be taken for banning of business dealings/ holiday listing of the Bidder/Contractor as deemed fit by the Principal/Owner.

3) If the Bidder/Contractor can prove that he has resorted / recouped the damage caused by him and has installed a suitable corruption prevention system, the Principal/Owner may, at its own discretion, revoke the exclusion prematurely.

Article 5: Equal Treatment of all Bidders/Contractors/ Subcontractors

1) The Bidder(s)/Contractor(s) undertake(s) to demand from all subcontractors a commitment in conformity with this Integrity Pact. The Bidder/Contractor shall be responsible for any violation(s) of the principles laid down in this agreement/Pact by any of its Subcontractors/ sub-vendors.

2) The Principal/Owner will enter into Pacts on identical terms as this one with all Bidders and Contractors.

3) The Principal/Owner will disqualify Bidders, who do not submit, the duly signed Pact between the Principal/Owner and the bidder, along with the Tender or violate its provisions at any stage of the Tender process, from the Tender process.

Article 6- Duration of the Pact

This Pact begins when both the parties have legally signed it. It expires for the Contractor/Vendor 12 months after the completion of work under the contract or till the continuation of defect liability period, whichever is more and for all other bidders, till the Contract has been awarded. If any claim is made/lodged during the time, the same shall be binding and continue to be valid despite the lapse of this Pacts as specified above, unless it is discharged/determined by the Competent Authority of NIPER, S.A.S. Nagar.

Article 7- Other Provisions

1) This Pact is subject to Indian Law, place of performance and jurisdiction is the S.A.S. Nagar/ Chandigarh.

2) Changes and supplements need to be made in writing. Side agreements have not been made.
3) If the Contractor is a partnership or a consortium, this Pact must be signed by all the partners or by one or more partner holding power of attorney signed by all partners and consortium members. In case of a Company, the Pact must be signed by a representative duly authorized by board resolution.

4) Should one or several provisions of this Pact turn out to be invalid; the remainder of this Pact remains valid. In this case, the parties will strive to come to an agreement to their original intensions.

5) It is agreed term and condition that any dispute or difference arising between the parties with regard to the terms of this Integrity Agreement / Pact, any action taken by the Owner/Principal in accordance with this Integrity Agreement/ Pact or interpretation thereof shall not be subject to arbitration.

Article 8- LEGAL AND PRIOR RIGHTS

All rights and remedies of the parties hereto shall be in addition to all the other legal rights and remedies belonging to such parties under the Contract and/or law and the same shall be deemed to be cumulative and not alternative to such legal rights and remedies aforesaid. For the sake of brevity, both the Parties agree that this Integrity Pact will have precedence over the Tender/Contact documents with regard any of the provisions covered under this Integrity Pact.

IN WITNESS WHEREOF the parties have signed and executed this Integrity Pact at the place and date first above mentioned in the presence of following witnesses:

...............................................................
(For and on behalf of Principal/Owner)

...............................................................
(For and on behalf of Bidder/Contractor)

WITNESSES:

1. ..............................................
(signature, name and address)

2. ...............................................
(signature, name and address)

Place:

Dated:
PERFORMA FOR BANK GUARANTEE (PERFORMANCE)

Whereas the National Institute of Pharmaceutical Education & Research (hereinafter called NIPER which expression shall include its successors and assigns) having awarded a work order/ contract No. ______________________ dated __________________ (hereinafter called the contract) for ______________ to M/s ____________________ hereinafter of __________________________ subject to the terms and conditions contained in the contract.

Whereas the terms and conditions of the contract require the contractor to furnish a bank guarantee for Rs.___________________ (Rs. ____________________) being __________% of the total value of the contract for proper execution and due fulfillment of the terms and conditions contained in the contract.

We, the __________________ Bank, (hereinafter called the “Bank”) do hereby unconditionally and irrevocably undertake to pay to NIPER immediately on demand in writing any without protest/ or demur all moneys payable by the contractor to NIPER in connection with the execution of and performance of the works/ equipment, inclusive of any loss, damages, charges, caused to or suffered by NIPER by reasons of any breach by the contractor in the contract as specified in notice of demand made by NIPER to the bank. Any such demand made by NIPER on the bank shall be conclusive evidence of the amount due and payable by the bank under this guarantee. However, the bank’s liability under this guarantee shall be limited to Rs. _____________ in the aggregate and the bank hereby agreed to the following terms and conditions:

I. This guarantee shall be a continuing guarantee an irrevocable for all claims of NIER as specified above and shall be valid during the period specified for the performance of the contract including the period of maintenance/ warranty i.e. up to _______________________.

II. We, the said bank further agree with NIPER that NIPER shall have the fullest liberty without our consent and without affecting in any manner our obligations the terms and conditions of the said contract or to extend time for performance of contact by the contractor from time to time any of the powers exercisable by contract and to bear or enforce any of the terms and conditions relating to the said contract an we shall not be relieved from our liability by reason of any such variations of extension being granted to the contractor or for any forbearance, act or omission on the part of NIPER or any indulgence by NIPER to the contractor of by any such matter or thing whatsoever, which under the law relating to the sureties, would, but for this provision, have effect of so relieving us.

III. This guarantee/ undertaking shall be in addition to any other guarantee or security whatsoever NIPER may now or at any time have in relation to the company shall have full recourse to or enforce the security in preference to any other security or guarantee which the NIPER may have or obtained and there shall be no forbearance on the part of the company in enforcing or requiring enforcement of any other security which shall have the effect of releasing the Bank from its liability. It shall not be necessary for NIPER to proceed against the said contractor before proceedings against the Bank.

IV. This guarantee/ undertaking shall not be determined or affected by the liquidation or winding up, dissolution or change of constitution or insolvency of the supplier but shall in all respects and for all purposes be binding and operative until payment of all money payable to NIPER in terms thereof.

V. The bank hereby waives all rights at any time inconsistent with the terms of this Guarantee and the obligations of the Bank ‘in terms hereof shall not be otherwise affected or suspended by reasons of any dispute or disputes having been raised by the contractor (whether or not pending before any arbitrator, Tribunal or court) or any denial of liability by the contractor stopping or preventing or purporting to stop or prevent any payment by the bank to NIPER in terms hereof.

We, the said bank lastly undertake not to revoke this guarantee during its currency except with the previous consent of NIPER in writing. Unless a claim is made in writing within six month from the date of expiry of this guarantee i.e. _________________ We shall be relieved from all liabilities under this guarantee thereafter.

Signed
This…………………………day of ………………20……….at……

For and on behalf of Bank

WITNESS:
1. ____________________________

2. ____________________________
1. The agency may in its own interest visit the existing site of substation at NIPER, S.A.S. Nagar and get familiarized with the site conditions before quoting the tender.
2. The design/ size of new fabricated TTA LT Panel should be near to the existing old LT panels as it has to be replaced against old LT panels and should match with the size of existing substation.
3. Disconnection of old cables from old LT panels and reconnections/ re-termination of the same in the TTA panel is completely in the scope of Agency.
4. The contractor has to take utmost care during disconnection of old cables from old LT panel and reconnection/ re-termination of the same in the new TTA LT panel and this is the prime responsibility of the Agency that none of old cables should be damaged in the process of disconnection / reconnection/pulling.
5. The Agency has to make sure that during the process of disconnection and dismantling of old LT/HT panels and installation of new LT/HT panels, necessary temporary/ alternative arrangements are required to be made so that electric supply to NIPER campus should not be disrupted in institute buildings, labs, residence areas/ hostels and other utilities areas.
6. Before supplying of TTA panels/ VCBs, intimation shall be given to the department in advance for pre-inspection. Even if approved, pre approval to be obtained before dispatching the material at site.
7. Agency has to provide HT Panel (11 KV VCB) Test Certificate, genuinity certificate and OEM warranty card in favour of the Director, NIPER, S.A.S. Nagar.
8. Single Line Diagram (SLD) of LT Panel attached is for reference only.
9. The Director, NIPER, S.A.S. Nagar reserves the right to accept/reject any or all tenders without assigning any reason thereof.
10. All the disputes concerning this tender in any way are subject to S.A.S. Nagar/ Chandigarh Jurisdiction only.
11. The institute reserves the right to revise or amend the tender documents prior to the date notified for opening of the tenders and also the right to postpone the date of presentation and opening of tenders without assigning any reason, whatsoever.
12. Each tenderer shall upload only one tender; either by him or as partners in a joint venture. A tenderer who uploads more than one tender will be disqualified.
13. Tenderers to study entire tender document carefully
   (a) Submission of a tender by a tenderer implies that he has read all the stipulations contained in this booklet and all other contract documents and has acquainted himself of the nature, site conditions scope and specifications of the works to be executed and of conditions and rates at which stores will be issued to him by the NIPER, S.A.S. Nagar. The contractor shall also be deemed to have acquainted himself with local conditions and other factors which have a bearing on the execution of the works.
   (b) No claim will be entertained on account of ignorance of site conditions.
14. CONTRACTOR SHALL SUBMIT FABRICATION DRAWING FOR OBTAINING APPROVAL
   The contractor shall submit fabrication drawing in triplicate for obtaining preliminary approval of the Engineer-in-Charge for all design drawings of all electrical panels wherever required. One copy of this drawings duly corrected and signed wherever necessary by Institute will be returned to the contractor for preparing and resubmitting drawings after incorporating the said corrections again in triplicate for final approval. Along with the completion and approval of fabrication drawing, the contractor shall also submit the materials list, for checking and approval to the institute. No drawing shall be approved finally without material list. Once the drawing is finally approved, no request for any alternative section will be entertained. The contractor shall also submit 3 copies of design calculations for the designs of joints if required All joints shall be designed for full strength of members, unless otherwise specified. Approval of fabrication drawings however will not absolve the contractor of his responsibility for the safety and correctness of the fabrication.
15. **BID OF CONTRACTORS WITH A BLEMISHED RECORD WILL NOT CONSIDER**

If the Engineer-in-Charge receives adverse report against any working contractor of the Institute, either from the department in which he is enlisted or from any other Department or Engineer-in-Charge of the Institute, his bid will not be considered on the basis of such a report.

On the receipt of a case of adverse performance/ Misbehavior/ Threatening of site staff or any other such reasons, the Director, NIPER, S.A.S. Nagar shall issue show cause to such contractors and after considering their reply, he shall have full powers to debar such contractor for a period as decided by him. Such debarred contractor shall be ineligible to take up any work in the Institute during the period of debarring.

If the NIT approving authority not lower than the Director, NIPER, S.A.S. Nagar is satisfied that it is in the interest of the Institute to allow a contractor who has been debarred for reason of inactivity, to participate in the tendering process for getting competitive tenders, he may do so.

Interpretations, corrections and changes to the Tenders Documents shall be made by Addendum, if required.

10. **Electricity** if available will be provided at one point and will be charged as per actual consumption. However, the tenderer required to make his own arrangement by installation of generator at his own cost to cope up any eventually in the interest of progress of work.

11. Power supply shall be provided by the department if available to contractor at one point for installation at site. Termination switchgears with energy meter however, shall be provided by the contractor. Further extension if required shall be done by the contractor. For final system commissioning & handing over, power supply of 3 Phase, 415 volts, or 1 Phase, 230 V, 50 Hz as applicable shall be made available in the control room(s) of the respective systems. The recovery of electricity so consumed shall be made from their bill as per tariff applicable in the institute.

12. The contractor shall not use the power supply for any other purpose than that for which it is intended for. No major fabrication work shall be done at site. Power supply shall be used only for welding/cutting works. Power supply shall be disconnected in case of such defaults and the contractor shall then have to arrange required power supply at his cost.

13. In the event of occurrence of any of the following contingencies or the firm committing breach of any of the terms & conditions herein contained for the satisfactory and faithful performance of the contract, the Institute shall be at liberty to terminate this contract by giving 15 day notice without assigning any reason and in such case the earnest money & performance guarantee shall be forfeited absolutely. During the notice period of 15 days for termination of contract, the contractor shall continue to provide service as before till the expiry of notice period.” It shall be the duty of the contractor to remove all the person deployed by him on termination of the contract on any grounds whatsoever and ensure that no person shall create any disruption / Hindrance / problem of any Nature to the Institute

I. If the Contractor commits default in commencing the execution of the work within the time allowed or the extended time as specified in the DNIT.

II. The contractor assigns the contract or any part thereof to any other person for sub-letting the whole or a part of the contract.

III. The contractor is declared insolvent by any court of law.

IV. The execution of work not as per the directions of the Engineer-in-Charge.

V. In case of progress of work is found slow.

VI. Frequent failure to provide replacement of the absenteeism.

14. **Tools, Tackles and Consumables:**

(a) Testing equipments required for the work shall be in good condition (calibrated annually) and arranged by the contractor. The testing instruments shall be of sufficient capacity and quantity as per the site requirements. The instruments like insulation tester, earth tester, earthing rods, multi-meters, testing kits, thermometer etc shall be required at site during installation, commissioning, testing activities.

(b) The contractor shall be fully responsible for arranging the supply of required tools & tackles, cable crimping tools, ladders etc. In addition to above, the personal protective equipments of proper rating (PPE) like helmets, safety belts, hand gloves, safety shoes, torch, ladder etc for all working persons shall also be arranged.
(c) The consumable items like jelly, cotton, waste, dungry cloth, emery paper, CRC & CTC and material required for housekeeping including detergents, phenyl, soap etc shall be provided by the contractor.

15. The contractor shall employ the required number of technical and non-technical manpower. During contract period, the contractor shall depute qualified, experienced and competent manpower as per the site set-up/ staff requirement for executing the work. During execution of installation, commissioning, testing activities, in case some additional manpower is required, contractor shall provide the same free of cost. For entry in institute, contractor shall submit the details of the employees i.e. Address proof, I.D. proof, photo etc for gate pass of all deputies.

**Theft of Parts**

16. Contractor shall be fully responsible for theft, burglary, fire or any mischievous deeds by his workers/ staff and shall replace the items under such category. Any loss occurred due to negligence will be recovered from the contractor. Security/ Safety of all installation in substation will be responsibility of contractor.

**Material, Consumables & Tools etc**

17. During the period of installations, commissioning, testing activities, no extra payment what so ever towards replacement of parts or consumables etc shall be entertained. It shall be included in rates quoted.

**Rates**

18. Rates quoted in the financial bid must be inclusive of all central, state and local taxes etc including trade tax on works contract. Rate are also inclusive of payment to the labour Department in accordance with the prevailing Labour law, including all statutory liability fixed by the Labour Commissioner or any other law enforcement agency. Also, if new taxes are introduced, same also would be applicable.

19. Rates quoted in the financial bid must be include re-setting of relays by secondary injection of current and tighten the screws/ bolts, HT/LT connection, HT cable gantry, rising mains, bus gantry etc of the electric substation.

20. The rate quoted by bidder, shall be firm and inclusive of all taxes (including GST etc.), duties and levies and all charges for packing, forwarding insurances, freight and delivery, installation, testing, commissioning etc at site including temporary constructional storage, risks, overhead charges, general liabilities/ obligations etc. The tendered rates must be inclusive of all such taxes.

21. Contractor shall be solely responsible for payment of wages/ salaries and allowances to their personnel as per the rules or act applicable under government order. All central, state, local laws & bye laws applicable will be observed by the contractor and institute will be kept indemnified of such payable by the contractor.

22. The rates quoted shall be deemed to allow for all minor extras and constructional details which are not specifically shown on drawings or given in the specifications but are essential in the opinion of the Engineer-in-Charge to the execution of works to conform to good workmanship and sound engineering practice. The Engineer-in-Charge reserve the right to make any minor changes during the execution without any extra payment.

23. The Engineer-in-Charge decision to clarify any item under minor changes, minor extras and constructional details shall be final, conclusive and binding on the contractor.

24. The rates quoted by the Contractor shall be net so as to include all requirements described in the contract agreement and no claim whatsoever due to fluctuations in the price of material and labour will be entertained.

25. The rates quoted by the contractor shall be include for supply material and labour necessary for completing the work in the best and most workmanship like manner to the satisfaction of the Engineer-in-Charge. The rates shall be complete in all respects, including cost of materials, erection, fabrications, labour, supervision, tools and plant, transport, sales and other taxes, royalties, duties and materials, contingencies, breakage, wastage, sundries, scaffolding etc on the basis of works contract. The rates quoted shall include all taxes, duties, transports, insurances, octroi, or any other levies applicable under the statute.

26. Any unauthorized person (or visitor) shall not be allowed to come inside the campus without the approval of Engineer-in-Charge and Security In-Charge. Staff deployed at NIPER site will get the temporary ID card and which shall be available with the concern at the time of duty. For the purpose of proper identification of the employees of the contractor deployed for the work, contractor shall issue identity cards bearing their photographs/ identification etc and such as deployed by the contractor in order to ensure that persons deployed by him are going their duties.

27. For performing the assigned work, the contractor shall deploy medically and physically fit persons. The contractor shall ensure that the persons are punctual and disciplined and remain vigilant in performance of their duty. Persons so engaged by the contractor shall be from amongst properly trained electrician of high integrity.
and good conduct, and shall be conversant in the local language i.e. Hindi. In no circumstances, persons below 18 years of age should be employed.

28. The contractor shall further keep the institute indemnified against any loss to the institute properly and assets. The institute shall have further right to adjust and/or deduct any of the amounts as aforesaid from the payments due to the contractor under this contract.

29. The contractor shall ensure that the persons so deployed do not allow any property of the institute related to equipments’ to be taken out of the premises without a Gate Pass signed by the Engineer-in-Charge.

30. Saturday/ Sundays should be utilized primarily for the installations, commissioning, testing activities, where shutdown is required, in consultation with & approved of the Engineer-in-Charge.

31. In case, any staff not found up to the mark and not able to work properly or behave improperly, he will have to be changed as per the instructions of the Engineer-in-Charge.

32. The persons deployed by the contractor for the services mentioned above shall be the employees of the contractor for all intents and purposes and that the persons so deployed shall remain under the control and supervision of the contractor.

33. The contractor shall at his own cost, if required, take necessary insurance cover up to the handing over in respect of the aforesaid services rendered to the institute and shall comply with the statutory provisions of Contract Labour (Regulation & Abolition) Act, 1970; Employees State Insurance Act; Workman’s Compensation Act, 1923; Payment of Wages Act, 1936; The Employees Provident Fund (and Miscellaneous Provisions) Act, 1952; Payment of Bonus Act, 1965; The minimum Wages Act, 1948; Employer’s Liability Act, 1938; and/or any rules/regulations and/or statues that may be applicable to them. The contractor shall indemnify the institute against all claims which may be made upon the institute whether under the aforesaid statutes or any other statute in force during the currency of this contract.

AWARENESS OF SITE CONDITIONS AND CARRYING OUT OF SITE INSPECTION PRIOR TO TENDER SUBMISSION

34. Prior to the preparation and submission of his Tender, the Contractor shall make visits to the site and carry out all the necessary inspections and investigations in order to obtain all information and to make his own assessment of the conditions and constraints at site, including the means of access to it. The contractor shall make himself aware of all the features of the site and the working conditions and space and shall, in general, be responsible for obtaining all the necessary and requisite information needed for him to prepare and submit the Tender.

35. Should the contractor require any clarification he shall seek these in writing from the Engineer-in-Charge before submitting his tender. At no stage will any extra claims be entertained or allowed on any matter or for any reason arising from or as a consequences of the contractor’s failure to comply with the requirements stipulated in this clause.

36. Defect Liability Period. The defect liability period shall be 1 year from the final date of completion of work and handing over of site. The Security deducted from the running bill will be refunded after expiry of defect liability period. Any defects/ defective material noted during this period shall be rectified/replaced by the Agency at its own cost to the entire satisfaction of the Engineer-in-Charge.

Test Certificate

37. The contractor shall submit copy of test certificate for all the major electrical equipment such as TTA Panel, 11 KV OCBs, circuit breakers, CTs, PTs, instruments, relays, cables etc. and panel as a whole, confirming to relevant IS/ BIS standards issued by manufacturers.

Samples and Catalogues

38. Before ordering the material necessary for these installations, the contractor shall submit to the Engineer-in-Charge/ Consultants for approval, a sample of every kind of material such as cables, conductors, conduits, switches, socket outlets, circuit breakers, lighting fixtures, boxes etc., along with the catalogue with their dimensional details.

Completion Certificate

39. On completion of the electrical installation a certificate shall be furnished by the contractor countersigned by the licensed supervisor, under whose direct supervision the installation was carried out.
The contractor means the documents forming the tender and acceptance there and the formal agreement executed between the Competent Authority on behalf of NIPER and the contractor, together with the documents referred to therein including these conditions, the specifications, drawings and instructions issued from time to time by the Engineer-in-Charge and all these documents taken together shall be deemed to form the contract and shall be complementary to one another.

In the contract, the following expressions shall unless the context otherwise requires, have the meanings, hereby respectively assigned to them.

The expression works or work shall, unless there something either in the subject or context repugnant to such construction, be constructed and taken to mean the works by or virtue of the contract contracted to be executed whether temporary or permanent and whether original altered, substituted or additional.

The site shall mean the land or other places on, into or through which the work is to be executed under the contractor any adjacent land, path or street through which work is to be executed under the contract or any adjacent land, path or street which may be allotted or used for the purpose of carrying out the contract.

The contractor shall mean the individual, firm or company, whether incorporated or not undertaking works and shall include the legal personal representative of such individual or the personal comprising such firm or company, or the successors of such firm or company and the permitted assignees of such individual, firm or company.

The Engineer-in-Charge shall mean the person designated from time to time by the Director, NIPER and shall include those who are expressly authorized by him to act for and on his behalf for operation of this contract.

The Architect shall mean designated as Project Architect by NIPER.

Accepting Authority shall mean Director, NIPER.

Excepted risk are risk due to riots (other than those on account of contractors employees), war (whether declared or invasion, act foreign enemies, hostilities, civil war, rebellion, revolution, insurrection military or usurped power, any act or Government, damages from aircraft, acts of God, such as earthquake, lightning and unprecedented floods, and other causes over which the contractor has no control and accepted as such by the Accepting Authority.

Market rates shall be the rates as decided by the Engineer-in-Charge on the basis of the cost of material and labour at site where the work is to be executed plus 10 percent to cover all overheads and profits.

District specifications mean the specifications followed by the State Govt. in the area where the work is to be executed.

Department means Engineering Department of NIPER.

Tendered value means the value of the entire work as stipulated in the letter of award.

Date of commencement of work: The date of commencement of work shall be the date of start as specified in schedule ‘F’ or the first date of handing over of the site, whichever is later, in accordance with the phasing if any, as indicated in the tender document.

Where the context so require, words imparting the singular only also
PERFORMANCE

include the plural and vice versa. Any reference to masculine gender shall whenever required include feminine tender and vice versa.

Headlines marginal notes to these General Conditions of contract shall not be deemed to form part thereof or be taken into consideration in the interpretation or construction thereof or of the contract.

The contractor shall be furnished, free of cost one certified copy of the contract documents except standard specifications, schedule of rates and such other printed and published documents, together with all drawings a may be forming part of the tender papers. None of these documents shall be used for any purpose other than that of this contract.

WORKS TO BE CARRIED OUT

Works to be carried out under this contact shall, except as otherwise provided in these conditions include all labour, materials, tools, plants equipments and transport which may be required in preparations of and for and in the full and entire execution and completion of the works description given in the schedule of quantities shall unless otherwise stated be held to include wastage materials, carriage and cartage, carrying and return of empties, hoisting, setting, fitting in position and all other labours necessary in and for the full and entire execution and completion of the work as aforesaid in accordance with good practice and recognized principles.

FFICIENCY OF TENDER

The contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the works and of the rates and prices quoted in the schedule of quantities, which rates and prices shall except as otherwise provided cover all his obligations under the contract and all matters and things necessary for the proper completion and maintenance of the works.

DISCREPANCIES AND ADJUSTMENTS OF ERRORS

Several documents forming the contract are to be taken as mutually explanatory of one another, detailed drawings being followed in preference to small-scale drawings and figured dimensions in preference to scale and special conditions in preference to General Conditions.

In the case of discrepancy between the schedule of quantities, the specifications and/ or the drawings the following order or preference shall be observed.

(i) Description of schedule of quantities.
(ii) Particular specifications and special conditions, if any.
(iii) Drawings.
(iv) Specifications specified in the contract.
(v) Indian standard specifications of BIS.

If there are varying or conflicting provisions made in any one document forming part of the contract, the accepting authority shall be the deciding authority with regards to the intention of the document and his decision shall be final and binding on the contract.

Any error in description, quantity or rate in schedule of quantities or any omission there from shall not vitiate the contract or release the contract from the execution of the whole or any part of the works comprised therein according to drawing and specifications or from any part of his obligations under the contract.

ALL PAGES TO

All pages of the tender document are required to be initialed and dated at the
<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>BE INITIALED</strong></td>
<td>lower right hand corner of the tender or his authorized representative.</td>
</tr>
<tr>
<td><strong>CORRECTIONS AND ALTERATIONS</strong></td>
<td>All corrections and alterations in the entries in the tender papers shall be signed in full by the tenderer with date. No eraser or overwriting is permissible.</td>
</tr>
<tr>
<td><strong>WITNESS</strong></td>
<td>Witness and sureties shall be persons of status and their names, occupations and addresses shall be stated below their signatures.</td>
</tr>
<tr>
<td><strong>EARNEST MONEY</strong></td>
<td>No interest is payable on earnest money deposit.</td>
</tr>
<tr>
<td><strong>ADDENDA &amp; CORRIGENDA</strong></td>
<td>Addenda and corrigenda to the tender documents will be issued in duplicate prior to the date of opening of the tender to clarify documents or to reflect modifications in design or contract terms.</td>
</tr>
<tr>
<td></td>
<td>Each addenda/corrigenda will be distributed in duplicate to each tenderer to whom a set of tender documents has been issued. Recipient will retain tender’s copy of each addenda/corrigenda and attach original copy duly signed along with his offer. All addenda/corrigenda issued by the NIPER shall form part of the agreement.</td>
</tr>
<tr>
<td></td>
<td>The OWNER reserves the right to interpolate the rates for such items of work falling between similar items of lower and higher magnitude.</td>
</tr>
<tr>
<td><strong>POLICY FOR TENDER UNDER CONSIDERATION</strong></td>
<td>Only those tenders which are complete in all respects and are strictly in accordance with the terms and conditions and technical specification of tender documents shall be considered for evaluation. Such tenders shall deemed to be under consideration immediately after opening or the tender and until such time an official intimation or acceptance/rejection of the tender is made by NIPER to the tenderer.</td>
</tr>
<tr>
<td></td>
<td>NIPER if necessary will obtain clarification on the tender by requesting for such information/clarification from any or all tenderers, either in writing or through personal contact as may be necessary. Tenderers will not be permitted to change the substance of the tender after opening of the tender.</td>
</tr>
<tr>
<td><strong>MEMBERS OF THE OWNER NOT INDIVIDUALLY LIABLE.</strong></td>
<td>Neither the owner or official or employees of the owner shall in any way be personally bound of liable for the acts or obligations or the owner under the contract or answerable for any default or omission in the observance or performance or any or the acts, matters or things which are herein contained on the part of the contractor.</td>
</tr>
<tr>
<td><strong>CONTRACTOR’S OFFICE AT SITE</strong></td>
<td>The contractor shall provide and maintain an office at the site for the accommodations of his agent and staff and such office shall be opened at all reasonable hours to receive instructions, notices or other communications. The contractor at all times shall maintain a site instruction book and compliance of these shall be communicated to the Engineer-in-Charge from time to time and the whole document to be preserved and handed over after completion of the work to NIPER.</td>
</tr>
<tr>
<td><strong>RIGHT OF THE</strong></td>
<td>The owner reserves the right to distribute the work between more than one agency(ies). The contractor shall cooperate and afford other</td>
</tr>
</tbody>
</table>
agencies reasonable opportunity for access to the work for the carriage and storage of material and execution their works. Wherever the work being done by any department of the owner or by other agencies employed by the owner is contingent upon work covered by this contract, the respective rights of the various interests involved shall be determined by the Engineer-in-Charge to secure completion of various portions of the work in general harmony.

All documents pertaining to the contract including specifications, schedule, notices, correspondences operating and maintenance instructions, drawings etc shall be written in English language. The metric system of measurements shall be used in the contract unless otherwise specified.

The Engineer-in-Charge shall have the right to take possession of or use any completed or partially completed work or part of the work. Such possession or use shall not deem to be in acceptance of any work completed in accordance with the contract agreement.

The contractor shall prepare and submit the bills showing quantity-executed along with the detailed measurements sheet in four copies. The bills shall be submitted once in a month on completion of MILESTONE activities. Payment against running bills hall e released only on certification by Engineer-in-Charge in the following manner. 60% of the running account bill will be released within 10 days of the submission of the bill along with requisite documents. Balance 40% amount will be released with next 21 days. It is to be noted that contractor should submit the bill after taking joint measurements with the representative of the Engineer-in-Charge to minimize the checking time and adhere to the above payment schedule.

Except the final certificate, no other certificate or payment against a certificate or on general account shall be taken to be an admission by the owner of the due performance or the contract or any part their of or of occupancy or validity of any claim by the contractor.

The contractor herewith agrees that ass a respect of inspection of works by the Technical Engineer of the works and the bills of the contractor including all the supported vouchers, abstract etc. to be make after payment of the bills and as result of such audit and technical examination any sum is found to have been over paid in respect of any work done by the contractor under the contract or any work claimed by him to have been done by him under the contract and found not to have been executed or any work is found not to have been executed in accordance with the contract the contractor shall be liable to refund the amount of overpayments made already and it shall be lawful for the owner as he deem fit to recover such over payments either from any payment due and becoming due to the contractor or from the security deposit or retention money or through any further bills and/ or final bill or in any other manner whatsoever not excluding though recourse to legal
SIGNING OF CONTRACT

The successful tenderer/contractor, on acceptance of his tender by the Accepting authority shall, within 15 days from the stipulated date of start of the work sign the contract consisting of:

- The notice inviting tender, all the documents including drawings if any forming the tender as issued at the time of invitation of tender and accepting thereof together with any correspondence leading thereto.
- Standard from consisting as mentioned in schedule F consisting of:
  - Various standard clauses with corrections up to date stipulated in schedule F along with annexure thereto.
  - Safety codes
  - Model rules for the protection of health, sanitary arrangements for the workers employed by the contractor.
  - Contractor’s labour regulations.
  - List of acts and omissions for which fines can be imposed.

WORK IN LABORATORIES / OFFICES AT ADJOINING AREAS

Agency will have to take all necessary precautions and measures to check any inconvenience to the working of laboratories in the adjoining buildings and direction of Engineer-in-Charge. Nothing extra is payable on above account.

PROTECTION OF EXPOSED EXTERNAL FINISH OF ADJOINING BUILDINGS

The exposed external finish of the existing buildings to be cleaned side by side to keep the surface unaffected from the construction material during construction. Any defacing occurred on above a/c need to be made good by the agency at no extra cost to the NIPER.

APPROACH TO THE WORK SITE

Existing stairs in the buildings will not be allowed to be used for carrying men/material for construction work.

SEQUENCE OF VARIOUS ITEMS

Sequence of execution of various items of work are to be planned in such a way to create minimum disruption of activities in the adjoining buildings.
CLAUSES OF CONTRACT

CLAUSE 1

Performance Guarantee

(i) The contractor shall submit an irrevocable Performance Guarantee of 5% (Five percent) of the tendered amount in addition to other deposits mentioned elsewhere in the contract for his proper performance of the contract agreement, (not withstanding and/or without prejudice to any other provisions in the contract) within period specified in Schedule ‘F’ from the date of issue of letter of acceptance. This period can be further extended by the Engineer-in-Charge up to a maximum period as specified in schedule `F` on written request of the contractor stating the reason for delays in procuring the Performance Guarantee, to the satisfaction of the Engineer-in-Charge. This guarantee shall be in the form of Cash (in case guarantee amount is less than Rs. 10,000/-) or Deposit at Call receipt of any scheduled bank/Banker’s Cheque of any scheduled bank/Demand Draft of any scheduled Bank/Pay Order of any scheduled bank (in case guarantee amount is less than Rs. 1,00,000/-) or Government Securities or Fixed Deposit Receipts or Guarantee Bonds of any Scheduled Bank or the State Bank of India in accordance with the form annexed hereto. In case a fixed deposit receipt of any Bank is furnished by the contractor payment against the said fixed deposit receipt of any Bank is furnished by the contractor to the NIPER as part of the performance guarantee and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the NIPER to make good the deficit.

(ii) The Performance Guarantee shall be initially valid up to the stipulated date of completion plus 60 days beyond that. In case the time for completion of work gets enlarged, the contractor shall get the validity of Performance Guarantee extended to cover such enlarged time for completion of work. After recording of the completion certificate for the work by the competent authority, the performance guarantee shall be returned to the contractor, without any interest. However, in case of contracts involving maintenance of building and services/any other work after construction of same building and services/other work, then 50% of Performance Guarantee shall be retained as Security Deposit. The same shall be returned yearwise proportionately.

(iii) The Engineer-in-Charge shall not make a claim under the performance guarantee except for amounts to which the NIPER is entitled under the contract (not withstanding and/or without prejudice to any other provisions in the contract agreement) in the event of:

(a) Failure by the contractor to extend the validity of the Performance Guarantee as described herein above, in which event the Engineer-in-Charge may claim the full amount of the Performance Guarantee.

(b) Failure by the contractor to pay NIPER any amount due, either as agreed by the contractor or determined under any of the Clauses/Conditions of the agreement, within 30 days of the service of notice to this effect by Engineer-in-Charge.

(iv) In the event of the contract being determined or rescinded under provision of any of the Clause/Condition of the agreement, the performance guarantee shall stand forfeited in full and shall be absolutely at the disposal of the NIPER.

CLAUSE 1A

RECOVERY OF SECURITY DEPOSIT

The person/persons whose tender(s) may be accepted (hereinafter called the contractor) shall permit Government at the time of making any payment to him for work done under the contract to deduct a sum at the rate of 2.5% of the gross amount of each running and final bill till the sum deducted will amount to security deposit of 2.5% of the tendered value of the work. Such deductions will be made and held by Government by way of Security Deposit unless he/she has/have deposited the amount of Security at the rate mentioned above in cash or in the form of Government Securities or fixed deposit receipts. In case a fixed deposit receipt of any Bank is furnished by the contractor to the Government as part of the security deposit and the Bank is unable to make payment against the said fixed deposit receipt, the loss caused thereby shall fall on the contractor and the contractor shall forthwith on demand furnish additional security to the Government to make good the deficit.
All compensations or the other sums of money payable by the contractor under the terms of this contract may be deducted from, or paid by the sale of a sufficient part of his security deposit or from the interest arising there from, or from any sums which may be due to or may become due to the contractor by Government on any account whatsoever and in the event of his Security Deposit being reduced by reason of any such deductions or sale as aforesaid, the contractor shall within 10 days make good in cash or fixed deposit receipt tendered by the State Bank of India or by Scheduled Banks or Government Securities (if deposited for more than 12 months) endorsed in favour of the Engineer-in-Charge, any sum or sums which may have been deducted from, or raised by sale of his security deposit or any part thereof. The security deposit shall be collected from the running bills and the final bill of the contractor at the rates mentioned above.

The security deposit as deducted above can be released against bank guarantee issued by a scheduled bank, on its accumulations to a minimum of Rs. 5 lac subject to the condition that amount of such bank guarantee, except last one, shall not be less than Rs. 5 lac. Provided further that the validity of bank guarantee including the one given against the earnest money shall be in conformity with provisions contained in clause 17 which shall be extended from time to time depending upon extension of contract granted under provisions of clause 2 and clause 5.

In case of contracts involving maintenance of building and services/any other work after construction of same building and services/other work, then 50% of Performance Guarantee shall be retained as Security Deposit. The same shall be returned year wise proportionately.

Note-1: Government papers tendered as security will be taken at 5% (five per cent) below its market price or at its face value, whichever is less. The market price of Government paper would be ascertained by the Divisional Officer at the time of collection of interest and the amount of interest to the extent of deficiency in value of the Government paper will be withheld if necessary.

Note-2: Government Securities will include all forms of Securities mentioned in Rule No. 274 of the G.F. Rules except fidelity bond. This will be subject to the observance of the condition mentioned under the rule against each form of security.

Note-3: Note 1 & 2 above shall be applicable for both clause 1 and 1A

CLAUSE 2

COMPENSATION FOR DELAY

If the contractor fails to maintain the required progress in terms of clause 5 or to complete the work and clear the site on or before the contract or extended date of completion, he shall, without prejudice to any other right or remedy available under the law to the NIPER on account of such breach, pay as agreed compensation the amount calculated at the rates stipulated below as the authority specified in schedule ‘F’ (whose decision in writing shall be final and binding) may decide on the amount of tendered value of the work for every completed day/month (as applicable) that the progress remains below that specified in Clause 5 or that the work remains incomplete. This will also apply to items or group of items for which a separate period of completion has been specified.

(i) Compensation for delay of work @ 1.5% per month of delay to be computed on per day basis.

Provided always that the total amount of compensation for delay to be paid under this Condition shall not exceed 10% of the Tendered Value of work or of the Tendered Value of the item or group of items of work for which a separate period of completion is originally given.

The amount of compensation may be adjusted or set-off against any sum payable to the Contractor under this or any other contract with the NIPER. In case, the contractor does not achieve a particular milestone mentioned in schedule F, or the re-scheduled milestone(s) in terms of Clause 5.4, the amount shown against that milestone shall be withheld, to be adjusted against the compensation levied at the final grant of Extension of without any notice to the contractor. However, if the contractor catches up with the progress of work on the subsequent milestone(s), the withheld amount shall be released. In case the contractor fails to make up for the delay in subsequent milestone(s), amount mentioned against each milestone missed subsequently also shall be withheld. However, no interest, whatsoever, shall be payable on such withheld amount.
CLAUSE 3
WHEN THE CONTRACT CAN BE DETERMINED
Subject to other provisions contained in this clause, the Engineer-in-Charge may, without prejudice to his any other rights or remedy against the contractor in respect of any delay, inferior workmanship, any claims for damages and/or any other provisions of this contract or otherwise, and whether the date of completion has or has not elapsed, by notice in writing absolutely determine the contract in any of the following cases:

(i) If the contractor having been given by the Engineer-in-Charge a notice in writing to rectify, reconstruct or replace any defective work or that work is being performed in an inefficient or otherwise improper or unworkmanlike manner shall omit to comply with the requirement of such notice for a period of seven days thereafter.

(ii) If the contractor has, without reasonable cause, suspended the progress of the work or has failed to proceed with the work with due diligence so that in the opinion of the Engineer-in-Charge (which shall be final and binding) he will be unable to secure completion of the work by the date for completion and continues to do so after a notice in writing of seven days from the Engineer-in-Charge.

(iii) If the contractor fails to complete the work within the stipulated date or items of work with individual date of completion, if any stipulated, on or before such date(s) of completion and does not complete them within the period specified in a notice given in writing in that behalf by the Engineer-in-Charge.

(iv) If the contractor persistently neglects to carry out his obligations under the contract and/or commits default in complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after a notice in writing is given to him in that behalf by the Engineer-in-Charge.

(v) If the contractor shall offer or give or agree to give to any person in NIPER or to any other person on his behalf any gift or consideration of any kind as any act inducement or reward for doing or forbearing to do or for having done or forborne to do any act in relation to the obtaining or execution of this or any other contract for NIPER.

(vi) If the contractor shall obtain a contract with NIPER as a result of wrong tendering or other non-bona fide methods of competitive tendering or commits breach of integrity pact.

(vii) If the contractor being an individual, or if a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any Insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangement for the benefit of his creditors or purport so to do, or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if a trust deed be executed by him for benefit of his creditors.

(viii) If the contractor being a company shall pass a resolution or the court shall make an order that the company shall be wound up or if a receiver or a manager on behalf of a creditor shall be appointed or if circumstances shall arise which entitle the court or the creditor to appoint a receiver or a manager or which entitle the court to make a winding up order.

(ix) If the contractor shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days.

(x) If the contractor assigns, transfers, sublets (engagement of labour on a piece-work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be
subletting) or otherwise parts with or attempts to assign, transfer, sublet or otherwise parts with the entire work or any portion thereof without the prior written approval of the Engineer-in-Charge.

When the contractor has made himself liable for action under any of the cases aforesaid, the Engineer-in-Charge shall have powers:

(a) To determine the contract as aforesaid (of which termination notice in writing to the contractor under the hand of the Engineer-in-Charge shall be conclusive evidence). Upon such determination, the Earnest Money Deposit, Security Deposit already recovered and Performance Guarantee under the contract shall be liable to be forfeited and shall be absolutely at the disposal of the NIPER.

(b) After giving notice to the contractor to measure up the work of the contractor and to take such whole, or the balance or part thereof, as shall be un-executed out of his hands and to give it to another contractor to complete the work. The contractor, whose contract is determined as above, shall not be allowed to participate in the tendering process for the balance work.

In the event of above courses being adopted by the Engineer-in-Charge, the contractor shall have no claim to compensation for any loss sustained by him by reasons of his having purchased or procured any materials or entered into any engagements or made any advances on account or with a view to the execution of the work or the performance of the contract. And in case action is taken under any of the provision aforesaid, the contractor shall not be entitled to recover or be paid any sum for any work thereof or actually performed under this contract unless and until the Engineer-in-Charge has certified in writing the performance of such work and the value payable in respect thereof and he shall only be entitled to be paid the value so certified.

**CLAUSE 4**

**CONTRACTOR LIABLE TO PAY COMPENSATION EVEN IF ACTION NOT TAKEN UNDER CLAUSE 3**

In any case in which any of the powers conferred upon the Engineer-in-Charge by clause 3 thereof, shall have become exercisable and the same shall not be exercised, the non exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall not withstanding be exercisable in the event of any future case of default by the contractor and the liability of the contractor for compensation shall remain unaffected. In the event of the Engineer-in-Charge putting in force all or any of the powers vested in him under the preceding clause he may, if he so desires after giving a notice in writing to the contractor, take possession of (or at the sole discretion of the Engineer-in-Charge putting in force all or any of the powers vested in him under the preceding clause he may, if he so desires after giving a notice in writing to the contractor), take possession of (or at the sole discretion of Engineer-in-Charge which shall be final and binding on the contractor) use as on hire (the amount of the hire money being also in the final determination of the Engineer-in-Charge) all or any tools, plant materials and stores, in or upon the works, or the site thereof belonging to the contractor, or procured by the contractor and intended to be used for the execution of the work or any part thereof, paying or allowing for the same in account at the contract rates, or in the case of these not being applicable, at current market rates to be certified by the Engineer-in-Charge, whose certificate thereof shall be final, and binding on the contractor, otherwise the Engineer-in-Charge by notice in writing may order the contractor or his clerk of work, foreman or other authorized agency to remove such tools, plant materials, or stores from the premises (within time to be specified in such notice) in the event of the contractor failing to comply with any such requisition, the Engineer-in-Charge may remove them at the contractor's expense or sell them by auction or private sale on account of the contractor and his risk in all respects and the certificate of the Engineer-in-Charge as to the expenses of any such removal and the amount of the proceeds and expenses of any such sale shall be final and conclusive against the contractor.

**CLAUSE 5**

**TIME AND EXTENSION OF TIME**

The time allowed for the execution of the work as specified in schedule F or the extended time in accordance with these conditions shall be the essence of the contract. The execution of the works shall commence from the time mention in schedule F or such time period as mention in letter of award after the
date on which written order to commence the work is issued. If the contractor commits default in
commencing the execution of the work as aforesaid, NIPER shall without prejudice to any other right or
remedy available in law, be at liberty to forfeit the earnest money & performance guarantee absolutely.

5.1 As soon as possible after the contract is concluded the contractor should submit a time and progress
chart and get it approved by NIPER. The chart shall be prepared in direct relation to the time stated in the
contract document for completion of item of the works. It shall indicate the forecast of the dates of
commencement and completion of various trades of sections of the work and may be amended as
necessary by agreement in the contract documents. To ensure good progress during the execution of the
work, the contractor shall in all cases in which time allowed , exceeds one month( for jobs for which a
separate program as above has been agreed upon) has to complete 1/8th of whole work before 1/4th of
the whole time allowed in the contract has elapsed 3/8th of the work before one half of such time has
elapsed and 3/4th of the work before 3/4th of such time has elapsed.

5.2 If the works be delayed by

I. Force majeure, or
II. abnormally bad weather, or
III. serious loss or damage by fire, or
IV. civil commotion, local commotion of workmen, strike or lockout, affecting any of the trades
employer on the work, or
V. delay on the part of other contractors or tradesmen engaged by NIPER in executing work not
forming part of the contract, or
VI. non availability of stores , which are the responsibility of NIPER to supply, or
VII. non availability or breakdown of tools and plants to be supplied by or supplied by NIPER, or
VIII. any other cause which , in the absolute discretion of the competent authority is beyond the control
of the contractor

Then upon the happening of any such event causing delay, the contractor shall immediately give notice
thereof in writing to the competent authority but shall nevertheless use constantly his best endeavors to
prevent or make good the delay and shall do all that may be reasonably required to the satisfaction of the
Engineer-in-Charge to proceed with the works.

5.3 Request for extension of time in specified preformed to be eligible for consideration, shall be made by
the contractor in writing within thirty days of the happening of the event causing delay. The contractor may
also , if practicable , indicate in such a request the period of which extension is desired.

5.4 In any such case the competent authority may give a fair and reasonable extension of time for
completion of work. Such extension shall be communicated to the contractor by the Engineer-in-Charge in
writing.

CLAUSE 6
MEASUREMENTS OF WORK DONE

Engineer-in-Charge shall, except as otherwise provided ,ascertain and determine by measurement the
value in accordance with the contract or work done.

All measurements of all items having financial value shall be entered in measurement book and/ or level
book so that a complete record is obtained of all works performed under the contract.

All measurements and levels shall be taken jointly by the Engineer- in-chief or his authorized representative
and by the contractor or his authorized representative from time to time during the progress of the work
and such measurement shall be signed and dated by the Engineer-in-Charge and the contractor or their
representative in token of their acceptance. If the contractor objects to any of the measurement recorded,
a note shall be made to that effect with reason and signed by both the parties.

If for any reason the contractor or his authorized representative is not available and the work of recording
measurement is suspended by the Engineer-in-Charge or his representative, the Engineer-in-Charge and
NIPER shall not entertain any claim from contractor for any loss or damages on this account. If the
contractor or his authorized representative does not remain present at the time of such measurement after
the contractor or his authorized representative has given a notice in writing three (3) days in advance or
fails to countersign or to record objection within a week from the date of the measurement, then such
measurement recorded in his absence by the contractor. The contractor shall, without extra charge,
provide all assistance with every appliance, labor and other things necessary for measurements and
recording levels.
Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the specifications notwithstanding any provision in the relevant Standard Method of measurement issued by the Bureau of Indian Standards and if for any item no such standard is available then a mutually agreed method shall be followed.

The contractor shall give not less than seven days notice to the Engineer-in-Charge or his authorized representative in charge of the work before covering up or otherwise placing beyond the reach of measurement any work in order that same may be measured and correct dimensions thereof be taken before the same is covered up or placed beyond the reach of measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer-in-Charge or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of measurement without such notice having been given or the Engineer-in-Charges consent being obtained in writing the same shall be uncovered at the contractor expense, or in default thereof no payments or allowance shall be made for such work or the materials which the same was executed.

Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of NIPER to check the measurement recorded jointly or otherwise as aforesaid and all provisions stipulated herein above shall be applicable to such checking of measurement or levels.

It also a term of this contract that recording of measurement of any item of work in the measurement book and / or its payment in the interim, on account or final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities form any over measurement or defects noticed till completion of the defects liability period.

**CLAUSE 6A**

**COMPUTERISED MEASUREMENT BOOK**

Engineer-in-Charge shall, except as otherwise provided, ascertain and determine by measurement the value of work done in accordance with the contract. All measurements of all items having financial value shall be entered by the contractor and compiled in the shape of the Computerized Measureable Book having pages of A-4 size as per the format of the department so that a complete record is obtained of all the items of works performed under the contract.

All such measurements and levels recorded by the contractor or his authorised representative from time to time, during the progress of the work, shall be got checked by the contractor from the Engineer-in-Charge or his authorised representative as per interval or program fixed in consultation with Engineer-in-Charge or his authorised representative. After the necessary corrections made by the Engineer-in-Charge, the measurement sheets shall be returned to the contractor for incorporating the corrections and for resubmission to the Engineer-in-Charge for the dated signatures by the Engineer-in-Charge and the contractor or their representatives in token of their acceptance.

Whenever bill is due for payment, the contractor would initially submit draft computerized measurement sheets and these measurements would be got checked/ test checked from the Engineer-in-Charge and/or his authorised representative. The contractor will, thereafter, incorporate such changes as may be done during these checks/ test checks in his draft computerized measurements, and submit to the department a computerized measurement book, duly bound, and with its pages machine numbered. The Engineer-in-Charge and/or his authorized representative would thereafter check this MB, and record the necessary certificates for their checks/test checks.

The final, fair, computerized measurement book given by the contractor, duly bound, with its pages machine numbered, should be 100% correct, and no cutting or over-writing in the measurements would thereafter be allowed. If at all any error is noticed, the contractor shall have to submit a fresh computerized MB with its pages duly machine numbered and bound, after getting the earlier MB cancelled by the engineering department. Thereafter, the MB shall be taken in the engineering office records, and allotted a number as per the Register of Computerised MBs. This should be done before the corresponding bill is submitted to the account section for payment. The contractor shall submit two spare copies of such computerized MB’s for the purpose of reference and record by the various officers of the department.

The contractor shall also submit to the department separately his computerised Abstract of Cost and the bill based on these measurements, duly bound, and its pages machine numbered along with two spare copies of the “bill. Thereafter, this bill will be processed by the Division Office and allotted a number as per the computerised record in the same way as done for the measurement book meant for measurements.
The contractor shall, without extra charge, provide all assistance with every appliance, labour and other things necessary for checking of measurements/levels by the Engineer-in-Charge or his representative. Except where any general or detailed description of the work expressly shows to the contrary, measurements shall be taken in accordance with the procedure set forth in the specifications notwithstanding any provision in the relevant Standard Method of measurement or any general or local custom. In the case of items which are not covered by specifications, measurements shall be taken in accordance with the relevant standard method of measurement issued by the Bureau of Indian Standard and if for any item no such standard is available then a mutually agreed method shall be followed. The contractor shall give, not less than seven days’ notice to the Engineer-in-Charge or his authorized representative in charge of the work, before covering up or otherwise placing beyond the reach of measurement any work in order that the same may be measured and correct dimensions thereof be taken before the same is covered up or placed beyond the reach of measurement and shall not cover up and place beyond reach of measurement any work without consent in writing of the Engineer-in-Charge or his authorized representative in charge of the work who shall within the aforesaid period of seven days inspect the work, and if any work shall be covered up or placed beyond the reach of measurements without such notice having been given or the Engineer-in-Charge’s consent being obtained in writing, the same shall be uncovered at the Contractor’s expense, or in default thereof no payment or allowance shall be made for such work or the materials with which the same was executed.

Engineer-in-Charge or his authorized representative may cause either themselves or through another officer of the department to check the measurements recorded jointly or otherwise as aforesaid and all provisions stipulated herein above shall be applicable to such checking of measurements or levels. It is also a term of this contract that recording of measurements of any item of work in the measurement book and/or its payment in the interim, on account or final bill shall not be considered as conclusive evidence as to the sufficiency of any work or material to which it relates nor shall it relieve the contractor from liabilities from any over measurement or defects noticed till completion of the defects liability period.

**CLAUSE 7**

**PAYMENT ON INTERMEDIATE CERTIFICATE TO BE REGARDED AS ADVANCES**

No payment shall be made for work, estimated to cost Rupees Twenty Thousand or less till after the whole of the work shall have been completed and certificate of completion given. For works estimated to cost over Rupees Twenty Thousand and interim or running account bills shall be submitted by the contractor for the work executed on the basis of such recorded measurements on the format of the NIPER on or before the date of every month fixed for the same by the Engineer-in-Charge. The contractor shall not be entitled to be paid any such interim payment if the gross work done together with net payment/ adjustment of advances for material collected, if any, since the last such payment is less, than the amount specified in schedule ‘F’, in which case the interim bill shall be prepared on the appointed date of the month after the requisite progress is achieved. Engineer-in-Charge shall arrange to have the bill verified by taking or causing to be taken where necessary, the requisite measurements of the work. In the event of the failure of the contractor to submit the bills, Engineer-in-Charge shall prepare or cause to be prepared such bills in which event no claims whatsoever due to delays on payment including that of interest shall be payable to the contractor. Payment on account of amount admissible shall be made by the Engineer-in-Charge certifying the sum to which the contractor is considered entitled by way of interim payment at such rates as decided by the Engineer-in-Charge. All such interim payments shall be regarded as payment by way of advances against final payment only and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be rejected, removed, taken away and reconstructed or re-recorded. Any certificate given by the Engineer-in-Charge relating to the work done or materials delivered forming part of such payment, may be modified or corrected by the final certificate by any subsequent such certificate(s) or by the final certificate and shall not by itself be conclusive evidence that any work or materials to which it relates is/ are in accordance with the contract and specifications. Any such interim payment, or any part thereof shall not in any respect conclude, determine or affect in any way powers of the Engineer-in-Charge under the contract or any of such payments be treated as final settlement and such adjustment of accounts or in any way vary or affect the contract Pending consideration of extension of date of completion interim payments shall continue to be made as herein provided. Without prejudice to the right of NIPER to taken action under the terms of this contract for delay in the completion of work, if the extension of date of completion is not granted by the competent authority.
The Engineer-in-Charge in his sole discretion on the basis of a certificate from his subordinate Engineer to the effect that the work has been done to the extent assessed and certified interim advance bill without detailed measurements for work done. Such payments shall not exceed 75% of the net amount due as per assessment. The advance payments so allowed shall be adjusted in the subsequent interim bill by taking detailed measurements thereof.

CLAUSE 8
COMPLETION CERTIFICATE AND COMPLETION PLANS
Within ten days of the completion of the work, the contractor shall give notice of such within the thirty days of the receipt of such notice the Engineer - in - Charge shall inspect the work and if there is no defect in the work shall furnish the contractor with final certificate of completion, otherwise a provisional certificate of physical completion indicating defects (a) to be rectified by the contractor and /or (b) for which payments will be made at reduced rates, shall be issued. But no final certificate of completion shall be issued, nor shall the work be considered to be completed until the contractor shall have removed from the premises on which the work was executed all scaffolding, surplus materials, rubbish and all temporary hutments etc, and sanitary arrangements required for his / their work people on the site in connection with the execution of the works as shall have been erected or constructed by the contractor(s) and cleaned off the dirt from all wood work, doors, windows, walls, floor or the other parts of the building, in, upon, or about which the work is to be executed or of which he may have had possession for the purpose of the execution thereof, and not until the work shall have been measured by the Engineer-in-Charge. If the contractor shall fail to comply with the requirements of this clause as to removal of scaffolding, surplus materials and rubbish and all hutments and sanitary arrangements as aforesaid and cleaning off dirt on or before the date fixed for the completion of work, the Engineer-in-Charge may at the expenses of the contractor scaffolding, surplus materials and rubbish etc., and dispose of the same as he thinks fit and clean off such dirt as aforesaid, and the contractor shall have no claim in respect of scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

CLAUSE 8A
CONTRACTOR TO KEEP SITE CLEAN.
When the annual repairs and maintenance of works or original items of work are carried out, the splashes and droppings from white washing, painting etc., on walls, floor, windows, etc. shall be removed and the surface cleaned simultaneously with the completion of these items of work in the individual rooms, quarters or premises etc, where the work is done without waiting for the other items of actual completion of all the other items of work in contract. In case the contractor fails to comply with the requirements of this clause, the Engineer-in-Charge shall have the right to get his work done at the cost of the contractor either departmentally or through any other agency. Before taking such action, the Engineer-in-Charge shall give ten days notice in writing to the contractor

CLAUSE 8B
COMPLETION PLANS TO BE SUBMITTED BY THE CONTRACTOR
The contractor shall submit completion plan as required for electrical works and plumbing /Sewerage /Drainage works internal as well as external as applicable within thirty days of the completion of the work. In case, the contractor fails to submit the completion plan as aforesaid he shall be liable to pay a sum equivalent to 2.5% of the value if work subject to a ceiling of Rest 50,000 (Rupees fifty thousand only) as may be fixed by the Director NIPER and in this respect the decision of the Director NIPER shall be final and binding on the contractor.

CLAUSE 9
PAYMENT OF FINAL BILL
The final bill shall be submitted by the contractor in the same manner as specified in interim bills within three months of physical completion of the work or within one month of the date of the final certificate of completion furnished by the Engineer-in-Charge whichever is earlier. No further claim shall be made by the contractor after submission of the final bill and these shall be deemed to have been waived and extinguished. Payments of those items of the bill in respect of which there is no dispute and of items in dispute, for quantities and rates as approved by Engineer-in-Charge, will, as far as possible be made within
the period of six months, the period being reckoned from the date of receipt of the bill by the Engineer-in-Charge or his authorized Engineer, complete with all relevant documents.

**CLAUSE 10**

**MATERIAL SUPPLIED BY NIPER**

No material under this contract is stipulated to be supplied by NIPER.

**CLAUSE 10A**

**MATERIALS TO BE PROVIDED BY THE CONTRACTOR.**

The contractor shall, at his own expense, provide all materials, required for the works. The contractor shall, at his own expense and without delay, supply to the Engineer-in-Charge samples of materials to be used on the work and shall get these approved in advance. All such materials to be provided by the contractor shall be in conformity with the specifications laid down or referred to in the contract. The contractor shall, if requested by the Engineer-in-Charge furnish proof, to the satisfaction of the Engineer-in-Charge that the materials so comply with relevant specifications.

The contractor shall at his risk and cost submit the samples of materials to be tested or analyzed and bear all charges and cost of testing unless specifically provided for otherwise elsewhere in the contract or specifications. The Engineer-in-Charge or his authorized representative shall at all times have access to the works and to all workshops and places where work is being prepared or from where materials manufactured articles or machinery are being obtained for the works and the contractor shall afford every facility and every assistance in obtaining the right to access such locations.

The Engineer-in-Charge shall have full powers to require the removal from the premises of all materials which in his opinion are not in accordance with the specifications and in case of default, the Engineer-in-Charge shall be at liberty to employ at the expense of the contractor, other persons to remove the same without being answerable or accountable for any loss or damage that may happen or arise to such materials. The Engineer-in-Charge shall also have full powers to require other proper materials to be substituted thereof and in case of default the Engineer-in-Charge may cause the same to be supplied and all costs which may require such removal and substitution shall be borne by the contractor.

**CLAUSE 10B**

**SECURED ADVANCES ON NON-PERISHABLE MATERIALS.**

i) The contractor, on signing an indenture in the form to be specified by the Engineer-in-Charge, shall be entitled to be paid during the progress of the execution of the work upto 75% of the assessed value of any materials which are in the opinion of the Engineer-in-Charge nonperishable, non-fragile and noncombustible and are in accordance with the contract and which have been brought on the sight in connection therewith and are adequately stored and/or protected against damage by weather or other causes but which have not at the time of advances been incorporated in the work, the amount of such advance shall be recovered/deducted from the next payment made under any of the clause or clauses of this contract.

Such secured advance shall also be payable on other items of perishable nature, fragile and combustible with the approval of the Engineer-in-Charge provided the contractor provides a comprehensive insurance cover for the full cost of such materials. The decision of the Engineer-in-Charge shall be final and binding on the contractor in this matter. No secured advance, shall however, be paid on high-risk materials such as ordinary glass, sand, petrol, diesel etc.

a) No mobilization advance is payable under this contract.

**10C. PAYMENT ON ACCOUNT OF INCREASE IN PRICES/WAGES DUE TO STATUTORY ORDER(S)**

If after submission of the tender, the price of any material incorporated in the works (excluding the materials covered under Clause 10CA and not being a material supplied from the Engineer-in-Charge’s stores in accordance with Clause 10 thereof) and/or wages of labour increases as a direct result of the coming into force of any fresh law, or statutory rule or order (but not due to any changes of rate in GST/sales tax/VAT, Central/State Excise/Custom Duty) beyond the prices/wages prevailing at the time of the last stipulated date of receipt of tenders including extensions, if any, for the work during contract period including the justified period extended under the provisions of clause 5 of the contract without any action under clause 2, then the amount of the contract shall accordingly be varied and provided further that any such increase
shall be limited to the price/wages prevailing at the time of updated stipulated date of completion considering effect of extra work (extra time to be calculated on prorata basis only as cost of extra work × stipulated period/tendered amount).

If after submission of the tender, the price of any material incorporated in the works (excluding the materials covered under Clause 10CA and not being a material supplied from the Engineer-in-Charge’s stores in accordance with Clause 10 thereof) and/or wages of labour as prevailing at the time of last stipulated date of receipt of tender including extensions, if any, is decreased as a direct result of the coming into force of any fresh law or statutory rules or order (but not due to any changes of rate in GST/ sales tax/VAT, Central/State Excise/Custom Duty), NIPER shall in respect of materials incorporated in the works (excluding the materials covered under Clause 10CA and not being material supplied from the Engineer-in-Charge’s stores in accordance with Clause 10 hereof) and/or labour engaged on the execution of the work after the date of coming into force of such law statutory rule or order be entitled to deduct from the dues of the contractor, such amount as shall be equivalent to the difference between the prices of the materials and/or wages as prevailed at the time of the last stipulated date for receipt of tenders including extensions if any for the work and the prices of materials and/or wages of labour on the coming into force of such law, statutory rule or order. This will be applicable for the contract period including the justified period extended under the provisions of clause 5 of the contract without any action under clause 2.

Engineer-in-Charge may call books of account and other relevant documents from the contractor to satisfy himself about reasonability of increase in prices of materials and wages.

For this purpose, the labour component of the work executed during period under consideration shall be the percentage as specified in Schedule F, of the value of work done during that period and the increase/decrease in labour shall be considered on the minimum daily wages in rupees of any unskilled adult male mazdoor, fixed under any law, statutory rule or order.

10D. DISMANTLED MATERIAL
The contractor shall treat all materials obtained during dismantling of a structure, excavation of the site of work, etc. as NIPER property and such materials shall be disposed off to the best advantage of NIPER according to the instructions in writing issued by the Engineer-in-Charge.

CLAUSE 11
WORK TO BE EXECUTED IN ACCORDANCE WITH SPECIFICATIONS DRAWINGS ORDERS ETC
The contractor shall execute the whole the whole and every part of the work in the most substantial and workman like manner both as regards materials and otherwise in every respect in strict accordance with the specifications . the contractor shall also confirm exactly, fully and faithfully to the design, drawings, and instructions in writing in respect of the work signed by the Engineer-in-Charge and the contractor shall be furnished free of charge one copy of the contract documents together with specifications designs drawings. The contractor shall comply with the provisions of the contract and with care and diligence execute and maintain the works and provide all the materials tools and plants including for measurements and supervision of all works, structural plans and other things of temporary or permanent nature required for such execution and maintenance in so far as the necessity for providing these, is specified or is reasonably inferred from the contract. The contractor shall take full responsibility for adequacy, suitability and safety of all the works and methods of construction.

CLAUSE 12
Deviations/Variations Extent and Pricing
The Engineer-in-Charge shall have power
(i) to make alteration in, omissions from, additions to, or substitutions for the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work, and
(ii) to omit a part of the works in case of non-availability of a portion of the site or for any other reasons and the contractor shall be bound to carry out the works in accordance with any instructions given to him in writing signed by the Engineer-in-Charge and such alterations, omissions, additions or substitutions shall form part of the contract as if originally provided therein and any altered, additional or substituted work which the contractor may be directed to do in the manner specified above as part of the works, shall be carried out by the contractor on the same conditions in all respects including price on which he agreed to do the main work except as hereafter provided.

12.1 The time for completion of the works shall, in the event of any deviations resulting in additional cost over the tendered value sum being ordered, be extended, if requested by the contractor, as follows:

(i) in the proportion which the additional cost of the altered, additional or substituted work, bears to the original tendered value plus

(ii) 25% of the time calculated in (i) above or such further additional time as may be considered reasonable by the Engineer-in-Charge.

**Deviation, Extra Items and Pricing**

12.2 A. For Project and original works:

In the case of extra item(s) (items that are completely new, and are in addition to the items contained in the contract), the contractor may within fifteen days of receipt of order or occurrence of the item(s) claim rates, supported by proper analysis, for the work and the engineer-in-charge shall within one month of the receipt of the claim supported by analysis, after giving consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

B. For Maintenance works including works of upgradation, aesthetic, special repair, addition/alteration:

In the case of Extra Item(s) being the schedule items (Delhi Schedule of Rates items), these shall be paid as per the schedule rate plus cost index (at the time of tender) plus/minus percentage above/below quoted contract amount.

Payment of Extra items in case of non-schedule items (Non-DSR items) shall be made as per the prevailing market rate.

**Deviation, Substituted Items, Pricing**

A. For Project and original works:

In the case of substituted items (items that are taken up with partial substitution or in lieu of items of work in the contract), the rate for the agreement item (to be substituted) and substituted item shall also be determined in the manner as mentioned in the following para.

(a) If the market rate for the substituted item so determined is more than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so increased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

(b) If the market rate for the substituted item so determined is less than the market rate of the agreement item (to be substituted), the rate payable to the contractor for the substituted item shall be the rate for the agreement item (to be substituted) so decreased to the extent of the difference between the market rates of substituted item and the agreement item (to be substituted).

**Deviation, Deviated Quantities, Pricing**

A. For Project and original works:

In the case of contract items, substituted items, contract cum substituted items, which exceed the limits laid down in schedule F, the contractor may within fifteen days of receipt of order or occurrence of the excess, claim revision of the rates, supported by proper analysis for the work in excess of the above mentioned limits, provided that if the rates so claimed are in excess of the rates specified in the schedule of quantities, the Engineer-in-Charge shall within one month of receipt of the claims supported by analysis, after giving
consideration to the analysis of the rates submitted by the contractor, determine the rates on the basis of the market rates and the contractor shall be paid in accordance with the rates so determined.

B. For Maintenance works including works of upgradation, aesthetic, special repair, addition/alteration:

In the case of contract items, which exceed the limits laid down in schedule F, the contractor shall be paid rates specified in the schedule of quantities.

The prescribed time limits for finalising rates for Extra Item(s), Substitute Item(s) and Deviated Quantities of contract items are as under:

(i) If the Tendered value of work is up to Rs. 45 lac : 30 days.
(ii) If the Tendered value of work is more than Rs 45 lac and up to Rs. 2.5 Crore : 45 days.
(iii) If the Tendered value of work exceeds Rs. 2.5 Crore : 60 days.

12.3 A. For Project and original works:

The provisions of the preceding paragraph shall also apply to the decrease in the rates of items for the work in excess of the limits laid down in Schedule F, and the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.

B. For Maintenance works including works of upgradation, aesthetic, special repair, addition/alteration:

In case of decrease in the rates prevailing in the market of items for the work in excess of the limits laid down in Schedule F, the Engineer-in-Charge shall after giving notice to the contractor within one month of occurrence of the excess and after taking into consideration any reply received from him within fifteen days of the receipt of the notice, revise the rates for the work in question within one month of the expiry of the said period of fifteen days having regard to the market rates.

12.4 The contractor shall send to the Engineer-in-Charge once every three months, an up to date account giving complete details of all claims for additional payments to which the contractor may consider himself entitled and of all additional work ordered by the Engineer-in-Charge which he has executed during the preceding quarter failing which the contractor shall be deemed to have waived his right. However, the competent authority may authorise consideration of such claims on merits.

12.5 For the purpose of operation of Schedule “F”, the following works shall be treated as works relating to foundation unless & otherwise defined in the contract:

(i) For Buildings: All works up to 1.2 metres above ground level or up to floor 1 level whichever is lower.
(ii) For abutments, piers and well staining: All works up to 1.2 m above the bed level.
(iii) For retaining walls, wing walls, compound walls, chimneys, over head reservoirs/tanks and other elevated structures: All works up to 1.2 metres above the ground level.
(iv) For reservoirs/tanks (other than overhead reservoirs/tanks): All works up to 1.2 metres above the ground level.
(v) For basement: All works up to 1.2 m above ground level or up to floor 1 level whichever is lower.
(vi) For Roads, all items of excavation and filling including treatment of sub base.

12.6 Any operation incidental to or necessarily has to be in contemplation of tenderer while filing, tender, or necessary for proper execution of the item included in the Schedule of quantities or in the schedule of rates mentioned above, whether or not, specifically indicated in the description of the item and the relevant specifications, shall be deemed to be included in the rates quoted by the tenderer or the rate given in the said schedule of rates, as the case may be. Nothing extra shall be admissible for such operations.

CLAUSE 13
FORECLOSURE OF CONTRACT DUE TO ABANDONMENT OR REDUCTION IN SCOPE OF WORK

If at any time after acceptance of the tender NIPER shall decide to abandon or reduce the scope of the works for any reason whatsoever and hence not require the whole or any part of the works to be carried out, the Engineer-in-Charge shall give notice in writing to that effect to the contractor and the contractor shall act accordingly in the matter. The contractor shall have no claim to any payment of compensation or
otherwise whatsoever, on account of any profit or advantage which he might have derived from the execution of the works in full but which he did not derive in consequence of the foreclosure of the whole or part of the works.

The contractor shall be paid at contract rates full amount for works executed at site and in addition, reasonable amount as certified by the Engineer-in-Charge for the items hereunder mentioned which could not be utilized on the work to the full extent in view of the foreclosure.

(i) Any expenditure incurred on preliminary site work e.g. temporary access roads, temporary labour huts, staff quarters and site office, storage accommodation and water storage tanks.

(ii) NIPER shall have the option to take over contractor's materials or any part thereof either brought to site or of which the contractor is legally bound to accept delivery from suppliers (for incorporation in or incidental to the work). For materials taken over or to be taken over by NIPER, cost of such materials as detailed by the Engineer-in-Charge shall be paid. The cost shall, however, take into account purchase price, cost of transportation and deterioration or damage which may have been caused to materials whilst in the custody of the contractor.

(iii) If any material supplied by NIPER are rendered surplus the same except normal wastage shall be returned by the contractor to NIPER at rates not exceeding those at which these were originally issued less allowance for any deterioration or damage which may have been caused whilst the materials were in the custody of the contractor. In addition cost of transportation of such materials from site to NIPER store, if so required by NIPER shall be paid. The contractor shall, if required by the Engineer-in-Charge, furnish to him books of accounts, wage books, time sheets and other relevant and evidence as may be necessary to enable him to certify the reasonable amount payable under the conditions.

(iv) Reasonable compensation for transfer of T & P from site to contractor's permanent stores or to his other works, whichever is less. If T & P are not transported to either of the said places, no cost of transportation shall be payable.

(v) Reasonable compensation for repatriation of contractor's site staff and imported labour to the extent necessary.

The contractor shall, if required by the Engineer-in-Charge, furnish to him, books of account, wage books, time sheets and other relevant documents and evidence as may be necessary to enable him to certify the reasonable amount payable under this condition.

The reasonable amount of items on (i) above shall not exceed two percent of the cost of the work remaining incomplete on the date of closure, i.e. total stipulated cost of the work as per accepted tender less the cost of work actually executed under the contract and less the cost of contractors material at site taken over by NIPER as per item (ii) above. Provided always that against any payment due to the contractor on this account or otherwise, the Engineer-in-Charge shall be entitled to recover or be credited with any outstanding balances due from the contractor for advance paid in respect of any tool, plants and materials and any other sums which at the date of termination were recoverable by the NIPER from the contractor under the terms of the contract.

CLAUSE 14
CANCELLATION OF CONTRACT IN FULL OR PART

If contractor:

i) At any time makes default in proceeding with the works or any part of the work with the due diligence and continues to do so after a notice in writing of 7 days from the Engineer-in-Charge;

or

ii) Commits default to complying with any of the terms and conditions of the contract and does not remedy it or take effective steps to remedy it within 7 days after notice in writing is given to him in that behalf by the Engineer-in-Charge;

or

iii) Fails to complete the works or items of work with individual dates of completion, on or before the date(s) of completion, and does not complete them within the period specified in a notice given in writing in this behalf by the Engineer-in-Charge;

or
iv) Shall offer or give or agree to give to any person in NIPER service or to any other person on his behalf any gift as an inducement or reward for doing or forbearing to do or for having done or borne to do any act in relation to the obtaining or execution of this or any other contract for NIPER

or

v) Shall enter into a contract with NIPER in connection with which commission has been paid or agreed to be paid by him or to his knowledge, unless the particulars of any such commission and the terms of payment thereof have been previously disclosed in writing to the accepting authority/Engineer-in-Charge

or

vi) Shall obtain a contract with NIPER as a result of wrong tendering or other non bonafide methods of competitive tendering

or

vii) Being an individual, or a firm, any partner thereof shall at any time be adjudged insolvent or have a receiving order or order for administration of his estate made against him or shall take any proceedings for liquidation or composition (other than a voluntary liquidation for the purpose of amalgamation or reconstruction) under any insolvency Act for the time being in force or make any conveyance or assignment of his effects or composition or arrangements for the benefit of his creditors or purport so to do or if any application be made under any Insolvency Act for the time being in force for the sequestration of his estate or if trust deed be executed by him for the benefit of his creditors;

or

viii) Being a company, shall pass a resolution or the court shall make an order for the winding up of the company or a receiver or manager on behalf of the debenture holders or otherwise shall be appointed or circumstances shall arise which entitle the court or debenture holders to appoint a receiver or manager

or

ix) Shall suffer an execution being levied on his goods and allow it to be continued for a period of 21 days;

or

x) Assigns, transfers, sublets (engagement of labour on piece work basis or of labour with materials not to be incorporated in the work, shall not be deemed to be subletting) or otherwise parts with or attempts to assign, transfer, sublet or otherwise parts with the entire works or any portion thereof without the prior written approval of the accepting authority

The accepting authority may, without prejudice to any other right or remedy which shall have accrued or shall accrue hereafter to NIPER by notice in writing to cancel the contract as whole or any such item of work in fault from the contract

The Engineer-in-Charge shall on such cancellation by the accepting authority have powers to:

a) Take possession of the site and any materials, constructional land, implements, stores, etc., thereon and/or;

b) Carry out the incomplete works by any means at the risk and cost of the contractor on cancellation of the contract in full or in part. the Engineer-in-Charge shall determine the amount if any, is recoverable from the contractor for completion of the works or parts of the works, or in case the works or parts of the works is not to be completed, the loss or damage suffered by the NIPER. In determining the amount, credit shall be given to the contractor for the value of the work executed by him up to the time of cancellation, the value of contractor’s materials taken over and incorporated in the works and use of plant and machinery belonging to the contractor.

Any excess expenditure incurred or to be incurred by NIPER in completing the works or parts of the works or the excess loss or damages suffered or may be suffered by NIPER as aforesaid after allowing such credit shall without prejudice to any other right or remedy available to NIPER in law be recovered from any money due to the contractor on any account, and if such money are not sufficient the contractor shall be liable to pay the same within 30 days.

If the contractor shall fail to pay the required sum within aforesaid period of 30 days, the Engineer-in-Charge shall have the right to sell any or all of the contractor’s unused materials, constructional plant, implements temporary buildings etc. and apply the proceeds of sale thereof towards the satisfaction of any sums due from the contractor under the contract and if thereafter there be any balance outstanding from the contractor, it shall be recovered in accordance with the provisions of the contract.

Any sums in excess of the amounts due to NIPER and un sold materials, constructional plants etc., shall be returned to the contractor, provided always that if cost or anticipated cost of completion by NIPER of the works or parts of works is less than the amount which the contractor would have been paid had he completed the works or parts of the works, such benefit shall not accrue to the contractor.
CLAUSE 15
SUSPENSION OF WORK
i) The contractor shall, on receipt of the order in writing of the Engineer-in-Charge (whose decision shall be final and binding on the contractor) suspend the progress of the works or any part thereof for such time and in such manner as the Engineer-in-Charge may consider necessary so as not to cause any damage or injury to the work already done or endanger the safety thereof for any of the following reasons
a) on account of any default on the part of the contractor; or
b) for proper execution of the works or part thereof for reasons other than the default of the contractor; or
c) for safety of the works or part thereof.
The contractor shall, during such suspension, properly protect and secure the works to the extent necessary and carry out the instructions given in that behalf by the Engineer-in-Charge.
ii) If the suspension is ordered for reasons (b) and (c) in sub Para (i) above:
a) the contractor shall be entitled to an extension of time equal to the period of every such suspension PLUS 25% for completion of the item or group of items of work for which a separate period of completion is specified in the contract and of which the suspended work forms a part, and;
b) If the total period all such suspensions in respect of an item or group of items or work for which a separate period of completion is specified in the contract exceeds 30 days, the contractor, in addition, be entitled to such compensation as the Engineer-in-Charge may consider reasonable in respect of salaries and/or wages paid by the contractor to his employees and labour at site, remaining idle during the period of suspension, adding thereto 2% to cover indirect expenses of the contractor, provided the contractor submits his claim supported by details to the Engineer-in-Charge within 15 days of the expiry of the period of 30 days.
iii) If the works or part thereof is suspended on the orders of the Engineer-in-Charge for more than three months at a time, except when suspension is ordered for reason (a) in sub Para (i) above, the contractor may after receipt of such order serve a written notice on the Engineer-in-Charge requiring permission within 15 days from receipt by the Engineer-in-Charge of the said notice, to proceed with the work or part thereof in regard to which progress has been suspended and if such permission is not granted within that time, the contractor, if he intends to treat the suspension, where it effects only part of the works as an omission of such part by NIPER or where it affects whole of the works, as an abandonment of the works by NIPER shall within 10 days of expiry of such period of 15 days give notice in writing of his intention to the Engineer-in-Charge. In the event of the contractor treating the suspension as an abandonment of the contract by NIPER, he shall have no claim to payment of any compensation on a/c of any profit or advantage which he might have derived from the execution of the work in full but which he could not derive in consequence of the abandonment. He shall however, be entitled to such compensation as the Engineer-in-Charge may consider reasonable, in respect of salaries and/or wages paid by him to his employees and labour at site, remaining idle in consequence adding to the total thereof 2% to cover indirect expenses of the contractor provided the contractor submits his claim supported by details to the Engineer-in-Charge within 30 days of the expiry of the period of 3 months.
Provided further, that the contractor shall not be entitled to claim any compensation from NIPER for the loss suffered by him on account of delay by NIPER in the supply of materials in schedule ‘B’ where such delay is covered by difficulties relating to the supply of wagons, force major including non allotment of such materials by controlling authorities, acts of God, acts of enemies of the state/country or any reasonable cause beyond the control of NIPER.

CLAUSE 16
ACTION IN CASE WORK NOT DONE AS PER SPECIFICATIONS.
a) All works under or in course of execution or executed in pursuance of the contract shall at all times be open and accessible to the inspection and supervision of the Engineer-in-Charge, his authorized subordinates, incharge of the work and all the superior officers, officers of the quality assurance division of the NIPER and of the Chief Technical Examiner’s office, CVC and the contractor shall, at all times, during the usual working hours and at all other times at which reasonable notice of the visit of such officers has been given to the contractor, either himself be present to receive orders and instructions or have a
CONTRACTOR LIABLE FOR DAMAGES, DEFECTS DURING MAINTENANCE PERIOD.

CLAUSE 17

(a) If the contractor or his working people or servants shall break, injure, or destroy any part of building in which they may be working, or any building, road, road curb, fence, enclosure, water pipe, cables, drains, electric, or telephone post or wires, trees, grass or grassland, or cultivated ground contiguous to the premises on which the work or any part is being executed, or if any damage shall happen to the work while in progress, from any cause whatever or if any defect, shrinkage or other faults appear in the work within six months (three months in the case of any work other than road work costing Rs 1,00,000/- and below) after a certificate final or otherwise of its completion shall have been given by the Engineer-in-Charge as aforesaid arising out of the defect or improper materials or workmanship, the contractor shall upon receipt of a notice in writing in that behalf make the same to be made good by other workmen and deduct the expenses from any sums that may become due to the contractor, or from his security deposit except for the portion pertaining to asphalt work which is governed by sub-Para (iii) of clause 35 or the proceeds of sale thereof or of a sufficient portion thereof. The security deposit if the contractor except the portion pertaining to asphaltic work which is governed by sub Para (iii) of clause 35 shall not be refunded before the expiry of six months (three months in the case of any work other than road work costing Rs 1,00,000/- and below) after the issue of the certificates final or otherwise, of completion of work, or till the final bill has been prepared and passed whichever is later. Provided that in the case of road work if in the opinion of the Engineer-in-Charge, half of the security deposit is sufficient, to meet all liabilities of the security deposit will be refundable after six months of the issue of the said certificate of completion or till the final bill has been prepared and passed whichever is later.

CLAUSE 18

CONTRACTOR TO SUPPLY TOOLS & PLANTS ETC.

The contractor shall provide at his own cost all materials (except such special materials, if any, as may be in accordance with the contract be supplied from the Engineer-in-Charge's stores), plant, tools, appliances, implements, ladders, cordage, tackle, scaffolding, and temporary works required for the proper execution of the work, whether original, altered or substituted and whether included in the specification of other documents forming part of the contract or referred to in these conditions or not, or which may be necessary for the purpose of satisfying or complying with the requirements of the Engineer-in-Charge as to any matter as to which under these conditions he is entitled to require together with carriage therefore to and from the work. The contractor shall also supply without charge the requisite number of persons with the

responsible agent duly accredited in writing, present for that purpose. Orders given to the contractor's agent shall be considered to have been given to the contractor himself.

(b) If it shall appear to the Engineer-in-Charge or his authorized subordinates incharge of the work or to the officer incharge of quality control division or his subordinate officers or to the Chief Technical Examiner or his subordinate officers, officers of CVC that any work has been executed with unsound, imperfect, unskillful workmanship, or with materials or articles provided by him for the execution of the work which are unsound or of a quality inferior to that contracted for or otherwise not in accordance with the contract, the contractor shall, on demand in writing which shall be made within six months of the completion of the work from the Engineer-in-Charge specifying the work, materials or articles complained of not withstanding that the same may have been passed, certified and paid for, forthwith rectify, or remove and reconstruct the work so specified in whole or in part as the case may require or as the case may be, remove the materials or articles so specified and provide other proper and suitable materials or articles at his own charge and cost. In the event of the failing to do so within a period specified by the Engineer-in-Charge in his demand aforesaid, then the contractor shall be liable to pay compensation at the same rate as under clause 2 of the contract (for non completion of the work in time) for this default. In such case the Engineer-in-Charge may not accept the item of work at the rates applicable under the contract but may accept such items at reduced rates as the competent authority may consider reasonable during the preparation of account bills or final bills if the item is so acceptable without detriment to the safety and utility of the item and the structure or he may reject the work outright without any payment and/or get it and other connected and incidental items rectified, or removed and reexecuted at the risk and cost of the contractor. Decision of the Engineer-in-Charge to be conveyed in writing in respect of the same will be final and binding on the contractor.
means and materials, necessary for the purpose of setting out works, and counting, weighting and assisting in the measurements for examining at any time and from time to time of the work or materials. Failing his so doing, the same may be provided by the Engineer-in-Charge at the expenses may be deducted from any money due to the contractor, under this contract or otherwise and/ from his security deposit or the proceeds of sale thereof, or of a sufficient portions thereof.

**CLAUSE 18A**

**RECOVERY OF COMPENSATION PAID TO WORKMEN**

In every case in which by virtue of the provisions sub section (1) of Section 12, of the Workmen’s Compensation Act 1923, NIPER is obliged to pay compensation to a workman employed by the contractor, in execution of the works, NIPER will recover from the contractor the amount of the compensation so paid; and without prejudice to the rights of the NIPER under sub-section (2) of Section 12, of the said Act. NIPER shall be at liberty to recover such amount or any part thereof by deducting it from any sum due by NIPER to the contractor whether under this contract or otherwise. NIPER shall not be bound to contest any claim made against it under sub-section (1) Section 1, of the said Act, except on the written request of the contractor and upon his giving to NIPER full security for all costs for which NIPER might become liable in consequence such claim.

**CLAUSE 18B**

**ENSURING PAYMENT AND AMENITIES TO WORKERS IF CONTRACTOR FAILS**

In every case in which by virtue of the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and of contract Labour (Regulation and Abolition) Central Rules, 1971, NIPER is obliged to pay any amount of wages to a workman employed by the contractor in execution of the works, or to concur any expenditure in provided under clause 19H or under the Rules framed by Government /NIPER from time to time for the protection of health and sanitary arrangements for workers employed by Contractors, NIPER will recover from the contractor the amount of wages so paid or the amount of expenditure so incurred; and without prejudice to the rights of the NIPER under sub-section (2) Section 20, and sub-section (4) of Section 21, of the Contract Labour (Regulation and Abolition) Act, 1970. NIPER shall not be bound to contest any claim made against it under sub-section (1) of Section 20, sub-section (4) of Section 21, of the said Act, except on the written request of the contractor and upon his giving to the NIPER full security for all costs for which NIPER might become liable in contesting such claim.

**CLAUSE 19**

**LABOUR LAWS TO BE COMPLIED BY THE CONTRACTOR.**

The contractor shall obtain a valid license under the Contract Labour (R&A) Act 1970 and the Contract Labour (R&A) Central Rules 1971, before the commencement of the work, and continue to have a valid license until the completion of the work. The contractor shall also abide by the provisions of the Child Labour (Prohibition and Regulation) Act 1986.

The contractor shall also comply with the provisions of the building and other Construction Workers (Regulation of Employment & Conditions of Service) Act, 1996 and the building and other Construction Workers Welfare Cess Act, 1996.

Any failure to fulfill this requirement shall attract the penal provisions of this contract arising out the resultant non-execution of the work.

**CLAUSE 19A**

No labour below the age of eighteen years shall be employed on the work.

**CLAUSE 19B**

**PAYMENT OF WAGES**

i) The contractor shall pay to labour employed by him either directly or through sub contractors, wages as per the provisions of the Contract Labour (Regulation and Abolition) Act 1970 and the contract Labour (Regulation & Abolition) Central Rules, 1971, wherever applicable.

ii) The contractor shall, notwithstanding the provisions of any contract to the contrary, cause to be paid fair wage to labour indirectly engaged on the work, including any labour engaged by his sub-contractor in connection with the said work, as if the labour had been employed by him.

iii) In respect of all labour directly or indirectly employed in the works for performance of the contractor’s part of this contract, the contractor shall comply with or cause to be compiled with contractor’s Labour
Regulations made by Government from time to time in regard to payment of wages, wage period, deductions from wages, recovery of wages not maintained of wage books or wage slips, publication of scale of wages and other terms of employment, inspection and submission of periodical returns and all other matters of the like nature or as per the provisions of the Contract Labour (Regulation and Abolition) Act 1970, and the Contract Labour (Regulation and Abolition) Central Rules, 1971, wherever applicable.

iv) a) The Engineer-in-Charge concerned shall have the right to deduct from the moneys due to the contractor any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-fulfillment of the conditions of the contract for the benefit of the workers, non-payment of wages or of deductions made from his or their wages which are not justified by their terms of the contract or non-observance of the Regulation.

b) Under the provision of Minimum Wages (Central) Rules 1950, the contractor is bound to the labourers directly or indirectly in the works one day rest for 6 days continuous work and pay wages at the same rates for duty. In the event of default, the Engineer-in-Charge have the right to deduct the sum or sums not paid on account of wages for weekly holidays to any labourers and pay the same to the persons entitled thereto from any money due to the contractor by the Engineer-in-Charge concerned.

v) The contractor shall indemnify and keep indemnified NIPER against payments to be made under and for the observances of the laws aforesaid and the contractor's labour Regulation without prejudice to his right to claim indemnity from his sub-contractors.


vii) The laws aforesaid shall be deemed to be a part of this contract and any breech thereof shall deemed to be breach of this contract.

viii) Whatever is the minimum wage for time being, or if the wage payable is higher than such wage, such wage shall be paid directly by the contractor to the workmen directly without the intervention of Jamadar and that Jamadar shall not be entitled to deduct or recover any amount from the minimum wage payable to the workmen as and by way of commission or otherwise.

ix) The contractor shall ensure that no amount by way of commission or otherwise is deducted or recovered by the Jamadar from the wage of workmen.

CLAUSE 19C

In respect of all labour directly or indirectly employed in the work for the performance of the contractor's part of this contract, the contractor shall at his own expenses arrange for the safety provisions, safety code from time to time and shall at his own expense provide for all facilities in connection therewith. In case the contractor fails to make arrangements and provide necessary facilities as aforesaid he shall be liable to pay a penalty of Rs 200/- for each default and in addition the Engineer-in-Charge shall be at liberty to make arrangements and provide facilities as aforesaid and recover the costs incurred in that behalf from the contractor.

CLAUSE 19D

The contractor shall submit by the 4th and 19th of every month, to the Engineer-in-Charge a true statement showing in respect of the second half of the preceding month and the first half of the current month respectively:

1. the number of laboures employed by him on the work,
2. their working hours,
3. the accidents that occurred during the circumstances under which they happened and the extent of damage and injury caused by them, and
4. the wages paid to them
5. the number of female workers who have been allowed maternity benefit according to Clause 19 F and the amount paid to them.

Failing which the contractor shall be liable to pay to NIPER a sum not exceeding Rs.200/- for each default or materially incorrect statement. The decision of the Engineer-in-Charge shall be final in deducting from any bill due to the contractor the amount levied as fine and be binding on the contractor.

CLAUSE 19E
In respect of all labourers directly or indirectly employed in the works for the performance of the contractor's part of this contract, the contractor shall comply with or cause to be complied with all the rules framed by Government from time to time for the protection of health and sanitary arrangements for workers employed.

**CLAUSE 19F**

Leave and pay during leave shall be regulated as follows:

1. **Leave**
   
i) in the case of delivery - maternity leave not exceeding 8 weeks, 4 weeks up to and including the day of delivery and 4 weeks following that day.
   
ii) in the case of miscarriage – up to 3 weeks from the date of miscarriage

2. **Pay**
   
i) in the case of delivery - leave pay during maternity will be at the rate of the women’s average daily earnings, calculated on total wages earned on the days when full time work was done during the period of three months immediately preceding the date on which she gives notice that she expects to be confined or at the rate of Rupee one only a day whichever is greater.
   
ii) in the case of miscarriage - leave pay at the rate of average daily earning calculated on the total wages earned on the days when full time work was done during a period of three months immediately preceding the date of such miscarriage.

3. **Conditions for the grant of Maternity Leave.** No maternity leave benefit shall be admissible to a woman unless she has been employed for a total period of not less than six months immediately preceding the date on which she proceeds on leave.

4. The contractor shall maintain a register of Maternity (Benefit) as per Govt. norms, and the same shall be kept at the place of work.

**CLAUSE 19G**

In the event of the contractor(s) committing a default or breach of any of the provisions of Contractor's Labour Regulation Model rules for the protection of health and sanitary for the workers as amended from time to time or furnishing any information or submitting or filing any statement under the provisions of the above Regulations and Rules which is materially incorrect, he/she shall, without prejudice to any other liability, pay to the NIPER a sum of Rs 200/- for every default, breach or furnishing, making, submitting, filing such materially incorrect statement and in the event of contractor(s) defaulting continuously in this respect, the penalty may be enhanced to Rs 200/- per day for each day of default subject to a maximum of 5% of the estimated cost of the work put to tender. The decision of the Engineer-in-Charge shall be final and binding on the parties.

Should it appear to the Engineer-in-Charge that the contractor(s) is/are not properly observing and complying with the provisions of Contractor's Labour Regulation and Model Rules and the provisions of the Contract Labour (Regulation and Abolition) act 1970, and the Contract Labour (R&A) State Rules 1971, for the protection of health and sanitary arrangements work people employed by the contractor(s) (hereinafter referred as “the said Rules”) the Engineer-in-Charge shall have the power to give notice in writing to the contractor(s) requiring that the said Rules be complied with and the amenities prescribed therein be provided to the work - people within a reasonable time to be specified in the notice. If the contractor(s) shall fail within the period specified in the to comply with and/or observe the Said Rules and to provide the amenities to the work people as aforesaid, the Engineer-in-Charge shall have the power to provide the amenities herein before mentioned at the cost of the contractor(s). The contractor(s) shall erect, make and at his/their own expense and to approved standards all necessary huts and sanitary arrangements required for his/her work people on the site in connection with the execution of the works, and if the same shall not have been erected or constructed, according to approved standards, the Engineer-in-Charge shall have the power to give notice in writing to the contractor(s) requiring that the said huts sanitary arrangements be remodeled and/or reconstructed according to approves standards, and if the contractor(s) shall fail to remodel or reconstruct such huts and sanitary arrangements according to approved standards within the period specified in the notice, the Engineer-in-Charge shall have the power to remodel or reconstruct such huts and sanitary arrangements according to approved standards at the cost of the contractor(s).
CLAUSE 19H
The contractor(s) shall at his/their own cost provide his/their labour with a sufficient number of huts (hereinafter referred to as the camp) of the following specifications on a suitable plot of land to be approved by the Engineer-in-Charge.

(i) (a) The minimum height of each hut at the eaves level shall be 2.10m (7 ft.) and the floor area to be provided will be at the rate of 2.7 sq.m. (30 sq.ft.) for each member of the worker’s family staying with the labourer.
   (b) The contractor(s) shall in addition construct suitable cooking places having a minimum area of 1.80m x 1.50m (6’x5’)) adjacent to the hut for each family.
   (c) The contractor(s) shall also construct temporary latrines and urinals for the use of the labourers each on the scale of not less than four per each one hundred of the total strength, separate latrines and urinals being provided for women.
   (d) The contractor(s) shall construct sufficient number of bathing and washing places, one unit for every 25 persons residing in the camp. These bathing and washing places shall be suitably screened.

   (ii) (a) All the huts shall have walls of sun-dried or burnt-bricks laid in mud mortar or other suitable local materials as may be approved by the Engineer-in-Charge. In case of sun-dried bricks, the walls should be plastered with mud gobri on both sides. The floor may be kutchta but plastered with mud gobri and shall be at least 15 cm (6”) above the surrounding ground. The roofs shall be laid with thatch or any other materials as may be approved by the Engineer-in-Charge and the contractor shall ensure that throughout the period of their occupation, the roofs remain water-tight.
   (b) The contractor(s) shall provide each hut with proper ventilation.
   (c) All doors, windows, and ventilators shall be provided with suitable leaves for security purposes.
   (d) There shall be kept an open space of at least 7.2m (8 yards) between the rows of huts which may be reduced to 6m (20 ft.) according to the availability of site with the approval of the Engineer-in-Charge. Back to back construction will be allowed.

   (iii) WATER SUPPLY - The contractor(s) shall provide adequate supply of water for the use of labourers. The provisions shall not be less than two gallons of pure and wholesome water per head per day for drinking purposes. Where piped water supply is available, supply shall be at stand posts and where the supply is from wells, or rivers, tanks which may be of metal or masonry, shall be provided. The contractor(s) shall also at his/their own cost make arrangements for laying pipe lines for water supply to labour camp from the existing mains wherever available, and shall pay all fees and charges thereof.

   (iv) The site selected for the camp shall be high ground, removed from jungle.
   v) DISPOSAL OF EXCRETA - The contractor(s) shall make necessary arrangements for the disposal of excreta from the latrines by trenching or incineration which shall be according to the requirements laid down by the Local Health Authorities. If trenching or incineration is not allowed by the contractor(s) shall make arrangements for the removal of the excreta through the Municipal Committee/authority and inform it about the number of labourers employed so that arrangements may be made by such committee/authority for the removal of the excreta. All charges on this account shall be borne by the contractor and paid direct by him to the municipality/authority. The contractor shall provide one sweeper for every eight seats in case of dry system.
   vi) DRAINAGE - The contractor(s) shall provide efficient arrangements for draining away sludge water so as to keep the camp neat and tidy.
   vii) The contractor(s) shall make necessary arrangements for keeping the camp area sufficiently lighted to avoid accidents to the workers.
   viii) SANITATION - The contractor(s) shall make arrangements for conservancy and sanitation in the labour camps according to the rules of the Local Public Health and Medical Authorities.

CLAUSE 19I
The Engineer-in-Charge may require the contractor to dismiss or remove from the site of the work any person or persons in the contractor's employ upon the work who may be incompetent or misconduct himself and the contractor shall forthwith comply with such requirements.

**Clause 19J**

It shall be the responsibility of the contractor to see that building under construction is not occupied by anybody un-authorisedly during construction, and is handed over to the Engineer-in-Charge with vacant possession of complete building. If such building though completed is occupied illegally, then the Engineer-in-Charge shall have the option to refuse to accept the said building/buildings in that position. Any delay in acceptance on this account will be treated as the delay in completion and for such delay a levy up to 5% of tendered value of work may be imposed by the Director, NIPER whose decision shall be final both with regard to the justification and quantum and be binding on the contractor. However, the Competent authority, through notice may require the contractor to remove the illegal occupation any time on or before construction or delivery.

**Clause 19K**

**Employment of skilled/semi skilled workers**

The contractor shall, at all stages of work, deploy skilled/semi skilled tradesmen who are qualified and possess certificate in particular trade from CPWD Training Institute/Industrial Training Institute/National Institute of construction Management and Research (NICMAR)/ National Academy of Construction, CIDC or any similar reputed and recognized Institute managed/ certified by State/Central Government. The number of such qualified tradesmen shall not be less than 20% of total skilled/semi skilled workers required in each trade at any stage of work. The contractor shall submit number of man days required in respect of each trade, its scheduling and the list of qualified tradesmen along with requisite certificate from recognized Institute to Engineer in charge for approval. Notwithstanding such approval, if the tradesmen are found to have inadequate skill to execute the work of respective trade, the contractor shall substitute such tradesmen within two days of written notice from Engineer-in-Charge. Failure on the part of contractor to obtain approval of Engineer-in-Charge or failure to deploy qualified tradesmen will attract a compensation to be paid by contractor at the rate of Rs. 100 per such tradesman per day. Decision of Engineer in Charge as to whether particular tradesman possesses requisite skill and amount of compensation in case of default shall be final and binding. Provided always, that the provisions of this clause, shall not be applicable for works with estimated cost put to tender being less than Rs. 5 crores.

**Clause 19L**

**Contribution of EPF and ESI**

The ESI and EPF contributions on the part of employer in respect of this contract shall be paid by the contractor.

**Clause 20**

**Minimum Wages Act to be Complied With**

The contractor shall comply with all the provisions of the Minimum Wages Act, 1948, and Contract Labour (Regulation and Abolition) Act, 1970, amended from time to time and rules framed there under and other labour laws affecting contract labour that may be brought into force from time to time.

**Clause 21**

**Work Not to be Sublet. Action in Case of Insolvency**

The contract shall not be assigned or sublet without the written approval of the Engineer-in-Charge. And if the contractor shall assign or sublet his contract, or attempt to do so, or become insolvent or commence any insolvency proceedings or make any composition with his creditors or attempt to do so, or if any bribe, gratuity, gift, loan, prerequisite, reward or advantage pecuniary or otherwise, shall either directly or indirectly, be given promised or offered by the contractor, or any of his servants or agent to any public officer or person in the employ of NIPER in any way relating to his office or employment, or if any such officer or person shall become in any way directly or indirectly interested in the contract, the engineer-in-Charge shall have power to adopt any way directly or indirectly interested in the contract, the Engineer-in-Charge shall have power to adopt any of the courses specified in Clause 3 hereof as he may deem best.
suited to the interest of NIPER and in the event of any of these courses being adopted the consequences specified in the said clause 3 shall ensue.

**CLAUSE 22**

All sums payable by way of compensation under any of these conditions shall be considered as reasonable compensation to be applied to the use of NIPER without reference to the actual loss or damage sustained and whether or not any damage shall have been sustained.

**CLAUSE 23**

**CHANGES IN FIRM’S CONSTITUTION TO BE INTIMATED.**

Where the contractor is a partnership firm, the previous approval in writing of the Engineer-in-Charge shall be obtained before any change is made in the constitution of the firm. Where the contractor is an individual or a Hindu undivided family business concern such approval as aforesaid shall likewise be obtained before the contractor enters into any partnership agreement where under the partnership firm would have the right to carry out the works hereby undertaken by the contractor. If previous approval as aforesaid is not obtained, the contract shall be deemed to have been assigned in contravention of clause 21 hereof and the same action may be taken and the same consequences shall ensue as provided in the said clause 21.

**CLAUSE 24**

All works to be executed under the contract shall be executed under the direction and subject to the approval in all respects of the Engineer-in-Charge who shall be entitled to direct at what point or points and in what manner they are to be commenced and from time to time carried on.

**CLAUSE 25**

**SETTLEMENT OF DISPUTES & ARBITRATION**

Except where otherwise provided in the contract, all questions and disputes relating to the interpretation of the specifications, designs, drawings and instructions herein before mentioned and as to the quality or claim, right, matter or thing whatsoever in any way arising out of or relating to the contract, designs, specifications, estimates, instructions, orders on these conditions or otherwise concerning the works or the execution or after the completion or abandonment thereof, shall be referred to the sole arbitration of the person appointed by the Director, NIPER. The arbitrator shall be appointed within 30 days from the receipt of a request any party. The arbitrator to whom the Director, NIPER shall appoint another person to act as arbitrator in accordance with the terms of the contract. Such person shall be entitled to proceed with the reference from the stage at which it was left by his predecessor. The arbitrator shall be final and binding on the parties. The cost of the Arbitrator shall be borne equally by both the parties.

25.1 It is also a term of the contract that the party invoking arbitration shall specify the dispute or disputes to be referred to arbitration under this clause together with the amount or amounts claimed in respect of each such dispute.

25.2 It is also a term of the contract that if the contractor does not make any demand for arbitration in respect of any claim in writing within 90 days of receiving the intimation from the Employer that the final bill is ready for payment, the claim of the contractor will be deemed to have been waived and absolutely barred and the Employer shall be discharged and released of all liabilities under the contract in respect of these claims.

25.3 Subject as aforesaid the provisions of the Arbitration and conciliation Act, 1996 or any statutory modification or re-enactment thereof and the rules made there under and for the being in force shall apply to the arbitration reference under this clause.

**CLAUSE 26**

**CONTRACTOR TO INDEMNIFY NIPER AGAINST PATENT RIGHTS**

The contractor shall fully indemnify and keep indemnified NIPER against any action claim or proceeding relating to infringement or use of any patent or design or any alleged patent or design rights and shall pay any royalties which may be payable in respect of any article or part thereof included in the contract. In the event of any claims made under or action brought against NIPER in respect of any such matters as aforesaid, the contractor shall be immediately notified thereof and the contractor shall be at liberty, at his
own expenses to settle any dispute or to conduct any litigation and may arise there from provided that the contractor shall not be liable to indemnify NIPER, if the infringement of the patent or design or any alleged patent or design right is the direct result of an order passed by the Engineer-in-Charge in this behalf.

**CLAUSE 27**

**Lump Sum Provisions in Tender**

When the estimate on which a tender is made includes lump sum in respect of parts of the work, the contractor shall be entitled to payment in respect of the items of work involved or the part of the work in question at the same rates as are payable under this contract for such items, or if the part of the work in question is not, in the opinion of the Engineer-in-Charge payable of measurement, the Engineer-in-Charge may at his discretion pay the lump-sum amount entered in the estimate, and the certificate in writing of the Engineer-in-Charge shall be final and conclusive against the contractor with regard to any sum or sums payable to him under the provisions of the clause.

**CLAUSE 28**

**ACTION WHERE NO SPECIFICATIONS ARE SPECIFIED**

When no specifications are specified in the case of any class of work or when there is no such specifications referred to in clause 11, such work shall be carried out in accordance with the Bureau of Indian Standard Specifications. In case there is no such specification in Bureau of Indian Standards, the work shall be carried out as per manufacturers' specification. In case there are no such specifications, the works shall be carried out in all respect in accordance with the instruction and requirements of the Engineer-in-Charge.

**CLAUSE 29**

**WITH-HOLDING AND LIEN IN RESPECT OF SUMS DUE FROM CONTRACTOR.**

i) Whenever any claim for payment of a sum of money arises out of or under the contract against the contractor, the Engineer-in-Charge shall be entitled to withhold and also have a lien to retain to such sum or sums in whole or in a part from security, if any deposited by the contractor and for the purpose aforesaid, the Engineer-in-Charge shall be entitled to withhold the security deposit, if any, furnished as the case may be and also have the lien over the same pending finalization or adjudication of any such claim. In the event of security being insufficient to cover the claimed amount or amounts or if no security has been taken from the contractor, the Engineer-in-Charge shall be entitled to withhold and have the lien to retain to the extent of such claimed amount or amounts referred to above, from any sum or sums found payable or which may at any time thereafter become payable to the contractor under the same contract or any other contract with the Engineer-in-Charge or any contracting person through the Engineer-in-Charge pending finalization or adjudication of any such claim.

It is an agreed term of the contract that the sum of money or moneys so withheld or retained under the lien referred to above by the Engineer-in-Charge will be kept withheld or retained as such by the Engineer-in-Charge till the claim arising out of or under the contract is determined by the Arbitrator/competent court, as the case may be and that the contractor will have no claim for interest or damages whatsoever in any account in respect of such withholding or retention under the lien referred to above and duly notified as such to the contractor. For the purpose of this clause, where the contractor is a partnership firm or a limited company, the Engineer-in-Charge shall be entitled to withhold and also have the lien to retain towards such claimed amount or amounts in whole or in a part from any sum found payable to any partner/limited as the case may be, whether in his individual capacity or otherwise.

ii) NIPER shall have the right to cause an audit and technical examination of the works and the final bills of the contractor including all supporting vouchers, abstract, etc., to be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by that contractor under the contract or any work claimed to have been done by him under the contract and found to have been executed, the contractor shall be liable to refund the amount of over payment and shall be lawful for NIPER to recover the same from him in the manner prescribed in sub-clause (i) of this clause or any other manner legally permissible and if it is found that the contractor was paid less than what was due to him under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by NIPER to the contractor, without any interest thereon whatsoever.
CLAUSE 29A
LEIN IN RESPECT OF CLAIMS IN OTHER CONTRACT
Any sum of money due and payable to the contractor (including the security deposit returnable to him) under the contract may be withheld or retained by way of lien by the Engineer-in-Charge or any other contracting person or persons in respect of a payment of a sum of money arising out of or any other contract made by the contractor with a Engineer-in-Charge or NIPER or with such other person or persons. It is an agreed term of the contract that the sum of money so withheld or retained under this clause by the Engineer-in-Charge or by NIPER will be kept withheld or retained as such by the Engineer-in-Charge or by NIPER till his claim arising out of the same contract or any other contract is either mutually settled or determined by arbitration clause or by the competent court as the case may be and that the contractor shall have no claim for interest or for damages whatsoever on this account or any other ground in respect of any sum of money withheld or retained under this clause and duly notified as such to the contractor.

CLAUSE 30
Employment of coal mining or controlled area labour not permissible
The contractor shall not employ coal mining or controlled area labour falling under any category whatsoever on or in connection with the work or recruit labour from area within a radius of 32 km (20 miles) of the controlled area. Subject as above the contractor shall employ imported labour only i.e., deposit imported labour or labour imported by contractors from area, from which import is permitted.

Where ceiling price for imported labour has been fixed by State or Regional Labour Committees not more than that ceiling price shall be paid to the labour by the contractor.

The contractor shall immediately remove any labourer who may be pointed out by the Engineer-in-Charge as being a coal mining or controlled area labourer. Failure to do so shall render the contractor liable to pay to Government a sum calculated at the rate of Rs.10/- per day per labourer. The certificate of the Engineer-in-Charge about the number of coal mining or controlled area labourer and the number of days for which they worked shall be final and binding upon all parties to this contract.

It is declared and agreed between the parties that the aforesaid stipulation in this clause is one in which the public are interested within the meaning of the exception in Section 74 of Indian Contract Act, 1872.

Explanation:- Controlled Area means the following areas:
Districts of Dhanbad, Hazaribagh, Jamtara - a Sub-Division under Santhal Pargana Commissionery, Districts of Bankura, Birbhum, Burdwan, District of Bilaspur.
Any other area which may be declared a Controlled Area by or with the approval of the Central Government.

CLAUSE 31
UNFILTERED WATER SUPPLY
In case, due to any eventuality or otherwise, NIPER is not in a position to provide water connection for construction purposes the contractor(s) shall make his/their own arrangements of water required for the work and nothing extra shall be paid for the same. This will subject to the following conditions:
1. That the water used by the contractors shall be fit for construction purposes to the satisfaction of the Engineer-in-Charge.
2. The Engineer-in-charge shall make alternative arrangements for supply of water at the risk and cost of contractor(s) if the arrangements made by the contractor(s) for procurement of water are in opinion of the Engineer-in-Charge, unsatisfactory.

CLAUSE 32
ALTERNATE WATER ARRANGEMENTS
The contractor shall be allowed to construct temporary wells at site for taking water good for construction only after he has got permission of the Engineer-in-Charge in writing. No charges shall be recovered from the contractor on his account but the contractor shall be required to provide necessary safety arrangements to avoid any accidents or damages to adjacent buildings, roads and service lines. He shall be responsible for any accidents or damages carried due to construction and subsequent maintenance of the wells and shall restore the ground to its original condition after the wells are dismantled on completion of work.
CLAUSE 33
RETURN OF SURPLUS MATERIAL
Notwithstanding anything contained to the contrary in this contract, where any materials for the execution of the contract are produced with the assistance of NIPER either by issue from NIPER stock purchase made under orders or permits or licenses issued by NIPER the contractor shall hold the said materials economically and solely for the purpose of the contract and not dispose of them without the written permission of the NIPER and return, if required by the Engineer-in-Charge all surplus or unserviceable materials that may be left with him after the completion of the contract or at its termination for any reason whatsoever on being paid or credited with such price as the Engineer-in-Charge shall determine having due regards to the condition of the materials. The price allowed to the contractor however shall not exceed the amount charged to him. The decision of the Engineer-in-Charge shall be final and conclusive. In the event of breach of the aforesaid condition of the contractor shall in addition to throwing himself into action for contravention of the terms of the license or permit and/or the criminal breach of trust, be liable to NIPER for all's money advantages or profits resulting or which in the usual course would have resulted to him by reason of such breach.

CLAUSE 34
HIRE OF PLANT AND MACHINERY
i) The contractor shall arrange at his own expenses all tools, plants, machinery and equipment (hereinafter referred to as T&P).

CLAUSE 35
CONDITION RELATING TO USE OF ASPHALTIC MATERIALS
i) The asphaltic works to be executed as per prevailing CPWD norms and specifications.
ii) The contractor shall be responsible for rectifying defects noticed within a year from the date of completion of the work and the portion of the security deposit relating to asphaltic work shall refunded after the expiry of the period.

CLAUSE 36
I) EMPLOYMENT OF TECHNICAL STAFF AND EMPLOYEES FOR BUILDING AND ROADWORKS.
(i) The contractor shall provide all necessary superintendence during execution of the work and all along thereafter as may be necessary for proper fulfilling of the obligations under the contract. The contractor shall immediately after receiving letter of acceptance of the tender and before commencement of the work, intimate in writing to the Engineer-in-Charge, the name(s), qualifications, experience, age, address(s) and other particulars along with certificates, of the principal technical representative to be in charge of the work and other technical representative(s) who will be supervising the work. Minimum requirement of such technical representative(s) and their qualifications and experience shall not be lower than specified in Schedule ‘F’. The Engineer-in-Charge shall within 3 days of receipt of such communication intimate in writing his approval or otherwise of such a representative(s) to the contractor. Any such approval may at any time be withdrawn and in case of such withdrawal, the contractor shall appoint another such representative(s) according to the provisions of this clause. Decision of the tender accepting authority shall be final and binding on the contractor in this respect. Such a principal technical representative and other technical representative(s) shall be appointed by the contractor soon after receipt of the approval from Engineer-in-charge and shall be available at site before start of work.

All the provisions applicable to the principal technical representative under the Clause will also be applicable to other technical representative(s) The principal technical representative and other technical representative(s) shall be present at the site of work for supervision at all times when any construction activity is in progress and also present himself/themselves, as required, to the Engineer-in-Charge and/or his designated representative to take instructions. Instructions given to the principal technical representative or other technical representative(s) shall be deemed to have the same force as if these have been given to the contractor. The principal technical representative and other technical representative(s) shall be
actually available at site fully during all stages of execution of work, during recording/checking/test checking of measurements of works and whenever so required by the Engineer-in-Charge and shall also note down instructions conveyed by the Engineer-in-Charge or his designated representative(s) in the site order book and shall affix his/their signature in token of noting down the instructions and in token of acceptance of measurements/checked measurements/test checked measurements. The representative(s) shall not look after any other work. Substitutes, duly approved by Engineer-in-Charge of the work in similar manner as aforesaid shall be provided in event of absence of any of the representative(s) by more than two days.

If the Engineer-in-Charge, whose decision in this respect is final and binding on the contractor, is convinced that no such technical representative(s) is/are effectively appointed or is/are effectively attending or fulfilling the provision of this clause, a recovery (nonrefundable) shall be effected from the contractor as specified in Schedule ‘F’ and the decision of the Engineer-in-Charge as recorded in the site order book and measurement recorded checked/test checked in Measurement Books shall be final and binding on the contractor. Further if the contractor fails to appoint suitable technical Principal technical representative and/or other technical representative(s) and if such appointed persons are not effectively present or are absent by more than two days without duly approved substitute or do not discharge their responsibilities satisfactorily, the Engineer-in-Charge shall have full powers to suspend the execution of the work until such date as suitable other technical representative(s) is/are appointed and the contractor shall be held responsible for the delay so caused to the work. The contractor shall submit a certificate of employment of the technical representative(s) (in the form of copy of Form-16 or CPF deduction issued to the Engineers employed by him) along with every on account bill final bill and shall produce evidence if at any time so required by the Engineer-in-Charge. (ii) The contractor shall provide and employ on the site only such technical assistants as are skilled and experienced in their respective fields and such foremen and supervisory staff as are competent to give proper supervision to the work. The contractor shall provide and employ skilled, semi-skilled and unskilled labour as is necessary for proper and timely execution of the work. The Engineer-in-Charge shall be at liberty to object to and require the contractor to remove from the works any person who in his opinion misconducts himself, or is incompetent or negligent in the performance of his duties or whose employment is otherwise considered by the Engineer-in-Charge to be undesirable. Such person shall not be employed again at works site without the written permission of the Engineer-in-Charge and the persons so removed shall be replaced as soon as possible by competent substitutes.

II) FOR SANITARY AND WATER SUPPLY WORKS.

The contractor shall employ the following technical staff during the execution of work:

i) One Diploma Holder (Overseer) with an experience of not less than 5 years out of which at least one year should be in a sanitary Engineering or water supply works, when the tendered cost of work to be executed is more than 50,000/- (Rupees fifty thousand only).

The technical staff should be available at site whenever required by Engineer-in-Charge to take instructions. In case the contractor fails to employ the technical staff as aforesaid he shall be liable to pay reasonable compensation not exceeding the amount shown against each for each month of default.

The decision of the Engineer-in-Charge as to the period for which the required technical staff was not employed by the contractor, the amount to be deducted on this account as per schedule F shall be final and binding on the contractors.

iii) The Engineer-in-Charge shall be liberty to object to and require the contractor to remove from the works any person who in his opinion misconducts himself, or is incompetent or negligent on the performance of his duties or whose employment is otherwise considered by the Engineer-in-Charge to be undesirable. Such person shall not be employed again at works site without the written permission of the Engineer-in-Charge and the persons so removed shall be replaced as soon as possible by competent substitutes.

iv) There shall be no objection if an Engineer or overseer looks after more than one work provided the total value of works under him doesn’t exceed Rs.20.00 lakhs in case of building, roads, sanitary and water supply works and Rs.10.00 lakhs in respect of electrical works in case of a Graduate Engineer and Rs.10.00 lakhs in case of building, roads, sanitary and water supply works and Rs.5.00 lakhs in respect of electrical works in case of diploma holder.

It is also not necessary for a contractor (or partner in case of firm/company) who is himself an engineer/overseer to employ another engineer/overseer as long as the contractor/partner does the work.
expected of an Engineer employed on the job. The employment of the technical staff may be co-related to the tendered cost.

CLAUSE 37
LEVY/TAXES PAYABLE BY CONTRACTOR
(i) GST/Sales Tax/VAT ,Building and other Construction Workers Welfare Cess or any other tax or Cess in respect of this contract shall be payable by the contractor and NIPER shall not entertain any claim whatsoever in this respect. However, in respect of service tax, same shall be paid by the contractor to the concerned department on demand and it will be reimbursed to him by the Engineer-in-Charge after satisfying that it has been actually and genuinely paid by the contractor.

ii) The contractor shall deposit royalty and obtain necessary permit for supply of the red bajri , stone, kankar , etc. from local authorities.

iii) If persuade to or under any law, notification or order any royalty, cess or the like becomes payable by the NIPER which otherwise is not payable by the contractor to the State Government , Local authorities in respect of any material used by the contractor in the works , then in such a case , it shall be lawful to the NIPER and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues to the contractor.

CLAUSE 38
CONDITIONS FOR REIMBURSEMENT OF Levy/TAXES IF LEVIED AFTER RECEIPT OF TENDERS
i) All tendered rates shall be inclusive of all taxes and levies payable under respective statues. However , pursuant to the Constitution (46 Amendment) Act, 1982, if any other tax or levy is imposed by statute after the last stipulated date for the receipt of tender including extensions if any and the contractor thereupon necessarily and properly pays such taxes / levies, the contractor shall be reimbursed the amount so paid , provided such payment, if, any, is not, in the opinion of the Zonal Chief (whose decision shall be final and binding on the contractor ) attributable to delay in execution of work within the control of the control of the contractor.

ii) The contractor shall keep necessary books of accounts and other documents for the purpose of this condition as may be necessary and shall allow inspection of the same by a duly authorized representative of the NIPER and / or the Engineer-in-Charge and further shall furnish such other information / document as the Engineer-in-Charge may require from time to time.

iii) The contractor shall, within a period of 30 days of the imposition of any such further tax or levy , pursuant to the constitution ( Forty sixth Amendment ) Act 1982 , give a written notice thereof to the Engineer-in-Charge that the same is given pursuant to this condition, together with all necessary information relating thereto.

CLAUSE 39
TERMINATION OF CONTRACT ON DEATH OF CONTRACTOR.
Without prejudice to any of the rights or remedies under this contract if the contractor dies, the Engineer-in-Charge shall have the option of terminating the contract without compensation to the contractor.

CLAUSE 40
IF RELATION WORKING IN NIPER THEN THE CONTRACTOR NOT ALLOWED TO TENDER
The contractor shall not be permitted to tender for works in an NIPER Zone (responsible for award and execution of contracts) in which his near relative is posted as an Officer in any capacity in the grades of Asst. Engineer or equivalent and above (both inclusive) . He shall also intimate the names of the persons who are working with him any capacity or are subsequently employed by him and who are near relatives to any executives (above the rank of AE or equivalent).

Any breach of this condition by the contractor would render him liable to be made in-eligible for tendering in NIPER.

NOTE : THE TERM “NEAR RELATIVES MEANS WIFE, HUSBAND, PARENTS, AND GRAND PARENTS, CHILDERN AND GRAND CHILDERN BROTHERS AND SISTERS , UNCLEs AND AUNTS" AND" COUSINS AND THEIR CORRESPONDING IN-LAWS".
CLAUSE 41
No Gazetted Engineer to work as Contractor within one year of retirement
No engineer of gazetted rank or other gazetted officer employed in engineering or administrative duties in an engineering department of the Government of India shall work as a contractor or employee of a contractor for a period of one year after his retirement from government service without the previous permission of Government of India in writing. This contract is liable to be cancelled if either the contractor or any of his employees is found at any time to be such a person who had not obtained the permission of Government of India as aforesaid, before submission of the tender or engagement in the contractor’s service, as the case may be.

CLAUSE 42
Return of material & recovery for excess material issued.
(i) After completion of the work and also at any intermediate stage in the event of non reconciliation of materials issued, consumed and in balance - (see Clause 10), theoretical quantity of materials issued by the NIPER for use in the work shall be calculated on the basis and method given hereunder:-

(a) Quantity of cement & bitumen shall be calculated on the basis of quantity of cement & bitumen required for different items of work as shown in the Schedule of Rates mentioned in Schedule ‘F’. In case any item is executed for which standard constants for the consumption of cement or bitumen are not available in the above mentioned schedule/statement or cannot be derived from the same shall be calculated on the basis of standard formula to be laid down by the Engineer-in-Charge.
(b) Theoretical quantity of steel reinforcement or structural steel sections shall be taken as the quantity required as per design or as authorized by Engineer-in-Charge, including authorized lappages, chairs etc. plus 3% wastage due to cutting into pieces, such theoretical quantity being determined and compared with the actual issues each diameter wise, section wise and category wise separately.
(c) Theoretical quantity of G.I. & C.I. or other pipes, conduits, wires and cables, pig lead and G.I./M.S. sheets shall be taken as quantity actually required and measured plus 5% for wastage due to cutting into pieces (except in the case of G.I./M.S. sheets it shall be 10%), such determination & comparison being made diameter wise & category wise. (d) For any other material as per actual requirements. (ii) Over the theoretical quantities of materials so computed a variation shall be allowed as specified in Schedule ‘F’.

The difference in the net quantities of material actually issued to the contractor and the theoretical quantities including such authorized variation, if not returned by the contractor or if not fully reconciled to the satisfaction of the Engineer-in-Charge within fifteen days of the issue of written notice by the Engineer-in-Charge to this effect shall be recovered at the rates specified in Schedule ‘F’, without prejudice to the provision of the relevant conditions regarding return of materials governing the contract. Decision of Engineer-in-Charge in regard to theoretical quantities of materials, which should have been actually used as per the Annexure of the standard schedule of rates and recovery at rates specified in Schedule ‘F’, shall be final & binding on the contractor. For non scheduled items, the decision of the Engineer in charge regarding theoretical quantities of materials which should have been actually used, shall be final and binding on the contractor. (iii) The said action under this clause is without prejudice to the right of the NIPER to take action against the contractor under any other conditions of contract for not doing the work according to the prescribed specifications.

CLAUSE 43
COMPENSATION DURING WAR LIKE SITUATION
The work (whether fully constructed or not ) and all materials, machines, tools, and plants, scaffolding, temporary building and other things connected their with shall be at the risk of the contractor until the work has been delivered to the Engineer-in-Charge and a certificate from him to that effect obtained. In the event of the work or any material properly brought to the site for incorporation in the work being damaged or destroyed in consequence of hostilities or warlike operation , the contractor shall when ordered (in writing ) by the Engineer-in-Charge to remove any debris from the site, collect and properly stack , or remove in store all serviceable material salvaged from the damaged work and shall be paid at the contract rates in accordance with the provision of this agreement for the work of the cleaning the site of debris, stacking or removal of serviceable material and for reconstruction of all works ordered by the Engineer-in-Charge, such payments being in addition to compensation up to the value of the work
originally executed before being damaged or destroyed and not paid for. In case of works damaged or destroyed but not already measured and paid for the compensation shall be assessed by the Engineer-in-Charge. The contractor shall be paid for the damages /destruction suffered and for restoring the material at the rate based on analysis of rates tendered for in accordance with the provisions of the contract. The certificate of the Engineer-in-Charge regarding the quality and quantity of materials and the purpose for which they were collected shall be final binding on all parties to this contract.

Provided always that no compensation shall be payable for any loss in consequences of hostilities or warlike operations (a) unless the contractor had taken all such precautions against air raid as are deemed necessary by the A.R.P. Officers or Engineer-in-Charge (b) for any material etc., not on the site of the work or for any tools, plant, machinery, scaffolding, temporary building and other things not intended for the work.

In the event of the contractor having to carry out reconstruction as aforesaid, he shall be allowed such extension of time for its completion as is considered by the Engineer in charge.

**CLAUSE 44**

**Apprentices Act provisions to be complied with**

The contractor shall comply with the provisions of the Apprentices Act, 1961 and the rules and orders issued there under from time to time. If he fails to do so, his failure will be a breach of the contract and the Superintending Engineer may, in his discretion, cancel the contract. The contractor shall also be liable for any pecuniary liability arising on account of any violation by him of the provisions of the said Act.

**CLAUSE 45**

**RELEASE OF SECURITY DEPOSIT AFTER LABOUR CLEARENCE**

Security deposit of the work shall not be refunded till the contractor produces a clearance certificate from the Labour Officer. As soon as the work is virtually complete the contractor shall apply for the clearance certificate to the Labour Officer under intimation to the Engineer-in-Charge. The Engineer-in-Charge on receipt of the said communication, shall write to the Labour Officer to intimate if any complaint is pending against the contractor in respect of the work, if no complaint is pending, on record till after three months after completion of the work and / or no communication is received from the Labour Officer to this effect till six months after the date of completion, it will be deemed to have received the clearance certificate and the Security Deposit will be released if otherwise due

(Signatures of the Tenderer)
SAFETY CODE

Suitable scaffolds should be provided for workmen for all works that can not safely be done from the ground or from solid construction except such short period work as can be done safely from ladders. When a ladder is used an extra mazdoor shall be engaged for holding the ladder and if the ladder is used for carrying the materials as well suitable footholds and hand holds shall be provide on the ladder and the ladder shall be given an inclination not steeper than ¼ to 1 (¼ horizontal and 1 vertical).

1 Scaffolding of staging more than 3.6 m (12 ft) above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached or boiled, braces and otherwise secured at least 90 cm. heath above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends their of with only such opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

2 Working platform gangways and stairway should be so constructed that they should not sag unduly or unequally and if the height of the platform or the gangway or the stairway is more than 3.6 m above ground level, they should be closely boarded, should have adequate width and should be suitable fastened as described in 2 above.

3 Every opening in the floor of building or in working platform shall be provided with suitable means to prevent the fall of a person or materials by providing suitable fencing or railing whose minimum height shall be 90 cm.

4 Safe means of access shall be provided to all working platform and other working places. Every ladder should be securely fixed. No portable single ladder shall be over 9m. in length while the width between the sides rails in rung ladder shall in no case be less than 29 cm. for ladder up to and including 3 m of length. For longer ladders this width should be increased at least ¼” for each additional 30 cm. of length. Uniform step spacing of not more than 30 cm should be provided. Adequate precautions shall be taken to prevent danger from electrical equipments. No materials from any of the sites of the work shall be so stacked or placed as to cause danger or inconvenience to any person or the public the contractor shall provide all necessary fencing and lights protect the public from accident and shall be bound to bear the expenses of defense to every suit action or other proceedings at law that may be brought by any person or injury sustained owing to neglect of the above precautions and to pay the damages and cost which may be awarded in any such suit action or proceeding to any such person or which may with the consent of the contractor be paid to compensate any claim by any such person.

(a) Excavation and Trenching All trenches 1.2 m or more in depth, shall at all times to supplied with at least one ladder for each 30 m in length or fraction thereof. Ladder shall extend from bottom of the trench to at least 90 cm above the surface of the ground. The sides of the trenches which are 1.5 m more in depth shall be stepped back to give suitable slope or securely held by timber or bracing, so as to avoid the danger of sides collapsing. The excavated materials shall not be placed within 1.5 m of the done from top to bottom. Under no circumstances undermining or undercutting shall be done.

(b) Safety Measures for digging bore holes:

(i) If the bore well is successful, it should be safely capped to avoid caving and collapse of the bore well. The failed and the abandoned ones should be completely refilled to avoid caving and collapse;
(ii) During drilling, Sign boards should be erected near the site with the address of the drilling contractor and the Engineer in-charge of the work;
(iii) Suitable fencing should be erected around the well during the drilling and after the installation of the rig on the point of drilling, flags shall be put 50m around the point of drilling to avoid entry of people;
(iv) After drilling the borewell, a cement platform (0.50m x 0.50m x 1.20m) 0.60m above ground level and 0.60m below ground level should be constructed around the well casing;
(g) After the completion of the bore well, the contractor should cap the bore well properly by welding steel plate, cover the bore well with the drilled wet soil and fix thorny shrubs over the soil. This should be done even while repairing the pump;
(h) After the borewell is drilled the entire site should be brought to the ground level.

5 Demolition- before any demolition work is commenced and also during the progress of the work.

I. All roads and open areas adjacent to the work site shall either be closed or suitably protected.
II. No electric cable or apparatus which is likely to be a source of danger or a cable of apparatus used by the operator shall remain electrically charged.
III. All Practical steps shall be taken to prevent danger to persons employed from risk or fire or explosion or flooding. No floor, roof or the other part of the building shall be so overload with debris or materials as to render it unsafe.

6 All necessary personal safety equipments as considered adequate by the Engineer-in-charge should be kept available for the use of the persons employed on the site and maintained in a condition suitable for immediate use and the contractor should take adequate steps to ensure proper use of equipments by those concerned. The following safety equipments shall invariably be provided.

I. Workers employed on mixing asphaltic materials cement and lime mortar shall be provided with protective footwear and protective goggles.
II. Those engaged in white washing and mixing or stacking or cement bags or any material which injurious to the eyes shall be provide with welder’s protective eyes shall be provided with protective goggles.
III. Those engaged in welding works shall be provided with welder’s protective eye shields.
IV. Stonebreakers shall be provided with protective goggles and protective clothing’s and seated at sage intervals.
V. When workers are employed in sewers and manholes which are in active use the contractor shall that the manhole cover are opened and ventilated at least for an hour be cordoned off with suitable railing and provided with warming signals or boards to prevent accident to the public. In addition the contractor shall ensure that the following safety measures are adhered to.

a. Entry for workers in to the line shall not be allowed except under the supervising engineer or other higher officer.

b. At least 5 to 6 manholes upstream should be kept open for at least 2 to 3 hours before any man is allowed to enter into the manholes for working inside.

c. Before entry presence of toxic gases should be tested by inserting wet lead acetate paper which changes color in the presence of such gases and gives indication of their presence.

d. Presence of oxygen should be verified by lowering a detector lamp into the manhole incases no oxygen is found inside the sewer line workers should be sent only with oxygen kit.

e. Safety belt with rope should be provided to the workers, while working inside the manholes such ropes should be handled by two men standing outside to enable him to be pulled out during emergency.

f. The area should be barricaded or cordoned off by suitable means to avoid misshape of any kind. Proper warming signs should be displayed for the safety of the public whenever cleaning working are undertaken during day or night.

g. No smoking or open flames shall be allowed near the blocked manhole being cleaned.

h. The malba obtained on account of cleaning of blocked manholes and sewer line should be removed immediately to avoid accidents on account of slippery nature of the malba.
i. Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Engineer-in-charge may decide the time up to which a worker may be allowed to work continuously inside the manhole.

j. Gas masks with oxygen cylinder should be kept at site for use in emergency.

k. Air blowers should be used for flow of fresh air through the manholes. Whenever called for portable air blowers are recommended for ventilating the manholes. The motors for these shall be vapor roof and totally enclosed type. Non sparking gas engines also could be used by these should be placed a least 2 meters away from the opening and on the leeward side protected from winds so that they will not be a source of friction on any inflammable gas that might be present.

l. The workers engaged for cleaning the manholes / sewers should be properly trained before allowing working in the manholes.

m. The workers shall be provided with gum boots or non sparking shoes, pump helmet and gloves non sparking tools, safety slights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limb before working inside the sewer lines.

n. Workmen descending a manhole shall try each ladder step or rung carefully before putting his full weight on it to guard against insecure fastening due to corrosion of the rung fixed to the manhole wall.

o. If a man has received physical injury, he should be brought out of the sewer immediately and adequate medical could be provided to him.

p. The extent to which these precautions are to be taken depend on individual situation but the decision of the Engineer-in-charge regarding he steps to be taken in his regard in an individual case will be final.

vi) The contractor shall not employ men and women below the age of 18 years on the work of painting with products containing lead in any form. Wherever men above the age of 18 years are employed on the work of lead painting, the following precautions should be take.

a) No paint containing lead or lead product shall be used except in the form of paste of ready made paint.

b) Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scrapped.

c) Overalls shall be supplied by the contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash during and on he cessation of the work.

d) Measures shall be taken wherever required in order to prevent danger arising from the application of paint in the form of spray.

e) Measures shall be taken wherever practicable, to prevent danger arising out of dust caused by dry rubbing down and scraping.

f) Adequate facilities should be provided to enable working painters to wash during and on cessation of work.

g) Suitable arrangements shall be made to prevent clothing put off during working hours being spoiled by painting materials.

h) Cases of lead poisoning and suspected lead poisoning shall be notified and shall be subsequently verified by medical man appointed by competent authority.

i) NIPER may require when necessary medical examinations of works.

j) Instructions with regard to special hygienic precautions to be taken in the painting trades shall be disturbed to working painters.
8. When the work is done near any place where there is risk of drowning all the necessary equipments should be provided and kept ready for use and all necessary steps taken for prompt rescue of any person in danger and adequate provision should be made for prompt first aid treatment of all injuries likely to be obtained during the rescue work.

9. Use of hoisting machines and tackle including their attachments anchorages and supports shall conform to the following standards.

a) These shall be of good mechanical constructions sound materials and adequate strength and free conform to the following standards.

b) Every rope used in hoisting or lowering materials or as men of suspension shall be of durable quality and adequate strength and free from patent defects.

ii) Every crane driver or hoisting appliance operator shall properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding which or giving signal to the operator.

iii) In case of hoisting machine and of every chain ring hook shackle swivel and pulley block used in hoisting or as means of suspension the safe working load shall be ascertained by adequate means. Every hoisting machine and all geared referred to above shall be plainly marked with the safe working load. In case of hoisting machine having a variable safe working load each safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or gear referred to above in this Paragraph shall be loaded beyond the safe working load except for the purpose of testing.

iv) In case of NIPER machines, the safe working load shall be notified by the Engineer-in-charge. As regards contractor’s machines the contractor shall notify the safe working load of the machine to the Engineer-in-charge whenever he brings any machinery to site of work and get verified by the Engineer-in-charge.

10. Motors, gearing, transmission, electric, wiring and other dangerous part of hoisting appliances should be provided with efficient safeguards. Hoisting appliances should be provided with such means as will reduce to the minimum the risk of accidental descent of the load. Adequate precautions should be taken to reduce to the minimum the risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energized, insulating mats, wearing apparel, such as gloves, sleeves and boots as may be necessary should be provided. The worker should not wear any rings, watches and cany keys or other material which are good conductors of electricity.

11. All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe condition and no scaffold, ladder or equipment shall be altered or removed while it is in use. Adequate washing facilities should be provided at or near places of work.

12. These safety provisions should be brought to the notice of all concerned by display on a notice board at prominent place at work spot. The person responsible for compliance of the safety code shall be named therein by the contractor.

13. To ensure effective enforcement of the rules and regulations relating to safety precautions, the arrangements made by the contractor shall be open to inspection by the labour officer or Engineer-in-charge of NIPER or their representatives.

14. Notwithstanding the above clauses from (1) to (14) there is nothing in these to exempt the contractor the operations of any other Actor Rule in force in the republic of India.

(Signatures of the Tenderer)
MODELS RULES FOR THE PROTECTION OF HEALTH AND SANITARY ARRANGEMENTS FOR WORKERS

1. APPLICATION
These rules shall apply to all buildings and constructions works in which twenty or more workers are ordinarily employed or are proposed to be employed or are proposed to be employed in any day during the period during which the contract work is in progress.

2. DEFINITION
Work place means a place where twenty or more workers are ordinarily employed in connection with construction work on any day during which the contract work is in progress.

3. FIRST-AID FACILITIES
i) At every work place there shall be provided and maintained, so as to be easily accessible during working hours, first-aid boxed at the rate of not less than one box for 150 labour or part thereof ordinarily employed.
ii) The first-aid box shall be distinctly marked with Red Cross on white background and shall contain the following equipments:
   a) For work places in which the number of contract labour employed does not exceed 50 each first-aid box shall contain the following equipments.
      1. 6 small sterilized dressings.
      2. 3 medium size sterilized dressings.
      3. 3 large size sterilized dressings.
      4. 3 large sterilized burn dressings.
      5. 1 (30 ml) bottle containing a two percent alcoholic solution of iodine.
      6. (30 ml) bottle containing salvolite having the dose and mode of administration indicated on the label.
      7. 1 snakebite lancet.
      8. 1 (30 gms.) Bottle of potassium permanganate crystals.
      9. 1 copy of the first-aid leaflet issued by the Director General, Factory Advice Service and Labour Institutes, Government of India.
     10. 1 pair scissors.
     11. 1 bottle containing 100 tablets (each of 50 gms.) of aspirin.
     12. Ointment for burns.
   b) For work places in which the number of contract labour exceed 50.
      Each first-aid box shall contain the following equipments:
      1. 12 small sterilized dressings.
      2. 6 medium size sterilized dressings
      3. 6 large size sterilized dressings.
      4. 6 large size sterilized burn dressings.
      5. 6 (15gms) packets sterilized cotton wool.
      6. 1(60ml) bottle containing two percent alcoholic solution iodine.
      7. 1(60ml) bottle containing salvolite having the dose and mode of administration indicated on the label.
      8. 1 rolls of adhesive plaster.
      9. snakebite lancet.
      10. (30 gms) bottle of potassium permanganate crystals.
      11. 1 pair of scissors.
      12. 1 copy of the first-aid leaflet issued by the Director General Factory Advice Service and Labour Institute / Government of India.
      13. A bottle containing 100 tablets (each of 5 gms) of aspirin.
15. A bottle of suitable surgical antiseptic solution.

iii) Adequate arrangements shall be made for immediate recoupment of the equipment when necessary.

iv) Nothing except the prescribed contents shall be kept in the First-aid box.

v) The first-aid box shall be kept in charge of a responsible person who shall always be readily available during the working hours of the work place.

vi) The person in charge of the first-aid box shall be a person in trained in first-aid treatment in the work places where the number of labour employed is 150 or more.

vii) In the work places where the number of labour employed is 500 or more and hospital facilities are not available within easy distance from the works, First-aid posts shall be established and run by a trained compounder. The compounder shall be on duty and shall be available at all hours when the workers are at work.

viii) Where work places are situated in places which are not towns or cities, a suitable motor transport shall be kept readily available to carry injured person or persons suddenly taken ill to the nearest hospital.

4. DRINKING WATER.

i) In every work place, there shall be provided and maintained at suitable places, easily accessible to labour, sufficient supply of cold water fit for drinking.

ii) Where drinking water is obtained from an intermittent public water supply, each work place shall be provided with storage where such drinking water shall be stored.

iii) Every water supply or storage shall be at a distance of not less than 50 feet from any latrine, drain or other sources of pollution. Where water has to be drawn from an existing well, which is within such proximity of latrine, drain or any other source of pollution, the well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap door, which shall be dust and waterproof. A reliable pump shall be fitted to each covered well, the trap door shall be kept locked and opened only for cleaning or inspection which shall be done at least once a month.

5. WASHING FACILITIES

In every work place adequate and suitable facilities for washing shall be provided and maintained for the use of labour employed therein.

Separate adequate cleaning facilities shall be provided for use of male and female workers.

Such facilities shall be conveniently accessible and shall be kept in clean and hygienic condition.

6. LATRINES AND URINALS

i) Latrines shall be provided in every work place on the following scale namely:
   a. Where females are employed there shall be at least one latrine for every 25 females
   b. Where males are employed, there shall be at least one latrine for every 25 males.

   Provided that where the number of males or females exceeds 100, it shall be sufficient if there is one latrine for 25 males or females as the case may be upto the first 100, and one for every 50 thereafter.

   ii) Every latrine shall be under cover and so partitioned off as to secure privacy, and shall have a proper door and fastenings.

   iii) Construction of latrines. The inside walls shall be constructed of masonry or some suitable heat resistance non absorbent materials and shall be cement washed inside and outside at least once a year. Latrines shall not be of a standard lower than bore whole system.

   iv) a) Where workers of both sexes are employed, there shall be displayed outside each block of latrine and urinal, a notice in the language understood by the majority of the workers “For Men Only” or “For Women Only” as the case may be.

   b) The notice shall also bear the figure of a man or of a woman as the case may be.

   v) There shall be at least one urinal for male workers upto 50 and one for female workers up to 50 employed at a time, provided that where the number of male or female workmen, as the case may be exceeds 500, it shall be sufficient if there is one urinal for every 50 males or females upto the first 500 and one for every 100 or part thereof.

   vi) a) The latrines and urinals shall be adequately lighted and shall be maintained in a clean and sanitary condition at all times.
b) Latrines and urinals other than those connected with a flush sewage system shall comply with the requirement of the Public Health authorities.

vii) Water shall be provided by means of tap or otherwise so as to be conveniently accessible in or near the latrines and urinals.

viii) Disposal of excreta: Unless otherwise arranged for by the local sanitary authority, arrangement for proper disposal of excreta by incineration at the work place shall be made by means of a suitable incinerator. Alternatively, excreta may be disposed off by putting a layer of night soil at the bottom of a pucca tank prepared for the purpose and covering it with a 15 cm layer of waste or refuge and then covering it with a layer of earth for a fortnight (when it will turn to manure).

ix) The contractor shall at his own cost, carry out all instructions issued to him by the Engineer-in-Charge to effect proper disposal of night soil and other conservancy work in respect of his workmen or employees on the site. The contractor shall be responsible for payment of any charges, which may be levied by Municipal authorities for execution of such on his behalf.

7. PROVISION OF SHELTER DURING REST
At every place there shall be provided, free of cost, four suitable sheds, two for meals and the other two for rest separately for the use by men and women labour. The height of each shelter shall not be less than 3 meters from the floor level to the lowest part of the roof. These shall be kept clean and the space provided shall be on the basis of 0.6 Sqm per head.
Provided that the Engineer-in-Charge may permit subject to his satisfaction, a portion of the building under construction or other alternative accommodation to be used for the purpose.

8. ANTI MALARIAL PRECAUTIONS
The contractor shall at his own cost conform to all anti-malaria instructions given to him by the Engineer-in-Charge including the filling up of any borrow pit which may have dug by him.

9. AMENDMENTS
NIPER may from time to time, add to or amend these rules and issue instructions, it may consider necessary for the purpose of removing any difficulty which may arise in the administration thereof.

(Signatures of the Tenderer)
CONTRACT LABOUR REGULATIONS

1. SHORT TITLE
These regulations may be called the Contractor’s labour Regulations.

2. DEFINITIONS
i) Workmen means any person employed by NIPER or its contractor directly or indirectly through a sub contractor with or without the Knowledge of the NIPER to do any skilled, semiskilled, or unskilled manual, supervisory, technical or clerical work for hire or reward, whether the terms of employment are expressed or implied but does not include any person:
   a) Who is employed mainly in a managerial or administrative capacity; or
   b) Who being employed in a supervisory capacity draws wages exceeding Rs.2500/- per mensem or exercises either by the nature of the duties attached to the office or by reason of powers vested in him, functions mainly of managerial nature; or
   c) Who is an out worker, that is to say, person to whom any article or materials are given out by or on behalf of the principle employers to be made up cleaned, washed, altered, ornamental finished, repaired, adopted, or otherwise processed for sale for the purpose of the trade or business of the principle employer and process is to be carried out either in the home of the out worker or in some other premises, not being premises under the control and management of the principle employer.
   d) “Fair Wages” means wages whether for time or piece work fixed and notified under the provisions of the minimum wages act from time to time.
   e) ‘Contractors’ shall include every person who undertakes to produce a given result other than a mere supply of goods or articles of manufacture through labour or who supplies labour for any work and includes a sub contractor.
   f) ‘Wages shall have the same meaning as defined in the Payment Of Wages Act.

3i) Normally working hours of an adult employee should not exceed 9 hrs. a day. The working day shall be so arranged that inclusive of interval for rest, if any, it shall not spread over more than 12 hrs. on any day.
   ii) When an adult worker is made to work for more than 9 hrs on any day or for more than 48 hrs. in a week he shall be paid overtime for the extra hours put in by him at double the ordinary rates of his wages.
   iii) a) Every worker shall be given a weekly holiday normally on a Sunday, in accordance with the provisions of the minimum wages (central) rule 1960 as amended from time to time irrespective of whether such worker is governed by the Minimum Wages Act or not.
      b) Where the minimum wages prescribed by the Government under the minimum wages act are not inclusive of the wages for the weekly day of rest, the worker shall be entitled to rest day wages at the rate applicable to the next preceding day, provided he has worked under the same contractor for a continuous period of not less than 6 days.

4. DISPLAY OF NOTICE REGARDING WAGES ETC.
The contractor shall before he commences his work on contract, display and correctly maintain and continue to display and correctly maintain in a clear and legible condition in conspicuous on the work, notices in English and in local languages spoken by the majority of the workers giving the minimum rates of wages fixed under Minimum Wages Act, the actual wages being paid, the hours of work for which such wages are earned, wage periods dates of payments of wages and other relevant information.

5. PAYMENT OF WAGES
   i) The contractor shall fix wage periods in respect of which wages shall be payable.
   ii) No wage period shall exceed one month.
   iii) The wages of every person employed as labour in an establishment or by a contractor where less than 1000 such persons are employed shall be paid before the expiry of seventh day and in other cases before the expiry of tenth day after the last day of the wage period in respect of which the wages are payable.
iv) Where the employment of any worker is terminated by or on behalf of the contractor, the wages earned by him shall be paid before the expiry of the second working day from the date on which his employment is terminated.

v) All payment of wages shall be made on a working day at the work premises and during the working time and on the date notified in advance and in case the work is completed before the expiry of the wage period, final payment shall be made within 48 hrs. of the last working day.

vi) Wages due to every worker shall be paid to him direct or to other person authorized by him in this behalf.

vii) All wages shall be paid in current coins or currency or in both.

viii) Wages shall be paid without any deductions of any kind except those specified by the central Government by generator special order in this behalf or permissible under the Payment of wages Act 1956.

ix) A notice showing the wages period and the place and time disbursement of wages shall be displayed at the work site and a copy sent by the contractor to the Engineer-in-Charge under acknowledgment.

x) It shall be the duty of the contractor to ensure the disbursement of wages in the presence of the representative of the Engineer-in-Charge who will be required to be present at the place and time of disbursement of wages by the contractor to his workmen.

xi) The contractor shall obtain from the representative of the Engineer-in-Charge certificate under his signature at the end of the entries in the Register Of Wages or the Wage Cum Muster roll as the case may be in the following form:

   “Certified that the amount shown in col. No. has been paid to the workmen concerned in my presence on at “

6. FINES AND DEDUCTIONS, WHICH MAY BE MADE FROM THE WAGES

i) The wages of a worker shall be paid to him without any deduction of any kind except the following

   a) Fines

   b) Deductions for absence from duty i.e from the place or the places whereby the terms of his employment he is required to work. The amount of deduction shall be in proportion to the period for which he was absent.

   c) Deduction for damage to or loss of goods expressly entrusted to the employed person for custody, or for loss of money or any other deduction, which he is required to account, where such damage or loss is directly attributes to his neglect or default.

   d) Deduction for recovery of advances or for adjustment of overpayments of wages. Advances granted shall be entered in a register.

   e) Any other deduction which the central Government may from time to time allow

   ii) No fines should be imposed on any worker save in respect of such acts and omissions on his part as have been approved by the Chief Labour Commissioner.

   iii) No fines shall be imposed on a worker and no deduction for damage or loss shall be made from his wages until the worker has been given an opportunity of showing cause against such fines or deductions.

   iv) The total amount of fines which may be imposed in any one wage period on a worker shall not exceed an amount equal to three paise in a rupee of the total wages, payable to him in that wage period.

   v) No fine imposed on any worker shall be recovered from him by installment, or after the expiry of sixty days from the date on which it was imposed.

   vi) Every fine shall be deemed to have been imposed on the day of the act of omission in respect of which it was imposed.

7. LABOUR RECORD

i) The contractor shall maintain a Register of persons employed on work as per Govt. norms.

ii) The contractor shall maintain a muster roll register in respect of all workmen employed by him on the work.

iii) The contractor shall maintain a wage register in respect of all workmen employed by him on the work.
iv) Register of accidents-- The contractor shall maintain a register of accidents in such form as may be convenient at the work place but the same shall include the following particulars.
   a) Full particular of the labourers who met with accident
   b) Rate of wages
   c) Sex
   d) Age
   e) Nature and cause of accident
   f) Time and date of accident
   g) Date and time when admitted in hospital
   h) Date of discharge from the hospital
   i) Period of treatment and result of treatment
   j) Percentage of loss of earning capacity and disability as assessed by M.O
   k) Claim required to be paid under Workmen’s Compensation Act
   l) Date of payment of compensation
   m) Amount paid with details of the person to whom paid
   n) Authority by whom the compensation was assessed
   o) Remarks
   v) The contractor shall maintain a register of fines as per Govt. norms.
      The contractor shall display in good condition and in a conspicuous place of work the approved list of acts and omissions for which fines can be imposed.
   vi) The contractor shall maintain a register of deductions for damages or loss as per Govt. norms.
   vii) The contractor shall maintain a register of advances as per Govt. norms.
   viii) The contractor shall maintain a register of over time
8. ATTENDANCE CARD-CUM- WAGE SLIP
   i) The contractor shall issue an attendance card cum wage slip to each workmen employed by him as per Govt. norms.
   ii) The card shall be valid for each period.
   iii) The contractor shall mark the attendance of each workmen on the card twice each day, once at the time of commencement of duty herald after the rest interval, before he actually starts work.
   iv) The card shall remain in the possession of the worker during the wage period under reference.
   v) The contractor shall complete the wage slip portion on the reverse of the card at least a day prior to the disbursement of the wages in respect of the wage period under reference.
   vi) The contractor shall obtain the signature or thumb impression of the worker on the wage slip at the time of disbursement of wages and retain the card with himself.
9. EMPLOYMENT CARD
    The contractor shall issue an employment card to each worker within three days of the employment of the worker.
10. SERVICE CERTIFICATE
    On termination of employment for any reason whatsoever, the contractor shall issue to the workmen whose services have been terminated a service record.
11. PRESENTATION OF LABOUR RECORD.
    All records required to be maintain under Regulations 6 & 7 shall be preserved in original for a period of three years from the date of last entries made in them and shall be made available for inspection by the Engineer-in-Charge or labour officer.
12. POWER OF LABOUR OFFICER TO MAKE INVESTIGATION OR ENQUIRY
    The labour officer or any person authorized by NIPER on its behalf shall have power to make enquiries with a view to ascertaining and enforcing due and proper observance of fair wage clauses and the provisions of these Regulations. He shall investigate into any complaint regarding the default made by the contractor in regard to such provisions.
13. INSPECTION OF BOOKS AND SLIPS
The contractor shall allow inspection of all the prescribed labour records to any of his workers or to his agents at a convenient time and place after notice is received or to the labour officer or any person authorized by the central govt. on his behalf.

14. SUBMISSION OF RETURNS

The contractor shall submit periodical returns as may be specified from time to time.

15. AMENDMENTS

NIPER may from time to time add or amend the regulations and on any question as to the application / interpretation or effect of these regulations, the decision of the director shall be final.

LIST OF ACTS AND OMISSIONS FOR WHICH FINES CAN BE IMPOSED

In accordance with rule 7 (v) of contractor’s Labour Regulations to be displayed prominently at the site of work both in English and Local Language.

1. Willful insubordination or disobedience, whether or in combination with others
2. Theft, Fraud, or dishonesty in connection with the contractors besides a business or property of NIPER.
3. Taking or giving bribes or any illegal gratification.
4. Habitual late, attendance
5. Drunkenness, fighting, riotous or disorderly or indifferent behavior.
6. Habitual negligence
7. Smoking near or around the area where combustible or other materials are locked.
8. Habitual indiscipline
9. Causing damage to work in the progress or to property of NIPER or of the contractor.
10. Sleepy on duty.
11. Giving false information regarding name, age, father’s name etc
12. Maligning or slowing down the work.
13. Habitual loss of wage cards supplied by the employer
14. Unauthorized use of employer's property or manufacturing or making of unauthorized articles at the work place.
15. Bad workmanship in construction and maintenance by skilled workers which is not approved by NIPER and for which the contractors are compelled to undertake rectifications.
16. Making false complaints and/ or misleading statements.
17. Engaging on trade within the premises of the establishments.
18. Any unauthorized divulgence of business affairs of the employees.
19. Collection or canvassing for the collection of any money within the premises of an establishment, unless authorized by the employer.
20. Holding the meetings inside the premises without previous sanction of the employer
21. Threatening or intimidating any workmen or employer during the working hours within the premises.

TENDER DRAWINGS:

Tender drawings can be consulted in the Office of Executive Engineer, NIPER, S.A.S. Nagar on any working day within the office hours

(Signatures of the Tenderer)
SECTION-IX

TECHNICAL SPECIFICATIONS

SCOPE OF WORK

1. Design, manufacture, procurement, assembly, testing, delivery, erection and commissioning of Electrical system as per items mentioned in BOQ as per the specifications.
2. The main equipment are as follows :-
   (a) Main LT Panels(TTA Panel) & Capacitor panel as per IEC 61439- (1 & 2)
   (b) 11 KV HT VCB’S
   (c) HT/LT power cable, terminations.
   (d) Erection material like cable trays, earthing pits and strips
   (e) Rubber mats,
   (f) Fire detection and alarm system.
   (f) Steel work welded in build up sections (Chequered plates)
3. The details of above items are as per enclosed technical specification and bill of quantities.

SCOPE OF SERVICES

4. Furnishing of all labour, skilled and un-skilled, supervisory and administrative personnel, erection tools and tackles, testing equipment, implements, supplies, consumables like welding rods and oil and grease, cleaning fluids, insulating tape, anti corrosive paints, jute cotton waste etc and hardware for timely and efficient execution of the erection work.
5. Complete assembly, erection and connection, testing and commissioning, putting into successful and satisfactory commercial operations of above equipment.
6. The items of work to be performed on all equipment and materials shall include but not be limited to the following :
   (a) Receiving, unloading and transportation at site. (to employer’s or contractor’s stores and from there upto actual place of erection).
   (b) Opening, inspecting and reporting all damages & short supply items.
   (c) Arranging to repair and/ or re-order all damaged and short supply items.
   (d) Inspection of all equipment which are not inspected at manufacturer’s work by employer regarding compliance with technical specifications and submission of report of the same to site in charge.
   (e) Storing at site with suitable all weather protection.
   (f) Assemblies, erection and complete installation.
   (g) Necessary coordination between work done by other contractors.
   (h) Final check-up, testing and commissioning in presence of employer’s representative.
   (i) Trial run for thirty (30) days, rectification of defects, if any and adjustments as necessary.
   (j) Obtaining employer’s written acceptance of satisfactory performance.
   (k) Disconnection & dismantling of existing old LT/HT Panels and shifting the same to other place within niper campus.

COMPLETENESS

7. It is not the intent to specify completely herein all details of the equipment. Nevertheless, the equipment shall be complete and operative in all respects.
8. Any material or accessories which may not have been specifically mentioned but which is necessary for satisfactory and trouble free operation and maintenance of the equipment, shall be furnished by the contractor without any extra charge to the employer.
9. The agency has to make sure that during the process of disconnection and dismantling of old LT/HT Panels and Installation of new LT/HT Panels, necessary temporary/alternative arrangements are required to be made so that Electric supply to NIPER campus should not be disrupted in institute buildings, labs, residence areas/hostels and other utilities areas.
10. The agency may in his own interest visit the existing site of substation and get familiarized with the site conditions before quoting the tender.
DESIGN CRITERIA
1. All equipment and materials specified herein or not, shall be designed, manufactured and tested with the latest applicable standard & Bureau of Indian Standards.
2. All electrical equipment shall also conform to the latest Electricity rules as regards safety and other essential provisions.
3. All electrical installation work shall comply with the requirements of the following act/ rules/ codes as amended upto date :-
   (a) Indian electricity act./ Indian electricity rules.
   (b) National electric code published by BIS.
   (c) All relevant IS codes of practice.
   (d) Regulations published by tariff advisory committee.
   (e) Indian standards for electrical equipment for use in hazardous atmospheres.
   (f) Regulations of Local Statutory Authorities.
4. Ambient air temperature shall be taken as 50 deg. C for the purpose of designing of electrical equipment.
5. All equipment shall be capable of continuous operation satisfactorily under the following conditions :
   (a) Voltage variation - ± 10%.
   (b) Frequency variation - ± 5%.
   (c) Combined voltage & frequency variation - ± 10%
6. Nominal system supply available shall be as follows :
   (a) Incoming : 415V, 3 Ph., 4 wire, 50 Hz
   (b) Utilization : 415V, 3 Ph., 4 wire, 50 Hz
7. It has been envisaged that HT Power (11 KV) supply shall be made available by NIPER at one point and all 11 KV VCB’S are to be be installed and commissioned by the agency. The outgoing of VCB’S shall be given to the 03 nos Transformers (already Installed) and output of Transformers to be given to LT panels through XLPE LT power cables.
8. Main LT Panel -1( as per IEC 61439) shall receive power from T/F 800 KVA-1 (Ref drg)
9. Main LT Panel -1( as per IEC 61439) shall receive power from T/F 800 KVA-2 (Ref drg)
10. Main LT Panel -2( as per IEC 61439) shall receive power from T/F 1250 KVA (Ref drg)
11. Capacitor panel (as per IEC 61439)

Type Tested LT PANEL & Switchgear
SCOPE
1. The scope of supply covers design, manufacture, testing, supply and commissioning of LT Panel. Panel must confirm Totally Type Tested (TTA) as per IEC 61439-1/2. Type test certificate for Short circuit withstand 50 KA for 1 sec along with ACB mounted in the switchboards is mandatory. The Agency has to submit panel drawings along with Bill of Quantity and brand to be mentioned in the drawings before manufacturing. The approval for the same has to be obtained from the Engineer-in-Charge.

Construction Features
1. The LT Panel shall be Fully Type Tested ( with switchgears) Assembly as per IEC 61439
2. Panels shall be indoor, metal clad, modular construction suitable for 415V, 3 Phase, 4 wire 50 HZ AC Supply system.
3. LT Panel shall be extensible on both sides.
4. LT panel shall be dust proof and vermin proof.
5. The panels shall have provision for cable entry from top and from bottom or both as required. The same shall be confirmed to the vendor during detailed engineering/ approval of shop drawing of panel manufacturer.
6. LT panels shall be fully compartmentalized with metal/ insulating partitions between individual compartments.
7. Minimum thickness of CRCA MS sheet member shall be 1.6mm for non load bearing members and 2.0mm for load bearing members.
8. All doors and cutouts shall be provided with neoprene gaskets.
9. All doors shall be supported by strong concealed type hinges.
10. All relays, meters and switches etc shall be flush mounted type.
11. A hooter to be installed in LT panel-1 in case of power failure
12. All incoming terminals shall be provided with shrouds. The complete structure shall be rigid, self-supporting free from vibration, twists and bends etc.

13. The panels housing circuit breaker feeders shall be in single front drawout execution. The incoming & bus coupler circuit breaker feeders shall be in single tier formation while the outgoing circuit breaker feeders may be in double tier formation, unless otherwise specified.

14. A suitable barrier shall be provided between the circuit breaker and the associated control.

15. The enclosures shall be designed to take care of normal stress and abnormal electro mechanical stress due to short circuit conditions.

16. All doors and covered provided shall offer adequate safety to the operating persons and provide ingress protection of IP42 or IP54 or as specified.

17. The Panel builder should have pre-treatment system prior to power coating system. It should involve the chemical treatment with 8 tank process like degreasing, water rinsing, de rusting, water rinsing, activation, phosphating, water rinsing and passivation. The power coated thickness layer shall be 60-80 microns.

18. The design/ size of TTA Panel should be near to the old existing panel and should match with the size of existing substation.

19. The panel shall be made in two-three parts as per requirement and may be assembled at site.

**Bus and Bus Taps**

1. The main buses and connection shall be of high grade of aluminum bus bars conductivity aluminum/aluminum alloy (Grade EC-91 E), sized for specified current ratings with max. Temp. limited to 85 deg. C (35 deg. Above 50 deg. Ambient temp).

2. Vertical bus bars shall be designed depending upon the actual feeder requirement. Bimetallic connector shall be provided for connection between dissimilar metals.

3. Bus bars and connection shall be fully insulated for working voltage with adequate phase/ground clearance. Insulating sleeves for Bus bars and shrouds for joint shall be provided. Minimum clearance of 25mm is required between phase to phase and 19 mm between phase & earth.

4. Shrouds for bus bars joints/ tapping points shall be of fiber glass/polyester glass or equivalent quality material. Bus insulators shall be frame retardant, track resistant type with high creepage surface and of non-hygroscopic material such as epoxy/SMC/DMC or equivalent quality material. The material and spacing of bus bar supports should be same as per TTA.

5. Bus bars shall be supported and braced to withstand the stresses due to max. short circuit current and also to take care of any thermal expansion.

**Air Circuit Breaker**

1. Circuit breakers shall be of 4 poles single throw, air break fully drawout type, trip free with motorized spring charging & electrical/manual closing mechanism.

2. For draw out type circuit breakers.

3. Positive indication shall be provided for service, test and isolated positions.

4. Mechanical safety interlock shall be provided to prevent the circuit breaker being racked in or out of the service position, when the breaker is closed.

5. Automatic safety shutters shall be provided to fully cover the female primary disconnects when the breaker is withdrawn.

6. Breaker if drawn in Test/Isolated mode shall not affect the other breakers (which have interlock) when this breaker is closed/open in Test mode.

7. All incomer breakers and outgoing breakers shall be four pole. The bus coupler shall be four pole and ACB should be having capacity of 50 Ka. Circuit breakers shall be provided with Micro Processor Based release for over current, short circuit and earth fault protection.

8. ACB should confirm to IS/IEC 60947-2 & IEC 60947-2.

9. In addition to above all breakers shall also be provided with the following minimum

10. 4 Nos indicating lamps for ON, OFF, TRIP & ready to close conditions of the breakers.

11. Closing coil operating on 220/240V AC.

12. Shunt trip coil & Relays operating on 24V DC supply wherever specified in the drawing.

13. Anti pumping relay for electrical spring charged breakers.

14. Original contacts of ACB to be used for interlock with other I/C & B/C breakers. Contacts multiplying shall be done ‘thru’ Auxiliary relays and no ‘thru’ contactors.
15. Circuit breakers shall also be provided with minimum 6 NO + 6 NC auxiliary contacts for owner’s use.
16. ACB terminals shall be provided with spreader of suitable size.
17. Necessary set of auxiliary switches
18. Necessary set of CT’S with ratios as specified
19. MCCBs shall be of 4 pole, quick make & quick break type & suitable for the fault levels as specified in the BOQ 50 KA, ranging from 250 AMP to 630 AMP.
20. All MCCB shall be manually operated and shall have in build associated protection facility.
21. All MCCB should be having micro processor based tripping system.
22. MCCBs shall have current limiting device and shall have line load reversibility feature.
23. MCCBs shall conform to latest IS code.
24. MCCBs shall have O/C & E/F protections and shall be with variable setting.
25. MCCBs shall be provided with operating handle/ front drive kit.
26. MCCBs shall be provided with phase barrier and variable setting.
27. Shrouds to be provided for incoming link.

MCBs/ Isolator
1. MCBs/ isolators shall be suitable for 415V/220/240V, 3 – phase and neutral or 220/ 240V single phase and neutral system.
2. MCBs/ Isolators shall be heat resistant plastic moulded type.
3. MCBs shall have quick make and break, non-welding silver with inverse time overload and instantaneous short circuit tripping elements with trip free mechanism.
4. MCBs/ Isolators shall be suitable operating in an ambient temperature of 50 deg. C without de-rating.
5. The short circuit breaking capacity of MCBs shall not be less than as specified and minimum 10 KA.
6. All motor feeder MCBs shall be suitable for motor duty.
7. All terminals shall be suitably shrouded.
8. Wherever MCB Isolator are specified, they are without the tripping elements.

Contactors
1. Contactors shall be of double break, single throw and electromagnetic and non gravity type.
2. Contactors shall be suitable for interrupted duty and shall be rated for Capacitor duty contactor.
3. Main contacts of contactors shall be silver faced.
4. Operating coils of contactors shall be suitable for operation on 220/240V AC, 1 phase, 50 Hz supply.
5. Contactors shall be provided with at least one pairs of ‘NO’ and ‘NC’ auxiliary contacts.
6. Contactors shall not drop out at voltage down to 70% of coil rated voltages and min. pick up voltage shall be 85%.

Current Transformers
1. Current Transformers shall be cast – resin type. All secondary connections shall be brought out to terminal blocks where wye or delta connection will be made.
2. Accuracy class of the current transformers shall be:
   (a) Class 5P20/5P10 for protection.
   (b) Class 1.0 for metering.
   (c) Class PS for differential protection & Ref.
3. Current transformer shall be provided with test links and shorting on both secondary leads for testing purpose.
4. All current transformers shall be earthed by a separate earth link on terminal blocks.
5. Additional name plate of CT’s/ PTs shall be provided (if required) at such a place that it shall be possible to find out details of CTs/ PTs after mounting in the panel.

Voltage Transformers
1. Voltage transformers shall be cast-resin, fixed type and shall have an accuracy class of 1.0.
2. Low voltage fuses, sized to prevent overload, shall be installed in all ungrounded secondary leads. Fuses shall be suitable located to permit easy replacement while the board is energized.

Relays
1. Relays wherever provided shall be of draw-out design with built-in testing facilities. Small auxiliary relays may be in non-draw out execution.
Control and Selector Switches
1. Control and selector switches shall be of rotary type having enclosed contacts, which are accessible by the removal of cover.
2. Control and selector switches shall be of flush mounted type and on front of panels.
3. Selector switches shall be of stay-put maintained contact type.
4. Control switches shall be provided with escutcheon plate clearly marked to show the position.

Indicating Meters and Instruments
1. Indicating instrument (96 x 96mm) shall be digital meter, switch board type and accuracy class of ± (1% full scale + 1 count).

Indicating Lamps
1. Indicating lamps shall be of LED type, low watt consumption and provided with appropriate value of resistors. The LEDs shall also have an in-built surge suppressor.
2. Bulbs and lenses shall be interchangeable and easily replaceable from the front of the panel.

Power and Control Cable Termination
1. Suitable supporting arrangement shall be provided for all power and control cables entering the panel.
2. Removable undrilled gland plate of suitable thickness of MS for multi core cables of aluminium or single core cables sufficient in size to accommodate all compression type, heavy duty brass glands shall be provided.
3. Adequate termination arrangement shall be provided for all power cables which shall be aluminium/ copper conductor, PVC insulated, sheathed, armoured PVC sleeved overall, heavy duty cables, 1.1. KV grade. Power cables termination shall be means of crimping type lugs on conductor cables.
4. The terminal blocks shall be bolted lug type for cables. These shall be protected type and rated for 1100 volts service. The minimum current rating of terminal block shall be 16 Amp. The construction shall be such that after the connection of cable by means of lugs, necessary clearance and creepage distance are available.

Internal Wiring
1. All internal wiring shall be carried out with stranded copper conductors, PVC insulated, 1100/ 650V grade.
2. Min. size of conductor for power wiring shall be 2.5 sqmm, 1.5 sqmm for AC control wiring and 4.0 sqmm for DC control wiring. Current transformer secondary wiring shall be with 2.5 sqmm conductor.
3. All wiring shall be run on the sides of the panels and shall be neatly bunched and shall not affect access to equipment mounted in the panels.
4. Wiring shall be terminated on terminal blocks using crimping type lugs and without joints or tees on the runs.
5. Power wiring shall be done either by phase identifying coloured wires or suitably colored PVC sleeves shall be provided at each end of wire. The following wiring codes shall be used.
   (a) Instrument Transformer : Red, Yellow or blue depending upon phase with which wire is associated.
   (b) AC phase wire : White
   (c) AC Neutral wire : Black
   (d) Earth : Green
1. PVC identification ferrules, yellow colour with black engraved letter shall be provided at each end of all control wires marked to correspond with equipment designation & termination numbers.
2. Ferrules provided shall be oil tight and numbered from left to right.

Ground Bus
1. A ground bus, rated to carry maximum fault current, shall extend to full length of the panel.
2. The ground bus shall be provided with two bolt drilling with G.I. bolts and nuts at each end to receive G.I. flat.
3. Each stationery unit shall be connected directly to the ground bus. The frame of each circuit breaker and shall be grounded through heavy multiple contacts at all times.
4. Wherever the schematic diagrams indicate a definite ground at the switchgear, a single wire for each circuit thus grounded shall be run independent to the ground bus and connected thereto.
5. C.T. shall be earthed through removable links so that earth of one circuit may be removed without disturbing other.
6. Frames and non current carrying metal parts of all equipments mounted shall be effectively to earth bus.
7. All hinged doors shall be connected to earth bus by flexible tinned bare copper wire.
8. Instrument and relay cabinets shall be connected to earth by 2.5 sqmm stranded copper insulated wire 1100V grade.

Name Plates
1. Name plates of anodized aluminum shall be furnished at cubicle and at each instrument, device mounted on and inside the cubicle.
2. Caution notice on suitable metal plate shall be affixed at the back of each vertical panel.
3. Name plates for feeders shall be provided on front and back of the panel.

Tropical Protection
4. All equipment, accessories and wiring shall have fungus protection, involving special treatment of insulation and metal against fungus, insects and corrosion.
5. Screens of corrosion resistant material shall be furnished on all ventilating louvers to prevent the entrance of insects.

Painting
1. All surface shall be sand blasted, pickled and grounded as required to produce a smooth, clean surface free of scale, grease and rust.
2. The Panel builder should have pre-treatment system prior to power coating system. It should involve the chemical treatment with 8 tank process like degreasing, water rinsing, de rusting, water rinsing, activation, phosphating, water rinsing and passivation. The power coated thickness layer shall be 60-80 microns.
3. The panels shall be finished with two coats of Siemens Grey (Shade RAL 7032) powder coated.

Tests & Inspection
1. The following routine and acceptance tests shall be carried out during final acceptance list.
2. All tests shall be conducted as per IEC 61439 Part 1 and 2
   (a) Mechanical operation test.
   (b) Electrical operation test.
   (c) High voltage test on power circuits.
   (d) High voltage test on control circuits.
   (e) Milli volt test on the circuit breakers.
   (f) Millivolt test on bus bar joints.
   (g) Earth testing
3. All tests shall be performed in the presence of owner’s representative, if so desired by the owner. The contractor shall give at least 15 days advance notice of the date when test are to be carried out.
4. Contractor shall furnish test certificate indicating that equipment has been tested by their quality control department for compliance of technical specification and approved drawings. This inspection shall however, not absolve the vendor from the responsibility for making good any defect which may be noticed subsequently.

Fire Alarm and Detection System

General
1. Fire alarm and detection system to be supplied by the contractor shall be complete in all respects including supply of control panels, wiring/ conduit etc and shall meet requirement of applicable standard.
2. The Fire Alarm System shall be provided to effect control over the life safety services required in the building.
3. The system shall be provided fire alarm initiating, annunciating and control devices.
4. In the event of a fire alarm, but not in a fault condition, the following action shall be performed automatically.
   (a) The system Alarm LED on the main fire alarm control panel shall flash.
   (b) Hooters in the control panel and in plant shall be sounded.
1. The panel shall be fabricated of suitable gauge of CRCA sheet, wall floor mounting type completely dust and vermin proof with neoprene gasket and as per relevant IS specification. The panel shall have a glass door with lock and key and painted with proper paint. Suitable gland knock outs will be provided for cable connections. One rectangular window on the panel shall be provided for each zone. Within the window on the top side red L.E.D.’s representing fire shall be provided above and yellow L.E.D.’s representing fault below and in case of fire, fault alarm besides the concerned L.E.D.’s of the zone indication widow shall light up.

2. The panels shall have 04 numbers of zone modules as the number of zones of whole floor. Each module shall have audio-visual indications and monitor the wiring to local control panel continuously.

3. The control of each zone shall have following facilities for testing the circuits for fire and fault condition (I) Test (I) Normal (iii) Alarm acknowledge (iv) Fault test. And it shall be designed in such a way that audio visual alarm is given when its position is changed from ‘Normal’. The power supply to local control panels shall be derived from main control panel. The control panel shall have following visible facilities.

4. (i) Main on load (ii) Main failure (iii) Battery on load (iv) Battery discharged.

5. The control panel shall have following supervisory facilities.

6. (i) Zone isolated (ii) Accept – Test push button.

7. The local control panels shall have following salient feature.

8. The control panel shall continuously supervise open, short and earth fault in detector cabling with audio-visual alarm distinct from fire and shall indicate fault in corresponding zone and shall also transmit the fault signal to main control panel to repeat the audio – visual alarm in control room.

9. Each zone shall have facility to isolate, leaving remaining zones in healthy condition to ensure that fire/ fault list detected properly.

10. Silencing of the sounder shall not prevent fire alarm being given by any other zone simultaneously.

11. In case of any fault transmit the fire signal to main control panel to repeat the audio-visual alarm in control room.

12. Circuits and mechanical design of the panel shall be such that the operation failure of one indicator does not prevent the proper and separate operation or other indication.

13. Facility to test the alarm circuits and lamps shall be provided.

**Power Supply**

1. The source of electricity supply for the entire system shall be as follows.
   (a) A secondary battery continuously trickle/ float charged from AC mains with facility for automatic recharging the battery sufficiently in 8 hours to supply the maximum system load at an adequate voltage for atleast two hours.
   (b) The normal voltage of the battery shall be 12/24 volts. The capacity of each battery shall be such that it’s capable of maintaining the maximum load on the system at an adequate voltage for at least one hour plus the standby load for at least 24 hours.
   (c) Means shall be provided to prevent secondary batteries from discharging through the charging equipment in the events of its breakdown or a failure in supply and it should give fault signal in either event. In order to minimize the risk of failure, suitable overload protective devices like fuse and circuit breakers shall be arranged to operate at suitable current higher than the maximum working current and to give on audible permanently indicated on the equipment.

**Detectors**

1. General Features common to all detectors :-
   (a) All fire detectors shall be compatible and should be inter changeable without requiring different mounting bases or alternations in the fire panel.
   (b) Detectors shall be rotary plug-in-type facilitating easy removal and mounting shall be possible with hand only.
   (c) The detector shall be vibration an shock proof. When disassembling for cleaning purposes, its components must not be damaged by static over voltage.
   (d) Atmospheric and Thermal Disturbance: The detector shall so designed as to be practically immune to environmental criteria such as air currents, humidity, temperature fluctuations, and pressure and shall not trigger false alarm, due to the above conditions.
   (e) The detector shall be ceiling mounted type.
   (f) All detectors shall be suitable to operate satisfactorily upto a temperature of 80 degree C, 95% RH.
   (g) Detectors shall not have any moving parts.
(h) Response (activation) shall be clearly visible from the outside by blinking of light.
(i) Reversed polarity or faulty zone wiring shall not damage the detector.
(j) It shall be possible to check the sensitively and carry out calibration at site, if required.
(k) All detectors shall be listed with UL/FM/FOX or any other recognized international standard.
(l) A built-in barrier shall prevent entry of insects into the sensor.

**Manual Push Button Station**

1. Manual stations shall be constructed of Lexan with clearly visible operating instructions provided on the cover. The word FIRE shall appear on the front of the stations in raised letters.
2. The push button shall have one pair open and one pair closed contacts.
3. The cover shall provide mechanical protection without effecting basis purpose.
4. All operated stations shall utilize a key type reset.
5. Manual call points shall be installed in such way that one should not travel more than 30 M to reach a call point station.

**Earthling**

1. The contractor shall install the entire earthing system and complete all earth connections for the LT Panels and VCB’S. Installation of earthing, electrode, earthing conductor, excavation, back filling etc. wherever required in the scope of contractor. The earthing grid shall be formed at 0.5 meter below grade or at column foundation level or as specified around the plant. The grid conductors are 25 x 5 mm G.I. Flat.
2. **Earth Electrode**
   All earth connection unless otherwise specified shall be of galvanized iron pipe of approved length and diameter or any galvanized iron plate or copper earth plate, copper wire shall be used as lead-in-wire.
3. **Arrangement of Earth Pipe:**
   The galvanized iron pipe shall not be less than 38.1mm (or 1.5”) in diameter and 2m (or 6.5ft) long. The length of the galvanized iron pipe shall be increased to 2.75m. (or 9 ft.) if the nature of the soil so required in dry or rocky places. They shall be buried in the earth vertically with their top not less than 2.75m (or 9 ft) below ground level.
4. **Arrangement of Plate Earthing:**
   The galvanized iron plate shall be size not less than 600mm x 600mm x 6.00mm. The copper plate 600mm x 600mm x 3mm. They shall be buried in the earth with their faces vertical and their tops not less than 3m (or 10 ft) below ground level.
5. **Distance of Earth from Buildings**
   Normally earth shall not be situated less 15 (or 5 ft) from any building. Care shall be taken that the excavation for earthing may not effect the footing of the foundation of the building, in such cases the distance being suitably increasing. The location of the earth will be such where the soil has reasonable change of remaining moist as far as possible. Pavements and roadways are definitely avoided the locating the earths.
6. **Method of Connection of Earth lead with Earth Erection.**
   The earthing lead shall be securely bolted and soldered to the plate or pipe as the case may be. In the case of the plate, the lead shall be connected by means of a cable socket with two bolts and nuts. All bolts, nuts and washers shall be of the same material of the pipe or plate. All iron bolts, nuts and washers shall be of galvanized. The earthing lead shall be secured connected at the other end of the main bolt and the all its mounting sand looped to all other iron clad switches and distribution fuse boards.
7. **Method of Installing Earth Electrode:**
   The earth plate of pipe shall be surrounded by alternate layers of charcoal or coke and salt. The top of this pipe shall be provided with a funnel and mesh for watering the earth. This will be housed in a masonry enclosure not less than 30cm x 30cm x 30cm (or 1’ x 1’ x 1’) deep. A cast iron frame with cover shall be suitably embedded in masonry.
8. **Resistance of Earth:**
   Final value of earth resistance should be less than 2 ohms.
   Each earthing pit should be marked properly and test certificate shall be issued for each Earthing pit.
CABLE WORK

Description of Work:
1. Supply and laying of cables as per latest IS standard and cable trays a per specifications schedule of quantities.

Installation
2. Cable shall be laid in ground, trenches, cable trays and on walls as specified. Installation shall include all supports and clamps as required. The complete work shall be in accordance to CPWD General Specifications for Electrical Works – Part-II (External) 1994 amended upto date. As far as possible cables shall not be fixed on walls directly but laid on cable trays.

Test Reports:
3. Routine test certificates for each drum of cable brought to site and genuinity certificate.

Specifications:
General
4. Cable shall be supplied inspected, laid, tested and commissioned in accordance with drawings, specifications, relevant Indian Standards Specifications and cable manufacturer’s instructions. The cable shall be delivered at site in original drums with manufacturer’s name clearly written on the drum.

Material:
5. The MV power cable of 660/1100 V grade shall be XLPE/PVC insulated aluminium conductor armoured stranded cable. The cables shall be provided with inner sheath of extruded black PVC compound type ST-1. The outer sheath shall be resistant to flanges, rodent and termite attach and shall be fire resistant to retardant properties.

Cable Trays:
6. Prefabricated cable trays of ladder type and associated accessories, tees, bends, elbows and reducers shall be fabricated from 12 gauge (2.6mm thick) mild steel. Perforated cable trays and associated accessories, tees, elbows and reducers shall be fabricated from 14 gauge (2mm thick) MS steel.
7. Cable trays and accessories and covers shall be painted with one shop coat of red oxide zinc chromate primer and two coats of aluminum alkyd paint.
8. Cable trays and risers shall be aligned and leveled correctly. All runs shall be installed parallel to the trench/ building walls and floors otherwise noted on the drawings.
9. The contractor shall provide embedded steel inserts/ supports on wall, ceiling or floor by suitable anchoring & shall secure racks and supports by welding these to inserts.
10. Cable tray mounting arrangement type to be as marked or as per site requirement
11. Assembly of tray mounting structure shall be supplied, fabricated, erected & painted by the contractor.
12. Tray mounting structures shall be welded to plate inserts, or to structural beams, as approved by the Engineer-in-Charge.
13. All structural steel to be painted with one shop coat of red oxide and oil primer followed by a finishing coat of aluminum alkyd paint. When any cuts or holes are made on finished steel work these shall be sealed against oxidation by red oxide followed by the same finishing paint.

Storage and Handling
14. Cable drums shall be stored on a well-drained, hard surface, preferably on concrete, so that the drums do not sink in the ground causing rot and damage to the cable drums.
15. During storage periodical rolling of drums once in three months through 90° shall be done. Rolling shall be done in the direction of the arrow marked on the drum.
16. It should be ensured that both ends of the cables are properly sealed to prevent ingress/ absorption of moisture by the insulation.
17. Protection from rain and sun shall be ensured. Sufficient ventilation between cable drums should be ensured during storage.
18. The drums shall always be rested on the flanges and not on the flat sides.
19. Damaged battens of drums etc. should be replaced, if necessary.
20. When cable drums have to be moved over short distances, they should be rolled in the direction of the arrow, marked on the drum.

21. For transportation over long distances, the drum should be mounted on cable drum wheels strong enough to carry the weight of the drum and pulled by means of ropes. Alternatively, they may be mounted on a trailer or on a suitable mechanical transport.

22. When unloading cable drums from vehicles, a crane shall preferably be used. Otherwise the drum shall be rolled down carefully on a suitable ramp or rails, where necessary.

23. White transferring cable from one drum to another, the barrel of the new drum shall have a diameter not less than that of the original drum.

24. The cables shall not be bent to a small radius. The minimum safe bending radius for all types of XLPE cables shall be taken as 12 times the overall diameter of the cable. Wherever practicable, larger radius should be adopted. At joints and terminations, the bending radius of individual cores of a multi core cable shall not be less than 15 times its overall diameter.

25. Cable with kinks and straightened kinks or with similar apparent defects like defective armouring etc shall be rejected.

26. Cables from stores shall be supplied by the contractor as per the site requirement in pieces cut in the stores.

**Laying on Cable Trays:**

27. Cables, shall be laid on overhead cable trays which are suspended from ceiling or supported from wall, by anchor fasteners as required.

28. The contractor shall provided for all accessories for the installation of the cable trays, such as bend, tees, reducers coupler plates, trefoil clamps and structural steel members (comprising of channel, angels, flats, rods) to be fabricated at site for structural steel members (comprising of channels, angles, flats, rods) to be fabricated at site of structural support for cable trays rack etc.

29. Cable shall generally be installed in ladder type. Perforated trays in trenches or buried in ground except for some short runs in conduit for protection or crossing the roads etc.

30. Each length of run shall be physically measured at site before cutting the cable. Contractor shall furnish cable cutting schedule to Engineer-in-Charge with respect to able drum length available at site and runs of cables & size of cables.

31. Cable may also be laid through hume pipes/ corrugated high density PVC pipes (as approved by the consultant/ owner) in road crossing etc. The pipes shall be supplied and placed in position by the contractor.

32. All power cables shall be clamped individually and control cables shall be clamped in groups of three or four cables.

33. Cable openings etc. in walls/floor made by the contractor or by other shall be sealed by the contractor suitably by Hessian tape and bitumen compound or by any other proven method to prevent ingress of water.

34. Laying cost shall include all above activities including supply and fixing of clamps etc.

**TESTING**

**Inspection**

1. All cables shall be inspected upon receipt at site and checked by the Engineer-in-Charge for any damage during transit.

**Testing**

2. All 650/1100 volt grade cables before laying shall be tested with a 500V megger or with a 2500/5000V megger for cables of higher voltages. The cable cores shall be tested for continuity, absence of cross facing, insulation resistance to earth/ sheath/ armour and insulation resistance between conductors.

3. All cables shall be subject to above mentioned tests during laying, before covering the cables by protective covers and back filling and also before the jointing operations.

4. After laying and jointing, the cable shall be subjected to a 15 minute AC/DC pressure test.

5. In the absence of facilities for pressure testing, it is sufficient to test for one minute with 1000V megger for cables of 1.1 KV grade with with 2500/5000V megger for cables of higher voltages.
HIGH VOLTAGE PANEL

SCOPE
1. These specifications cover the detailed requirements for supply, installation, testing and commissioning of High Voltage Panels.

TYPE OF PANELS
2. Vacuum circuit breaker.

H.V. PANEL
3. The Panel board shall be of indoor type, having the incoming sectionalisation and outgoing switch gears as per IS 13118: 1991 of VCB, IEC 62271-100 for Breakers and -200 for Panels/ IS 3427 of switch board. The degree of enclosure protection shall be IP-4X.
4. Detailed requirements shall be in accordance with the schedule of works at Appendix II.

Rating
5. All panels assembled to form a board shall be suitable for the nominal operation voltage and rupturing capacity as specified. They should be rated as specified with a minimum of 630 Amps. and suitable for operation on 11 KV, 3 phase 50 Hz system. Type test certificate for the breaking capacity of the panel shall be supplied. A circuit breaker for a given duty in service is best selected by considering the individual rated values required by load conditions and fault condition.

Type
6. The HV Panel Board shall be metal clad, indoor, floor mounting, free standing type. It shall be totally enclosed dust, damp and vermin proof.

General Construction
7. Separately earthed compartments shall be provided for circuit breakers, bus bars, relay & instruments, CT&PT and cable boxes, fully and effectively segregating these from one another so that fault in any one compartment do not cause damage to equipment(s) in other compartment(s).
8. The housing shall be of bolted construction to ensure compact and rigid structure, presenting a neat and pleasing appearance. The sheet steel used should not be less than 2 mm thick.
9. The panels shall be bolted together to form a continuous flush front switch gear suitable for front operation of board and for extension at both ends.

General Design Aspects
10. The HV panel board shall be designed such that the switchgear, instruments, relays, bus bars, small wiring etc. are arranged and mounted with due consideration for the following:
   (a) Facility for inspection, maintenance and repairs of testing terminals and terminal boards for ease of external connection.
   (b) Minimum noise and vibrations.
   (c) Risk of accidental short circuits and open circuits.
   (d) Secured and vibration proof connections for power and control circuits.
   (e) Risk of accidental contact and danger to personnel due to live connections.
   (f) Mountings at approachable height.

CIRCUIT BREAKER

General Arrangements
11. The circuit breaker panels shall be complete with the following:
   (a) Racking in / Racking out mechanism.
   (b) Isolating plugs and sockets.
(c) Mechanical inter-locks and safety shutters.
(d) Mechanical ON/OFF indicator.
(e) Minimum of 4 NO and 4 NC Auxiliary contacts directly operated by the circuit breaker. Additional NO & NC contacts can be provided with auxiliary contractors.
(f) Anti condensation space heaters suitable for operation on 240V, 1Ø 50 Hz A.C. for each panel wherever specified.
(g) Suitable tripping arrangement.
(h) Mechanical counter to assess the total number of operations of the breaker (if asked for specifically).

Type
12. The circuit breaker shall be of horizontal/vertical isolation, horizontal draw out pattern.

Breaker Truck
13. The breaker carriage shall be fabricated from steel, providing a sturdy vehicle for the circuit breaker and its operating and tripping mechanism. The carriage shall be mounted on wheels, moving on guides, designed to align correctly and allow easy movement of the circuit breaker and for removing the carriage for inspection and maintenance purposes. Vacuum interrupters shall be hermetically sealed and shall be designed for minimum contact erosion, fast recovery of dielectric strength, maintenance free vacuum interrupter, suitable for auto-reclosing. The drive mechanism shall preferably be provided with facility for pad locking at any position namely, “Service”, “Test” and “Fully Isolated”. It should be possible for testing the circuit breaker for its operation without energizing the power circuit in the “Testing” position. The contacts shall be made only after the breaker is inserted into service position. Interlocking should prevent contacts from being disconnected if circuit breaker is tried to be moved from service position.

General Features
14. Single break contacts are provided in sealed vacuum interrupter.

Rating
15. The circuit breakers shall be continuously rated as specified with a minimum rated current of 630 Amps. with voltage rating and breaking capacity as specified.

Operating Mechanism
16. The operating mechanism shall be one of the following as specified:

   (a) Manually operated spring charged / motor wound spring charged with both mechanical and electrical release for closing. The operating mechanism shall be trip free. External auxiliary supply shall be made available for charging motors & heaters operation.

BUS BAR SECTION

General Requirement
17. The switch board shall be single bus bar pattern with air insulated encapsulated bus bars housed in a separate compartment, segregated from other compartments.

Material
18. The bus bars shall be of high conductivity electrolytic copper rated as specified with a minimum rated current of 630 Amps. The bus bars shall be sized for carrying the rated and short circuit current without over-heating. Maximum bus bar temperature shall not exceed 95 degree C.

CURRENT TRANSFORMER

General Requirements
19. Accommodation shall be provided in the circuit breaker panel to mount one set of three numbers dual core dual ratio CTs for metering and protection purposes. Access to the CTs for cleaning, testing or changing shall be from the front, back or top of the panel.
Rating
20. Dual core & dual ratio CTs of suitable burden (but not less than 15 VA) shall be preferred with 5 Amps secondary. The ratio shall normally be one of the following as specified:

(a) 400/200/5/5  (b) 300/150/5/5
(c) 200/100/5/5  (d) 100/50/5/5
(a) 150/75/1/1

Note: CT ratio shall be compatible with the loading pattern on HV side. The CTs shall conform to relevant Indian Standards. The design and construction shall be robust to withstand thermal and dynamic stresses during short circuits. Secondary terminals of CTs shall be brought out suitably to a terminal block which will be easily accessible for testing and terminal connections. The protection CTs shall be of accuracy class 5 P 10 of IS 2705- Part III-1992. The metering CTs shall conform to the metering ratio and accuracy class 0.5 of IS 2705-1992 for incomer and class 1 for outgoing panels.

VOLTAGE TRANSFORMER
General Requirements
21. A voltage transformer of burden not less than 100 VA and of proper ratio as specified shall be provided at the incoming panel.
22. The accuracy class for the VT shall be class 0.5 as per IS 3156 Parts I to III for incomer and class 1 for outgoing panels.
23. The transformer shall be of cast epoxy resin construction. It shall be fixed/withdrawable type. HRC fuses/ MCBs shall be provided on both HV and LV sides.

PROTECTION AND TRIPPING ARRANGEMENT
Protection
24. The Relays shall be microprocessor based numerical relays with O/L, E/F and S/C protection. Tripping relay shall be used for tripping signal to the Shunt Trip Coil of Circuit Breaker operating on 24 V/ 30 V D C supply / Power pack / 110 V VT supply.

Note: - 24V/ 30V DC shall be provided through 2 No. SMF batteries of 12/ 15 volts of minimum 26 AH capacity with a battery charger as per recommendation of the manufacturer both for protection as well as indications.
25. Alternatively Power Pack converters fed through PT/ 230V externally could be provided with 2 Nos., 12/ 15 volt, 7 AH SMF batteries (Power pack with condenser/ capacitor backup are also available which do not need batteries, these should not be used) for tripping. In cases where tripping is fed through PT, VA burden of PT shall be suitably increased (say 200 VA) as recommended by the manufacturer depending upon the number of panels and connected controls. In addition external 24 volt / 30 volt DC supply shall be provided for indications etc. through 2 No. SMF batteries of 12/ 15 volts of minimum 26 AH capacity with a battery charger as per recommendation of the manufacturer.

Relays
26. Over current Relays shall have adjustable setting for current from 50% to 200% and earth fault from 10% to 40% or 20% to 80%. These should be of manual reset type. All relays shall have a LED indicator which will indicate operation for each function. It shall be possible to reset it only by manual operation. The number and types of relays shall be as specified.

SMALL WIRING
27. The small wiring shall be carried out with minimum1.5 sq. mm FRLS/ HFFR insulated copper conductor cables. CT wiring shall be done with minimum 2.5 sq mm wires with colour code: RYB, Gray for auxiliary DC circuits and Black for auxiliary AC circuits. The wiring shall be securely fixed
and neatly arranged to enable easy tracing of wires. Identification tags shall be fitted to all wire terminals to render identification easy and to facilitate checking in accordance with IS 375. Necessary terminal blocks and cable entries shall be provided for RTD relay wiring, power supply etc.

**METERING INSTRUMENT, PANEL ACCESSORIES (DIGITAL)**

**Metering**
28. Energy metering shall be done either on the incomers or on the feeders as specified in boq.

**Instrument Panels**
29. The instrument panel shall form part of the housing. Relays, meters and instruments shall be mounted as per general arrangement drawings to be submitted by the tenderer. They shall be preferably of flush mounting type at a maximum height of 1800 mm.

**Instrumentation**
30. Digital voltmeter with build in selector switch suitable for 110 v ac.
31. Digital ammeter with selector switch shall be provided at both incomer and outgoing panels with build in selector switch.
32. The panel assembly shall also take care of the following requirements:

(a) Lamp indication shall be provided to indicate ON/ OFF (by red green respectively) of switch gear.
(b) Panel illuminating lamp.
(c) Mechanical indication for spring charged status. If possible an indicating lamp could be provided.
(d) Lamp indicating tripping at fault status.
(e) Healthy trip supply shall be indicated by clear lamp.
(f) Separate fuses/ MCBs shall be provided for lamps, heaters, voltmeters and other instrumentation etc. on each panel.
(g) Anti-condensation space heaters shall be provided, and shall be suitable for operation on 240 V, 1 phase, 50 Hz A.C. for each panel if specified.
(h) Where there is more than one incomer and bus sections, these shall be castle key interlocked as per interlocking scheme as specified.

**CABLE BOXES**
33. Cable boxes shall be situated in a compartment at the rear / side of the housing as specified.

**CABLE ENTRY**
34. Provision for top (bus ducts preferred for top entry) / bottom or such other side entry shall be made as per requirement with sufficient head room for cable termination. 3 mm thick removable gland plate shall be provided for cable termination.

**EARTHING**
35. The earthing of the breaker body and moving portion shall be so arranged that the earthing of the non-current carrying structure to the frame earth bar is completed well before the main circuit breaker plugs enter the fixed house sockets.
36. The entire panel board shall have a common earth bar of suitable section with 2 earth terminals for effectively earthing metallic portion of the panels. INSTALLATION
37. The installation work shall cover assembly of panels lining up, grouting the units etc. In the case of multi panels switch boards after connecting up the bus bar all joint shall be insulated with HV insulation tape or with approved insulation compound. A common earth bar shall be run preferably at the back of the switch board connecting all the sections for connecting the earth system. All protection, indications & metering connections and wirings shall be completed.
38. Where trip supply battery is installed the unit shall be commissioned, completing initial charging of the batteries. All relay instruments and meters shall be mounted and connected with appropriate
wiring. Calibration checks of units as necessary and required by the licensee like CTs, VTs Energy Meters etc. shall be completed before pre-commission checks are undertaken.

TESTING AND COMMISSIONING

39. Procedure for testing and commissioning of relay shall be in general accordance with good practice.

40. Commissioning checks and tests shall include in addition to checking of all small wiring connections, relays calibration and setting tests by secondary injection method and primary injection method. Primary injection test will be preferred for operation of relay through CTs. Before panel board is commissioned, provision of the safety namely fire extinguishers, rubber mats and danger board shall be ensured. In addition all routine megger tests shall be performed. Checks and test shall include following:

(a) Operation checks and lubrication of all moving parts.
(b) Interlock function checks.
(c) Continuity checks of wiring, fuses etc. as required.
(d) Insulation tests.
(e) Trip test and protection gear tests.
(f) The complete panel shall be tested with 5000 V megger for insulation between poles and poles to earth. Insulation test of secondary of CTs and VT to earth shall be conducted using 500 V megger.
(g) Any other tests as may be required by the Licensee / Inspector shall be conducted.
(h) Where specified, the entire switch board shall withstand high voltage test after installation.
(i) Any other test required by the consignee/ inspecting officer.

SAFETY REQUIREMENTS

SCOPE

1. This section covers the requirements of items to be provided in the sub-station for compliance with statutory regulations, safety and operational needs.

(a) Specifications and standards: The installations, commissioning, testing activities shall be in formity with relevant Indian Standard specification, National Electric Codes, Indian Electricity Rules.
(b) The contractor, his agents, representatives, workmen etc shall strictly observe the orders pertaining to fire/ LV/ HV/ EHV (Electrical) precautions prevailing within the restricted areas/ electrical substations etc.
(c) The contractor, his agents, representatives, workmen etc shall strictly adhere to the fire/ electric shock precautionary measures while working near the explosive areas/ HV/ LV/ Electrical substation areas. During such times, the workmen should be headed by their site supervisor as a precautionary measure. The regular team of the contractor shall be very well aware of fire fighting, Cardio-Pulmonary Resuscitation, first aid etc.
(d) While working at height, Personal Protective Equipments (PPE) like safety belts, helmet, ladder and scaffoldings etc shall be used as per the recommended safety guidelines.
(e) NIPER shall not be responsible for any injury or loss of any workers of the contractor that may take place while one work. Any compensation or expenditure towards treatment for such injury or loss of life shall be the sole responsibility of the contractor. The contractor is solely responsible for any damage or injury or accident that may occur to any of his personnel working under this contract. He will not claim any compensation from the institute.

REQUIREMENTS

2. Safety provisions shall be generally in conformity with appendices (A) and (C) of CPWD General Specifications of Electrical Works (Part I-Internal), 2013. In particular following items shall be provided:

(a) Insulation Mats

Insulation mats conforming to IS 15652: 2006 shall be provided in front of main switch boards as well as other control equipments as specified.

(b) First Aid Charts and First Aid Box
Charts (one in English, one in Hindi, one in Regional language), displaying methods of giving artificial respiration to a recipient of electrical shock shall be prominently provided at appropriate place. Standard first aid boxes containing materials as prescribed by St. John Ambulance brigade or Indian Red Cross should be provided in each sub-station.

(c) **Danger Plate**

Danger Plates shall be provided on HV and MV equipments. MV danger notice plate shall be 200 mm x 150 mm made of mild steel at least 2 mm thick vitreous enameled white on both sides and with the descriptions in signal red colour on front side as required. Notice plates of other suitable materials such as stainless steel, brass or such other permanent nature material shall also be accepted with the description engraved in signal red colour.

(d) **Fire Extinguishers**

Portable CO₂ conforming to IS 2878: 1976/ chemical conforming to IS 2171: 1976 extinguishers, HCFC Blend A (P-IV) shall be installed in the sub-station at suitable places. Other extinguishers recommended for electric fires may also be used.

(e) **Fire Buckets**

Fire buckets conforming to IS 2546: 1974 shall be installed with the suitable stand for storage of water and sand.

**Safety Codes and Labour Regulations**

3. In respect of all labour employed directly or indirectly on the work, the tenderer, here in after called the contractor, at his own expense will arrange for the safety provision outlined in section 9 of these specifications to comply with the statutory regulations, ISI recommendations and CPWD codes.

4. In case of default, the department shall be at liberty to make arrangements and provide facilities as aforesaid and recover the cost from the contractor.

5. The contractor shall provide necessary barriers warning signals and other safety measures to avoid accidents. He shall also indemnify CPWD against claims for compensation arising out of negligence in this respect.

6. Nothing in these specifications shall be construed to relieve the contractor of his responsibility for the design, manufacture and installation of the equipment with all accessories in accordance with applicable statutory regulations and safety codes in force from the safety angle.

**INFORMATIONS AND DRAWINGS TO BE SUPPLIED BY THE DEPTT.**

**Specification Drawing**

7. The tender specifications shall indicate, for a particular job, the reference drawings to help the contractor to work out the tender. The drawings shall also indicate the schematic of main connections and shall form part of the specifications. All the drawings specified and issued with the tender are for purpose of tendering only and shall be deemed to be specification drawings.

**WORKS TO BE DONE BY THE CONTRACTOR**

8. In addition to supply, installation, testing and commissioning of all equipments as per schedule of work in accordance with 1.5.2 the following work shall be deemed to be included within the scope of work, to be executed by the contractor.

(a) All minor building works, such as equipments foundation if required cutting and making good holes, grouting of channels belts as required. Cutting and making good damages etc.

(b) Provision of supports / clamps for equipments, cables etc. wherever required.

(c) Small wiring, inter-connection etc. inclusive of all materials and accessories, necessary to comply with the regulations as well as proper and trouble free operation of the equipment.

(d) Closing of the cable entry points in sub-station against seepage of water, rodents etc.

(e) Tools and tackles required for handling and installation.

(f) Necessary testing equipments for commissioning.

(g) Watch and Ward of materials and/or installation and equipments till their handing over to the department.
Tool Box
A Standard tool box containing necessary tools required for operation and maintenance shall be provided in the sub-station.

Caution Board
Necessary number of caution boards such as “Man on Line” ‘Don’t Switch on’ etc. shall be available in the sub-station.

Key Board
A keyboard of required size shall be provided at a proper place containing castle keys, and all other keys of sub-station and allied areas.

ERECTION & COMMISSIONING

General

Equipment Erection
1. The equipment in disassembled condition shall be received at site by the contractor.
2. The contractor shall unpack, assemble all parts, mount and wire up loose equipment, fitting and accessories and complete all connections.
3. The contractor shall mount the equipment on respective foundation/supports, level & align the same & arrange for necessary grouting/anchoring.
4. The erection work shall be carried out in compliance with manufacturer’s instruction and shall include all adjustments, checks and measurements.
5. The contractor shall record results of all erection tests and measurements and furnish copies of the same to the owner for his reference and record.
6. Any internal wiring of the equipment, which has been left incomplete because of shipping, split or which requires minor modifications shall be carried out by the contractor. This includes mounting of items like relays, meters etc. and connecting the same as per wiring scheme diagram furnished by the original manufacturers.

Consumables and Hardware
7. The contractor shall furnish all erection materials, hardware and consumables required for the completion of the installation. The materials shall include but not be limited to the following:
   (a) Consumables: Welding rods & gas, oil & grease, cleaning fluids, paints, electrical tape, soldering materials etc.
   (b) Hardware: Bolts, nuts, washers, screws, brackets, supports, clamps, Hangers, saddles, cleats, sills, shims etc.
   (c) Materials: Junction boxes, terminal blocks, connectors, ferrules, lugs, brass glands, rigid/flexible conduits, cables, ground wires etc.
8. Supply of cement, sand stone etc. required for the execution of the contract shall be responsibility of the contractor.

Erection Tools & Tackles
9. The contractor shall provide all tools, tackle, implements, module equipment such as chain pulley block, trailers etc. which are required for transportation, handling and erection of equipment.
10. Special erection tools, if any, furnished by the Manufacturer along with the equipment may be used by the contractor. Such tools and equipments, however, shall be returned in good working conditions to the owner on completion of the job.
11. The contractor shall also arrange for major testing equipment as list below:
   (a) Insulation Tester: Motor operated Megger 1000V & 10 KV grade.
   Hand operated Megger 1000V.
   (b) Hand driven earth resistance megger, range 0-1/3/30 ohms.
(c) Techno meter.
(d) Tong testers of suitable ranges.
(e) Contact resistance measuring set for micro-ohms.
(f) Torque wrench.
(g) Primary/ secondary/ injection set and relay testing kit.
(h) Multi meters, test lamp, field telephone with buzzer sets, different gauges etc.
(i) Stream filter.
(j) Chain pulley block, cable jacks & spindle, cable, collars, electricians tool kit, jointer’s tool kit, fitters tool kit, welding transformer, phase sequence meter, HV testing kit, primary & secondary injection kit.

12. Other test equipment as required for testing and commissioning of the equipment shall have to be arranged by the contractor.

Methods and Workmanship
13. All work shall installed in a first class, neat workman like manner by mechanics/ electricians skilled in the trade involved.
14. The erection work shall be supervised by competent supervisors holding relevant supervisory license from the Government.
15. All details on installation shall be electrically and mechanically correct.
16. The installation shall be carried out in such manner as to preserve access to other equipment installed.
17. If in the opinion of the contractor any work is insufficiently specified or require modification, the contractor shall refer the same in writing to the owner and obtain his instruction/ approval before proceeding with the work.
18. If the contractor fails to refer such instances, any excuse for the faulty erection, poor workmanship or delay in completion shall not be entertained.
19. Equipment and material, which are wrongly installed shall be removed and re-installed to comply with the decision requirement at the contractor’s expense, to the satisfaction of the owner/ consultant.
20. All scaffolding pipes and frames shall be of tubular steel. Bamboo’s/ ballies/ timer frames are not permitted under any circumstances. All vertical & horizontal scaffolds shall be of MS pipes of adequate size to withstand the loads & pressures. The working platforms shall be of MS bars.

Allowable Wastage
21. The erection contractor shall make every effort to minimize wastage during erection work. In any case, the wastage shall not exceed 1%.
22. Measurement shall be taken at site jointly by contractor and owner’s representative.
23. If the actual wastage be more than the quoted figure then equivalent price of the balance amount will be deducted from contractor’s bills.
24. The contractor shall submit a detailed account of materials issued to him after completion of work. The excess materials after completion of job shall be returned back to the owner’s store.

Foundation and Civil Work
25. The contractor shall check the foundations provided by owner before commencement of erection to ensure their suitability.
26. All final adjustments of foundation levels, chipping and dressing of foundation surfaces, drilling holes on foundation channels to suit the equipment setting and grouting of anchor bolts, sills, inserts and fastening devices shall be carried out by the contractor including minor modification of civil work as may be required for erection.
27. Any cutting of masonry work which is necessary shall be done by the Contractor at his own cost and shall be made good to match the original work. The contractor shall obtain approval of owner/ consultant before proceeding with any cutting of masonry/ concrete work.

Excavation and Back Filling
28. The contractor shall perform all excavation and back filling as required for the scope of work specified.
29. The contractor shall make his own arrangement for pumping out any water that may accumulate in the excavation.
30. All excavation shall be back filled to the original level with good consolidation.
Repair of Damage sustained during Transit
31. The contractor shall repair minor damages sustained during transit or subsequent storage in purchaser’s store. The repair charges shall be paid to the contractor on the basis of extra work.

Inspection
32. After completion of erection/installation, each piece of equipment shall be thoroughly tested as per approved procedure and inspected in presence of the owner/consultant for correctness and completeness of erection and acceptability for start up.
33. A check list in triplicate will be furnished by the owner/consultant wherein all details to be checked and necessary instruction shall be listed. The inspection and checking shall strictly follow the checklist.
34. On completion of the inspection (2) copies of the check list duly filled-in shall be handed over to the owner/consultant.
35. This check list shall be jointly signed by the contractor and the owner. Such endorsement, however, shall not relieve the contractor of his obligations under the contract.
36. In some cases, minor modifications may have to be carried out at site in the writing of an equipment to meet the requirements of the desired control scheme and the contractor have to do the same at no extra cost.

Terminations Joints and Connection
37. The termination, Joints and connections of cables shall be done by qualified jointers strictly in accordance with manufacturer’s instruction drawing and/or as directed by the Engineer-in-Charge.
38. The work shall include all clamping, fittings, fixing, plumbing, soldering, taping, compound filling, epoxy cable jointing, crimping, connecting, shorting and earthing as required for all such operations should be available with concerned contractor. For all size of LT termination, criming tool (Hydraulic type) shall be used. Further, inhibiting compound shall be provided before termination.
39. The equipment will be generally provided with blank plates for cable/conduit entry and cable end box for power cables.
40. The contractor shall perform all drilling, cutting on the blank plates and any minor modification work required to complete the job.
41. If the cable-end box or terminal enclosure provided on the equipment is found unsuitable and requires major modification, the same shall be carried out by the contractor as extra work item.
42. Control cable cores entering control panel/switch gear/LT panels etc. shall be neatly bunched and served with nylong cord or PVC perforated tape to keep in position at the terminal block.
43. The contractor shall provide oil resistance ferrules for all control cable cores at all terminations including at all junction boxes and at all terminations. The ferrules shall carry terminal numbers as per drawing. The ferrules shall be of interlocked plastic type or approved equal.
44. Spare cores shall be similarly tagged, crimped with lug and taped on the ends. Spare cores shall be tagged with individual cable number.
45. Terminations and connections shall be carried out in such a manner as to avoid strain on the terminals.
46. All cable entry points shall be sealed and made vermin and dust proof. Unused opening, if any shall be effectively closed.
47. Terminations kits for HT cables, straight through joint kits for HT & LT cables, cables of all glands lugs shall be arranged by the contractor, which includes furnishing consumable materials such as plumbing and soldering material, electrical tape including bitumen compound/resin if not a part of kit shall be included in the erection rates.

Important Notes for Erection Activities
Cable and Conduits.
48. Approximate lengths of cables and conduits runs will be given in the cable schedule. Before commencement of work the contractor shall take actual measurements and prepare his own cable cutting schedules to reduce wastage to a minimum.
49. During the erection period the contractor shall furnish weekly/fortnightly report on cable position in an approved Performa so as to keep the Engineer-in-Charge apprised of the position.
50. The contractor shall also maintain and submit when requested, a record of cable insulation value when drawn from store, after laying, before the after termination/jointing.
Structural Fabrication Works
51. All chequered plate covers, cable racks, trays, supports, hangers and brackets wherever necessary shall be supplied/fabricated by the contactor. Steel for fabrication shall be straightened and cleaned of rust and grease. All fabrication shall be free of sharp edge.
52. Every effort shall be made to minimize the wastage of steel as far as practicable during fabrication. The wastage in no case shall exceed as specified elsewhere in this specification.

Testing and Commissioning
53. On completion of erection work, the contractor shall request the Engineer-in-Charge, for inspection and tests with minimum of fourteen (14) days advance notice.
54. The Engineer-in-Charge shall arrange for joint inspection of the installation for completeness and correctness of the work. Any defect pointed out during such inspection shall be promptly rectified by the contractor.
55. The installation shall be then tested and commissioned in presence of the Engineer-in-Charge.
56. The contractor shall provide all men, material and equipment required to carry out the tests.
57. Testing of TTA panel shall be done as per set standard procedure and testing report shall be submitted to the department.
58. Testing of VCB panel shall be done as per set standard procedure and testing report shall be submitted to the department.
59. All rectification, repairs or adjustment work found necessary during inspection, testing and commissioning shall be carried out by the contractor, without any extra cost. The handing over of the installation shall be effected only after the receipt of written instruction from the Purchaser/ his authorized representative.

Schedule of Pre-Commissioning Tests

Circuit Breakers
60. Insulation resistance test on each pole by Meggar.
61. Insulation resistance test on control circuit.
62. Checking of all joints for leakage in breaker.
63. Measurement of contact resistance for all the Three Phases.
64. Checking the auxiliary circuits associated with circuit breaker.
65. Functional check of breaker operational electrically at 70% and 110% of rated D.C. supply voltage.
66. Checking of interlock provided in Control Circuit and tripping through simulated protective relay contacts.
67. Auto-reclosing duty cycle check wherever auto-reclosing is required.

Current Transformer
69. Insulation Resistance test on each winding by Meggar to earth and between windings.
70. Checking of all ratios on all cores by primary injection set.
71. Polarity check on each winding.
72. Continuity test.
73. Check for connection to correct taps.
74. Oil level check.

Earthing
75. Continuity of earthing connection.
76. Testing of earth resistance of individual electrode.
77. Testing of earth resistance of the combined earthing system.

Switch boards/ MCC / Distribution Board/ Panels.
78. Measurement of insulation resistance of Bus-bar system.
80. Functional check of circuit components.
81. Continuity check of different circuits.
82. Calibration test of relays and meters.
83. Space heater operation.
84. Annunciations.

**Relays & Meters**
85. Calibration test.
86. Operation/ performance test.

**Note**:
Apart from the tests listed herein and also as mentioned elsewhere in this specification, any other test as necessary per relevant standards, CBIP recommendations, Code of Practice, Manufacturer’s recommendations within the quoted price and time schedule.

**Note** - All fittings, unit assemblies accessories, hardware foundation bolts, terminals blocks for connections, cable glands and miscellaneous materials and accessories of items of work which are useful and necessary for efficient assembly and working of the equipment shall be deemed to have been included within the scope of the work in the tender and within the overall details for complete item whether they have been specifically mentioned or not.
SINGLE LINE DIAGRAM (SLD) FOR REFERENCE ONLY

NOTE
SLD for reference only
Size of TTA panels may be confirmed as per site conditions of existing sub-station

National Institute of Pharmaceutical Education and Research,
Sector 67, Shri Heendra Ajit Singh Nagar, Punjab
SLD OF LT PANEL - 1 - IEC 61439 (E + II)
SLD OF LT PANEL - 2 - IEC 61439 (E + II)
## LIST OF APPROVED MAKES

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Details</th>
<th>Manufacturers Name/Makes</th>
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</table>
| 1. | LT Panels TTA (Type Tested Assembly)  
As per IEC 61439 PART-1&2  
Main LT Panel- 1  
Main LT Panel-2  
Capacitor Panel- 300 KVAR | OEM Make  
Siemens (Siepan)/L&T (TI)/Schneider (Blokset) |
| 2. | Air Circuit Breaker (ACB) | Siemens/L&T/Schneider |
| 3. | MCCB/MCB | Siemens/L&T/Schneider |
| 4. | Rotary Switch/Selector switch | Salzer/kaycee/Equ |
| 5. | Energy meter | L&T/Schneider/HPL |
| 6. | Voltmeter/Ammeter | L&T/Schneider/HPL |
| 7. | Capacitor | L&T/SCHNEIDER/SIEMENS |
| 8. | Power factor correction relay | L&T/SCHNEIDER/SIEMENS |
| 9. | 11 KV VCB OEM | L&T/SCHNEIDER/ABB |
| 10. | MULTIFUNCTION METER | HPL/Elster/Secure/L&T/Schneider |
| 11. | CT for LT panels | Kappa/AE/MATRIX/AMITY |
| 12. | RELAYS(VCB) | L&T/Schneider/ABB |
| 13. | Cables (LT) | ECKO/Havell’s/KEI |
| 14. | Cables (HT) | National/Havell’s/KEI |
| 15. | Fire Alarm Panel | Agni/System Sensor/Honeywell |
| 16. | Smoke Detectors | Apollo/System sensor |
# Technical Compliance Sheet

(To be filled by the Bidder)

## 1. Main LT Panel (TTA)

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<table>
<thead>
<tr>
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<tbody>
<tr>
<td>a) Make of OEM</td>
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<tr>
<td>b) Make of TTA Panel Manufacturing firm</td>
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<tr>
<td>c) Reference Standard</td>
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<td></td>
</tr>
<tr>
<td>d) Voltage/ Phase/ Frequency</td>
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<tr>
<td>e) Short circuit rating withstand capacity for 1 sec</td>
<td></td>
<td></td>
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<tr>
<td>f) Panels metal clad, air insulated floor mounted/ single front</td>
<td>Yes/ No</td>
<td></td>
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<tr>
<td>g) Degree of protection/ min. thick of steel enclosure</td>
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<tr>
<td>h) Material/ size of bus bar Temp.</td>
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<tr>
<td>i) Temp. Rise of bus bar over 50 deg. C.</td>
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## 2. Circuit Breaker

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<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>(a) Make/ Type</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(b) Model</td>
<td></td>
<td></td>
</tr>
<tr>
<td>(c) Rated voltage/ frequency/ poles</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| (d) Rated currents  
- Continuous (at site condition, 50 deg. C ambient and within cubicle) | Amp |   |
| - Short time current for 1 second | KA rms |   |
| (e) Rated Operating duty |   |   |
| (f) Circuit breaker provided with all features, accessories & relays as asked in technical specifications. |   |   |

## 3. MCCBs

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a) Make / Type</td>
<td></td>
</tr>
<tr>
<td>(b) Model</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>(c)</td>
<td>Ics/ Icu rating</td>
</tr>
</tbody>
</table>

4. **Contactors**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Make/ Type</td>
</tr>
<tr>
<td>(b)</td>
<td>Reference Standard</td>
</tr>
<tr>
<td>(c)</td>
<td>Duty class</td>
</tr>
<tr>
<td>(d)</td>
<td>Utilization category</td>
</tr>
</tbody>
</table>

5. **CT/ PT**

<p>| | |</p>
<table>
<thead>
<tr>
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<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Make / Type</td>
</tr>
<tr>
<td>(b)</td>
<td>Rated burden</td>
</tr>
<tr>
<td>(c)</td>
<td>Accuracy class</td>
</tr>
</tbody>
</table>

6. **Capacitors/ Capacitor Banks**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>a)</td>
<td>Make of Capacitor</td>
</tr>
<tr>
<td>b)</td>
<td>Type of Capacitor</td>
</tr>
<tr>
<td>c)</td>
<td>Rated voltage, frequency &amp; phases</td>
</tr>
<tr>
<td>d)</td>
<td>Rated output</td>
</tr>
<tr>
<td>e)</td>
<td>Rated current in Amperes</td>
</tr>
<tr>
<td>f)</td>
<td>No. of Banks/ Elements</td>
</tr>
<tr>
<td>g)</td>
<td>Discharge Resistor provided</td>
</tr>
<tr>
<td>h)</td>
<td>Losses in W per KVAR</td>
</tr>
</tbody>
</table>

7. **APFCR**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Make/ Type/ Voltage</td>
</tr>
<tr>
<td>(b)</td>
<td>Number of steps</td>
</tr>
</tbody>
</table>

8. **Painting**

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Inside</td>
</tr>
<tr>
<td>(b)</td>
<td>Outside</td>
</tr>
</tbody>
</table>
9. Routine Tests to be Performed

10. HV Panel

| (a) | Make of 11 VCB OEM | : |
| (b) | Rating | :
| (c) | Continuous current rating | :
| (d) | Type | :
| (e) | Reference Standard | :
| (f) | Voltage (Normal/Max.) KV | :
| (g) | Phase (Nos) | :
| (h) | Frequency | :
| (i) | Short Circuit Rating |
|      | i. Breaking Symmetrical (Ka) | :
|      | ii. Breaking asymmetrical (ka) | :
|      | iii. Short time for 1 sec | :
|      | iv. short time for 3 sec | :
| (j) | Insulation Level | :
| (k) | Make of Protection Relay |
|      | i. Type of Relay | :
|      | ii. Make of Relay |
|          | 1. U/V | :
|          | 2. O/V | :
|          | 3. E/F | :
|          | 4. O/C | :
|          | 5. TCS | :
| (l) | Make of Master trip/ anti pumping relay | :
| (m) | Make of digital voltmeter | :
| (n) | Make of digital ammeter | :
| (o) | DC Power pack volts | :
| (p) | Make of voltage transformer rated burden | :
| (q) | Class | :
<p>| (r) | Make of current Transformer | :|</p>
<table>
<thead>
<tr>
<th>(s)</th>
<th>Rated Burden</th>
<th>:</th>
</tr>
</thead>
<tbody>
<tr>
<td>(t)</td>
<td>Class</td>
<td>:</td>
</tr>
<tr>
<td>(u)</td>
<td>Provision of multifunction meter in VCB at incomer</td>
<td>Yes/ No.</td>
</tr>
<tr>
<td>(v)</td>
<td>Make of Multifunction meter</td>
<td>:</td>
</tr>
<tr>
<td>(w)</td>
<td>Complying of Specification at item Sr No. 14 of BOQ</td>
<td>Yes/ No.</td>
</tr>
<tr>
<td>(x)</td>
<td>Disconnection &amp; dismantling of existing panels as per BOQ item Sr No. 20</td>
<td>Yes/ No.</td>
</tr>
</tbody>
</table>

11. **Fire Alarm and Detection System**

| (a) | Make | : |
| (b) | Type | : |
| (c) | Model No. | : |
| (d) | No. of Zones | : |

12. **DETECTORS**

| (a) | Make | : |
| (b) | Cat No. | : |
| (c) | Operating Voltage | : |
| (d) | Coverage Area | : |
| (e) | No. of detector in each zone (Max.) | : |

13. **Manual Call Point**

| (a) | Make | : |
| (b) | Type | : |
| (c) | Model No. | : |

14. **ELECTRONIC HOOTER**

<p>| (a) | Make | : |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
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</tr>
</thead>
<tbody>
<tr>
<td>(b)</td>
<td>Type</td>
<td>:</td>
</tr>
<tr>
<td>(c)</td>
<td>Model No.</td>
<td>:</td>
</tr>
<tr>
<td>(d)</td>
<td>No. of Zones</td>
<td>:</td>
</tr>
<tr>
<td>(e)</td>
<td>Audible Range</td>
<td>:</td>
</tr>
</tbody>
</table>

### 15. FIRE ALARM WIRES/ CABLES

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Make</td>
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</tr>
<tr>
<td>(b)</td>
<td>Type</td>
<td>:</td>
</tr>
<tr>
<td>(c)</td>
<td>Rated voltage</td>
<td>:</td>
</tr>
<tr>
<td>(d)</td>
<td>Type of conductor</td>
<td>:</td>
</tr>
</tbody>
</table>

### 16. CABLES LT

<p>| | | |</p>
<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Make</td>
<td>:</td>
</tr>
<tr>
<td>(b)</td>
<td>Rated voltage</td>
<td>:</td>
</tr>
<tr>
<td>(c)</td>
<td>Type of conductor</td>
<td>:</td>
</tr>
</tbody>
</table>

### 17. CABLES HT

<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>(a)</td>
<td>Make</td>
<td>:</td>
</tr>
<tr>
<td>(b)</td>
<td>Rated voltage</td>
<td>:</td>
</tr>
<tr>
<td>(c)</td>
<td>Type of conductor</td>
<td>:</td>
</tr>
</tbody>
</table>
## SCHEDULE OF QUANTITY

**Upgradation and Replacement of main LT Panels and Substation Equipments along with related accessories at NIPER, S.A.S Nagar**

<table>
<thead>
<tr>
<th>SR No</th>
<th>Description</th>
<th>Qty</th>
<th>Unit</th>
<th>Rates</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td><strong>CABLE TRAYS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Supplying and installing following size of preforated painted with powder coating M.S. Cable trays Reducer with preforation not more than 17.5%, joined with connectors, suspended from the ceiling with M.S. Suspenders including bolts &amp; nuts, painted suspenders etc as required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>A 450 mm width X 62.5 mm depth X 2 mm thickness</td>
<td>12</td>
<td>Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b 600 mm width X 75 mm depth X 2 mm thickness</td>
<td>12</td>
<td>Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td><strong>EARTHING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a Earthing with G.I. Earth palate 600 mm X 600 mm X 6 mm thick including accessories, and providing masonar enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. With charcoal/coke and salt as required.</td>
<td>8</td>
<td>Set</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>b Earthing with Copper Earth palate 600 mm X 600 mm X 3 mm thick including accessories, and providing masonar enclosure with cover plate having locking arrangement and watering pipe of 2.7 meter long etc. With charcoal/coke and salt as required.</td>
<td>2</td>
<td>Set</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>c Supplying and laying 25 mm X 5 mm copper strip at 0.50 meter below ground as strip earth electrode, including connection/terminating with nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of brass nut bolt &amp; spring washer spaced at 50 mm)</td>
<td>25</td>
<td>Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>d Supplying and laying 25 mm X 5 mm G.I. strip at 0.50 meter below ground as strip earth electrode, including connection/terminating with G.I. nut, bolt, spring, washer etc. as required. (Jointing shall be done by overlapping and with 2 sets of G.I.nut bolt &amp; spring washer spaced at 50 mm)</td>
<td>50</td>
<td>Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>e Providing and fixing 25 mm X 5 mm copper strip in 40 mm dia G.I. pipe from earth electrode including connection with brass nut, bolt, spring, washer excavation and re-filling etc. as required.</td>
<td>8</td>
<td>Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>f Providing and fixing 25 mm X 5 mm G.I. strip in 40 mm dia G.I. pipe from earth electrode including connection with G.I.nut, bolt, spring, washer excavation and re-filling etc. as required.</td>
<td>32</td>
<td>Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>g Providing and fixing 25 mm X 5 mm copper strip on surface or in recess for connections etc. as required.</td>
<td>27</td>
<td>Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>h Providing and fixing 25 mm X 5 mm G.I. strip on surface or in recess for connections etc. as required.</td>
<td>125</td>
<td>Meter</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td><strong>HT CABLE LAYING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required.</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>a Upto 120 sq. mm</td>
<td>25</td>
<td>Metre</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Description</td>
<td>Sizes</td>
<td>Details</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>----------------</td>
<td>-------------------------------------------------------------------------------------------------</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 kV grade of following size in the existing RCC/HUME/ METAL pipe as required.</td>
<td>Upto 120 sq. mm</td>
<td>10 Metre</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 kV grade of following size in the existing masonry open duct as required.</td>
<td>Upto 120 sq. mm</td>
<td>60 Metre</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>4 HV CABLE JOINTING &amp; END TERMINATION</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following sizes of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a 120 sq. mm</td>
<td></td>
<td>1 Each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplying and making outdoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following sizes of 3 core, XLPE aluminium conductor cable of 11 KV grade as required :</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b 120 sq. mm</td>
<td></td>
<td>1 Each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>5 LT CABLE LAYING</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size in the existing masonry open duct as required.</td>
<td>Above 185 Sq.mm. and upto 400 Sq.mm.</td>
<td>130 Metre</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Laying and fixing of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 KV garde of following sizes on cable tray as required:</td>
<td>Above 185 Sq.mm. Upto 400 Sq.mm.(clamped with 40 X 3 mm MS flat clamp)</td>
<td>120 Meter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Providing, laying and fixing following dia RCC pipe NP2 Class light duty in ground complete with RCC collars, jointing with cement mortar 1:2 (1 Cement : 2 Fine sand) including treching (75 cm deep) and refilling etc as required.</td>
<td>150 mm dia</td>
<td>10 Meter</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>6 Reconnection of existing/old cables in new LT panel of various sizes as per details given below :</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>MV cable jointing and end termination</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplying and making end termination with brass compression gland and aluminium lugs of following size of PVC insulated and PVC sheathed/XLPE aluminium conductor cable of 1.1 kv grade as required</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a 3.5 X 35 sq. mm.</td>
<td></td>
<td>4 Each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b 3.5 X 50 sq. mm.</td>
<td></td>
<td>6 Each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c 3.5 X 70 sq. mm.</td>
<td></td>
<td>3 Each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>d 3.5 X 120 sq. mm.</td>
<td></td>
<td>5 Each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e 3.5 X 185 sq. mm.</td>
<td></td>
<td>4 Each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>f 3.5 X 300 sq. mm.</td>
<td></td>
<td>39 Each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>g 3.5 X 400 sq. mm.</td>
<td></td>
<td>32 Each</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>7 MAIN L.T PANELS - 1</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Supplying, installation, testing &amp; commissioning of cubical exтенtable type, floor mounted LT panel made of strucural modular sections as per IEC 61439 (TTA Panel) suitable for 415</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
</tbody>
</table>
V, 3 phase, 4 wire 50 Hz AC supply system, having required front area, fabricated in compartmentalized design from CRCA sheet steel of 2 mm thick for frame structure and 1.6 mm for partitions & door covers, including cleaning & finishing complete with 7 tank process for powder coating in approved shade, having required Amp capacity extendable type FOUR POLE Aluminium Alloy bus-bar of high conductivity, SMC bus-bar supports, with short circuit withstand capacity of with 100% neutral 31 MVA for 1 Sec, bottom base channel of MS section Not less than 75mm x 40 mm x 5mm thick, fabrication shall be done in transportable sections, entire panel shall have a common Al. earth bar of size 25mm x 5 mm at the rear with 2 Nos earth stud, solid connections from main bus-bar to switch gears, top entry type, with required size of Al. bus-bar to switch gears with required size of Al bus-bars & control wiring with 1.5/ 2.5 sq mm PVC insulated copper conductor cable, cable alleys, cable gland plates in two half, M.V. danger Notice plate, The panel shall be indoor free standing, floor mounting, dust and vermin proof type, adequate size cable alley with front operated rotary handles for MCCB's complete with gland plates, lifting hooks, Pannel mounted Ex fans, ventilating louvers, busbars, Inter connections, earthing, labelling electrical interlocking as per specification and drawings, suitable for termination of cables as per single line diagram / specifications. The panel should be made as per IEC 61439.

<table>
<thead>
<tr>
<th>All ACBs should be having Microprocessor based tripping system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIN Incomer Feeder no. 1 &amp; 2 for 800KVA Transformer 2 Nos</td>
</tr>
<tr>
<td>ACB 1250A. FP 50KA EDO TYPE MP Based 2 Nos</td>
</tr>
<tr>
<td>ACB 800A. FP 50KA EDO TYPE MP Based 2 Nos</td>
</tr>
<tr>
<td>ACB 800A. FP 50KA EDO TYPE MP Based For D.G 500KVA 2 Nos</td>
</tr>
<tr>
<td>Multifunction Meter with Communication Port RS485 2 Nos</td>
</tr>
<tr>
<td>RYB Indication Lamp LED 18 Nos</td>
</tr>
<tr>
<td>1600,1250&amp;800/5Amp. 15 VA CL-1 Current Transformer 18 Nos</td>
</tr>
<tr>
<td>06Amp. Control SP MCB 18 Nos</td>
</tr>
<tr>
<td>Voltmeter with VSS FOR 800 AMP ACB 6 Nos</td>
</tr>
<tr>
<td>Ammeter with ASS FOR 800 AMP ACB 6 Nos</td>
</tr>
<tr>
<td>CT Short Link 6 Nos</td>
</tr>
<tr>
<td><strong>BUS COUPLER</strong></td>
</tr>
<tr>
<td>ACB 1250A. FP 50KA EDO TYPE MP Based For Bus Coupler 1 Nos</td>
</tr>
</tbody>
</table>

**ELECTRICAL INTERLOCKING**

All DG Sets and Transformers should be Electrically & Mechanically Interlocked

Both DG I/C Electrical & Mechanical Interlocking

| LTPB (Mechanical lock) 7 Nos |
| UV Release 7 Nos |
| Reverse power relay 6 Nos |

**OUTGOING Feeders**

All MCCBs should be having Microprocessor based tripping system.

<p>| MCCB 630A. FP 50KA = 02 nos. |</p>
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>Rotary Handle</td>
</tr>
<tr>
<td>B</td>
<td>Voltmeter with VSS</td>
</tr>
<tr>
<td>C</td>
<td>Ammeter with ASS</td>
</tr>
<tr>
<td>D</td>
<td>RYB Indication Lamp LED</td>
</tr>
<tr>
<td>E</td>
<td>Current Transformers (CTs) as per required ratings</td>
</tr>
<tr>
<td>F</td>
<td>Digital panel mounted 3 phase energy meter with LED Display</td>
</tr>
<tr>
<td>G</td>
<td>06Amp. Control SP MCB</td>
</tr>
<tr>
<td>H</td>
<td>CT Short Link</td>
</tr>
<tr>
<td></td>
<td><strong>All MCCBs should be having Microprocessor based tripping system.</strong></td>
</tr>
<tr>
<td></td>
<td>MCCB 630A. FP 50KA = 09 nos.</td>
</tr>
<tr>
<td></td>
<td>MCCB 400A. FP 50KA = 10 nos.</td>
</tr>
<tr>
<td></td>
<td>MCCB 250A. FP 50KA = 4 nos.</td>
</tr>
<tr>
<td></td>
<td>MCCB 100A. FP 30KA = 5 nos.</td>
</tr>
<tr>
<td></td>
<td>Providing and fixing of onload change over switch along with</td>
</tr>
<tr>
<td></td>
<td>Operating handle, Phase indicators, Ammeter and Voltmeter with selector switch.</td>
</tr>
<tr>
<td></td>
<td>ON LOAD Changeover switch - disconnector 400 A, 4 Pole. 01 No</td>
</tr>
<tr>
<td></td>
<td><strong>NOTE:</strong> THE SIZE OF L.T PANELS SHOULD BE AS PER SITE REQUIREMENT APPROVED BY THE CONSUMED AUTHORITIES.</td>
</tr>
<tr>
<td></td>
<td><strong>BUS BAR &amp; HARDWARE</strong></td>
</tr>
<tr>
<td></td>
<td>2000A. Aluminium Main Bus Bar 4 Pole with 100 percent neutral, Sub Feeder Bus bar should be as per switch gear Ratings. Bus Bar Colour Coated Heat Shrink, Bus Bar sleeve, Nut-Bolt, Washer, Hardware and all other accessories etc. 1 Each</td>
</tr>
<tr>
<td>8</td>
<td><strong>MAIN L.T PANEL - 2</strong></td>
</tr>
</tbody>
</table>
|   | Supplying, installation, testing & commissioning of cubical extensible type, floor mounted LT panel made of structural modular sections as per IEC 61439 (TTA Panel) suitable for 415 V, 3 phase, 4 wire 50 Hz AC supply system, Having required front area, fabricated in compartmentalized design from CRCA sheet steel of 2 mm thick for frame structure and 1.6 mm for partitions & door covers, including cleaning & finishing complete with 7 tank process for powder coating in approved shade, having required Amp capacity extensible type FOUR POLE Aluminium Alloy bus-bar of high conductivity, SMC bus-bar supports, with short circuit withstand capacity of with 100% neutral 31 MVA for 1 Sec, bottom base channel of MS section Not less than 75mm x 40 mm x 5mm thick, fabrication shall be done in transportable sections, entire panel shall have a common Al. earth bar of size 25mm x 5 mm at the rear with 2 Nos earth stud, solid connections from main bus-bar to switch gears, top entry type, with required size of Al. bus-bar to switch gears with required size of Al bus-bars & control wiring with 1.5/ 2.5 sq mm PVC insulated copper conductor cable, cable alleys, cable gland plates in two half, M.V. danger Notice plate,
The panel shall be indoor free standing, floor mounting, dust and vermin proof type, adequate size cable alley with front operated rotary handles for MCCB’s complete with gland plates, lifting hooks, Pannel mounted Ex fans, ventilating louvers, busbars, Inter connections, earthing, labelling electrical interlocking as per specification and drawings, suitable for termination of cables as per single line diagram / specifications. The panel should be made as per IEC 61439.

<table>
<thead>
<tr>
<th>All ACBs should be having Microprocessor based tripping system.</th>
</tr>
</thead>
<tbody>
<tr>
<td>MAIN Incomer 1250KVA Transformer 3 (Total Feeders) 1Nos</td>
</tr>
<tr>
<td>ACB 1600A. FP 50KA EDO TYPE MP Based For 1250KVA Transformer 3 1 Nos</td>
</tr>
<tr>
<td>ACB 800A. FP 50KA EDO TYPE MP Based For D.G 500KVA 1 &amp; 2 2 Nos</td>
</tr>
<tr>
<td>Multifunction Meter with Communication Port RS485 1 No</td>
</tr>
<tr>
<td>RYB Indication Lamp LED 9 Nos</td>
</tr>
<tr>
<td>1600,1250&amp;800/5Amp. 15 VA CL-1 Current Transformer 9 Nos</td>
</tr>
<tr>
<td>06Amp. Control SP MCB 9 Nos</td>
</tr>
<tr>
<td>Voltmeter with VSS FOR 800 AMP ACB 3 Nos</td>
</tr>
<tr>
<td>Ammeter with ASS FOR 800 AMP ACB 3 Nos</td>
</tr>
<tr>
<td>CT Short Link 3 Nos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>BUS COUPLER</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACB 1250A. FP 50KA EDO TYPE MP Based For Bus Coupler 2 Nos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>ELECTRICAL INTERLOCKING</th>
</tr>
</thead>
<tbody>
<tr>
<td>All DG Sets and Transformers should be Electrically &amp; Mechanically Interlocked</td>
</tr>
<tr>
<td>Both DG I/C Electrical &amp; Mechanical Interlocking</td>
</tr>
<tr>
<td>LTPB (Mechanical lock) 5 Nos</td>
</tr>
<tr>
<td>UV Release 5 Nos</td>
</tr>
<tr>
<td>Reverse power relay 5 Nos</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>OUTGOING Feeders</th>
</tr>
</thead>
<tbody>
<tr>
<td>All MCCBs should be having Microprocessor based tripping system.</td>
</tr>
<tr>
<td>MCCB 630A. FP 50KA = 6 nos.</td>
</tr>
<tr>
<td>MCCB 400A. FP 50KA = 5 nos.</td>
</tr>
<tr>
<td>MCCB 250A. FP 50KA = 2 nos.</td>
</tr>
<tr>
<td>MCCB 100A. FP 30KA = 4 nos.</td>
</tr>
</tbody>
</table>

A Rotary Handle
B Current Transformers (CTs) as per required ratings
C Digital panel mounted 3 phase energy meter with LED Display with each MCCB.

**NOTE:-** THE SIZE OF L.T PANELS SHOULD BE AS PER SITE REQUIREMENT APPROVED BY THE CONSUMED AUTHORTIES.

<table>
<thead>
<tr>
<th>BUS BAR &amp; HARDWARE</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000A. Aluminium Main Bus Bar 4 Pole with 100 percent neutral, Sub Feeder Bus bar should be as per switch gear Ratings. Bus Bar Colour Coated Heat Shrink, Bus Bar sleave, Nut-Bolt,Washer,Hardware and all other acceorries etc.</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>9 CAPACITOR PANEL 300KVAR</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplying, installation, testing &amp; commisioning of cubical</td>
</tr>
</tbody>
</table>

| 1 Each |
extensible type, floor mounted LT panel made of structural modular sections as per IEC 61439 (TTA Panel) suitable for 415 V, 3 phase, 4 wire 50 Hz AC supply system. Having required front area, fabricated in compartmentalized design from CRCA sheet steel of 2 mm thick for frame structure and 1.6 mm for partitions & door covers, including cleaning & finishing complete with 7 tank process for powder coating in approved shade, having required Amp capacity extendable type FOUR POLE Aluminum Alloy bus-bar of high conductivity, SMC bus-bar supports, with short circuit withstand capacity of with 100% neutral 31 MVA for 1 Sec, bottom base channel of MS section Not less than 75mm x 40 mm x 5mm thick, fabrication shall be done in transportable sections, entire panel shall have a common Al. earth bar of size 25mm x 5 mm at the rear with 2 Nos earth stud, solid connections from main bus-bar to switch gears, top entry type, with required size of Al. bus-bar to switch gears with required size of Al bus-bars & control wiring with 1.5/2.5 sq mm PVC insulated copper conductor cable, cable alleys, cable gland plates in two half, M.V. danger Notice plate, The panel shall be indoor free standing, floor mounting, dust and vermin proof type, adequate size cable alley with front operated rotary handles for MCCB’s complete with gland plates, lifting hooks, Panel mounted Ex fans, ventilating louvers, busbars, Inter connections, earthing, labelling electrical interlocking as per specification and drawings, suitable for termination of cables as per single line diagram / specifications. The panel should be made as per IEC 61439.

### INCOMER FEEDER

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>MCCB 630A. TP 36KA</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Rotary Handle</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Voltmeter with VSS</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Ammeter with ASS</td>
<td>1 NOS</td>
</tr>
<tr>
<td>RYB Indication Lamp LED</td>
<td>3 NOS</td>
</tr>
<tr>
<td>630/5Amp. 15 VA Cl-1 Current Transformer</td>
<td>3 NOS</td>
</tr>
<tr>
<td>06Amp. Control SP MCB</td>
<td>3 NOS</td>
</tr>
<tr>
<td>CT Short Link</td>
<td>3 NOS</td>
</tr>
<tr>
<td>Neutral Link</td>
<td>1 NOS</td>
</tr>
</tbody>
</table>

### OUTGOING FEEDER

<table>
<thead>
<tr>
<th>Component</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>14 Step APFC Relay</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Super heavy duty Capacitors 300 Kvar</td>
<td></td>
</tr>
<tr>
<td>Exhaust Fan</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Capacitor Bank 10 KVAR</td>
<td>1 NOS</td>
</tr>
<tr>
<td>MCB TP 32A.</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Capacitor Duty Contactor 10KVAR</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Control MCB 6A.</td>
<td>1 NOS</td>
</tr>
<tr>
<td>ON / OFF Indicator</td>
<td>2 NOS</td>
</tr>
<tr>
<td>ON /OFF Push Button.</td>
<td>2 NOS</td>
</tr>
<tr>
<td>Auto Manual Switch.</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Capacitor Bank 15 KVAR</td>
<td>1 NOS</td>
</tr>
<tr>
<td>MCB TP 40A.</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Capacitor Duty Contactor 15KVAR</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Control MCB 6A.</td>
<td>1 NOS</td>
</tr>
<tr>
<td>Description</td>
<td>Quantity</td>
</tr>
<tr>
<td>----------------------------------------------------------------------------</td>
<td>----------</td>
</tr>
<tr>
<td>ON / OFF Indicator</td>
<td>2 NOS</td>
</tr>
<tr>
<td>ON /OFF Push Button.</td>
<td>2 NOS</td>
</tr>
<tr>
<td>Auto Manual Switch.</td>
<td>1 NOS</td>
</tr>
<tr>
<td><strong>Capacitor Bank 25 KVAR</strong></td>
<td>11 Nos</td>
</tr>
<tr>
<td>MCB TP 63A.</td>
<td>11 NOS</td>
</tr>
<tr>
<td>Capacitor Duty Contactor 25KVAR</td>
<td>11 NOS</td>
</tr>
<tr>
<td>Control MCB 6A.</td>
<td>11 NOS</td>
</tr>
<tr>
<td>ON / OFF Indicator</td>
<td>22 NOS</td>
</tr>
<tr>
<td>ON /OFF Push Button.</td>
<td>22 NOS</td>
</tr>
<tr>
<td>Auto Manual Switch.</td>
<td>11 NOS</td>
</tr>
</tbody>
</table>

**NOTE:** THE SIZE OF PANEL SHOULD BE AS PER SITE REQUIREMENT APPROVED BY THE CONSUMED AUTHORITY.

**ENCLOSURE & ACCESSORIES**
Fabrication in 1.6mm CRCA Sheet Powder Coating in Siemens Gray Shade, 75x40mm Channel Base Frame, Cable Entry will be Top & Bottom Suitable for Cable, Lock, Rubber Gasket, Hardware etc.

**BUS BAR & HARDWARE**
630A Aluminium Main Bus Bar, Load wise Sub Feeder Bus Bar, Colour Coated Heat Shrink Bus Bar sleeve, Nut Bolt, Washer, Hardware etc.

**WIRING & ACCESSORIES**
Power & Control Wiring will be (ISI 1100V) flame smoke FRLS PVC Single Core Copper Wire, Copper Lugs, PVC Sleeve, Ferrules Numbers, Hardware & Labour etc.

<table>
<thead>
<tr>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repairing, renovation, testing and commissioning in Existing Capacitor panel at site including thimbling, wiring, bus bars sleevs and other petty materials as per requirement.</td>
<td>1 Each</td>
</tr>
</tbody>
</table>

**INCOMER FEEDER**
MCCB 400A. TP 36KA = 1 NOS
Rotary Handle = 1 NOS
Voltmeter with VSS = 1 NOS
Ammeter with ASS = 1 NOS
RYB Indication Lamp LED = 3 NOS
630/5Amp. 15 VA Cl-1 Current Transformer = 3 NOS
06Amp. Control SP MCB = 3 NOS
CT Short Link = 3 NOS
Neutral Link = 1 NOS

**OUTGOING FEEDER**
14 Step APFC Relay = 1 NOS
Super heavy duty Capacitors 150 Kvar
Exhaust Fan = 1 NOS

**Capacitor bank 10 KVAR = 2No.**
MCB TP 32A. = 2 NOS
Capacitor Duty Contactor 10KVAR = 2 NOS
Control MCB 6A. = 2 NOS
ON / OFF Indicator = 4 NOS
ON /OFF Push Button. = 4 NOS
Auto Manual Switch. = 2 NOS

**Capacitor Bank 15 KVAR = 2 Nos.**
MCB TP 40A. = 2 NOS
Capacitor Duty Contactor 15KVAR = 2 NOS
Control MCB 6A. = 2 NOS
<table>
<thead>
<tr>
<th>Item</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON / OFF Indicator = 4 NOS</td>
<td></td>
</tr>
<tr>
<td>ON /OFF Push Button = 4 NOS</td>
<td></td>
</tr>
<tr>
<td>Auto Manual Switch = 2 NOS</td>
<td></td>
</tr>
<tr>
<td><strong>Capacitor Bank 25 KVAR = 4 Nos.</strong></td>
<td></td>
</tr>
<tr>
<td>MCB TP 63A = 4 NOS</td>
<td></td>
</tr>
<tr>
<td>Capacitor Duty Contactor 25KVAR = 4 NOS</td>
<td></td>
</tr>
<tr>
<td>Control MCB 6A = 4 NOS</td>
<td></td>
</tr>
<tr>
<td>ON / OFF Indicator = 8 NOS</td>
<td></td>
</tr>
<tr>
<td>ON / OFF Push Button = 8 NOS</td>
<td></td>
</tr>
<tr>
<td>Auto Manual Switch = 4 NOS</td>
<td></td>
</tr>
</tbody>
</table>

### INSTALLATION OF 3 PHASE ENERGY IN EXISTING LT PANEL/FP

Supply, installation Testing & Commissioning of CT operated Digital Energy Meter (Digital Display type) including respective CT's having CT's ratios 200/100 - 5 with accuracy class 1.0 as per requirement in the exiting LT Panel / Feeder Piller.

### Supply, installation Testing & Commissioning of 11kV HT 4 Panel Board (VCB Type) for 11kv Sub Station OEM Makes only of Horizontal draw out floor mounted VCB Panel as per specifications given below :-

INCOMMER FEEDER (01 SET) : Supply of HT 12KV, 3Phase 50Hz, totally metal clad withdraw able type Vacuum Circuit Breaker panel with aluminium bus bar/ copper bus bar of suitable rating, horizontal isolation type VCB of capacity minimum 630 Amps rated current. The VCB should be floor mounted trolley type horizontal isolation, horizontal draw out, type breaker confirming to IEC-62271-100 & panel as per IEC- 62271-200. The panel shall be compartmentalized consisting of Bus bars compartment, Breaker compartment, Cable and CT compartment, LV compartment for Relays, indications and controls. Each compartment shall be segregated from other by metallic partition. The offered panels shall be tested for IAC level of min. 25ka for 1 Sec. for better performance:

#### Panel and VCB parameters are as below :

(i) Rated Voltage level / PF withstand voltage / Impulse level: 12KV/ 28 kV/ 75 kVp

(ii) Continuous current rating: minimum 630A

(iii) Short circuit withstand current: minimum 25KA for 3sec.

(iv) 24 Volt DC Power pack with minimum 10 mins backup and charging facility.

(V) One no. minimum 630 Amps horizontal draw out type vacuum circuit breaker in 12KV metal clad floor mounting panel complete with following:-

(a) Manually & Motor operated(230V,AC,50Hz) spring charged type, manually and electrically open (electrical – 24 VDC) operation type, incorporating mechanical as well as electrical ON/OFF indication "OFF” push button, test/service position limit switches, with minimum 6NO+6NC breaker auxiliary contacts in service position.

(b) Epoxy cast wound current transformer (CT), 12KV of ratio 150-75 /1+1A, 5P10/0.5, 15 VA burden with metering and protection core including necessary control wiring

(c) Voltage transformer with three nos. 1 phase, 3 limbs connected in star, dual class, 11 KV/V3/110V/V3, Cl. 1.0/0.5, 50
VA with draw able type with automatic safety shutters  50VA burden with primary & secondary fuses.(Confirming related IS specifications).

**A) Protection arrangements for the breaker shall comprise of the following:**

(i) U/V, O/V, E/F, O/C, TCS - Numerical Type Relays

(ii) Complete with Master Trip/ Anti pumping relay.
All relays preferably shall be of single make.

**(B) The following meters, indications and accessories are to be provided with the panel:**

(i) Digital Voltmeter range 0-12KV with necessary voltmeter with built in selector switch & suitable for 110V AC 96X96 sq mm dial with shrouded terminal.

(ii) Digital Ammeter range of applicable range with necessary ammeter with built in selector switch dual graduated scale 96X96 sq mm dial with shrouded terminal.

(iii) Necessary DC supply, healthy indication lamp & switch.

(v) Control: (a)TNC (Trip, Neutral & Close) breaker control switch with indicating arrangement, (b) Local/Remote selector switch for breaker open/close operations.

**OUTGOING FEEDER (OEM Makes only)(03 SETS)** - Supply of HT 12KV, 3Phase 50Hz, totally metal clad withdraw able type Vacuum Circuit Breaker panel with aluminium bus bar/ copper bus bar of suitable rating, horizontal isolation type VCB of capacity minimum 630 Amps rated current. The VCB should be floor mounted trolley type horizontal isolation, horizontal draw out, type breaker confirming to IEC-62271-100 & panel as per IEC- 62271-200. The panel shall be compartmentalized consisting of Bus bars compartment, Breaker compartment, Cable and CT compartment, LV compartment for Relays, indications and controls. Each compartment shall be segregated from other by metallic partition. The offered panels shall be tested for IAC level of min. 25kA for 1 Sec. for better performance:

**Panel and VCB parameters are as below:**

(i) Rated Voltage level/ PF withstand voltage/ Impulse level:12KV/ 28 kV/ 75 kVp

(ii) Continuous current rating: minimum 630A

(iii) Short circuit withstand current: minimum 25KA for 3sec.

(iv) 24 Volt DC Power pack with minimum 10 mins backup and charging facility.

(V) One no. minimum 630 Amps horizontal draw out type vacuum circuit breaker in 12KV metal clad floor mounting panel complete with following :-

(a) Manually & Motor operated(230V,AC,50Hz) spring charged type, manually and electrically open (electrical – 24 VDC) operation type, incorporating mechanical as well as electrical ON/OFF indication “OFF” push button, test/service position limit switches, with minimum 6NO+6NC breaker auxiliary contacts in service position.

(b) Epoxy cast wound current transformer (CT),12KV of ratio (75/1A, 50/1+1A, 50/1+1A) 5P10/0.5, 15 VA burden with metering and protection core including necessary control wiring
**A) Protection arrangements for each breaker shall comprise of the following:**

(i) E/F, O/C, TCS – Numerical Type Relay

(ii) Mater Trip Relay/ Anti pumping relay.

(iii) Aux . Transformer protection relay.

All relays preferably shall be of single make.

**(B) The following meters, indications and accessories are to be provided with the panel:**

(i) Digital Ammeter range of applicable range with necessary ammeter with built in selector switch dual graduated scale 96X96 sq mm dial with shrouded terminal.

(ii) Necessary DC supply, healthy indication lamp & switch.

(iii) Control: (a)TNC (Trip, Neutral & Close) breaker control switch with indicating arrangement, (b) Local/Remote selector switch for breaker open/close operations.

**TOTAL 4(1+3) VCB Panel Switchboard**

| 13 | Supply, installation Testing & Commisioning of 11kV HT Panel Board (VCB Type) for 11kv Sub Station OEM Makes only of Horizontal draw out floor mounted VCB Panel position as per specifications given below :-

**INCOMMER FEEDER (01 SET) :**

Supply of HT 12KV, 3Phase 50Hz, totally metal clad withdraw able type Vacuum Circuit Breaker panel with aluminium bus bar/ copper bus bar of suitable rating, horizontal isolation type VCB of capacity minimum 630 Amps rated current. The VCB should be floor mounted trolley type horizontal isolation, horizontal draw out, type breaker conforming to IEC-62271-100 & panel as per IEC- 62271-200. The panel shall be compartmentalized consisting of Bus bars compartment, Breaker compartment, Cable and CT compartment, LV compartment for Relays, indications and controls. Each compartment shall be segregated from other by metallic partition. The offered panels shall be tested for IAC level of min. 25kA for 1 Sec. for better performance:

**Panel and VCB parameters are as below :**

(i) Rated Voltage level/ PF withstand voltage/ Impulse level: 12KV/28 kV/ 75 kVp

(ii) Continuous current rating: minimum 630A

(iii) Short circuit withstand current: minimum 25KA for 3sec.

(iv) 24 Volt DC Power pack with minimum 10 mins backup and charging facility.

(v) One no. minimum 630 Amps horizontal draw out type vacuum circuit breaker in 12KV metal clad floor mounting panel complete with following:-

(a) Manually & Motor operated(230V,AC,50Hz) spring charged type, manually and electrically open (electrical – 24 VDC) operation type, incorporating mechanical as well as electrical ON/OFF indication "OFF" push button, test/service position limit switches, with minimum 6NO+6NC breaker auxiliary contacts in service position.

(b) Epoxy cast wound current transformer (CT),12KV of ratio 150-75 /1+1A, 5P10/0.5, 15 VA burden with metering and protection core including necessary control wiring
(c) Voltage transformer with three nos. 1 phase, 3 limbs connected in star, dual class, 11 KV/V3/110V/V3,Cl. 1.0/0.5, 50 VA with draw able type with automatic safety shutters  50VA burden with primary & secondary fuses.(Confirming related IS specifications).

A) Protection arrangements for the breaker shall comprise of the following:

i) U/V, O/V, E/F, O/C, TCS - Numerical Type Relays
(ii) Complete with Master Trip/ Anti pumping relay.

All relays preferably shall be of single make.

(B) The following meters, indications and accessories are to be provided with the panel:

(i) Digital Voltmeter range 0-12KV with necessary voltmeter with built in selector switch & suitable for 110V AC 96X96 sq mm dial with shrouded terminal.

(ii) Digital Ammeter range of applicable range with necessary ammeter with built in selector switch dual graduated scale 96X96 sq mm dial with shrouded terminal.

(iii) Necessary DC supply, healthy indication lamp & switch.

(v) Control: (a)TNC (Trip, Neutral & Close) breaker control switch with indicating arrangement, (b) Local/Remote selector switch for breaker open/close operations.

<table>
<thead>
<tr>
<th>VCB Panel Switchboard</th>
<th>1</th>
<th>Each</th>
</tr>
</thead>
</table>

14 MULTIFUNCTION METER WITH GPRS/GPS MODEM

Supply, Installation, Testing & Commissioning of multifunction meter with GSM/GPRS connected modem. Make (HPL/ Lendsgyr/ Elster/ Secure)

SITC of AC three phase HT/CT multifunction DLMS compliance Trivector meter of accuracy class 0.5, 3 x 63.5V, 50 Hz with optical & RS232 Port as per IS15959 with, backlit LCD display, (Measures kWh, kVAh, V,I,kW, 6 months history of Energy, Load survey, TOD, Power ON/Off Events, instantaneous parameters of Rating -/1A with display in absence of power. Default PT ratio*: 11kV/110V & CTR:1 including Web portal comprising to indicate energy consumption in interval of 30 minutes and T/F ON/OFF time in report including installation/ configuration/commissioning/ designing/ development charges, Server Hosting for 5 years including GSM/GPRS Sim Charges with dedicated IP for 5 years. GSM/GPRS Modem suitable for carrying data of 1 Number meter.

<table>
<thead>
<tr>
<th>MULTIFUNCTION METER WITH GPRS/GPS MODEM</th>
<th>1</th>
<th>Set</th>
</tr>
</thead>
</table>

15 HT Cables

Supply and testing of XLPE (E) 11 KV HT aluminum conductor armoured and served cable as per requirement at the site of work upto entire satisfaction of the Engineer-in-charge. :- ISI mark

| 3 X 120 sq.mm XLPE Cable | 120 | Metre |

16 LT Cables

Supply, testing and commissioning of 1.1 KV grade XLPE aluminum conductor Armoured/Unarmoured cable as per specification and requirement at the site.

<p>| 3.5 X 300 sq.mm. XLPE Cable (Armoured) | 150 | Metre |
| 3.5 X 185 sq.mm. XLPE Cable (Armoured) | 100 | Metre |</p>
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Quantity</th>
<th>Unit</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.5 X 300 sq.mm. XLPE Cable (Unarmoured)</td>
<td>160</td>
<td>Metre</td>
<td></td>
</tr>
<tr>
<td>17</td>
<td><strong>FIRE DETECTION AND ALARM SYSTEM</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Supplying, installation, testing &amp; commissioning of smoke detector with built-in LED and mounting base complete with all connections etc. as required.</td>
<td>13</td>
<td>Each</td>
</tr>
<tr>
<td>b</td>
<td>Supplying, installation, testing &amp; commissioning of manual call boxes of MS construction in surface/recess with stainless steel chain &amp; hammer assembly complete with glass and push button etc. as required.</td>
<td>4</td>
<td>Each</td>
</tr>
<tr>
<td>c</td>
<td>Supplying, installation, testing &amp; commissioning fire alarm sounder with facility to make announcement, mounted in MS box (16 SWG) with hinged cover plate &amp; suitable for operation with amplifier i/c line matching transformer etc. complete as required.</td>
<td>2</td>
<td>Each</td>
</tr>
<tr>
<td></td>
<td>Supplying, installation, testing &amp; commissioning sector panel suitable for following zones, complete with visual indications for short circuit fault, open circuit fault, fire condition and all other standard facilities as per IS:2189 with mimic diagram for all area/zone covered, complete with all connections, interconnections as required.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>d</td>
<td>4 Zone</td>
<td>1</td>
<td>Each</td>
</tr>
<tr>
<td></td>
<td><strong>CABLE &amp; WIRING</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>e</td>
<td>Supplying &amp; laying of 2x1.5 sqmm fire survival armoured cable 600/1000V rated with annealed copper conductor having glass mica fire barrier tape covered by an extruded layer of cross linkable Ethylene Propylene Rubber (EPR) insulation and LSZH inner bedding, steel wire armouring &amp; LSZH outer sheath complete as required.</td>
<td>175</td>
<td>Metre</td>
</tr>
<tr>
<td>18</td>
<td>Steel work welded in built up sections/framed work, including cutting, hosting, fixing in position and applying a priming coat of approved steel prime using structural steel etc. As required.</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>In stringers, treads, landings etc. Of stair cases, including use of chequered plates wherever required, all complete</td>
<td>3000</td>
<td>Kg</td>
</tr>
<tr>
<td>19</td>
<td><strong>INSULATION MATS</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>a</td>
<td>Supply of size 2 m X 1 m, 10 mm thick rubber mates for LT panels (ISI mark).</td>
<td>10</td>
<td>Each</td>
</tr>
<tr>
<td>b</td>
<td>Supply of size 2 m X 1 m, 12 mm thick rubber mates Class B, Grade HT 11 kv (ISI mark).</td>
<td>6</td>
<td>Each</td>
</tr>
<tr>
<td>20</td>
<td><strong>Disconnection &amp; dismantling of old Panel</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>Disconnection &amp; dismantling of OCB 11 KV 400 Amp : 05 Nos</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Disconnection &amp; dismantling of LT PANEL 1 (Size : L: 22’ X H: 7.5’ X D: 4’) consisting of ACBs of ratings (1250 Amp: 03 Nos, 800 Amp: 06 Nos), Switch Fuse Unit (Ratings from 100 Amp To 630 Amp: 20 Nos), Disconnection of cables of various sizes (from 35 Sq mm to 400 Sq mm : 57 Nos).</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C</td>
<td>Disconnection &amp; dismantling of LT PANEL 2 (Size : L: 13’ X H: 6’ X D: 4’) consisting of ACBs of ratings (1600 Amp: 01 No, 1250 Amp: 02 Nos, 1000 Amp: 01 No), MCCBs (Ratings from 200 Amp To 800 Amp: 08 Nos), Disconnection of cables of various sizes (from 185 Sq mm to 400 Sq mm : 24 Nos).</td>
<td>1</td>
<td>Lot</td>
</tr>
</tbody>
</table>

Signature of the Tenderer