

**CENTRAL INSTITUTE OF TECHNOLOGY
BALAGAON, KOKRAJHAR, BTAD, ASSAM**



TENDER DOCUMENT

NIT NO: CITK/MC/NIT/405/2020/42 Date: 18/06/2020

Part - A: Technical Bid

NAME OF WORK

**Installation of 30 KLD STP at Hostels at CIT, Kokrajhar-
Phase - I**



**CENTRAL INSTITUTE TECHNOLOGY, KOKRAJHAR
Kokrajhar - 783370, Assam
Phone: (03661) 277143**

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Detailed **NOTICE INVITING TENDER** for the work “Installation of 30 KLD STP at Hostels at CIT, Kokrajhar- Phase - I” vide NIT No. CITK/MC/NIT/405/2020/42 Date: 18/06/2020 issued to the Contractor,

M/s

Address:

.....

.....

Registrar,
Central Institute of Technology
Kokrajhar

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CENTRAL INSTITUTE TECHNOLOGY, KOKRAJHAR
Kokrajhar - 783370, Assam
Phone: (03661) 277143
NOTICE INVITING TENDER

No. CITK/MC/NIT/405/2020/42 Date: 18/06/2020

Sealed tenders in two-bid system are invited from experienced & competent reputed firms/contractors of relevant categories registered under CPWD, APWD, MES, Autonomous Body and any other Central or State Government undertaking for following works at Central Institute of Technology, Kokrajhar campus:

Name of work	Installation of 30 KLD STP at Hostels at CIT, Kokrajhar- Phase - I
Estimated Cost	Rs. 24,00,000.00
Earnest Money	2% for general and 1% for ST/SC/OBC/ Unemployed Engineer
Date of issue of tender paper	22.06.20 to 03.07.20
Last Date & time of submission of tender	07.07.20 Upto 14:00 Hrs
Technical Bid Opening Date & Time	07.07.20 at 15:00 Hrs.
Price Bid Opening Date & Time	13.07.20 at 14:00 Hrs.
Qualifying criteria for issue of Tender Document:	
(1) Registered with Govt. / Semi Govt. Dept. / Autonomous Body in appropriate class	
(2) Should have completed satisfactorily similar works of value not less than that shown in table below against single work order during last 7 yrs. under Govt./ Semi Govt. Dept. / Autonomous Body.	
	Rs. In Lacs
Minimum 3 Works of Installing and Commissioning of STP (Sewage Treatment Plant) during last 3 years	Rs. 20.00 each
(3) Minimum Average Annual Turn Over during last 3 consecutive years	Rs. 24.00 (100% of Value of Work)
(4) Tenderers bidding for more than one work shall satisfy the above qualifying criteria taken together and price bids will be opened up to the extent of their qualifying criteria	
(5) Pre-Bid meeting shall be on 30.06.20 at 11:00 AM	
(6) Time of completion : 06 Months	

Note: Financial turn over and values of completed works of previous years shall be given weightage of 10% per year and part thereof to bring them to the present price level. The statement showing the value of existing commitments and ongoing works as well as stipulated period of completion for each of the work listed should be countersigned by the Engineer-in-Charge not below the rank of Executive Engineer of the concerned Departments.

- Issue of Tender Documents:-** Application for Tender Document must be accompanied by the attested copies of the qualifying documents as stated above. Tender documents will be issued on any working day during office hour within the last date of issue of Tender on payment of (non-refundable) demand draft/ banker's cheque of **Rs. 1000.00** in favour of CIT Kokrajhar payable at Kokrajhar towards the cost of tender document for each work.
- Down loading of tender documents from Institute's Web site:** Tender papers can also be downloaded from the website www.cit.ac.in in which case the cost of tender paper should be submitted along with the tender. All the pages under General Conditions of Contract, Special Conditions of Contract and Technical Specifications shall be printed in both sides of the pages while others may be printed on one side only. The bidders within 7 (seven) days of receipt/downloading of Bidding Document, shall acknowledge the receipt/downloading of the same and confirm his intention to bid for the tendered work as per

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proforma, **Acknowledgement-Cum-Consent Letter** enclosed in Bidding Document. The Acknowledgement-cum-consent letter may be sent by e-mail to: Registrar, CIT Kokrajhar, Kokrajhar-783370; E-mail- registrar@cit.ac.in For any queries contact to (M) 7399019223 or write to hkdas@cit.ac.in

2. Earnest money up to Rs. 20.00 lakhs shall be deposited along with the tender in the form of **Demand draft/ Banker's cheque** in favour of 'CIT Kokrajhar' payable at 'Kokrajhar. If the Earnest Money is more than Rs.20.00 lakhs, may be deposited in the form of Bank Guarantee issued by a scheduled bank in the proforma enclosed in the bid document.
3. CIT Kokrajhar reserves the right to not issuing tender papers or not accepting tenders submitted by any of the contractors engaged in one or more ongoing works in the CIT, Kokrajhar Campus, if in the opinion of the Institute, the progress of the ongoing works of the contractor has not been found satisfactory and they will not be able to handle a new work till the completion of their ongoing work(s). CIT, Kokrajhar also reserves the right to accept or reject any or all applications for issue of tender document without assigning any reason thereof.
4. The bidders will be required to produce the original copies of the qualifying documents as stated above at the time of issue of tender papers or before opening of the Price - Bid in case the tender has been downloaded from the Institute website.
5. The issue of tender paper to a contractor does not automatically mean the tenderer is considered qualified for the price part of the bid.
6. The acceptance of tender will rest with the authority of CIT Kokrajhar who does not bind itself to accept the lowest tender and reserves in itself the right to reject any or all the tenders received without assigning any reason thereof. The work may be allotted in part or whole at the discretion of competent authority of the Institute.
7. For all clarifications regarding site conditions, items of works or any other related matters to the tender, Engineering Cell may be contacted during office hours on all working days.
8. In case, the day of submission of the tender happens to be a holiday on account of Govt. notification and tender cannot be received or opened; the tender shall be received and opened on the next working day at the same times.
9. Any queries should reach the undersigned at least (7) seven days ahead of the pre-Bid meeting schedule date. Any query may be sent through fax/e-mail at the number and e-mail id mentioned herein above.
10. The tender document shall be submitted in two parts as follows:

PART-A: This packet shall contain the Techno-Commercial Bids comprising of NIT, General Conditions of Contract, Special Conditions of Contract, Technical specifications, drawings, any other matter the tenderer wish to submit duly signed with official seal etc. This shall be marked as, "**TECHNICAL BID**" and properly sealed.

PART-B: This packet shall contain the Price Bids comprising of only the **BILL OF QUANTITIES (BOQ)** duly filled in and signed with office seals. No other paper other than the BOQ contained in this package shall be accepted. This packet shall be marked as, "**PRICE BID**" and properly sealed.
11. Part-A tenders shall be opened on the date and time as mentioned above. But price bids of only of those tenderers whose techno-commercial bids (Part-A) are found acceptable shall be opened on a later date. Prior notification shall be given to all tenderers who qualify for opening of the **PRICE BIDS** to enable them to attend the opening of the **Price bids**. Part-B of the tender of those tenderers who do not qualify for opening of the Part-B shall be returned.

Sd/-

Registrar,

Central Institute of Technology, Kokrajhar

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CENTRAL INSTITUTE OF TECHNOLOGY KOKRAJHAR

Submission of Tender

From :.....

**To
The Registrar,
Central Institute of Technology
Kokrajhar – 783370, Assam**

1. I/We hereby tender for execution of the work “**Installation of 30 KLD STP at Hostels at CIT, Kokrajhar- Phase - I**” as per tender document within the time schedule mentioned therein and accepted by me/us, at the schedule of rates quoted by me/us for the whole work in accordance with terms and conditions, specifications, drawings, as detailed in the tender document.
2. It has been explained to me/ us that the time stipulated for job and completion of works in all respects and in different stages mentioned in the “Time schedule” of completion of work and signed and accepted by me/us is the essence of the Contract. I/We agree that in the case of failure on my/ our part to strictly observe the time of completion mentioned for work or any of them and to the final completion of works in all respects according to the schedule set out in the said “Time Schedule of Completion of work”, I/We shall pay compensation to the Owners as per provision and stipulations contained in clause-23 of General conditions of Contract and I/We agree to the recovery being made as specified therein. In exceptional circumstances extension of time which shall always be in writing may, however, be granted by the Engineer-in-Charge at his entire discretion for some items of work, and I/We agree that such extension of time will not be counted for the extension of completion dates stipulated for work and for the final completion of works as stipulated in the said “Time Schedule” of Completion of work.
3. I/We agree to pay the earnest money and security deposit and accept the terms and conditions laid down in the memorandum below in this respect.

MEMORANDUM

(a) General description of :
work

(b) Earnest Money :.....
(Rupees).....
.....(only).

The Earnest money is payable in the manner set out in para 5, below. The Earnest money, if the tender is accepted, will be retained against the security deposit.

- (c) Security Deposit : 10% of the contract amount which will be paid in the manner set out in clause (19) in section IV of the General Conditions of Contract
- (d) Time allowed for starting of work : **15 (Fifteen) days** from the date of issue of letter of acceptance of the tender

4. Should this tender be accepted I/We hereby agree to abide by and fulfill all terms and conditions referred to above and in default thereof, to forfeit and pay to the Owner or its successors or its authorized nominees such sums of money as are stipulated in conditions contained in Notice Inviting Tender and other tender documents.

5. I/We hereby pay the earnest money of `
(Rupees.....) in the form of Banker's cheque /Demand Draft/..... (Name and Office of the State Bank of India or any Schedule 'A' Bank) in favour of "CIT Kokrajhar" payable at 'Kokrajhar'.

6. If I/We fail to commence the work specified in the memorandum in para (3) above, or I/We fail to deposit the amount of security deposit specified in the Memorandum in para (3) above, I/We agree that the said Owner and its successors without prejudice to any other right or remedy be at liberty to forfeit the said earnest money in full otherwise the said earnest money shall be retained by Owner, towards the security deposit specified in para (3) above. The said Owner shall also be at liberty to cancel the notice of acceptance of tender if I/We fail to deposit the security amount as aforesaid or to execute an agreement or to start work as stipulated in the tender documents.

I/We enclose herewith evidence of my/our experience of execution of work of similar nature and magnitude carried out by me/us in the prescribed proforma and also the Income Tax and Sales Tax Clearance Certificate.

Date.....day of.....2019

Witness:

Name in Block Letters:

Address:

Signature of Tenderer(s), with the seal of Firm

**PROFORMA FOR ACKNOWLEDGEMENT LETTER OF BIDDING DOCUMENT
(TO BE SUBMITTED IN BIDDER'S OWN LETTER HEAD)**

Ref no.

Date:

To

The Registrar

Central Institute of Technology
Kokrajhar-783370, Assam

Sub: "Installation of 30 KLD STP at Hostels at CIT, Kokrajhar- Phase - I"

Ref No. CITK/MC/NIT/405/2020/42 Date: 18/06/2020

Dear Sir,

We hereby acknowledge receipt of a complete set of bidding document along with all enclosures for the subject work for preparation and submission of the Bid.

We undertake that the contents of the above Bidding document shall be kept confidential, further that specifications and documents shall not be transferred, and that the said documents are to be used only for the purpose for which they are intended.

(A) We intend to bid as requested for the subject works and furnish following details with respect to our quoting office:

- (i) POSTAL ADDRESS :
- (ii) TELEPHONE NUMBER :
- (iii) MOBILE NO. :
- (iv) TELEFAX NUMBER :
- (v) CONTACT PERSON :
- (vi) DESIGNATION :
- (vii) EMAIL ADDRESS :
- (viii) REGISTERED OFFICE :

BIDDER'S NAME:

SIGNATURE:

NAME :

DESIGNATION :

DATE :

GENERAL CONDITIONS OF CONTRACT

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GENERAL CONDITIONS OF CONTRACT (GCC)

SECTION - 1

1. Definition of Terms

In the contract document as herein defined where the context so admits, the following words and expressions will have the following meanings:

- 1.1 "The Owner" means the Central Institute Technology Kokrajhar having its registered office at Kokrajhar-783370.
- 1.2 "The Contractor" means the person or the persons, firm or company whose tender has been accepted by the Owner and includes the Contractor's legal representative, his successor and permitted assignees.
- 1.3 The "Engineer-in-Charge" shall mean the person designated as such by the Owner and shall include those who are expressly authorized by the Owner to act for and on his behalf for operation of this contract.
- 1.4 The "Work" shall mean works to be executed in accordance with the contract or part thereof as the case may be and shall include all extra, additional altered or substituted works as required for the purpose of the contract.
- 1.5 The "Permanent work" means works as handed over to the Owner by the Contractor on completion of the contract.
- 1.6 "Construction Equipment" means all applications and equipment of whatsoever nature for the use in or for the execution, completion, operation or maintenance of the work unless intended to form part of the Permanent work.
- 1.7 "Site" means the areas on which the permanent Works are to be executed or carried out and any other places provided by the Owner for purpose of the contract.
- 1.8 "Contract Document" means collectively the Tender Document, Designs, Drawings, Specifications, agreed variations, if any, and such other documents constituting the tender and acceptance thereof.
- 1.9 "The Sub-Contractor" means any person or firm or Company (other than the Contractor) to whom any part of the work has been entrusted by the Contractor, with the written consent of the Engineer-in-Charge, and the legal personal representatives, successors and permitted assigns of such person, firm or company.
- 1.10 The "Contract" shall mean the Agreement between the Owner and the Contractor for the execution of the works including therein all contract documents.
- 1.11 The "Specification" shall mean the various technical specifications attached and referred in the tender documents. It shall also include the latest edition including all addenda/corrigenda of relevant Indian Standard Specifications published before entering into Contract.
- 1.12 "The Drawings" shall include maps, plans and tracings or prints thereof with any modifications approved in writing by the Engineers-in-Charge and such

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other drawings as may required , from time to time, or furnished or approved in writing by the Engineer-in-Charge.

- 1.13 The “Tender” means the tender submitted by the Contractor for acceptance by the Owner.
- 1.14 The “Alteration Order” means an order given in writing by Engineer-in-Charge to effect additions to or deletion from and alteration in the work.
- 1.15 The “Completion Certificate” shall mean the certificate to be issued by the Owner when the works have been completed to his satisfaction.
- 1.16 The “Final Certificate’ in relation to a work means the certificate issued by the Owner after the period of liability is over.
- 1.17 The “Period of Liability” in relation to a work means the specified period from the date of issue of completion certificate up to the date of issue of final certificate during which the Contractor stands responsible for rectifying all defects that may appear in the works.
 - a. The “Appointing Authority” for the purpose of arbitration shall be the Registrar, Central Institute of Technology, Kokrajhar or any other person so designated by the Owner.
 - b. ‘Tendering period’ means the period from the date of invitation of tender to date of submission of tender.
 - c. ‘Consultant’ means the consultant engaged by the ‘Owner’ for the work. He will report to the Owner.

SECTION - 2

2. GENERAL INFORMATION

2.1 Location and Accessibility of Site

The Central Institute of Technology Kokrajhar Campus is accessible by road via NH 31 as well as via JD Road Kokrajhar - Karigaon Road.

2.2 Scope of Work

The scope of work is defined in the special conditions of Contract and specifications. The Contractor shall provide all necessary materials, equipment, labour etc. for the execution and maintenance of the work till completion unless otherwise mentioned in this tender document. All materials required for the work shall be approved by Engineer-in-Charge prior to procurement and use.

2.3 Water Supply

The Contractor will have to make his arrangements for supply of water to his labour camps and for works. All pumping installations, pipe network and distribution system will have to be carried out by the Contractor at his own cost.

2.4 Power Supply

The Contractor will make his own arrangement for his requirement of power to carry out the work. Owner will not be supplying power for this work. All the works by the Contractor in this regard will be done as per the Indian Electricity Act and rules framed there under and as approved by the Engineer-in-Charge.

2.5 Land for Contractor's Field Office, Go-down and Workshop

The Owner will at his own discretion and convenience and for the duration of the execution of the work make available near the site, the land for construction of Contractor's field office, go-downs, workshops and assembly yard required for the execution of the contract. The Contractor shall at his own cost construct all these temporary buildings and provide suitable water supply and sanitary arrangement approved by the Engineer-in-Charge.

2.6 Land for Residential Accommodation

Land for residential accommodation for staff and labour of the Contractor will be made available at the discretion of the Engineer-in-Charge within the campus free of rent. However, development of such land, access roads, if necessary, shall be done by the contractor at his own cost.

2.7 Site clearance

On completion of the works undertaken by the Contractor, he shall remove all temporary works erected by him and have the site cleaned as directed by the Engineer-in-Charge. If the Contractor shall fail to comply with these requirements, the Engineer-in-Charge may at the expense of the Contractor remove such surplus and rubbish materials and dispose of the same as he deems fit and get the site cleared as aforesaid; and the Contractor shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such surplus materials disposed off as aforesaid. But the

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Owner reserves the right to ask the Contractor any time during the pendency of the contract to vacate the land by giving seven days notice on security reasons or on material interest or otherwise.

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SECTION - 3**GENERAL INSTRUCTIONS TO TENDERER****3. Submission of Tender**

- 3.1 Tender must be submitted in original and without making any additions, alterations and as per details given in other clauses in tender document. The requisite details shall be filled in by the Contractor in page 1 and 2 of Tender document. The rate shall be filled in the Schedule given in this tender document. Reservations, if any, regarding the tender conditions and schedule rates should be clearly brought out in a separate letter.
- 3.2 Addenda/Corrigenda to this tender document, if issued, must be signed and submitted along with the tender document. The tenderer should write clearly the revised quantities in schedule of rates of Tender Document and should price the work based on revised quantities when amendments for quantities are issued in addenda.
- 3.3 The Original tender copy marked duly completed and signed on each page should be submitted along with the offer.
- 3.4 The tender should be placed in doubled sealed covers super-scribing the full name of the work, due date of opening .The full name, postal address of the tenderer shall be written on the bottom left corner of the sealed cover.

4. Documents

- 4.1 The tenders, as submitted, shall consist of the following:
- (i) Complete set of the "Original Copy" of the tender document as sold duly filled in and signed by the tenderer as prescribed in different clauses of the tender document with all addenda/corrigenda issued duly signed.
 - (ii) Earnest money in the manner specified in clause no. 6 hereof of GCC.
 - (iii) Power of Attorney or a true copy thereof duly attested by Gazetted Officer/ Notary in case an authorized representative has signed the tender, as required under clause 4.5 of GCC.
 - (iv) Income tax clearance and sales tax clearance certificates in original or their true copies duly attested by Government Gazetted Officer.
 - (v) Information regarding tenderer in the Performa enclosed under the head "Information about Tenderer ".

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- (vi) Details of work of similar type and magnitude carried out by Tenderer in the Performa enclosed.
- (vii) Organization chart giving details of field management at site proposed by the tenderer for this work.
- (viii) Details of construction plant and equipment available with the Tenderer for use in this work in Performa enclosed under the head "Information Regarding Equipment which the Tenderer proposes to use for this work."
- (ix) Solvency Certificate from a Scheduled bank to prove the financial ability to carry out the work tendered for.
- (x) The tenderer shall submit copies of PAN, GST registration under EPF and MP Act 1952, ESIC, Service tax whatever is applicable to this contract.

4.2 All pages to be initialed

All the pages of tender document shall be initialed at the lower right hand corner and signed wherever required in the tender by the tenderer or by a person holding power of attorney authorizing him to sign on behalf of the tenderer before submission of tender.

4.3 Rates should be in Figures and Words

The tenderer should quote in English both in figures and words, the rates and amounts tendered by him in the schedule of rates for each item and in such a way that insertion is not possible. However, if there any discrepancy between the rates in figures and in words the following sequence shall be followed:

- 4.3.1 When there is a difference between the rates in figures and in words, the rate which corresponds to the amount worked out by the contractor shall be taken as correct.
- 4.3.2 When the amount of the item is not worked out by the contractor, or if it does not correspond with the rates written either in figures or in words, then the rate quoted by the contractor in words shall be taken as correct.
- 4.3.3 When the rates quoted by the contractor in figures and in words tally, but the amount is not worked out correctly, the rates quoted by the contractor shall be taken as correct and not the amount.

The tendered amount for the work shall be entered in the tender and duly signed by the tenderer.

4.4 Corrections and Erasures

All corrections and alterations in the entries of tender document will be signed in full by the tenderer with date. No erasures or over-writings are permissible.

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4.5 Signature of Tenderer

4.5.1 The tender shall contain the name, residence and place of business of person or persons making the tender and shall be signed by the tenderer with his usual signature. Partnership firms shall furnish the full name of all partners in the tender. It should be signed in the partnerships name by all the partners or by duly authorized representative followed by the name and designation of the person signing. Tender by a corporation shall be signed by an authorized representative and a power of attorney in that behalf shall accompany the tender. A copy of the constitution of the firm with names of all partners shall be furnished.

4.6 Witness

Witness and sureties shall be persons of status and property and their names, occupation and address shall be stated below their signature.

4.7 Details of Experience

The tenderer should enclose documents to show that he has previous experience in having successfully completed in the recent past works of the same nature, together with the names of Owners, location of sites and values of contract.

5. Transfer of Tender Documents

Transfer of tender documents purchased by one tenderer to another tenderer is not permissible.

6. Earnest Money deposit (EMD)

The tenderer shall pay Earnest money as given in the detailed Notice Inviting Tender. Tenders without EMD are liable to be rejected. The Earnest Money up to Rs. 20.00 lacs shall be paid in Demand Draft/ Banker's cheque only and amount in exceed Rs. 20.00 lacs may be paid in the form of Bank Guarantee from any Nationalized / Schedule Bank in favour of "CIT Kokrajhar" payable at 'Kokrajhar'.

Note: No interest shall be paid by the Owner on the Earnest Money deposited by the tenderer. **The earnest money of the unsuccessful tenderers will be refunded within a period of 120 days from the date of award of the contract.**

The earnest money deposited by successful tenderer will remain towards the security deposit for the fulfillment of the contract but shall be forfeited if the tenderer fails to deposit the requisite initial security deposit as per clause no. 10 herein under and or fails to execute the agreement within 25 days from the date of issue of the Letter of Intent.

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7. Validity

Tenders submitted shall remain valid for acceptance for a period of **120 days** from the date of opening of the tender. The tenderer shall not be entitled during the said period of 120 days, without the consent in writing of the Owner, to revoke; or cancel his tender or to vary the tender given or any term thereof. In case of tenderer revoking or cancelling his tender or varying any term in regard thereof without the consent of Owner in writing, the Owner shall forfeit earnest money paid by him along with tender.

8. Addenda/Corrigenda :

8.1 Addenda/Corrigenda to the tender document may be issued prior to the date of opening of the tenders to clarify documents or to reflect modification in the design or contract terms.

8.2 Each addenda/Corrigenda issued by the Owner will be distributed in duplicate to each person or organization to whom a set of tender documents has been issued and uploaded in the Institute's website. Each tenderer will retain one copy of each addenda/Corrigenda for submission along with his tender and return one signed copy to the Engineer-in-Charge as acknowledgement of receipt of the same. All addenda/Corrigenda issued/uploaded by the Owner shall become part of tender Documents. Bidders are advised to check the Institute's web site regularly for any such changes.

9. Right of Owner to Accept or Reject Tender:

The right to accept the tender will rest on the Owner. The Owner, however, does not bind itself to accept the lowest tender, and reserves to itself authority to reject any or all the tenders received without assigning any reason whatsoever.

Tenders in which any of the particulars and prescribed information are missing or are incomplete in any respect and/or the prescribed conditions are not fulfilled are liable to be rejected.

Canvassing in connection with tenders is strictly prohibited and tender submitted by the Tenderer who resort to canvassing will be liable to rejection.

10. Security Deposit

The person/persons whose tender may be accepted (hereafter called the Contractor) shall within 15 days from the date of issue of the Letter of Intent, remit the initial security deposit of 2 % of the accepted value of the tender to the Central Institute Technology Kokrajhar in the manner stipulated in clause 19 of General Conditions of Contract.

11. Time Schedule

The time allowed for carrying out the job is as shown in this document. This shall be signed and submitted along with the tender. Requests for revision for construction time after tenders are opened will not be received for consideration.

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12. Collection of Data Tenderer's Responsibility

The tenderer shall visit the site and acquaint himself fully of the site and no claims whatsoever will be entertained on the plea of ignorance or difficulties involved in execution of work or carriage of materials.

13. Retired Government and Institute Officer

No Engineer of Gazetted rank or other Gazetted Officer, employed in Engineering or Administrative duties in an Engineering Department of the State/Central Government or of the Owner is allowed to work as Contractor for a period of two years after his retirement from Government Service, or from the employment of the Owner without the previous permission of the Owner. The contract, if awarded, 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 State/Central Government or the Owner as aforesaid before submission of tender or engagement in the Contractor's service as the case may be.

14. Signing of the Contract

The successful tenderer shall be required to execute an agreement in the proforma attached with tender document within 25 days from the date of issue of the Letter of Intent. In the event of failure on the part of the successful tenderer to sign the agreement within the above-stipulated period, the earnest money or his initial security deposit shall be forfeited and the acceptance of the tender shall be considered as cancelled.

15. Field Management

15.1 The field management will be the responsibility of the Engineer-in-Charge who will be nominated by the Owner. The Engineer-in-Charge may also authorize his representatives to perform his duties and functions.

15.2 Clause 63 of the General Conditions of Contract shall be referred to in this connection.

15.3 Co-ordination of Work

The Engineer-in-Charge shall co-ordinate the works of various agencies engaged at site to ensure minimum disruption of work carried out by different agencies. It shall be the responsibility of the Contractor to plan and execute the works strictly in accordance with site instructions to avoid hindrance to the work being executed by other agencies.

15.4 Identity Card

Identity Card to all the workers / labourers under contractor's seal and signature for a specified period as per the terms of the contract and instructing them to carry the same during their movement/ work inside the CIT Kokrajhar campus. A list of labourers with their address to be submitted to the Engineer-in-charge & Security Officer of the Institute certifying that Identity Cards for them have been issued.

On completion of the work, the workers/ labourers must leave the campus within 3 days from the date of completion and the dwelling camps must be demolished within this period. The final or any bill of the work after completion will not be passed for payment without a certificate of vacation and demolition of the dwelling camp from the Security Officer.

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SECTION - 4

GENERAL OBLIGATIONS

16. Interpretation of Contract Documents

- 16.1 Except if and to the extent otherwise provided by the Contract, the provisions of the General Conditions of Contract and special conditions shall prevail over those of any other documents forming part of the contract. Several documents forming the contract are to be taken as mutually explanatory. If there be any discrepancy, inconsistency, error or omission in the contract or any of them the matter may be referred to the Engineer-in-Charge who shall give his decisions and issue to the Contractor instructions directing in what manner the work is to be carried out. The decision of the Engineer-in-Charge shall be final and conclusive and the Contractor shall carry out work in accordance with this decision.
- 16.2 Works shown upon the drawing but not mentioned in the specifications or described in the specifications without being shown on the drawing shall nevertheless be held to be included in the same manner as if they had been specifically shown upon the drawing and described in the specifications.

16.3 Headings and Marginal Notes

All headings and marginal notes to the clause of these General Conditions of Contract or to the specifications or to any other tender document are solely for the purpose of giving a concise indication and not a summary of the contents thereof, and they shall never be deemed to be part thereof or be used in the interpretation or construction thereof of the contract.

16.4 Singular and Plural

In these contract documents unless otherwise stated specifically, the singular shall include the plural and vice-versa wherever the context so requires. Words imputing persons shall include relevant corporate companies/registered associations/body of individuals/firm of partnership.

17. Special Conditions of Contract

- 17.1 Special Conditions of Contract shall be read in conjunction with the General Conditions of Contract, specifications of work, Drawings any other documents forming part of this contract wherever the context so requires.
- 17.2 Notwithstanding the subdivision of the documents into these separate sections and volumes every part of each shall be deemed to be supplementary to and complementary of every other part and shall be read with and into the contract so far as it may be practicable to do so.
- 17.3 Where any portion of the General Conditions of Contract is repugnant to or at variance with any provisions of the Special Conditions of Contract then, unless a different intention appears the provisions of the Special Conditions of Contract shall be deemed to over-ride the provisions of the General Conditions of Contract and shall to the extent of such repugnancy, or variations prevail.

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- 17.4 Wherever it is mentioned in the specifications that the Contractor shall perform certain work or provide certain facilities, it is understood that the Contractor shall do so at his cost.
- 17.5 The materials, design and workmanship shall satisfy the relevant Indian Standards, the job specifications contained herein and codes referred to. Where the job specifications stipulate requirements in addition to those contained in the standard codes and specifications stipulate requirements in addition to those contained in the standard codes and specifications, these additional requirements shall also be satisfied.

18 Contractor to Obtain His Own Information

The Contractor in fixing his rate shall for all purposes whatsoever be deemed to have himself independently obtained all necessary information for the purpose of preparing his tender. The correctness of the details, given in the Tender Document to help the Contractor to make up the tender is not guaranteed.

The Contractor shall be deemed to have examined the Contract Documents to have generally obtained his own information in all matters whatsoever that might affect the carrying out the works at the scheduled rates and to have satisfied himself to the sufficiency of his tender. Any error in description of item and quantity or omission there from shall not vitiate the contract or release the Contractor from executing the work comprised in the contract according to drawings and specifications at the scheduled rates. He is deemed to have known the scope, nature and magnitude of the works and the requirements of materials and labour involved etc., and as to what all works he has to complete in accordance with the contract documents whatever be the defects, omission or errors that may be found in the Contract documents. The Contractor shall be deemed to have visited surroundings to have satisfied himself to the nature of all existing structures, if any, and also as to the nature and the conditions of the Railways, roads, bridges and culverts, means of transports and communications, whether by land, water or air, and as to possible interruptions thereto and the access to and egress from the site, to have made inquiries, examined and satisfied himself as to the sites for obtaining sand stones, bricks and other materials, the site for disposal of surplus materials, the available accommodation as to whatever required, depots and such other buildings as may be necessary for executing and completing the works, to have made local independent inquiries as to the sub-soil, subsoil water and variations thereof, storms, prevailing winds, climatic conditions and all other similar matters affecting these works. He is deemed to have acquainted himself as to his liability for payment of Government taxes, customs duty and other charges.

Any neglect or failure on the part of the Contractor in obtaining necessary and reliable information upon the foregoing or any other matters affecting the contract shall not relieve him from any risks or liabilities or the entire responsibility from completion of the works at the schedule rates and time in strict accordance with the contract documents.

No verbal agreement or inference from conversation with any officer or employees of the Owner either before or after the execution of the contract

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agreement shall in any way affect or modify any of the terms of obligations herein contained.

19 Security Deposit

19.1 A sum of 10% of the accepted value of the tender shall be deposited by the person/persons (hereafter called the Contractor) as security deposit with the Owner. This may be deposited initially at 2% of the value of the contract (referred as initial Security Deposit) within 15 days from the date of issue of Letter of Intent and the balance 8% will be recovered in installments through deductions @ 10% of the value of each running account bill till the total security deposit amount is collected, after which no further deductions from bills will be made on this account, subject to Cl. 19.3 below.

The earnest money deposited with the tender shall be adjusted towards security deposit, provided it is furnished in demand draft only.

Alternatively, the Contractor may, at his option, deposit the full amount of 10% of the accepted value of the tender towards the security deposit within 15 days from the date of issue of the Letter of Intent.

19.2 The Contractor shall furnish the initial security deposit amount equivalent to 2% of the accepted value of work in the form of Demand draft / Banker's Cheque in favour of "CIT Kokrajhar" payable at Kokrajhar. Security deposit recovered in cash in excess of 50% of the security deposit including the initial security deposit of 2% may be later on converted at the request of the contractor to either interest bearing Govt. securities or FDR of a scheduled "A" bank duly endorsed in favour of "CIT Kokrajhar" and hypothecated with the Owner or may be replaced by a bank guarantee of a scheduled "A" bank.

19.3 If the Contractor/Subcontractor or their employees shall break, deface or destroy any property belonging to the Owner or others during the execution of the contract, the same shall be made good by the Contractor at his own expenses and in default thereof, the Engineer-in Charge may cause the same to be made good by other agencies and recover expenses from the Contractor (for which the certificate of the Engineer-in-Charge shall be final).

19.4 All compensation or other sums of money payable by the Contractor to the Owner under terms of this contract may be deducted from or paid by the sale of a sufficient part of his security deposit or from any sums which may be due or may become due to the Contractor by the Owner on any account whatsoever and in the event of his security deposit being reduced by reasons of any such deductions or sale of aforesaid, the Contractor shall within ten days thereafter make good in cash, bank drafts or Government securities endorsed as aforesaid any sum or sums which may have been deducted from or realized by sale of his Security Deposit, or any part thereof. No interest shall be payable by the Owner from sums deposited as security deposit.

19.5 Half of the security deposit for the job concerned may however be refunded after the expiry of half the period of liability for that particular Job, at the discretion of the Engineer-in-charge and the balance half on the full period of liability.

20. Time of performance

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20.1 The work covered by this contract shall be commenced from the 25th day from the date of issue of the Letter of Intent and be completed in stages on or before the dates as mentioned in the time schedule of completion of work. The Contractor should bear in mind that time is the essence of this agreement, unless such time is extended pursuant to the provision of clause No. 22. Request for revision of construction time after tenders are opened will not receive any consideration.

20.2 **Time Schedule of Construction**

The general time schedule of construction is given in the tender document. The Contractor should prepare a detailed monthly or weekly construction programme jointly with the Engineer-in-Charge within one month from the date of issue of Letter of Intent or acceptance of tender. The work shall be executed strictly as per the time schedule given in this document. The period of construction given includes the time required for testing, rectifications, if any, retesting and completion in all respects to the entire satisfaction of the Engineer-in-Charge.

21. **Force Majeure**

Any delays in or failure of the performance of either party hereto shall not constitute default here under or give rise to any claims for damages, if any, to the extent such delays or failure of performance is caused by occurrences such as Acts of God or the public enemy, expropriation or confiscation of facilities by Government authorities, compliance with any order or request of any Governmental authorities, acts of war, rebellion or sabotage or fires, floods, explosions' riots or illegal strikes.

22. **Extension of Time**

If the Contractor shall desire an extension of the time for completion of the work on the grounds of his having been unavoidably hindered in its execution or on any other grounds, he shall apply in writing to the Engineer-in-Charge within ten days of the date of the hindrance on account of which he desires such extension as aforesaid, and the Engineer-in-Charge shall, if in his opinion (which shall be final) reasonable grounds have been shown thereof, authorize such extension of time as may, in his opinion be necessary or proper without any extra cost / liability to the Owner.

No compensation for any resources, labourer etc. brought to site in idle period will be paid to contractor.

23. **Compensation for Delay**

23.1 The time allowed for carrying out the works as entered in the Contract shall be strictly observed by the Contractor. The work shall throughout the stipulated period of the contract be proceeded with all the diligence (time being deemed to be the essence of the contract), and the Contractor shall pay to the Owner as compensation, an amount equal to 1% or such smaller amount as the Engineer-in-charge (whose decision in writing shall be final), may decide on the amount of the contract value for every week that the work may remain incomplete as per the time schedule, subject to a maximum compensation of 10% of the contract value after which period action will be taken by the Engineer-in-Charge under the provisions of the Contract.

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23.2 To ensure good progress during the execution of the work, the Contractor shall be bound, in all cases in which the time allowed for any work exceeds one month, to complete one/fifth of the work before one-fourth of the time allowed under the contract has elapsed, three-eighth of the work before one-half of such time has elapsed and three-fourth of the work before three-fourth of such time has elapsed. In the event of the Contractor failing to comply with this condition, he shall be liable to pay as compensation an amount as stipulated above. The compensation so paid shall not relieve the Contractor from his obligations to complete the work or from any other obligations and liabilities under the contract.

24. Sum Payable by Way of Compensation to be considered as Reasonable Compensation without Reference to Actual Loss

All sums payable by way of compensation under any of the conditions shall be considered as reasonable compensation without reference to the actual loss or damage, which shall have been sustained.

25. Rights of the Owner to Forfeit Security Deposit

Wherever any claim against the Contractor for the payment of a sum of money arises out of or under the contract, the Owner shall be entitled to recover such by appropriating in part or whole, the security deposit of the Contractor, and to sell any Government Securities etc. forming whole or part of such security. In the event of the security being insufficient or if no security has been taken from the Contractor, then the balance or the total sum recoverable, as the case may be, shall be deducted from any sum then due or which at any time thereafter may become due to the Contractor. The Contractor shall pay to the Owner on demand any balance remaining due.

26. Failure by the Contractor to Comply with the Provisions of the Contract:

26.1. If the contractor refuses or fails to execute the WORK or any part thereof with such diligence as will ensure its completion within the time specified in the contract or extension thereof or fails to perform any of this obligation under the Contract or in any manner commits a breach of any of the provisions of the Contract, it shall be open to the Owner at its option by written notice to the contractor, by registered post or recorded delivery specifying the default.

a) to determine the Contract in which event the Contract shall stand terminated and shall cease to be in force and effect on and from the date appointed by the Owner on that behalf, whereupon the Contractor shall stop forth with any of the Contractor's work then in progress, except such WORK as the Owner may, in writing, require to be done to safeguard any property or WORK, or installations from damage, and the OWNER, for its, part, may take over the work remaining unfinished by the Contractor and complete the same through a fresh Contractor or by other means at the risk and cost of the Contractor, and the contractor or any of his sureties if any, shall be liable to the Owner for any excess cost occasioned by such work having to be so taken over and completed by the Owner over and above the cost, at rates specified in the Schedule of Quantities and rate/ prices.

In the event of incompleting work being completed by other agency, the excess cost incurred shall be recovered from the contractor and in this regard decision of the 'Owner' shall be final and binding.

Or

b) Without determining the Contract to take over the work of the Contractor or any part thereof and complete the same through a fresh Contractor or by other means at the risk and cost of the Contractor. The contractor and any of his sureties are liable to the Owner for any excess cost over and above the cost as worked out in terms of the Contract, occasioned by such works having been taken over and completed by Owner.

26.2 In such events as above:

a) The whole or part of the security deposit furnished by the Contractor is liable to be forfeited without prejudice to the right of the Owner to recover from the Contractor the excess cost referred to in the sub-clause aforesaid, the Owner shall also have the right of taking possession and utilizing in completing the works or any part thereof, such materials, equipment and plants available at work site belonging to the Contractor as may be necessary and the Contractor shall not be entitled for any compensation for use or damage to such materials, equipment and plant.

b) The amount that may have become due to the Contractor on account to work already executed by him shall not be payable to him until after the expiry of six (6) calendar months reckoned from the date of termination of Contract or from the taking over the WORK or part thereof by the Owner as the case may be, during which period the responsibility for faulty materials or workmanship in respect of such work shall under the Contract, rest exclusively with the contractor. This amount shall be subject to deduction of any amounts due from the Contractor to the Owner under the terms of the Contract authorized or required to be reserved or retained by the owner.

26.3 Before determining the Contract, provided in the judgment of the Owner, the default or defaults committed by the Contractor is/ are curable and can be cured by the contractor if an opportunity is given to him, then the Owner may issue notice in writing calling the Contractor to cure the default within such time specified in the notice.

26.4 The Owner shall also have the right to proceed or take action as per above, in the event that the Contractor becomes bankrupt, insolvent, compounds with his creditors assigns the Contract in favour of his creditors or any other person or persons or being a company or a corporation goes into voluntary liquidation, provided that in the said events it shall not be necessary for the Owner to give any prior notice to the Contractor.

26.5 Termination of the Contract as provided for in sub-clause 26.1 (a) above shall not prejudice or affect the rights of the Owner which may have accrued up to the date of such termination.

27. Contractor Remains Liable to Pay Compensation if Action not Taken under Clause 26.

In any case in which any of the powers conferred upon the Owner by clause 26 thereof shall have become exercisable and the same had not been

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exercised, the non exercise thereof shall not constitute a waiver of any of the conditions hereof and such powers shall notwithstanding be exercisable in the event of any further case of default by the Contractor for which by any clauses hereof he is declared liable to pay compensation amounting to the whole of his security deposit and the liability of the Contractor for past and future compensation shall remain unaffected. In the event of the Owner putting in force the powers under sub-clause (a), (b) or (c) vested in him under the preceding clause he may, if he so desires, take possession of all or any tools & plants, materials and stores in or upon the works or the site thereof belonging to the Contractor or procured by him 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 case of these not being applicable at current market rates to be certified by the Engineer-in-Charge whose certificate thereof shall be final, otherwise the Engineer-in-Charge may give notice in writing to the Contractor or his clerk of the works, foreman or other authorized agent, requiring him to remove such tools, plant, materials or stores from the premises (within a time to be specified in such notice), and 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 at his risk in all respects without any further notice as to the date, time or place of sale and the certificate of the Engineer-in-Charge as to the expense of any such removal and the amount of the proceeds and expense of any such sale shall be final and conclusive against the Contractor.

28. No Compensation for Alteration in or Restriction of Work

If at any time from the commencement of the work the Owner shall for any reason whatsoever not require the whole or part thereof as specified in the tender to be carried out the Engineer-in-Charge shall give notice in writing of the fact to the Contractor, who shall have no claim to any payment or compensation whatsoever on account of any profit or advantage which he might have derived from the execution of the work in full, but which he did not derive in consequence of full amount of the work not having been carried out neither shall he have any claim for compensation by reason of any alterations having been made in the original specifications, drawings, designs and instructions which shall involve any curtailment of the work as originally contemplated.

29. Change in Constitution

Where the Contractor is a partnership firm the prior approval, in writing, of the Owner 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 such a Contractor enters into any agreement with other parties, where under the reconstituted firm would have right to carry out the work hereby undertaken by the Contractor. In either case if prior approval as aforesaid is not obtained, the contract shall be deemed to have been allotted in contravention of clause 35 hereof and the same action may be taken and the same consequence shall ensue as provided in the said clause.

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30. If the Contractor Dies

Without prejudice to any of the rights or remedies under this contract, if the Contractor dies, the Owner shall have the option of terminating the contract without compensation to the contract.

31. Members of the Owner not individually Liable

No employee of the Owner shall in any way be personally bound or liable for the acts or obligations of the Owner under the contract or answerable for any default or omission in the observance or performance of any of the matters or things which are herein contained.

32. Owner not Bound by Personal Representations

The Contractor shall not be entitled to any increase on the schedule rates or any other right or claim whatsoever by reason of representation, explanation or statement or alleged representation, promise or guarantees given or alleged to have been given to him by any person.

33. Contractor's Office at Site

The Contractor shall provide and maintain an Office at the site for the accommodation of his agent and staff and such office shall be open at all reasonable hours to receive instructions notices or other communications.

34. Contractor's Subordinate Staff and their Conduct

34.1 The Contractor, on or after award of the work shall name and depute qualified Engineers having sufficient experience in carrying out work of similar nature, to whom the equipment, materials, if any, shall be issued and instructions for works given. The Contractor shall also provide to the satisfaction of the Engineer-in-charge sufficient and qualified staff to superintend the execution of the works, competent sub-agents, foremen and leading hands including those specially qualified by previous experience to supervise the types of works comprised in the contract in such manner as will ensure work of the best quality, expeditious working. Whenever in the opinion of the Engineer-in-charge additional properly qualified supervisory staff is considered necessary, they shall be employed by the Contractor without additional charge on account thereof. The Contractor shall ensure to the satisfaction of the Engineer-in-charge that sub-contractors, if any, shall provide competent and efficient supervision over the work entrusted to them.

34.2 If and whenever any of the Contractor's or sub-Contractor's agents, sub-agents, assistants, foremen or other employees shall in the opinion of Engineer-in-Charge be guilty of any misconduct or be incompetent or insufficiently qualified or negligent in the performance of their duties or that in the opinion of the Owner or the Engineer-in-Charge, it is undesirable for administrative or any other reason for such person or persons to be employed in the works, the Contractor, if so directed by the Engineer-in-charge, shall at once remove such person or persons from employment thereon. Any person or persons so removed from the works shall not again be employed in connection with the works without the written permission of the Engineer-in-Charge. Any person so removed from the works shall be immediately replaced at the expense of the Contractor by a qualified and competent substitute. Should the Contractor be

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requested to repatriate any person removed from the works he shall do so and shall bear all costs in connection herewith.

34.3 The Contractor shall be responsible for the proper behaviour of all the staff, foremen, workmen and others and shall exercise a proper degree of control over them and in particular and without prejudice to the said generality, the Contractor shall be bound to prohibit and prevent any employees from trespassing or acting in any way detrimental or prejudicial to the interest of the community or of the properties or occupiers of land and properties in the neighborhood and in the event of such employee so trespassing, the Contractor shall be responsible therefore and relieve the Owner of all consequent claims or actions for damages or injury or any other grounds whatsoever. The decision of the Engineer-in-Charge upon any matter arising under this clause shall be final.

34.4 If and when required by the Owner all the Contractor's personnel entering upon the Owner's premises shall be properly identified by badges of a type acceptable to the Owner which must be worn at all times on the Owner's premises.

35. Sub-letting of Work

(i) No part of the contract nor any share or interest therein shall in any manner or degree be transferred, assigned or sublet by the Contractor directly or indirectly to any person, firm or corporation whatsoever except as provided for in the succeeding sub-clause, without the consent in writing of the Owner.

(ii) **Sub-Contracts for Temporary Works etc.**

The Owner may give written consent to sub-contract for the execution of any part of the works at the site, being entered into by the Contractor provided each individual sub-contract is submitted to the Owner before entered into and is approved by Owner.

(iii) **List of Sub-Contractors to be supplied**

At the commencement of every month the Contractor shall furnish to the Engineer-in-Charge list of all sub-Contractors or other persons or firms charged by the Contractor and working at the site during the previous month with particulars of the general nature of the sub-contract of works.

(iv) **Contractor's Liability not Limited by Sub-Contractors**

Notwithstanding any sub-letting with such approval as aforesaid and notwithstanding that the Engineer-in-Charge shall have received copies of any sub-contracts, the Contractor shall be and shall remain solely responsible for the quality and proper and expeditious execution of works and the performance of all the conditions of the contract in all respects as if such sub-letting or sub-contracting had not taken place and as if such work had been done directly by the Contractor.

(v) **Owner may Terminate Sub-Contracts**

If any sub-Contractor engaged upon the works at the site executes any work which in the opinion of the Engineer-in-charge is not in accordance with the contract documents, the Owner may by written notice to the Contractor request him to terminate such sub-contract and the Contractor upon the receipt of such

notice shall terminate such sub-contract and the latter forthwith leave the works, failing which the Owner shall have the right to remove such sub-Contractors from the site.

(vi) **No Remedy for Action Taken under this Clause**

No action taken by the Owner under the clause shall relieve the Contractor of any of his liabilities under the contract or give rise to any right to compensation, extension of time or otherwise, failing which the Owner shall have the right to remove such sub-Contractors from the site.

36. Power of Entry

If the Contractor shall not commence the work in the manner previously described in the contract documents or if he shall at any time in the opinion of the Owner

- (i) Fail to carry out the works in conformity with the contract documents, or
- (ii) Fail to carry out the works in accordance with the time schedule, or
- (iii) Substantially suspend work or the works for a period of fourteen days without authority from the Owner, or
- (iv) Fail to carry out and execute the works to the satisfaction of the Owner, or
- (v) Fail to supply sufficient or suitable constructional plant, temporary works, labour, materials or things, or
- (vi) commit or suffer or permit any other breach of any of the provisions of the contract on his part to be performed or observed or persist in any of the above mentioned breaches of the contract for the fourteen days, after notice in writing shall have been given to the Contractor by the Owner requiring such breach to be remedied, or
- (vii) If the Contractor shall abandon the works, or
- (viii) if the Contractor during the continuance of the contract shall become bankrupt, make any arrangement or composition with his creditors, or permit any execution to be levied or go into liquidation whether compulsory or voluntary not being merely a voluntary liquidation for the purpose of amalgamation or reconstruction then in any such case, the Owner shall have the power to enter upon the works and take possession thereof and of the materials, temporary works, constructional plant, and stock thereon, and to revoke the Contractor's license to use the same, and to complete the work by his agents, other Contractors or workmen, or to relate the same upon any terms and to such other person firm or corporation as the Owner in his absolute discretion may think proper to employ and for the purpose aforesaid to use or authorize the use of any materials, temporary works constructional plant, and stock as aforesaid, without making payment or allowance to the Contractor for the said materials other than such as may be certified in writing by the Engineer-in-charge to be reasonable, and without making any payment or allowance to the Contractor for the use of temporary said works, constructional plant and stock or being liable for any loss or damage thereto, and if the Owner shall by reason of his taking possession of the works or of the works being completed by other Contractor (due account being taken of any such extra work or works which may be omitted) then the amount of such excess as

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certified by the Engineer-in-charge shall be deducted from any money which may be due for work done by the Contractor under the contract and not paid for. Any deficiency shall forth with be made good and paid to the Owner by the Contractor and the Owner shall have power to sell in such manner and for such price as he may think fit all or any of the constructional plant, materials etc. constructed by or belonging to and to recoup and retain the said deficiency or any part thereof out of the proceeds of the sale.

37. Contractor's responsibility with the Mechanical, Electrical Intercommunication System, Air Conditioning Contractors and other Agencies

Without repugnance to any other conditions, it shall be the responsibility of the Contractor executing the work of Civil construction to work in close corporation and coordinate the works with the mechanical, electrical, air conditioning and intercommunication Contractor's and other agencies or their authorize representatives in providing the necessary grooves, recesses, cuts and openings etc., in wall, slaves, beams and columns etc. and making good the same to the desired finish as per specifications, for the placement of electrical, intercommunication cables, conduits, air conditioning inlets and outlets grills and other equipments etc. where required. For the above said requirements in the false ceiling and other partition, the Contractor before starting up the work shall in consultation with the electrical, mechanical, intercommunication, air conditioning Contractors and other agencies prepare and put up a joint scheme, showing the necessary openings, grooves recesses, cuts the methods of fixing required for the works of the aforesaid, and the finishes therein, to the Engineer-in Charge and get the approval. The Contractor before finally submitting the scheme to the Engineer-in-Charge, shall have the retain agreement of the other agencies. The Engineer-in-charge before communicating his approval of the scheme, with any required modifications, shall get the final agreement of all the agencies, which shall be binding. No claim shall be entertain on account of the above. The Contractor shall conform in all respects with the provisions of any statutory regulations, ordinances or by laws of any local or duly constituted authorities of public bodies which may be applicable from time to time to the workers or any temporary works. The Contractors shall give the Owner indemnified against all penalties and liabilities of every kind, arising out of non-adherence to such statutes, ordinances, laws, rules, regulations etc.

38. Other Agencies at Site

The Contractor shall have to execute the work in such place and condition where other agencies will also be engaged for other works such as site grading, filling and leveling, electrical and mechanical engineering works, etc. No claim shall be entertain due to work being executed in the above circumstances.

39. Notices

Any notice here under may be served on the Contractor or his duly authorized representative at the job site or may be served by registered mail direct to the address furnished by the Contractor. Proof of issue of any such notice could be conclusive of the Contractor having been duly informed of all contents therein.

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40. Rights of Various Interests

- (i) The Owner reserves the right to distribute the work between more than one Contractors. The Contractor shall cooperate and afford other Contractors reasonable opportunity for access to the works for the carriage and storage of materials and execution of their works.
- (ii) Wherever the work being done by any department of the Owner or by other Contractors 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 the completion of the various portion to the work in general harmony.

41. Right of Owner to Determine/Terminate contract

- (i) Owner shall, at any time, be entitled to determine and terminate the contract, if in the opinion of the Owner the cessation of the work becomes necessary owing to paucity of funds or for any other cause whatsoever, in which case the cost of approved materials at the site at current market rates as verified and approved by Engineer-in-Charge and of the value of the work done to date by the Contractor shall be paid for in full at the rates specified in the contract. A notice in writing from the Owner to the Contractor of such determination and termination and the reason, therefore shall be the conclusive proof of the fact that the contract has been so determined and/terminated by the Owner.
- (ii) Should the contract be determined under sub-clause (i) of this clause and the Contractor claims payments to compensate expenditure incurred by him in the expectation of completing the whole of the work, the Owner shall consider and admit such claim as are deemed fair and reasonable and are supported by vouchers to the satisfaction of the Engineer-in-Charge. The Owner's decision on the necessity and propriety of any such expenditure shall be final and conclusive and binding on the Contractor.

42. Patents and Royalties

The Contractor, if licensed under any patent covering equipment, machinery, materials or compositions of matter to be used or supplied or methods and process to be practiced or employed in the performance of this contract, agrees to pay all royalties and license fees which may be due with respect thereto. If any equipment, machinery, materials or composition of matters to be used on, supplied or methods and processes to be practiced or employed in the performance of this contract, is covered by the patent under which the Contractor is not licensed than the Contractor before supplying or using the equipment, machinery, materials, composition method or processes shall obtain such licenses and pay such loyalties and license fees as may be necessary for performances of this contract. In the event the Contractor fails to pay any such loyalty or obtain any such license, any suit for infringement of such patents which is brought against the Contractor or the Owner as a result of such failure will be defended by the Contractor at this own expense and the Contractor will pay any damages and costs awarded ion such suit. The Contractor shall promptly notify the Owner if the Contractor has acquired knowledge of any plant under which a suit for infringement would be reasonably brought because of the use by the Owner of any equipment, machinery, materials, process, and methods to be supplied hereunder. The

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Contractor agrees to and does hereby grant to Owner , together with the right to extent the same to any of the subsidiaries of the Owner as irrevocable loyalty-free license to use in any country, any invention made by the Contractor or his employee in or as a result of the performance of the work under the contract.

The Owner shall indemnify and save harmless the Contractor from any loss on account of claims against Contractor for the contributory infringement of patent rights arising out and based upon the claim that the use by the Owner of the process included in the design prepared by the Owner and used in the operation of the plant infringes on any patent right with respect to any sub-contract entered into by Contractor pursuant to the provision of the relevant clause thereof, the Contractor shall obtain from the sub-Contractor and undertaking to provide the Owner with the same patent protection that Contractor is required to provide under the provisions of the clause.

43. Liens

If, at any time, there should evidence any lien of claim for which the Owner might have become liable and which is chargeable to the Contractor, the Owner shall have the right to retain out of any payment any due or thereafter to become due an amount sufficient to completely indemnify the Owner against such lien or claim and if such lien or claim be valid the Owner may pay and discharge the same and deduct the amount so paid from any money which may be or may become due and payable to the Contractor. If any lien or claim remain un-settled after all payments are made, the Contractor shall/ refund or pay to the Owner all moneys that the latter may be compelled to pay in discharging such lien or claim including all costs and reasonable expenses.

SECTION – 5**PERFORMANCE OF WORK****44. Execution of works**

All the works shall be executed in strict conformity with the provisions of the contract documents and with such explanatory detail drawings, specifications and instructions as may be furnished from time to time to the Contractor by the Owner whether mentioned in the contract or not. The Contractor shall be responsible for ensuring that works throughout are executed in the most substantial proper and workman light manner with the quality of material and workmanship in strict accordance with specifications and to the entire satisfaction of the Owner.

45. Coordination and inspection of works

The coordination and inspection of the day-today work under the contract shall be responsibility of the Engineer-in-Charge. The written instructions regarding any particular job will normally be passed by the Engineer-in-Charge or his authorized representative. A work order book will be maintained by the Contractor for each sector in which the aforesaid written instruction will be entered. This will be signed by the Contractor or his authorized representative by way of acknowledgement within 12 hours.

46. Work in monsoon and dewatering

- 46.1. The completion of the work may entail working in monsoon also. The Contractor must maintain minimum labour force as may be required for the job and plan and execute the construction and erection according to the prescribed schedule. No extra rate will be considered such work in monsoon.
- 46.2. During monsoon and other period, it shall be the responsibility of the Contractor to keep the construction work site free from water at his own cost.

47. Work Sundays and holidays

For caring our work on Sundays and holidays, the Contractor will approached the Engineer-in-Charge or his representative at least two days in advance and obtain permission in writing.

48. General conditions for construction and erection mark

- 48.1. The working time at the time of work is 48 hours per week. Over time work is permitted in cases of need and the owner will not compensate the same. Shift working at 2 or 3 shifts per day will become necessary and the Contractor should take this aspect in to consideration for formulating his rates for quotation. No extra claims will be entertained by the Owner on this account.
- 48.2. The Contractor must arrange for the placement of workers in such a way that delayed completion of the work or any part thereof for any reason whatsoever will not affect their proper employment. The Owner will not entertain any claim for idle time payment whatsoever.
- 48.3. The Contractor shall submit to the Owner reports at regular intervals regarding the state and progress of work. The details and proforma of the report will be mutually agreed after the award of the contract.

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49. Drawings to be supplied by the Owner.

- 49.1. Where drawings are attached with a tender, this shall be for the general guidance of the Contractor to enable him to visualize the type of work contemplated and scope of work involved. The Contractor will be deemed to have studied the drawings and formed an idea about the work involved.
- 49.2 Detailed working drawing on the basis of which actual execution of the work is to proceed will be furnished from time to time during the progress of work. The Contractor shall be deemed to have gone through the drawings supplied to him thoroughly and carefully and in conjunction with all other connected drawings and bring to the notice of the Engineer-in-Charge discrepancies, if any, therein before actually carrying out the work.
- 49.3. Copies of all detailed working drawings relating to the works shall kept at the Contractor’s office on the site and shall be made available to the Engineer-in-Charge at any time during the contract. The drawings and other documents issued by the Owner shall be returned to the Owner on the completion of the work.

50. Drawings to be supplied by the Contractor.

- 50.1 Where drawings/ data are to be furnished by the Contractor, they shall be as enumerated in the special conditions of contract, and shall be furnished within the specified time.
- 50.2. Where approval of drawings before manufacture/ construction/ fabrication has been specified, it shall be the Contractors responsibility to have these drawings prepared as per the direction of the Owner and got approved before proceeding with the manufacture/ construction/ fabrication as the case may be. Any change that may have become necessary in these drawings during the execution of the work shall have to be carried out by the Contractor to the satisfaction of the Engineer-in-Charge at no extra cost. All final drawings shall bear the certification stamp as indicated below, duly signed by both the Contractor and the Owner or his authorized representative.

“Certified true for

..... Project

Agreement No.....

Signed.....

(Contractor)

(Engineer-in-Charge)

- 50.3. A period of three weeks from the date of receipt shall be required for approval of drawings by the Owner.

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51. Setting out works

- 51.1. The Engineer-in-Charge shall furnished the Contractor with only the four corners of the work site and a level bench mark and the Contractor shall set out the works and shall provide and efficient staff for the purpose and shall be solely responsible for the accuracy of such setting out.
- 51.2 The Contractor shall/provide, fix and be responsible for the maintenance of all stakes, templates, level marks, profiles and other similar things and shall take necessary precautions to prevent their removal or disturbance and shall be responsible for the consequence of such removal or disturbance should the same take place and for their efficient and timely reinstatement. The Contractor shall also be responsible for the maintenance of all existing survey marks, boundary marks, distance marks and centre line marks, either existing or supplied and fixed by the Contractor. The work shall be set out to the satisfaction of the Owner. The approval thereof or joining with the Contractor by the Owner in setting out the work, shall not relieve the Contractor or any of his responsibilities.
- 51.3 Before beginning the works, the Contractor shall at his own cost, provide all necessary reference and level posts, pegs, bamboo, flags, ranging rods, strings and other materials for proper layout of the work in accordance with the scheme for bearing marks acceptable to the Owner. The Centre, longitudinal or face lines and cross lines shall be marked by means of small masonry pillars. Each pillar shall have distinct marks at the centre to enable a theodolite to be set over it. No work shall be started until all these points are checked and approved by the Engineer-in-Charge in writing but such approval shall not relieve the Contractor of any of his responsibility. The Contractor shall also provide all labour, material and other facilities, as necessary, for the proper checking of layout and inspection of the points during construction.
- 51.4 Pillars bearing geodetic marks located at the sites of units of works under construction should be protected and fenced by the Contractor.
- 51.5 On completion of works, the Contractor must submit the geodetic documents according to which the work was carried out.

52. Responsibility for level and alignment

The Contractor shall be entirely and exclusively responsible for the horizontal and vertical alignment, the levels and correctness of every part of the work and shall rectify effectually any errors or imperfections therein. Such rectifications shall be carried out by the Contractor, at his own cost, when instructions are issued to that effect by the Engineer-in-Charge.

53. Materials to be supplied by Contractor

The Contractor shall procure and provide the whole of the materials required for the construction including M.S. rods, cement and other building materials, tools, tackles, construction plant and equipment for the completion and maintenance of the works except the materials which will be issued by Owner and shall make his own arrangement for procuring such materials and for the transports thereof. The Owner may give necessary recommendation to the respective authority if so desired by the Contractor but assumes no further responsibility of any nature. The Owner will insist on the procurement of

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materials which bear ISI stamp and/or which are supplied by reputed suppliers borne on DGS & D list.

54. Stores supplied by Owner

54.1 If the specification of the work provides for the use of any material of special description to be supplied from the Owner's stores or it is required that the Contractor shall use certain stores to be provided by the Engineer-in-Charge, such materials and stores, and price to be charged therefore as hereinafter mentioned being so far as practicable for the convenience of the Contractor, but not so as in any way to control the meaning or effect of the contract, the Contractor shall be bound to purchase and shall be supplied such materials and stores as are from time to time required to be used by him for the purpose of the contract only. The sums due from the Contractor for the actual value of materials supplied by the Owner will be recovered from the running account bill on the basis of the actual consumption of materials in the works covered and for which the running account bill has been prepared. After the completion of the works, however, the Contractor has to account for the full quantity of materials supplied to him as per relevant clauses in this document.

54.2 The value of the stores/materials as may be supplied to the Contractor by the Owner will be debited to the Contractor's account at the rates shown in the schedule of materials and if they are not entered in the schedule, they will be debited at cost price, which for the purpose of the contract shall include the cost of carriage and all other expenses whatsoever such as normal storage supervision charges which shall have been incurred in obtaining the same at the Owner's stores. All materials so supplied to the Contractor shall remain the absolute property of the Owner and shall not be removed on any account from the site of the work, and shall be at all times open for inspection to the Engineer-in-Charge. Any such materials remaining unused at the time of the completion or termination of the contract shall be returned to the Owner's stores or at a place as directed by the Engineer-in-Charge in perfectly good condition at the Contractor's cost.

55. Conditions for Issue of Materials

- (i) Materials specified as to be issued by the Owner will be supplied to the Contractor by the Owner from his stores. It shall be the responsibility of the Contractor to take delivery of the materials and arrange for its loading, transports and unloading at the site of work at his own cost. The materials shall be issued between the working hours and as per the rules of the Owners as framed from time to time.
- (ii) The Contractor shall bear all incidental charges for the storage and safe custody of materials at site after these have been issued to him.
- (iii) Materials specified as to be issued by the Owner shall be issued in standard sizes as obtained from the manufacturers.
- (iv) The Contractor shall construct suitable godown at the site of work for storing the materials safe against damage by rain, dampness, fire, theft etc. He shall also employ necessary watch and ward establishment for the purpose.
- (v) It shall be duty of the Contractor to inspect the materials supplied to him at the time of taking delivery and to satisfy himself that they are in good condition.

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After the materials have been delivered by the Owner, it shall be the responsibility of the Contractor to keep them in good condition and if the materials are damaged or lost, at any time, they shall be repaired and/or replaced by him at his own cost according to the directions of the Engineer-in-Charge.

- vi) The Owner shall not be liable for delay in supply or non-supply of any materials which the Owner has undertaken to supply where such failure or delay is due to natural calamities, act of enemies, transports and procurement difficulties and any circumstances beyond the control of the Owner. In no case, the Contractor shall be entitled to claim any compensation or loss suffered by him on this account.
- (vii) It shall be the responsibility of the Contractor to arrange in time all materials required for the works other than those to be supplied by the Owner. If, however, in the opinion of the Engineer-in-Charge the execution of the work is likely to be delayed due to the Contractor's inability to make arrangement for supply of materials which normally he has to arrange for, the Engineer-in-Charge shall have the right at his own discretion to issue such materials if available with the Owner or procure the materials from the market or elsewhere and the Contractor will be bound to take such materials at the rates decided by the Engineer-in-Charge. This however, does not in any way absolve the Contractor from the responsibility of making arrangements for the supply of such materials in part or in full, should such a situation occur, nor shall this constitute a reason for the delay in the execution of the work.
- (viii) None of the materials supplied to the Contractor will be utilised by the Contractor for manufacturing item which can be obtained as supplied from standard manufacturer in finished form.
- (ix) The Contractor shall, if desired by the Engineer-in-Charge, be required to execute an indemnity bond in the prescribed form, for safe custody and accounting of all materials issued by the Owner.
- (x) The Contractor shall furnish to the Engineer-in-Charge sufficiently in advance a statement showing his requirement of the quantities of the materials to be supplied by the Owner and the time when the same will be required by him for the work so as to enable the Engineer-in-Charge to make necessary arrangements for procurement and supply of the material.
- (xi) A day account of the materials issued by the Owner shall be maintained by the Contractor indicating the daily receipt consumption and balance in hand. This account shall be contained in a manner prescribed by the Engineer-in-Charge along with all connected papers viz, requisitions, issues etc. and shall be always available for inspection in the Contractor's office at site.
- (xii) The Contractor should see that only the required quantities of materials are not issued. The Contractor shall not be entitled to cartage and incidental charges for returning the surplus materials, if any, to the stores where from they were issued or to the place as directed by the Engineer-in-Charge.
- (xiii) Material/Equipment supplied by Owner shall not be utilized for any other purpose (s) than issued for.

56. Material Procured with Assistance of Owner.

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Notwithstanding anything contained to the contract in any or all the clauses of this contract where any materials for the execution of the contract are procured with the assistance of the Owner either by issue from Owner's stock or purchases made under orders or permits or licence issued by Government, the contractor shall hold the said materials as trustee for the Owner and use such materials economically and solely for the purpose of the contract and not dispose them off without the permission of the Owner and return, if required by the Engineer-in-Charge shall determine having due regard to the condition of the materials. The price allowed to the Contractor, however, shall not exceed the amount charged to him excluding the storage charges, if any. The decision of the Engineer-in-Charge shall be final and conclusive in such matters. In the event of breach of the aforesaid condition, the Contractor shall in terms of the licence or permits and/or for criminal breach of trust, be liable to compensate the Owner at double rate or any higher rate, in the event of those materials at the time having higher rate or not being available in the market, then any other rate to be determined by the Engineer-in-Charge and his decision shall be final and conclusive.

57. Materials Obtained from Dismantling

If the Contractor in the course of execution of the work is called upon to dismantle any part for reasons other than those stipulated in clauses 63 and 67 here under, the materials obtained in the work of dismantling etc., will be considered as the Owner's property will be disposed off to the best advantage of the Owner.

58. Articles of Value Found

All gold, silver and other minerals of any description and all precious stones, coins, treasure, relics antiquities and other similar things which shall be found in, under or upon the site, shall be the property of the Owner and the Contractor shall dully preserve the same to the satisfaction of the Engineer-in-Charge and shall from time to time deliver the same to such person or persons indicated by the Owner.

59. Discrepancies between Instructions

Should any discrepancy occur between the various instructions furnished to the Contractor, his agents or staff or any doubt arise as to the meaning of any such instructions or should there be any misunderstanding between the Contractor's staff and the Engineer-in-Charge's staff, the Contractor shall refer the matter immediately in writing to the Engineer-in-Charge whose decision thereon shall be final and conclusive and no claim for losses alleged to have been caused by such discrepancies between instructions, doubts or misunderstanding shall in any event be admissible.

60. Alterations in Specifications & Designs, Drawings, Extra Works, Deviation of quantities.

- A. The Engineer-in-Charge shall have power to make any alterations in, omission from, addition to or substitutions for, the schedule of items, the original specifications, drawings designs and instructions that may appear to him to be necessary or advisable during the progress of the work and the Contractor shall be bound to carry out such altered extra new items of work in accordance with

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any instructions which may be given to him in writing signed by the engineer-in-charge and such alterations, omissions, additions or substitutions shall not invalidate the contract and any altered, additional or substituted work which the Contractor may be directed to do in the manner above specified as part of the work shall be carried out by the Contractor on the same conditions in all respects on which he agreed to do the main work. The time for completion of work may be extended additions or substitutions of the work, as he may consider as just and reasonable. The rates for such additional, altered or substituted work under this clause shall be worked out in accordance with the following provisions.

- (a) If the rates for the additions, altered or substituted work are specified in the contract for the work, the Contractor is bound to carry out the additional, altered or substituted work at the same rates as are specified in the contract.
- (b) If the rates for the additional, altered or substituted work are not specifically provided in the contract for the work, the rates will be derived from the rates for similar class of work as are specified in the contract for the work. The opinion of the Engineer-in-Charge, as to whether or not the rates can be reasonably so derived from the items in this contract, will be final and binding on the Contractor.

NOTE: Individual trade means the trade sections into which the schedule of rates in the agreement is divided such as excavation and earthwork, concrete, woodwork and joinery, piping etc.

- (c) If the rates for the altered, additional or substituted work cannot be determined in the manner specified in sub-clause (a) & (b) above, then the Contractor shall, within 7 days of the date of receipt of order to carry out the work, inform the Engineer-in-Charge of the rate which it is his intention to charge for such class of work, supported by analysis of the rate or rates claimed, and the Engineer-in-Charge shall determine the rate or rates on the basis of the prevailing market rates, labour cost at schedule of labour plus 10% to cover Contractor's supervision, overheads and profit and pay the Contractor accordingly. The opinion of the Engineer-in-Charge as to current market rates of materials and the quantum of labour involved per unit of measurement will be final and binding on the Contractor.
- (d) Provisions contained in sub-clause (a) to (c) above shall not however apply in the following cases :
 - (i) Where the alterations, additions or substitutions in respect of items individually exceed by or are less than plus/minus 30% of the value for that particular items specified in contract.
 - (ii) Where the alterations, additions or substitutions in respect of items of any individual trade included in the contract exceed by or are less than plus/minus 50% of the value of that trade as a whole in the contract or 30% of the total value of the contract whichever is less.

- (B) In case of the items which individually exceed the value stipulated in the contract by more than the limits given in clause (d) above, the Contractor shall within 15 days from the receipt of order, claim revision of the rates supported by proper analysis in respect of such items for quantities in excess/ reduction

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of the above limits, notwithstanding the fact that the rates for such items exist in the tender for the main work or can be derived in accordance with the provisions of sub-clause (b) of clause (60) and the Engineer-in-Charge may revise their rates, having regard to the prevailing market rates and the Contractor shall be paid in accordance with the rates so fixed. But under no circumstances the Contractor shall suspend the work on the plea of non-settlement of rates of items falling under this clause.

All the provisions of the preceding paragraph shall equally apply to the decrease in the rate of items for quantities in excess of the limits specified in clause (d) notwithstanding the fact that the rates for such items exist in the tender with the provisions of sub-clause (b) of Clause 60, and the Engineer-in-Charge may revise such rates having regard to the prevailing market rates. Notwithstanding anything contained in paras 28 & 72 (vii) the parties to this agreement mutually agree that paragraphs 60 A & B shall be applicable to work done under unit rate basis only.

61. Action where no Specification is Issued

In case of any class of work for which there is no such specification supplied by the Owner as mentioned in the tender documents such work shall be carried out in accordance with Indian Standard specifications and if the Indian Standard Specifications do not cover the same, the work should be carried out as per standard Engineering Practice subject to the approval of the Engineer-in-Charge.

62. Abnormal Rates

The Contractor is expected to quote rate for each item after careful analysis of cost involved for the performance of the completed item considering all specifications and conditions of contract. This will avoid loss of profit or gain in case of curtailment or change of specification for any item. In case it is noticed that the rates quoted by the tender for any item are unusually high or unusually low it will be sufficient cause for the rejection of the tender unless the Owner is convinced about the reasonableness of the rates on scrutiny of the analysis for such rate to be furnished by the tenderer on demand.

63. Inspection of Works

- 63.1 The Engineer-in-Charge will have full power and authority to inspect the works at any time wherever in progress either on the site or at the Contractor's premises/workshops wherever situated, premises workshops of any person, firm or corporation where work in connection with the contract may be in hand or where materials are being or are to be supplied, and the Contractor shall afford or procure for the Engineer-in-Charge every facility and assistance to carry out such inspection. The Contractor shall, at all time during the usual working hours and at all other times at which reasonable notice of the intention of the Engineer-in-Charge or his representative to visit the work shall have been given to the Contractor, either himself be present to receive orders and instructions, or have responsible agent duly accredited in writing present for the purpose. Orders given to the Contractor's agent shall be considered to have the same force as if they had been given to the Contractor himself. The Contractor shall give not less than seven days notice in writing to the Engineer-in-Charge before covering up or otherwise placing beyond reach of inspection

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and measurement any work in order that the same may be inspected and measured. In the event of breach of above the same shall be uncovered at Contractor's expense for carrying out such measurement or inspection.

- 63.2 No material shall be dispatched from the Contractor's godown before obtaining the approval in writing of the Engineer-in-charge.

The Contractor is to provide at all times during the progress of the work and the maintenance period proper means of access with ladders, gangways etc. and the necessary attendance to move and adopt as directed for inspection or measurement of the works by the Engineer-in-Charge.

63.3 Access of Architect to the works

The Architect and his representatives, upon duly authorized in writing by the Owner for the purpose, shall at all reasonable times have access to the works and to the workshops or other places of the contractors or sub-contractors, if any, where work is being prepared for the contract and the contractors shall do all things reasonably necessary for the Architect to carry out the inspection. All modifications/ rectifications as may be pointed out by the Architect shall be conveyed by the engineer-in-Charge to the contractor and the same shall be carried out accordingly.

64. Assistance to the Engineers

The Contractor shall make available to the Engineer-in-Charge free of cost all necessary instruments and assistance in checking of setting out of works and in the checking of any work made by the Contractor for the purpose of setting out and taking measurement of work.

65. Tests for quality of Works

- 65.1 All workmanship shall be of the respective kind described in the contract documents and in accordance with the instructions of the Engineer-in-Charge and shall be subjected from time to time to such test at Contractor's cost as the Engineer-in-Charge may direct at the place of manufacture or fabrication or on the site or at all or any such places. The Contractor shall provide assistance, instruments labour and materials as are normally required for examining, measuring and testing any workmanship as may be selected and required by the Engineer-in-Charge.
- 65.2 All the tests that will be necessary in connection with the execution of the work as decided by the Engineer-in-Charge shall be carried out at the field testing laboratory of the Owner/approved Agency by paying the charges as decided by the Owner from time to time. In case of non-availability of testing facility with the Owner, the required test shall be carried out at the cost of Contractor at government or any other testing laboratory as directed by Engineer-in-Charge.
- 65.3 If any tests are required to be carried out in connection with the work or materials or workmanship not supplied by the Contractor, such tests shall be carried out by the Contractor as per the instructions of Engineer-in-Charge and cost of such tests shall be reimbursed by the Owner.

66. Samples

The Contractor shall furnish to the Engineer-in-Charge for approval when requested or if required by the specifications adequate samples of all materials and finishes to be used in the work. Such samples shall be submitted before

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the work is commenced and in ample time to permit tests and examinations thereof. All materials furnished and finished and finishes applied in actual work shall be full equal to the approved samples.

67. Action and compensation in case of Bad Work

If it shall appear to the Engineer-in-Charge that any work has been executed with unsound, imperfect or unskilled workmanship, or with materials of any inferior description, or that any materials or articles provided by the Contractor for the execution of the work are unsound, or of a quality inferior to that contracted for, or otherwise not in accordance within the contract, the Contractor shall on demand in writing from the Engineer-in-Charge or his authorized representative specifying the work, materials or articles complained of, notwithstanding that the same may have been inadvertently passed, certified and paid for, forthwith rectify or remove and reconstruct the work so specified and provide other proper and suitable materials or articles at his own charge and cost, and in the event of failure to do so within a period to be specified by the Engineer-in-Charge in his demand aforesaid, the Contractor shall be liable to pay compensation at the rate of one percent of the estimated cost of the whole work, for every week limited to a maximum of 10 percent of the value of the whole work, while his failure to do so shall continue and in the case of any such failure the Engineer-in-Charge may on expiry of notice period rectify or remove and re-execute the work or remove and replace with others, the materials or articles complained of as the case may be at the risk and expense in all respects of the Contractor. The decision of the Engineer-in-Charge as to any question arising under this clause shall be final and conclusive.

68. Suspension of Works

- (i) Subject to the provisions of sub-para (ii) of this clause the Contractor shall if ordered in writing by the Engineer-in-Charge or his representative, temporarily suspend the works or any part thereof for such period and such item as so ordered and shall not, after receiving such written order, proceed with the work therein ordered to be suspended until he shall have received a written order to proceed therewith. The Contractor shall not be entitled to claim compensation for any loss or damage sustained by him by reason of temporary suspension of the works aforesaid. An extension of time for completion, corresponding with the delay caused by any such suspension of the works as aforesaid will be granted to the Contractor should he apply for the same provided that suspension was not consequent to any default or failure on the part of the Contractor.
- (ii) In case of suspension of entire work, ordered in writing by Engineer-in-Charge, for a period of more than two months, the Contractor shall have the option to terminate the contract.

69. Owner may do Part of Work

Upon failure of the Contractor to comply with any instructions given in accordance with the provisions of this contract the Owner has the alternative right, instead of assuming charge of entire work, to place additional labour force, tools, equipment and materials on such parts of the work, as the Owner may designate or also engage another Contractor to

carry out the work. In such cases, the Owner shall deduct from the amount which otherwise might become due to the Contractor, the cost of such work and materials with ten percent added to cover all departmental charges and should the total amount thereof exceed the amount due to the Contractor shall pay the difference to the Owner.

70. Possession Prior to completion

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 be deemed to be an acceptance of any work completed in accordance with the contract agreement. If such prior possession or use by the Engineer-in-Charge delays the progress of work, suitable adjustment in the time of completion will be made and the contract agreement shall be deemed to be modified accordingly.

71. Twelve Month's Period of Liability from the Date of Issue of Completion Certificate

71.1 The Contractor shall guarantee the installation/work for a period of 12 months from the date of issue of completion certificate. Any damage or defect that may arise or lie undiscovered at the time of issue of completion certificate, connected in any way with the equipment or materials supplied by him or in the workmanship, shall be rectified or replaced by the Contractor at his own expense as deemed necessary by the Engineer-in-Charge or in default, the Engineer-in-Charge may cause the same to be made good by other workmen and deduct expenses (of which the certificate of Engineer-in-Charge shall be final) from any sums that may be then or at any time thereafter, become due to the Contractor or from his security deposit, or the proceeds of sale thereof, or of a sufficient portion thereof.

71.2 If the Contractor feels that any variation in work or in quality of materials or proportions would be beneficial or necessary to fulfill the guarantees called for, he shall bring this to the notice of the Engineer-in-Charge in writing.

71.3 Care of Works

From the commencement to completion of the works, the Contractor shall take full responsibility for the care for all works including all temporary works land in case any damages or loss shall happen to the works or to any part thereof or to any temporary works from any cause whatsoever, shall at his own cost repair and make good the same so that at completion the work shall be in good order and in conformity in every respect with the requirements of the contract and the Engineer-in-Charge's instructions.

71.4 Defects prior to take over

If at any time, before the work is taken over, the Engineer in Charge shall decide that any work done or materials used by the Contractor or any sub-Contractor is defective or not in accordance with the contract or that the works or any portion thereof are defective or do not fulfill the requirements of contract (all such matters being herein called 'Defects' in

this clause) as soon as reasonably practicable, he shall give to the Contractor notice in writing of the said decision, specifying particulars of the defects alleged to exist or to have occurred and the Contractor shall at this own expense and with all speed make good the defects so specified.

In the case Contractor shall fail to do so, the Owner may take, at the cost of the Contractor, such steps as may in all circumstances, be reasonable to make good such defect. The expenditure so incurred by the Owner will be recovered from the amount due to the Contractor. The decision of the Engineer-in-Charge with regard to the amount to be recovered from the Contractor will be final and binding on the Contractor. As soon as the works have been completed in accordance with the contract (except in minor respects that do not affect their use for the purpose for which they are intended and except for maintenance thereof provided in clause 71.1 of General Conditions of the Contract) and have passed the tests on completion. The Engineer-in-Charge shall issue a certificate (hereinafter called completion certificate) in which he shall certify the date on which the works have been so completed and have passed the said tests and the Owner shall be deemed to have taken over the works on the date so certified. If the works have been divided into various groups in the contract, the Owner shall be entitled to take over any group or groups before the other or others and there upon the Engineer-in-Charge shall issue a completion certificate which will, however, be for such group or groups so taken over only.

71.5 Defects after Taking Over

In order that the Contractor could obtain a completion certificate he shall make good with all possible speed any defect arising from the defective materials supplied by the Contractor or workmanship or any act or omission of the contract or that may have been noticed or developed, after the works or group of the works has been taken over, the period allowed for caring out such work will be normally one month. If any defect be not remedied within a reasonable time, the Owner may proceed to do the work at Contractor's risk and expense and deduct from the final bill such amount as may be decided by the Owner.

If by reason of any default on the part of the Contractor a completion certificate has not been issued in respect of every portion of the works within one month after the date fixed by the contract for the completion of the works, the Owner shall be at liberty to use the works or any portion thereof in respect of which a completion certificate has not been issued, provided that the works or the portion thereof so used as aforesaid shall be afforded reasonable opportunity for completing these works for the issue of completion certificate.

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SECTION – 6**CERTIFICATES AND PAYMENTS****72. SCHEDULE of RATES and PAYMENTS****(i) Contractor's Remuneration**

The price to be paid by the Owner to Contractor for the whole of the work to be done and the performance of all the obligations undertaken by the Contractor under the contract documents shall be ascertained by the application of the respective schedule of rates (the inclusive nature of which is more particularly defined by way of application but not of limitation, with the succeeding sub-clause of this clause) and payment to be made accordingly for the work actually executed and approved by the Engineer-in-Charge. the sum so ascertained shall (excepting only as and to the extent expressly provided herein) constitute the sole and inclusive remuneration of the Contractor under the contract and no further other payment whatsoever shall be or become due or payable to the Contractor under the contract.

(ii) Schedule of Rates to be Inclusive

The price/ rates quoted by the Contractor shall remain firm till the issue of final certificate and shall not be subject to escalation. Schedule of rates shall be deemed to include and cover all costs, expenses and liabilities of every description and all risk of every kind to be taken in executing, completing and handing over the work to the Owner by the Contractor. The Contractor shall be deemed to have known the nature, scope, magnitude and the extent of the works and materials required though the contract document may not fully and precisely furnish them. He shall make such provision in the schedule of rates as he may consider necessary to cover the cost of such items of work and materials as may be reasonable and necessary to complete the works. The opinion of the Engineer-in-Charge as to the items of work which are necessary and reasonable for completion of work shall be final and binding on the Contractor, although the same may not be shown on or described specifically in contract documents.

Generally of this present provision shall not be deemed to cut down or limited in any way because in certain cases it may and in other cases it may not be expressly stated that the Contractor shall do or perform a work or supply articles or perform services at his own cost or without addition of payment or without extra charge or words to the same effect or that it may be stated or not stated that the same are included in and covered by the schedule of rates.

(iii) Schedule of Rates to cover constructional Plant, Materials, Labour etc.

Without in any way limiting the provisions of the proceeding sub-clause the schedule of rates shall be deemed to include and cover the cost of all constructional plant, temporary work (except as provided for herein), pumps, materials, labour, insurance, fuel, stores, and appliances to be supplied by the Contractor and all other matters in connection with each item in the schedule of rates and the execution of the works or any portion thereof finished, complete

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in every respect and maintained as shown or described in the contract documents or may be ordered in writing during the continuance of the contract.

(iv) Schedule of Rate to Cover Royalties, Rents and Claims

The schedule of rates shall be deemed to include and cover the cost of all royalties and fees for the articles and processes, protected by letters, patent or otherwise incorporated in or used in connection with the works, also all royalties, rents and other payments in connection with obtaining materials of whatsoever kind for the works and shall include and indemnity to the Owner which the Contractor here-by gives against all actions, proceedings, claims damages, costs and expenses arising from the incorporation in or use on the works of any such articles, processes or materials. Octroi or other municipal or local board charges if levied on materials, equipment or machineries to be brought to site for use on work shall be borne by the Contractor.

(v) Schedule of Rates to cover Taxes and Duties

No exemption or reduction of customs duties, excise duties, sales tax, contract quay or any port dues, transports charges, stamp duties or Central or State government or local body or Municipal Taxes or duties, taxes or charges (from or of anybody), whatsoever, will be granted or obtained, all of which expenses shall be deemed to be included in and covered by the schedule of rates. The Contractor shall also obtain and pay for all permits or other privileges necessary to complete the work.

(vi) Schedule of rates to cover Forest Royalties.

All the responsibilities for obtaining all forest permits and payment of forest royalties etc. for use of all forest produces shall lie with the contractor. The contractor shall deposit royalty and obtain necessary permit for supply of all forest produces from local authorities. If pursuant to or under any law, notification or order, any royalty, cess or the like becomes payable by the Institute and does not any time become 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 Institute and it will have the right and be entitled to recover the amount paid in the circumstances as aforesaid from dues of the contractor. The schedule of rates shall be inclusive of all forest royalties, monopolies and all admissible taxes from time to time as per rules of Government of Assam.

(vii) Schedule of Rates to cover Risks of Delay

The schedule of rates shall be deemed to include and cover the risk of all possibilities of delay and interference with the Contractor's conduct for work which occur from and cause including orders of the Owner in the exercise of his powers and on account of extension of time granted due to various reasons and for all other possible or probable causes of delay.

(viii) Schedule of Rates cannot be altered

For work under unit rate basis, no alteration will be allowed in the schedule of rates by reason of works or any part of them being modified altered, extended, diminished or omitted. The schedule of rates are fully inclusive rates which have been fixed by the Contractor and agreed to by the Owner and cannot be altered.

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For lump sum contracts, the payment will be made according to the work actually carried out, for which purpose an item-wise, or work-wise, schedule of rates shall be furnished, suitable for evaluating the value of work done and preparing running account bills. Lump sum contracts shall also allow for any increase or decrease in the total quantity of work up to approximately 10% for the quoted price and the contract value shall be adjusted accordingly.

73. Procedure for Measurement/Billing of Work in Progress

(i) Measurements

All measurements shall be in metric system. All measurement of all the items having financial value (more than 15.00 lacs) shall be entered by the contractor and compiled in the shape of computerized Measurement 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 work performed under the contract. The measurement upto 15.00 lacs shall be recorded in the conventional M.B. For computerized Measurement Book, all such measurements and levels recorded by the contractor or his authorized representative from time to time, during the progress of work.

The contractor would initially submit draft computerized measurement sheet and these measurements would be got checked/tests checks in his draft computerized measurements, and submit to the department a computerized measurement Book, duly bound, and with its pages numbered. The Engineer In Charge and/or his authorized representative would thereafter check this MB.

After the necessary corrections made by the Engineer in Charge, the measurement sheet shall be returned to the contractor for incorporating the corrections and for re-submission to the Engineer In Charge for signatures by the Engineers in Charge and the contractors or their representatives in token of their acceptance. For the purpose of taking joint measurement the Contractor's representative shall be bound to be present whenever required by the Engineer-in-Charge. If, however he is absent for any reason whatsoever the measurements will be taken by the Engineer-in-Charge or his representative and this will be deemed to be correct and binding on the Contractor.

(ii) Billing

The final fair computerized measurement Book along with Abstract of Cost and the bill based on these measurements (with two separate copies of the Bill) given by the contractor, duly bound, with its pages numbered should be 100% correct, and no cutting or overwriting in the measurements would thereafter be allowed. If at all any error is noticed, the contractors shall have to be submit a fresh computerized MB with its page duly numbered and bound, after getting the earlier MB cancelled by the department. Thereafter the MB shall be taken in the Engineering/Maintenance cell records and allotted a number as per the registrar of Computerized MBs. This should be done before the correspondence bill is submitted to the Finance & Accounts 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 submit the bill in approved Performa in quadruplicate to the Engineer-in-Charge of the work giving abstract and detailed measurements for the various items executed. The Engineer-in-Charge shall take or cause to be taken the

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requisite measurements for the purpose of having the same verified and the claim, as far as admissible, adjusted, if possible.

(iii) Secured Advance on Materials

In case of tenders for completed item of work, Contractor may be allowed 'Secured Advance' on the security of materials brought to site for execution of the contracted item of work to the extent of 75% of the value of materials as assessed by the Engineer-in-Charge provided that the materials are of an imperishable nature and that a formal agreement is drawn up with the Contractor under which the Owner secures a lien on the materials and is safeguarded against losses due to the Contractor postponing the execution of the work or to the storage or misuse of the materials and against the expense entitled for their proper watch and safe custody. Recoveries of advances so made would not be postponed until the whole of the work entrusted to the Contractor is completed. They should be adjusted from his bills for work done as the materials are used, the necessary deductions being made whenever the items of work in which they are used are billed for.

(iv) Dispute in Mode of Measurement

In case of any dispute as to the mode of measurement not covered by the contract to be adopted for any item of work, mode of measurement as per latest Indian Standard Specifications shall be followed.

74. Lump-sums in Tender

For the item in tender where it includes lump-sum in respect of parts of work, the Contractor shall be entitled to payment in respect of the items 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 capable of measurement or determination, the Owner may at his discretion pay the lump-sum amount entered in the tender or a percentage thereof and the certificate in writing of the Engineer-in-Charge shall be final and conclusive against the Contractor with regards to any sum or sums payable to him under the provisions of this clause.

75. Running Account Payments to be Regarded as Advances

All running account payments shall be regarded as payment by way of advance against the final payment only and not as payments for work actually done and completed and shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or re-erected or be considered as an admission of the due performance of the contract, or any part thereof, in this respect, or of the accruing of any claim by the Contractor, nor shall it conclude, determine or affect in any way the powers of the Owner under these conditions or any of them as to the final settlement and adjustment of the accounts or otherwise, or in any other way vary or affect the contract. The final bill shall be submitted by the Contractor within one month of the date of physical completion of the work, otherwise, the Engineer-in-Charge's certificate of the measurement and of total amount payable for the work accordingly shall be final and binding on all parties.

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76. Notice of Claims for Additional Payment

Should the Contractor consider that he is entitled to any extra payment or compensation or to make any claims whatsoever in respect of the works he shall forthwith give notice in writing to the Engineer-in-Charge that he claims extra payment and/or compensation. Such notice shall be given to the Engineer-in-charge within ten days from the ordering of any work or happening of any event upon which the contractor bases such claims and such notice shall contain full particulars of the nature of such claim with full details and amount claimed. Failure on the part of the Contractor to put forward any claim with the necessary particulars as above within the time above specified shall be an absolute waiver thereof. No omission by the Owner to reject any such claim and no delay in dealing therewith shall be waiver by the Owner of any rights in respect thereof.

77. Payment of Contractor's Bill

No payment shall be made for works estimated to cost less than Rs. 10,000/- till the whole of the work shall have been completed and a certificate of completion given. But in case of works estimated to cost more than Rs. 20,000/- the Contractor on submitting the bill thereof be entitled to receive a monthly payment proportionate to the part thereof approved and passed by the Engineer-in-Charge, whose certificate of such approval and passing of the sum so payable shall be final and conclusive against the Contractor. This payment will be made after making necessary deductions as stipulated elsewhere in the contract document for materials, security deposit etc.

Payment due to the Contractor shall be made by the Owner if so directed by the Owner by Crossed Account Payee cheque forwarding the same to registered office or the notified office of the Contractor. In no case will Owner be responsible if the cheque is mislaid or misappropriated by unauthorised person/persons. In all cases, the Contractor shall present his bill duly pre-receipted on proper revenue stamp.

All payments shall be made in Indian currency.

78. Receipt of Payment

Receipt for payment made on account of work when executed by a firm, must be signed by a person holding due power of attorney in this respect on behalf of the Contractor, except when the Contractors are described in their tender as a limited company in which case the receipts must be signed in the name of the company by one of its principal officers or by some other person having authority to give effectual receipt for the company.

79. Completion Certificate**79.1 Application for Completion Certificate**

When the Contractor fulfil his obligation under clause 71.4 shall be eligible to apply for completion certificate. The Contractor may apply for separate completion certificate in respect of each such portion of the work by submitting the completion documents along with such application for completion certificate.

The Engineer-in-charge shall normally issue to the Contractor the completion certificate within one month after receiving and application therefore from the

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Contractor after verifying from the completion documents and satisfying himself that the work has been completed in accordance with and as set out in the construction and erection drawings and the contract documents.

The Contractor, after obtaining the completion certificate, is eligible to present the final bill for the work executed by him under the terms of contract.

79.2 Completion Certificate

Within one month of the completion of the work in all respects, the Contractor shall be furnished with a certificate by the engineer-in-Charge of such completion, but no certificate shall be given nor shall the work be deemed to have been executed until all scaffolding, surplus materials and rubbish is cleaned of the site completely nor until the work shall have been measured by the Engineer-in-Charge whose measurements shall be binding and conclusive. The work will not be considered as complete and taken over by the Owner, until all the temporary works, labour and staff colonies etc.; constructed, are removed and the work site cleaned to the satisfaction of the Engineer-in-Charge.

If the Contractor shall fail to comply with the requirements of this clause on or before the date fixed for the completion of work, the Engineer-in-Charge may at the expenses of the Contractor remove such scaffolding, surplus materials and rubbish and dispose off the same as he thinks fit and clean of such dirt as aforesaid, and the Contractor shall forthwith pay the amount of all expenses so incurred and shall have no claim in respect of any such scaffolding or surplus materials as aforesaid except for any sum actually realized by the sale thereof.

79.3 Completion Certificate Documents

For the purpose of clause 79 the following documents will be deemed to form the completion documents.

- (i) The technical documents according to which the work was carried out.
- (ii) Three sets of construction drawings showing therein the modification and corrections made during the course of execution signed by the Engineer-in-Charge.
- (iii) Completion certificate for 'embedded' and 'covered' up works.
- (iv) Certificates of final levels as set out for various works.
- (v) Certificates of tests performed for various works.
- (vi) Materials appropriation Statement for the materials issued by the Owner for the works and list of surplus materials returned to the Owner's store duly supported by necessary documents.

80. Final Decision and Final Certificate

Upon expiry of the period of liability and subject to the Engineer-in-Charge being satisfied that the works have been duly maintained by the Contractor during monsoon or such period as herein before provided in clause 71.1 and that the Contractor has in all respect duly made up any subsidence and performed all his obligations under the contract, the Engineer-in-Charge shall (without prejudice to the rights of the Owner to retain the provisions of relevant clause hereof) otherwise give a certificate herein referred to as the final certificate to

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that effect and the Contractor shall not be considered to have fulfilled the whole of his obligations under the contract until Final Certificate shall have been given by the Engineer-in-Charge notwithstanding any previous entry upon the work and taking possession, working or using of the same or any part thereof by the Owner.

81. Certificate and Payments no Evidence of completion

Except the final certificate, no other certificates or payments against a certificate or on general account shall be taken to be an admission by the Owner of the due performance of the contract or any part thereof or of occupancy or validity for any claim by the Contractor.

SECTION - 7
TAXES AND INSURANCE

82. Taxes, Duties, Octroi etc.

The Contractor agrees to and does hereby accept full and exclusive liability for the payment of any and all taxes, duties, octrois etc. now or hereafter imposed, increased, or modified from time to time in respect of works and materials and all contributions and taxes for unemployment compensation, insurance and old age pensions or annuities now or hereafter imposed by any Central or State governmental authorities which are imposed with respect to or covered by the wages, salaries, or other compensations paid to the persons employed by the Contractor and the Contractor shall be responsible for the compliance with all obligations and restrictions imposed by the Labour Law or any other law affecting employer-employee relationship and the Contractor further agrees to comply and to secure the compliance of all sub-Contractors, with all applicable Central State, Municipal and local laws and regulations and requirements of any Central, State or Local, Government agency or authority. Contractor further agrees to defend, indemnify and hold harmless from any liability or penalty which may be imposed by the Central, State or Local authorities by reason of any violations by Contractor or sub-Contractor of such laws, regulations or requirements and also from all claims, suits or proceedings that may be brought against the Owner arising under growing out of, or by reason of the work provided for by this contract, by third parties, or by Central or State government authority or any administrative sub-division thereof.

- 82.1** All taxes viz. income tax, Sales Tax, Duties, Levies, GST, Building and other Construction Workers Welfare Cess or any other tax or Cess in respect of this contract applicable at the time of submission of this tender shall be payable by the Contractor and the Institute shall not entertain any claim whatsoever in this respect. Taxes, GST, Cess etc. shall be deducted as per applicable rules from the bills of the contractor at the rates prevailing on the day of submission of the tender.

82.1.1 Income Tax

Income tax at the prevailing rate on the gross amount of the bill shall be deducted from the contractor's bill as per section 194C of the Income Tax Act.

82.1.2 GST

GST will be deducted at the prevailing rate on the value of the bill subject to submission of certificate of composition scheme by the contractor or else as admissible percentage as per relevant rules. If GST not deducted by the Owner, contractor shall have to pay GST to the Govt. as per prevailing rate on the value of the bill.

82.1.3 Cess for Building and other construction Workers' Welfare Board

1% cess will be deducted from the bills on account of Welfare of Building and other construction workers which will be deposited to Building and other construction Workers' Welfare Board formed by the Government of Assam.

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Any increase in the rates of any existing taxes/duties/levies/royalties etc shall be borne by the Institute. If there are any decreases the amounts payable will be reduced accordingly.

82.2. Variation of taxes:

Any fresh imposition of taxes, duties, levies etc, imposed after receipt of tender shall be reimbursed by the Institute on actual on production of proof of imposition of the tax.

83. Insurance

Contractor shall at his own expense carry and maintain insurance with reputable insurance companies to the satisfaction of the Owner as follows:

(i) Employees State Insurance Act

The Contractor agrees to and does hereby accept full and exclusive liability for compliance with all obligations imposed by the Employees State Insurance Act, 1984, and the Contractor further agrees to defend, indemnify and hold Owner harmless from any liability or penalty which may be imposed by the Central, State or Local authority by reason of any asserted, violation by Contractor or sub-Contractor of the Employees State Insurance Act, 1948, and also from all claims, suits or proceeding that may be brought against the Owner arising under, growing out of or by reasons of the work provided for by this contract whether brought by employees of the Contractor, by third parties or by Central or State Government authority or any political sub-division thereof.

The Contractor agrees to fill in with the Employee's State Insurance Corporation, the Declaration Forms, and all forms which may be required in respect of the Contractors or sub-Contractors employees, whose aggregate remuneration is Rs. 15000.00 per month or such amount as prescribed under the Employees State Insurance Act, 1948 from time to time and who are employed in the work provided for or those covered by ESI from time to time under the Agreement. The Contractor shall deduct and secure the agreement of the sub-Contractor to deduct the employee's contribution as per the first schedule of the Employee's State Insurance Act form wages and affix the Employee's contribution Cards at wages payment intervals. The Contractor shall remit and secure the agreement of the sub-Contractor to remit to the State Bank of India, Employees' State Insurance Corporation. Account, the Employees contribution as required by the Act. the Contractor agrees to maintain all cards and records as required under the Act in respect of employees and payments and the Contractor shall secure the agreement of the sub-Contractor to maintain such records. Any expenses incurred for the contributions, making contributions or maintaining records shall be to the Contractor's or sub-Contractor's account.

The Owner shall retain such sum as may be necessary from the total contract value until the Contractor shall furnish satisfactory proof that all contributions as required by the Employees State Insurance Act, 1948, have been paid.

(ii) Workman's compensation and employer's Liability Insurance

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Insurance shall be effected for all the Contractor's employees engaged in the performance of this contract. If any of the work is sublet, the Contractor shall require the sub-Contractor to provide Workman's Compensation and employer's liability insurance for the latter's employees if such employees are not covered under the Contractor's Insurance.

(iii) Any other Insurance Required Under Law or Regulations or by Owner

Contractor shall also carry and maintain any and all other insurance which may be required under any law or regulation from time to time. He shall also carry and maintain any other insurance, which may be required by the Owner.

(iv) The ESI and EPF contribution shall be paid by the contractor and maintain all the records which may be required under any law or regulation from time to time by the Owner.

84. Damage to Property

- (i) Contractor shall be responsible for making good to the satisfaction for the Owner any loss or and any damage to all structures and properties belonging to the Owner or being executed or procured or being procured by the Owner or of other agencies within the premises of all the work of the Owner, if such loss or damage is due to fault and/or the negligence or willful acts or omission of the Contractor, his employees, agents, representative or sub-Contractors.
- (ii) The Contractor shall indemnify and keep the Owner harmless of all claims or damage to property other than Owner's property arising under or by reason of this agreement if such claims result from the fault and/or negligence or willful acts or omissions of the Contractor, his employees, agents representative or sub-Contractors.

SECTION – 8
LABOUR LAWS AND SAFETY REGULATIONS

85. Labour Laws

- (i) **All matters regarding the labour shall be in accordance to Contract labour (Regulation and Abolition) Act, 1970, minimum wage Act 1948 and other applicable acts under law.**
- (ii) No labour below the age of fifteen years shall be employed on the work.
- (iii) The Contractor shall not pay less than what is provided under law to labourer engaged by him on the work.
- (iv) The Contractor shall at his expense comply with all labour laws and keep the Owner indemnified in respect thereof.

86. Implementation of apprentices Act 1961

The Contractor shall comply with the provisions of the Apprentices Act 1961 and the Rule and orders issued thereunder from time to time. If he fails to do so, his failure will be a breach of the contract and the Engineer-in-Charge may, at 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 provision of the Act.

87. Contractor to Indemnify the Owner

- (i) The Contractor shall indemnify the Owner and every member, officer and employee of the Owner, also the Engineer-in-Charge and his staff against all actions, proceedings, claims, demands, costs and expenses whatsoever arising out of or in connection with the matters referred to in clause 84 and elsewhere and all actions, proceedings, claims, demands, costs and expenses which may be made against the Owner for or in respect of or arising out of any failure by the Contractor in the performance of his obligations under the contract documents. The Owner shall not be liable for or in respect of any demand or compensation payable by law in respect or in consequence of any accident or injury to any workmen or other person in the employment of the Contractor or his sub-Contractor and Contractor shall indemnify and keep indemnified the Owner against all such damages and compensations and against all such damages and compensations and against all claims, damages, proceedings, costs, charges and expenses whatsoever in respect thereof or in relation thereto.
- (ii) **Payment of Claims and Damages**

Should the Owner have to pay any money in respect of such claims or demands as aforesaid the amount so paid and the costs incurred by the Owner shall be charged to and paid by the Contractor and the Contractor shall not be at liberty to dispute or question the right of the Owner to make such payments

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notwithstanding the same may have been made without his consent or authority or in law or otherwise to the contrary.

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

88. Health and Sanitary Arrangements for Workers

In respect of all labour directly or indirectly employed in the work for the performance of the Contractor's part of this agreement, the Contractor shall comply with or cause to be complied with all the rules and regulations of the local sanitary and other authorities or as framed by the Owner from time to time for the protection of health and sanitary arrangements for all workers.

89. Safety Regulations

- (i) In respect of all labour, directly or indirectly employed in work for the performance of Contractor's part of this agreement, the Contractor shall at his own expense arrange for all the safety provisions as per safety codes of C.P.W.D., Indian Standards Institution, The Electricity Act, Mines Act and such other acts as applicable.
- (ii) The Contractor shall observe and abide by all fire and safety regulations of the Owner. Before starting construction work Contractor shall consult with Owner's safety Engineer or Engineer-in-Charge and must make good to the satisfaction of the Owner any loss or damage due to fire to any portion of the work done or to be done or to be done under this agreement or to any other Owner's existing property.

90. Arbitration

All disputes of difference whatsoever which shall at any time arise between the parties hereto touching or concerning the works or the execution or maintenance thereof of this Contract or the rights touching or concerning the works or the execution or maintenance thereof this Contract of the construction meaning operation or effect thereof or to the rights or liabilities of the parties or arising out of or in relation thereto whether during or after completion of the contract or whether before or after determination, foreclosure or breach of the contract (other than those in respect of which the decision of any person is by the Contract expressed to be final and binding) shall after written notice by

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either party to the Contract to the other of them and to the Owner hereinafter mentioned be referred for adjudication to a sole Arbitrator to be appointed as herein after provided.

For the purpose of appointing the sole arbitrator referred to above, the appointing Authority will send within thirty days of receipt of the notice to the Contractor a panel of three names of persons who shall all be presently unconnected with the organization for which the work is executed.

The Contractor shall on receipt of the names as aforesaid, select any one of the persons named to be appointed as a sole Arbitrator and communicate his name to the Appointing Authority within thirty days of receipt of the names. The Appointing Authority shall thereupon without any delay appoint the said person as the sole Arbitrator. If the Contractor fails to communicate such selection as provided above within the period specified, the Appointing Authority shall make the selection and appoint the selected person as the sole Arbitrator.

If the Appointing Authority fails to send to the Contractor the panel of three names as aforesaid within the period specified, the Contractor shall send to the Appointing Authority a panel of three names of persons who shall all be unconnected with either party. The Appointing Authority shall on receipt of the names as aforesaid select any one of the persons named and appoint him as the sole Arbitrator. If the Appointing Authority fails to select the person and appoint him as the sole Arbitrator shall be entitled to appoint one of the persons from the panel as the sole Arbitrator and communicate his name to the Appointing Authority.

If the Arbitrator so appointed is unable or unwilling to act or resigns his appointment or vacates his office due to any reasons whatsoever another sole Arbitrator shall be appointed as aforesaid.

The work under the Contract shall, however continue during the arbitration proceedings and no payment due or payable to the Contractor shall be withheld on account of such proceedings.

The Arbitrator shall be deemed to have entered on the reference on the date he issues notice to both the parties fixing the date of the first hearing.

The Arbitrator may, from time to time, with the consent of the parties, enlarge the time for making and publishing the award.

The Arbitrator shall give a separate award in respect of each dispute or difference referred to him.

The venue of arbitration shall be such place as may be fixed by the Arbitrator in his sole discretion.

The fees, if any, of the Arbitrator shall, if required to be paid before the award is made and published, be paid half and half by each of the parties. The costs of the reference and of the award including the fees, if any of the Arbitrator shall be in the discretion of the Arbitrator who may direct to any by whom and

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in what manner, such costs or any part thereof shall be paid and may fix or settle the amount of costs to be so paid.

The award of the Arbitrator shall be final and binding on both the parties.

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

91. Jurisdiction

The contract shall be governed by and construed according to the laws in force in INDIA. The Contractor hereby submits to the jurisdiction of the Courts situated at Kokrajhar for the purposes of actions and proceedings arising out of the contract and the courts at Kokrajhar only will have the jurisdiction to hear and decide such actions and proceedings.

SECTION - 9**SAFETY CODE****A. General**

Contractor shall adhere of safe construction practice and guard against hazardous and unsafe working conditions and shall comply with Owner's safety rules as set forth herein. Prior to start of construction, Contractor will be furnished of Owner's "Safety Code" for information and guidance, if it has been prepared.

B. First Aid and Industrial Injuries

- (1) Contractor shall maintain first aid facilities for his employee and those of his sub-Contractors.
- (2) Contractor shall make out side agreements for ambulance service and for the treatment of industrial injuries. Names of those providing these services shall be furnished to the Owner prior to start of construction and their telephone numbers shall be prominently posted in Contractor's field office.
- (3) All critical industrial injuries shall be reported promptly to the Owner, and a copy of Contractor's report covering each personal injury requiring the attention of a physician shall be furnished to the Owner.

C. General Rules

Smoking within the battery area, tank farm or dock limits is strictly prohibited. Violators of the no smoking rules shall be discharged immediately.

D. Contractor's Barricades

- (1) Contractor shall erect and maintain barricades required in connection with his operation to guard or protect.
 - (a) Excavations.
 - (b) Hoisting areas.
 - (c) Areas adjudged hazardous Contractor's or Owner's inspectors.
 - (d) Owner's existing property subject to damage by Contractor's operations.
 - (e) Rail road unloading spots.
- (2) Contractor's employees and these of his sub-Contractors shall become acquainted with Owner's barricading practice and shall respect the provisions thereof.
- (3) Barricades and hazardous areas adjacent to but not located in normal routes of travel shall be marked by red flasher lanterns at nights.

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E. Scaffolding

- (i) Suitable scaffolding should be provide for workmen for all works that 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 materials as well, suitable footholds and handholds shall be provided on the ladder shall be given an inclination not steeper than 1 in 4 (1horizontal and 4 vertical).
- (ii) Scaffolding or staging more than 4 meters above the ground or floor, swing suspended from an overhead support or erected with stationary support shall have a guard rail properly attached, bolted, braced and otherwise rewarded at least 3 ft. high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings 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.
- (iii) Every opening of the floor of a building or in a working platform shall be provided with suitable means to prevent the fall of persons or materials by providing suitable fencing or railing whose minimum height shall be 1 metre.
- (iv) Working platform, gangways and stairways should be so constructed that they should not sag unduly or unequally and if the height of the platform of the gangway or the stairway is more than 4 metres above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (ii) above.
- (v) Safe- means of access shall be provided to all working platforms and other working places, every ladder should be securely fixed. No portable single ladder shall be over 9 metres in length while the width between side rails in rung ladder shall in no case be less than 30cms for ladder up to and including 3 metres in length. For longer ladder this width should be increased at least 5 mm for each additional foot of length. Uniform steps spacing shall not exceed 30 cms. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the site of work shall be so stacked or placed to cause danger or inconvenience to any person or public. The Contractor shall also provide all necessary fencing and light to protect the workers and staff from accidents, and shall be bound to bear the expenses of defence of every suit, action or other proceedings of law that may be brought by any person for injury sustained owing to neglect of the above precautions and pay any damages and costs which may be awarded in any such suit or action or proceedings to any such person or which may with the consent of the Contractor be paid to compromise any claim by any such person.

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F. Excavation and Trenching

All trenches 1.2 metres or more in depth, shall at all times be supplied with at least one ladder for each 50 metres length or fraction thereof.

Ladder shall be extended from bottom of the trench to at least 1 metre above the surface of the ground. The sides of the trenches which are 1.5 metres in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides to collapse. The excavated materials shall not be placed within 1.5 metres of the edge of the trench or half of the trench width whichever is more. Cutting shall be done from top to bottom. Under no circumstances undermining or undercutting shall be done.

G. Demolition

(i) Before any demolition work is commenced and also during the progress of the work.

(a) All road and open areas adjacent to the work site shall either be closed or suitably protected.

(b) No electric cable or apparatus which is liable to be a source of danger shall remain electrically charged.

(c) All practical shall be taken to prevent danger to persons employed from risk of fire or explosion or flooding. No floor, roof or other part of the building shall be so over-loaded with debris or materials as to render it unsafe.

(ii) All necessary personal safety equipment 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 condition suitable for immediate use, and the Contractor shall take adequate steps to ensure proper use of equipment by those concerned.

(a) Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective gloves.

(b) Those engaged in white washing and mixing or stacking of cement bags or any materials which are injurious to the eyes shall be provided with protective goggles.

(c) Those engaged in welding and cutting works shall be provided with protective face and eye shields, hand gloves etc.

(d) Stone breakers shall be provided with protective goggles and protective clothing, and seated sufficiently safe intervals.

(e) When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that the manhole covers are opened and are ventilated at least for an hour before the workers are allowed to gate in to the manholes, and the manholes so opened shall be cordoned off

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with suitable railing and provided with warning signals or board to prevent accident to the public.

(f) The Contractor shall not employ men below the age of 18 years and women 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 taken,

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

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

(3) Overalls shall be supplied by the Contractor to the workmen and adequate facilities shall be provided to enable the working painters to wash them during and on cessation of.

(iii) When the work is done near any place where there is a risk of drowning, all necessary safety equipment 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 sustained during the course of the work.

(iv) Use of hoisting machines and tackles including their attachments, anchorage and supports shall conform to the following standards or conditions:-

(a) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defect and shall be kept in good working order.

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

(c) Every crane driver or hoisting appliance operator shall be properly qualified and no person under the age of 12 years should be in charge of any hoisting machine including any scaffolding, which or give signals to the operator.

(d) In case of every hoisting machine and of every chain ring hook, shackle, swivel, and pulley block used in hoisting or lowering or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gears referred to above shall be plainly marked with the safe working load of the conditions under which it is applicable which shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.

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- (e) In case of departmental machine, 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 it verified by the Engineers concerned.
- (v) Motors, gearing transmission, electric wiring and other dangerous part of hoisting appliances should be provided with such means as to reduce to the minimum the accidental descent of the load, adequate precautions should be taken to reduce to the minimum the risk of any part or 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 workers shall not wear any rings, watches and carry keys or other materials which are good conductors of electricity.
- (vi) All scaffolds, ladders and other safety devices mentioned or described herein shall be maintained in safe conditions 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.
- (vii) These safety provisions should be brought to the notice of all concerned by the displaying on a notice board at a prominent place at the work-spot. The person responsible for compliance of the safety code shall be named therein by the Contractor.
- (viii) 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 Welfare Officer, Engineer-in-Charge or safety Engineer of the administration or their representatives.
- (ix) Notwithstanding the above clauses there is nothing in these to exempt the contractor from the operations of any other Act or rules in force in the Republic of India.

The works throughout including any temporary works shall be carried out in such a manner as not to interfere in any way whatsoever with the traffic on any roads or footpaths at the site or in the vicinity thereto or any exiting works whether the property of the Administration or of a third party.

In addition to the above, the Contractor shall abide by the safety code provision as per C.P.W.D. Safety Code and Indian standard Safety Code framed from time to time.

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PROFORMA OF AGREEMENT

CONTRACT AGREEMENT FOR THE WORK OF.....

DATED.....2019 (.....Two Thousand
Nineteen) Between M/s

..... in the town of
..... hereinafter called the “**CONTRACTOR**” which term shall unless excluded by or repugnant to the subject or context include its successors and permitted assignees of the one part and the Central Institute Technology Kokrajhar hereinafter called the “**OWNER**” (Which term shall, unless excluded by or repugnant to the subject or context include its successors and permitted assignees) of the other part.

Whereas:

A. The Owner being desirous of having provided and executed certain works mentioned, enumerated or referred to in the tender documents including short Tender notice, General Tender Notice, General Conditions of Contract, Special conditions of Contract, Specifications, Drawings, and Plans. Time Schedule of Completion of Jobs, Agreed Variations, other documents has called for Tender.

B. The Contractor has inspected the site and surroundings of the works specified in the tender documents and has satisfied himself by careful examination before submitting his tender as to the nature of the surface strata, soil, sub-soil and ground, the form and nature of site and local conditions, the qualities, nature and magnitude of the work, the availability of labour and materials necessary for the execution of work, the means of access to site, the supply of power and water thereto and accommodation he may require and has made local and independent enquiries and obtained complete information as to the matters and things referred to, or implied in the tender documents or having any connection therewith, and has considered the nature and extent of all probable and possible situations, delays, hindrances or interferences to or with the execution and completion of the work to be carried out under the contract, and has examined and considered all other matters, conditions and things and probable and possible contingencies, and generally all matters incidental thereto and ancillary thereof affecting the execution and completion of the work and which might have influenced him in making his tender.

C. The Notice Inviting Tender, General Conditions of Contract, Special Conditions of Contract Specifications, Drawings, Plans, Time Schedule of Completion of Jobs, and other documents, copies of all which are hereto annexed and marked “A”, The letter of submission of Tender and Acceptance of tender and any statement of agreed variation with its enclosures, copies of which are also hereto annexed and marked “B” form part of this contract though separately set out herein and are included in the expression “CONTRACT” wherever herein used.

And Where as

The Owner accepted the Tender of the Contractor for the provision and the execution of the said work at the rates stated in the schedule of quantities of works

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and finally approved by Owner (herein after called the "Schedule of Rates") upon the terms and subject to the conditions of contract.

Now This Agreement Witnessed and it is hereby agreed and declared as follows :-

1. Inconsideration of the payment to be made to the Contractor for the work to be executed by him, the Contractor hereby covenants with the Owner that the Contractor shall and will duly provide, execute and complete the said works and shall do and perform all other acts and things in the contract mentioned or described or which are to be implied there from or may be reasonably necessary for the completion of the said works and at the said times and in the manner and subject to the terms and conditions or stipulations mentioned in the contract.

2. In consideration of the due provision execution and completion of the said works, Owner does hereby agree with the Contractor that the Owner will pay to the Contractor the respective amount for the work actually done by him and approved by the Owner at the Schedule of Rates and such other sum payable to the Contractor under provision of Contract, such payment to be made at such time in such manner as provided for in the Contract.

AND

3. In consideration of the due provision, execution and completion of the said works the Contractor does hereby agree to pay such sums as may be due to the Owner for the services rendered by the Owner to the Contractor, such as power supply, water supply and others as set for in the said contract and such other sums as may become payable to the Owner towards the controlled items of consumable materials or towards loss, damage to the Owner's equipment, materials construction plant and machinery, such payments to be made at such time and in such manner as is provided in the Contract.

It is specifically and distinctly understood and agreed between the Owner and the Contractor that the Contractor shall have no right, title or interest in the site made available by the Owner for execution of the work executed or in the buildings, structures or works executed on the said site by the Contractor or in the good articles, materials etc. brought on the said site unless the same specifically belongs to the Contractor and the Contractor shall not have or deemed to have any lien whatsoever change for unpaid bills nor will be entitled to assume or retain possession or control of the site or structures and the Owner shall have an absolute and unfettered right to take full possession of site and to remove the Contractor, their servants, agents and materials belonging to the Contractor and laying on the site.

The Contractor shall be allowed to enter upon the site for execution of the works only as a licensee simpliciter and shall not have any claim, right, title or interest in the site or the structures erected thereon and the Owner shall be entitled to terminate such license at any time without assigning any reason.

The material including sand, gravel, stone, loose earth, rock etc., dug up or excavated from the said site shall, unless otherwise expressly agreed under the contract exclusively belong to the Owner and the Contractor shall have no right to

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claim over the same and such excavations and materials should be disposed of on account of the Owner according to the Instructions in writing issued from time to time by the Engineer-in-charge.

In witness whereof the parties have executed these presents in the day and the year first above written.

Signed and Delivered for and on behalf of Owner Central Institute of Technology Kokrajhar

Signed and Delivered for and on behalf of Contractor

Date :

Date :

Place :

Place :

In presence of the Witnesses

1..... 1.....
.....
.....

2..... 2.....

PROFORMA OF BANK GUARANTEE

(On non-judicial paper of appropriate value)

To

Central Institute Technology, Kokrajhar
Kokrajhar-783370, Assam

Dear Sirs,

M/s..... have taken tender for the work of.....

for Central Institute Technology Kokrajhar.

The tender Conditions of Contract provide that the Contractor shall pay a sum of `.....

(Rupees.....as earnest money/ initial full Security deposit in the form therein mentioned. The form of payment of earnest money/ security deposit includes guarantee executed by Schedule 'A' Bank, undertaking full responsibility to indemnity Central Institute Technology Kokrajhar in case of default.

The said..... has approached us and at their request and in consideration of the promises we.....

having our office at have agreed to give such guarantee as hereinafter mentioned.

1. We..... hereby undertake and agree with you that if default shall be made by M/s.....

in performing any of the terms and conditions of the tender or in payment of any money payable to Central Institute Technology Kokrajhar we shall on demand pay to you in such manner as you may direct the said amount of Rupees..... only or such portion thereof not exceeding the said sum as you may from time to time require.

2. You will have the full liberty without reference to us and without affecting this guarantee, postpone for any time or from time to time the exercise of any of the powers and rights conferred on you under the contract with the said and to enforce or to forbear from endorsing any powers or rights or by reason of time being given to the said which under law relating to the sureties would but for provision have the effect of releasing us.

3. Your right to recover the said sum of `..... (Rupees.....) from us in manner aforesaid will not be affected or suspended by reason of the fact that any dispute or disputes have been raised by the said M/s.....

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.....and/or that any dispute or disputes are pending before any officer, tribunal or court.

- 4. The guarantee herein contain shall not be determined or effected by the liquidation or winding up, dissolution or change of constitution or insolvency of the said.....but shall in all respects and for all purposes be binding and operative until payment of all money due to you in all respect of such liabilities is paid.
- 5. Our liability under this guarantee is restricted to Rupees.....Our guarantee shall remain in force until.....unless a suit or action to enforce a claim under Guarantee is filed against us within six months from(which is date of expiry of guarantee) all your right under the said guarantee shall be forfeited and we shall be relieved and discharged from all liabilities thereunder.
- 6. We have power to issue this guarantee in your favour under Memorandum and Articles of Association and the undersigned has full power to do under the power of Attorney datedgranted to him by the bank.

Yours faithfully,

Bank

.....
By it's Constituted Attorney

Signature of a person duly authorized to sign on behalf of the bank.

GUARANTEE AGAINST ADVANCE PAYMENT

This deed of Guarantee made this

day of between and wherever the context so requires includes its successors and assigns hereinafter called "They Surety" and..... a Company registered under the Companies Act of 1956 and having its Registered Office at..... and wherever the context so requires includes its successors and assigns, hereinafter called "the Owner".

WHEREAS M/s.....(a company registered under the Companies Act of 1956 having its registered office at(Wherever applicable) and wherever the context so requires includes its successors and assigns, hereinafter called the " Contractor" has undertaken to the terms and conditions mentioned in the :

(a) Letter of Intent No.....dated.....

OR

(b) Agreement No.....dated.....

referred to as "the said Contract"

AND WHEREAS the Owner has agreed to make an advance of `(Rupees..... being) % value of the contract on as provided in the contract as the said advance to the Contractor carrying no interest.

AND WHEREAS the Contractor has agreed with the Owner authorizing him to deduct under the terms of the said contract from the amount that becomes due the payable to the Contractor as per the terms and conditions described under the clause "Terms and Conditions of Payments" of the Contract on proper execution of the Contract.

Now this deed witnessed that in consideration of the said advance or any balance thereof made by the Owner to the Contractor, the surety hereby GUARANTEES the payment of the said advance by the Contractor, undertakes to pay the Owner on demand the said sum of ` subject to the following conditions.

(a) "Surety hereby gives an irrevocable guarantee and declares that its liability under this bond shall extend to the payment of the whole of the amount viz. `

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.....paid as advanced as provided for in the contract “as the said advance”

(b) this guarantee shall remain in force and effect so long as the said advance of any part thereof remains outstanding and shall expire and become ineffectual only after the recovery of the entire sum of ` covered by the Guarantee and upon intimation thereof being given by the Owner to the Surety, in which event, the Surety shall be discharged by the Owner.

(c) the Surety shall not be discharged or released from the Guarantee by any arrangement made between the Owner and the Contractor with or without the Consent of the surety or by any alteration in the obligations of the parties or by any indulgence, forbearance, whether as to payment , time performance or otherwise.

(d) The Guarantee shall come in to force from the date Contractor receives from the Owner the said advance.

(e) Notwithstanding anything stated above, the liability of the Surety under the guarantee is given is not completed or filly performed, the surety (bank) hereby agrees to further extend the Guarantee till such time as is required to fulfill the contract.

INDENTURE FOR SECURED ADVANCED

THIS INDENTURE made.....
 day.....2019
 between.....

..... (hereinafter called the Contractor which expression shall where the context so admits or implies be deemed to include his executors, administrator and the assigns) of one part and Central Institute of Technology Kokrajhar (hereinafter called the CIT which expression shall where the context so admits or implies be deemed to include its successors in office and assigns) of the other part.

WHEREAS by an agreement No..... dated (hereinafter called the said agreement the Contractor has agreed..... and WHEREAS the Contractor has applied to the CIT that he may be allowed advance on the security of materials absolutely belonging to him and brought by him to site of the works, the subject of the said agreement for use in the construction of such of the works a he has undertaken to execute at rates fixed for the finished work (inclusive of the cost of materials and labour and other charges) and whereas the CIT has agreed to advance to the Contractor an amount upto `

..... (Rupees..... only) on the security of the quantities and other particulars of the materials on the security of which the advance or advances are made as detailed in the secured advance account forming part of the running account bill preferred from time to time and signed by the Contractor for the said works.

NOW THIS INDENTURE WITNESSETH that in pursuance of the said agreement and in consideration of amounts aggregating to the sum of `

..... (Rupees..... only) on or after the execution of these presents paid to the Contractor by the CIT (the receipt where of the Contractor hereby acknowledge) Contractor doth hereby covenant and agree with the CIT declare as follows:

1. That the said sum aggregating to `(Rupees..... only) so advanced by the CIT to Contractor as aforesaid shall be employed by the Contractor in or towards expending the execution of the said works and for no other purpose whatsoever.

2. That the materials detailed in the said Running Account Bills which have been offered to and accepted by the CIT as Security are absolutely the Contractor's own property, and free from encumbrances of any kinds and Contractor will not make any application for or receive a further advance on the security of materials which are not

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absolutely his own property and free from encumbrances of any kind and the Contractor hereby agrees to indemnify the CIT against all claims to any materials in respect of which an advance has been made to him as aforesaid.

3. That the materials detailed in the said Running Account Bills (hereinafter called the said materials) shall be used by the Contractor solely for the execution of the said works in accordance with the directions of the Engineer-in-Charge and in terms of the said agreement.

4. That the Contractor shall make at his own cost all necessary and adequate arrangement for the proper watch, safe custody and protection against all risk of the said materials and that until used in construction as aforesaid the said materials shall remain at the site of the said works in the Contractor's custody and on his own responsibility and shall at all times be open to inspection, by the event of the said materials or any part thereof being stolen, destroyed or damaged the Contractor will forthwith replace the same with other materials of like quality or repair and make good same as required by the Engineer-in-Charge.

5. That the said materials shall not on any account be removed from the site of the said works except with the written permission of the Engineer-in-Charge or an officer authorized by him on that behalf.

6. That the advance shall be repayable in full when or before the Contractor receives payment from the CIT of the price payable of him or the said works under the terms and provisions of the said agreement provided that if any intermediate payments are made to the Contractor on account of the work done then on the occasion of each such payment the CIT will be at liberty to make recovery from the Contractor's bill for such payment by deducting there from the value of the said materials then actually used in the construction and in respect of which recovery has not been made previously the value for this purpose being determined in respect of each description of materials at the rates at which the amounts of the advances made under these presents were calculated.

7. That if the Contractor shall at any time make any default in the performance or observance in any of the terms and provisions of the said agreement the total amount of the advances that may still be owing in the CIT together with the interest thereon at twelve percent per annum from the date or respective dates of such advance to the dates of payment will with all costs, charges, damages and expenses incurred by the CIT in the recovery thereof or the enforcement of the security or otherwise by reason of the default of the Contractor shall become payable by the Contractor hereby covenants and agrees with the CIT to repay and pay the same respectively to him accordingly.

8. That the Contractor hereby gives charge all the said materials for the repayment to the CIT of the said sum aggregating to(Rupees..... only) and all costs, charges, damages and expenses payable under these presents PROVIDED ALWAYS AND it is hereby agreed and declared that notwithstanding anything in the said agreement

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and without prejudice to the powers contained therein if and whenever the money owing shall not be paid in accordance herewith the CIT may at any time thereafter adopt all or any of the following courses as he may deem best:-

a) Seize and utilise the said materials or any part thereof in the completion of the said works on behalf of the Contractor in accordance with the provisions in that behalf contained in the said agreement debiting the Contractor with the actual cost of effecting such completion and the amount due in respect of advance under these presents and crediting the Contractor with the value of work done as if he had carried it out in accordance with the said agreement and the rates thereby provided. If the balance is against the Contractor he is to pay same to CIT on demand.

b) Remove and sell by the public auction the seized materials or only part thereof and out of the moneys arising from the sales retain all the sums aforesaid repayable to the CIT under these presents and pay over the surplus (if any) to the Contractor.

c) Deduct all or any, part of the money owing out of the security deposits or any sum due to the Contractor under the said agreement.

9. That in event of any conflict between the provisions of these presents and the said agreement the provisions of the said agreement shall prevail and in the event of any dispute or difference arising over the construction or effect of these presents the settlement of which has not been herein before expressly provided for, the same shall be referred to arbitration as provided in the said agreement.

IN WITNESS WHEREOF.....
and..... CIT by the order and under the directions of CIT have herein to set their respective hands the day and year first above written.

Signed, sealed and delivered
by the said Contractor in the
Presence of
Witness

Signature :

Name :

Address :

Address :

Witness :

SPECIAL CONDITIONS OF CONTRACT

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SPECIAL CONDITIONS OF CONTRACT

SECTION - 1

1.1. Scope of Work

The present scope of work under this contract shall include “**Installation of 30 KLD STP at Hostels at CIT, Kokrajhar- Phase - I**” The scope of this contract shall include installation and testing of bored cast in situ piles of required length, pile caps, substructure and superstructure, water supply and sanitary works, site development works, all electrical works and other related works as per specifications and drawings issued from time to time subject to the conditions of the contract. The Contractor shall provide all necessary materials, equipment, labour etc. for the execution and maintenance of the work till completion unless otherwise mentioned in this tender document. All materials required for the work shall be as per technical specifications and approved by Engineer-in-Charge prior to procurement and use.

1.2. Time Schedule

1.2.1. The work shall be completed strictly within 06 Months as per the following milestones:

All site development work shall be planned and finished in order to match the handing over schedule above.

The contractor shall submit along with his offer a detail construction program showing completion of the work in stages as above. Any tender without a detailed completion program may be liable for rejection.

The contract period shall be reckoned from the 25th day from the date of issue of Letter of Intent, date of handing over of site or date of issue of first construction drawing whichever is later.

1.2.2. The detailed construction program submitted along with the tender for completion of the work shall show starting and completion of the major items. On award of the work this master program will be reviewed and updated every month or at more frequent intervals as directed by the Engineer-in-charge.

1.2.3 The tenderer shall also submit in details the methodology supported by deployment of sufficient machineries, manpower and materials matching with the nature, volume of work and the schedule time of completion.

1.2.4 The tenderer shall also submit the following along with their offer:

a) Methods/ machinery to be adopted for mixing, transportation and pouring of concrete with reference to the volume given in the BOQ.

b) Source of earth for filling in land development.

1.2.5 **List of Mandatory machineries:** The contractor shall ensure deploying the following machineries without fail within two months of awarding the work.

i) At least 1 concrete mixer with weigh batcher of full bag capacity with hopper.

ii) Steel shuttering plates with steel beams and steel props with adjustable jacks enough to complete the work as per completion schedules.

iii) Suitable arrangement for placing of concrete Hoist/concrete pump.

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- iv) Laboratory with full facility for site testing.
- v) Needle vibrators as per requirement.
- vi) Contractor shall submit complete plan for engagement of curing pumps for the proposed work to the satisfaction of the Engineer-in-Charge.
- vii) Any other plants and machineries considered essential to complete the work in time and with acceptable quality.

1.2.6 Monthly / weekly work program will be drawn up with the contractor based on availability of work fronts. The contractor shall scrupulously adhere to this schedule by deploying adequate personnel and construction tools and tackles and equipment. In all matters concerning the extent of target set out in the weekly and monthly program and the degree of achievement, the decision of the Engineer-in-Charge will be final and binding.

1.2.7. Incentive for early completion

In case, the contractor completes the work ahead of the scheduled completion time, a bonus @ 1% (one percent) of the tendered value per month computed on per day basis, shall be payable to the contractor, subject to a maximum of 5% (five percent) of the tendered value. The amount of bonus, if payable, shall be paid along with the final bill after completion of the work. In order to enable to claim BONUS under this clause, each delivery schedule as specified in the tender has to be fulfilled on time.

1.3. Scope of supply

1.3.1 Owner's scope of supply:

- a) No store materials, tools and plants shall be issued by the owner.

1.3.2 Contractor's scope of supply:

- a) All materials, equipment, consumable, testing appliances, tools and tackles necessary for completing the work shall be procured and engaged by the contractor at his own cost.
- b) Land for borrow areas for procuring earth shall be arranged by the Contractor. All payments towards cost of forest royalties for land, taxes, cess, octroi, right of way etc. shall be paid by the contractor.
- c) The contractor may arrange for Ready Mix Concrete for which no extra payment will be made. However the contractor should take prior approval from Engineer-in-charge in writing before commencing with concreting with RMC.

1.4. Quality assurance & quality control

1.4.1 The tenderer is required to carry out various tests for quality assurance as given in this tender document and technical document that will be furnished during the performance of the work as per IS codes.

Tenderer shall furnish in his offer the quality assurance programme containing the overall quality management and procedures which is required to be adhered to during the execution of the contract including the details of the field laboratory to be maintained at site.

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1.4.2 The contractor shall engage specialized construction agencies having experience and expertise in concerned field for the execution of the following items of works:

- (i) Structural Glazing
- (ii) Aluminium composite panel
- (iii) Water supply and sanitary installation
- (iv) Electrification
- (v) Water proofing
- (vi) False ceiling
- (vii) Fire Fighting
- (viii) Anti-termite Treatment
- (ix) Wooden Flooring
- (x) Air conditioning
- (xi) Lift

Prior approval from the Institute shall be obtained before taking up the above works. (Agencies for all the above specialized items shall be finalized within 6th months from the date of issue of work order).

1.5. Test and inspection of work

All tools, tackles and equipments for the tests and inspection of works shall be provided by the contractor. If any test(s) is required to be done through other agencies the test(s) shall be done at the cost of the contractor. These are in addition to clause no. 63, 64 & 65 of General Conditions of Contract.

1.6. Site clearing

The contractor should clean the site free from all obstructions. No payment shall be made against this. And no extra time on this account shall be considered.

1.7 Approach Road

There are black top approach roads to the surroundings of the work site. Maintenance of roads within the construction site and also those to the contractor's office, staff quarters and labour camps in motor able condition shall be responsibility of the contractor at his own expenses.

1.8. Schedule of Labour Rates

Tenderer should quote labour rates for only those categories of labour that are likely to be used in this work in the prescribed form enclosed.

1.9. Validity of Bank Guarantee against Earnest Money Deposit

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The Bank Guarantee submitted towards Earnest Money Deposit as per detailed NIT of General Conditions of Contract shall be kept valid for a period of six months from the date of opening of the tender.

1.10. Variation in Drawings and Quantities

Drawings accompanying the Tender Document are indicative and issued for tendering purpose only. Detailed drawings on the basis of which actual execution of the work is to be executed shall be furnished to the contractor progressively based on the programme involved after the award of the work. The Contractor will not be entitled for any price variation for quantities as per execution from the quantities given in the tender upto the limit specified in the clause no. 60.A(d) under General Condition of Contract

1.11 Billing

The Contractor will submit a bill in approved proforma in triplicate to the Engineer-in-Charge of the work giving abstract and detailed measurements recorded as per clause no. 73(i) of GCC for various items executed during a month, before the expiry of the 1st week of the succeeding month. The Engineer-in-Charge shall take further action to effect payment of the bill before the expiry of 15 days from the date of presentation of the bill along with joint measurements. This clause shall supercede clause no. 73 (ii) of General Conditions of Contract.

In the event of the necessity of a check measurement the contractor or his representative shall remain present and quantity after check Measurement shall be final.

1.12. Income Tax Clearance Certificate (I.T.C.C)

Attested copy of the latest I.T.C.C. in the proforma prescribed by the Govt. of India should accompany the Tender Document. The I.T.C.C should be in the name of the firm/individual, quoting for this work.

1.13. Water and Power

1.13.1 Water :

The contractor shall arrange water fit for the purpose of drinking and construction at their own cost.

1.13.2 Power :

Owner will supply power at a point near the work site as decided by the Institute, from where the contractor will make his/their own arrangement for distribution. All the works of the contractor shall be done as per Indian Electricity Act and Rules framed there under and approved by the Engineer-in-Charge. The temporary lines will be removed forthwith after the completion of the work or if there is any hindrance caused to the other work due to the alignment of these lines, the contractor will re-route or remove the temporary lines at his own cost.

The contractor at his own cost will also provide suitable electric meters, fuses, switches etc. These shall be in the custody and control of the Owner. The cost

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of power supply shall be payable to the Owner every month at the prevailing rates from time to time or will be deducted from the running account bills.

1.13.3. Owner, however, does not guarantee uninterrupted power supply and this does not relieve the contractor of his responsibility for the timely completion of various works as stipulated, nor any compensation shall be paid to the contractor for any failure or short supplies of Power. The contractor shall therefore make their own arrangement for stand by power supply at his own cost.

1.14 Mobilization Advance:

1.14.1 Contractor shall be paid on request recoverable Mobilization advance up to a maximum of 10% of the awarded contract value at the discretion of the Engineering-in-charge. The mobilization advance will carry a fixed simple interest @ Prevailing Base rate of SBI + 0.5% OR prevailing rate of Interest of SBI on Domestic Deposits for 80% of the stipulated contract period, at the time of release of the payment whichever is higher.

1.14.2 Mobilization advance as mentioned above shall be paid as follows:

- a) 50% on completion of the following:
 - i. Submission of initial security deposit/security deposit as mentioned at clause 19 of General Conditions of Contract and signing of agreement.
 - ii. Submission of Bank Guarantee Equivalent to mobilization advance plus estimated interest charges for the contract period, in proforma approved by OWNER, from a Nationalized Bank/Scheduled Bank.

- b) 50% after initial mobilization of plants & equipments and completion of labour camps etc., to the full satisfaction of the Engineer-in-Charge.

The Mobilization Advance together with the interest accrued shall be recovered from each running account bill @12% of gross amount of the RA bill in such a manner that the total advance and interest accrued is recovered approximately within 80% of the stipulated contract period. Balance amount, if any, remaining unrecovered shall be deducted in full from the RA bill succeeding 80% of the contract period. The same method of recovery will hold good for interest free mobilization also.

- c) The contractor has to submit the utilization statement supported by authentic document of 1st installment of mobilization advance paid and 2nd installment of mobilization advance will be paid only after submission of utilization statement.

1.14.3. In case, any bidder requests for interest free mobilization advance, the offers of such bidders shall be loaded as follows for the purpose of comparison of prices :

Loading = Interest charges calculated @ prevailing base rate in percent+ 2% per annum for half the time period of the contract.

$$= \frac{MA \times (\text{Prevailing base rate} + 2) \times \text{Time Schedule in Months}}{100 \times 12 \times 2}$$

MA = Mobilization Advance.

1.14.4 The bidder shall indicate in the BOQ whether the above requirement of advance shall be interest free or interest bearing. In the absence of the said

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information, it will be presumed that no mobilization advance is required by the Contractor.

1.15. Price Escalation.

The contract value shall be adjusted for material, labour and P.O.L. etc. Escalation or reduction shall be based upon the following. The base date for working out such escalation/reductions shall be the last date of receipt of tender. No escalation on extra items shall be paid. Any increase in price indices after the schedule date of completion of the contract shall not be taken into consideration. The price indices valid as on the scheduled date of completion in each category will continue to apply during the period of extension of the contract. However, reductions, if any, will continue to apply as per the formulae given herein under.

1.15.1 Period of Applicability

Price escalation (or reduction) for LABOUR for all components mentioned below will be applicable immediately from the date of award of contract. Price escalation (or reduction) for all other items will be applicable only after **12 months reckoned from the 25th day from the date of issue of letter of intent (extended till the end of the calendar month the period ends)** subject to fulfillment of the following conditions. The price escalation clause will not be applicable **till both the conditions are fulfilled.**

- a) The work completed at the end of first one year is at most 10% less than the percentage of time 12 months is with respect to the total contract period. Thus, if the time of completion of the project is 24 months, then at the end of 12 months, $(12/24)*100 - 10 = 40\%$ of the work must have been completed. If this is not fulfilled, then the month from which this formula is fulfilled (with 12 replaced by the month in the formula), will be the month from which price escalation will apply. Thus for fulfillment after say, 14 months, $(14/24)*100 - 10 = 48.34\%$ of the work must be completed at the end of 14 months to become eligible for the escalation to apply for the remaining value of work after 14 months.
- b) All intermediate milestones (M) that are specified for completion before 12 months must be completed for price escalation to be applicable. If the milestone is delayed, then price escalation will apply from the date when the milestones are completed.

The above two conditions will apply independent of each other. Thus, if 40% of the work was completed at the end of 12 months, but a milestone (M) was not completed, and it is completed at the end of 14 months, price escalation will be applicable from the end of 14 months, even if 48.34% of the work was not completed at that time. All calculations and applicability will be with respect to the first date of the calendar month (in view of the extension of the initial 12 month period to the end of the calendar month).

1.15.2 Price Escalation for Civil Works –

The compensation for escalations for Cement, Steel, other building materials, labour and P.O.L. shall be worked out as per the following formulae:

(a) Cement :

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$$V_C = 0.85 \times W \times 0.15 \times \frac{CI - CI_0}{CI_0}$$

V_C = Variation in cement cost i.e. increase or decrease in the amount in rupees to be paid or recovered

W = Value of work done during period under consideration (Civil Works).

CI = All India wholesale price index for cement as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, for the period under consideration.

CI_0 = All India wholesale price index for cement as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, as valid on the last stipulated date of receipt of tenders including extension if any.

(b) Steel :

$$V_S = 0.85 \times W \times 0.20 \times \frac{SI - SI_0}{SI_0}$$

V_S = Variation in steel cost i.e. increase or decrease in the amount in rupees to be paid or recovered

W = Value of work done during period under consideration (Civil Works).

SI = All India wholesale price index for steel (bars & rods) as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, for the period under consideration. However, the price index shall be limited to (i) for the month when the last consignment of steel reinforcement for the work is procured or (ii) for the month in which half of the stipulated contract period is over whichever of these two is earlier.

SI_0 = All India wholesale price index for steel (bars & rods) as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, as valid on the last stipulated date of receipt of tender respectively including extension if any.

(c) Other materials (Civil component except Cement & Steel) :

$$V_M = 0.85 \times W \times 0.35 \times \frac{MI - MI_0}{MI_0}$$

V_M = Variation in material cost i.e. increase or decrease in the amount in Rupees to be paid or recovered.

W = Value of work done during period under consideration (Civil Works)

MI = All India wholesale price index for all commodities as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, for the period under consideration, and applying weightages to the individual commodities / group items .

MI_0 = All India wholesale price index for all commodities valid on the last stipulated date of receipt of tender including extension, if any, as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce and applying weightages to the individual commodities / group items .

d) Labour:

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$$V_L = 0.85 W \times 0.25 \times \frac{LI - LI_0}{LI_0}$$

V_L = Variation in labour cost i.e. amount of increase or decrease in Rupees to be paid or recovered.

W = Value of work done during period under consideration (Civil Works)

Y = Component of labour expressed as percent of total value of the work

LI & LI_0 = Minimum daily wage in rupees for the minimum rated workers as per minimum wages act of by the Ministry of Labour & Employment, Govt. of India as applicable for the period under consideration and that valid on the date of receipt of tender including extension respectively.

e) Petrol, Oil and lubricant (P.O.L)

$$V_F = 0.85 \times W \times 0.05 \times \frac{FI - FI_0}{FI_0}$$

V_F = Variation in cost i.e. amount of increase or decrease in rupees to be paid or recovered.

W = Value of work done during period under consideration (Civil Works)

Z = Component of Diesel expressed as percent of total value of the work

FI & FI_0 = Average Price per litre of Diesel at Kokrajhar for the period under consideration and on the date of receipt of the tender including extension respectively.

1.15.3 Price Escalation for Electrical Works –

The compensation for escalations for Electrical works shall be assessed for — a) Wires, cables & accessories, b) Other materials and c) Labour as follows —

(a) Electrical accessories, wires, cables etc. :

$$V_{EI} = 0.85 \times W \times 0.40 \times \frac{EI - EI_0}{EI_0}$$

V_{EI} = Variation in cost of electrical accessories, wires, cables etc. i.e. increase or decrease in the amount in rupees to be paid or recovered.

W = Value of work done during period under consideration (Electrical works).

EI = All India wholesale price index for “Electrical accessories, wires, cables etc.” as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, for the period under consideration.

EI_0 = All India wholesale price index for “Electrical accessories, wires, cables etc.” as published by the Economic Adviser to Govt. of

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India, Ministry of Industry & Commerce, as valid on the last stipulated date of receipt of tenders including extension if any.

(b) Other materials (other than electrical accessories, wires, cables etc.) :

$$V_M = 0.85 \times W \times 0.35 \times \frac{MI - MI_0}{MI_0}$$

V_M = Variation in material cost i.e. increase or decrease in the amount in Rupees to be paid or recovered.

W = Value of work done during period under consideration (Electrical works).

MI = All India wholesale price index for all commodities as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, for the period under consideration, and applying weightages to the individual commodities / group items.

MI_0 = All India wholesale price index for all commodities valid on the last stipulated date of receipt of tender including extension, if any, as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce.

(c) Labour :

$$V_L = 0.85 \times W \times 0.25 \times \frac{LI - LI_0}{LI_0}$$

V_L = Variation in labour cost i.e. amount of increase or decrease in Rupees to be paid or recovered.

W = Value of work done during period under consideration (Electrical works).

Y = Component of labour expressed as percent of total value of the work

LI & LI_0 = Minimum daily wage in rupees for the minimum rated workers as per minimum wages act of by the Ministry of Labour & Employment, Govt. of India as applicable for the period under consideration and that valid on the date of receipt of tender including extension respectively.

1.15.4 Price Escalation for Air-Conditioning Works –

The compensation for escalations for Air-Conditioning works shall be assessed for — a) Basic metals, b) Equipment, c) Other materials and d) Labour as follows —

(a) Basic Metals :

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$$VM_t = 0.85 \times W \times 0.25 \times \frac{M_t - M_{t0}}{M_{t0}}$$

VM_t = Variation in cost of basic metals i.e. increase or decrease in the amount in rupees to be paid or recovered.

W = Value of work done during period under consideration (HVAC works only).

M_t = All India wholesale price index for “Basic Metals, Alloys & Metal Products” as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, for the period under consideration.

M_{t0} = All India wholesale price index for “Basic Metals, Alloys & Metal Products” as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, as valid on the last stipulated date of receipt of tenders including extension if any.

(b) Equipment :

$$V_E = 0.85 \times W \times 0.15 \times \frac{E_t - E_{t0}}{E_{t0}}$$

V_E = Variation in equipment cost i.e. increase or decrease in the amount in Rupees to be paid or recovered.

W = Value of work done during period under consideration (HVAC works only).

E_t = All India wholesale price index for “Machinery & Machine Tools” as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, for the period under consideration.

E_{t0} = All India wholesale price index for “Machinery & Machine Tools” as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, as valid on the last stipulated date of receipt of tender – respectively including extension if any.

(c) Other materials (othe than basic metals & equipment) :

$$V_M = 0.85 \times W \times 0.35 \times \frac{M_t - M_{t0}}{M_{t0}}$$

VM = Variation in material cost i.e. increase or decrease in the amount in Rupees to be paid or recovered.

W = Value of work done during period under consideration (HVAC works only).

M_t = All India wholesale price index for all commodities as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce, for the period under consideration.

M_{t0} = All India wholesale price index for all commodities valid on the last stipulated date of receipt of tender including extension, if any, as published by the Economic Adviser to Govt. of India, Ministry of Industry & Commerce.

(d) Labour :

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$$V_L = 0.85 \times W \times 0.25 \times \frac{LI - LI_0}{LI_0}$$

VL = Variation in labour cost i.e. amount of increase or decrease in Rupees to be paid or recovered.

W = Value of work done during period under consideration (HVAC works only).

LI & LI₀ = Minimum daily wage in rupees for the minimum rated workers as per minimum wages act of by the Ministry of Labour & Employment, Govt. of India as applicable for the period under consideration and that valid on the date of receipt of tender including extension respectively. The above mentioned components are expressed as percent of total value of work.

1.16. Unbalanced Unit Rates

In the case of Tender where the unit price of any single item appears unworkable or too high such Tender will be considered unbalanced and in case the tenderer is unable to provide satisfactory explanation the Owner reserves the right to disqualify such Tender.

1.17 Abnormally High Quoted Rates

In case the quoted rates of items exceed the estimated rates by more than +50%, such items shall be called “**Abnormally High Rated Items**”, and there would be a ceiling of 15% in excess of quantities provided in BOQ for these items. For such items, if quantities to be executed are more than 15% over the quantities indicated in BOQ, rates for quantities in excess beyond 15%, of BOQ shall be the average of rates quoted by other bidders for payment. If the average rates are more than the rates quoted by the contractor then the rate of the contractor will be considered.

1.18 Anti-Corruption Policy:

CIT Kokrajhar’s anti-corruption policy requires the bidders, suppliers and contractors associated with the Institute to observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, terms set forth below are as follows:

- i. They are not to indulge in any corrupt practices. These are defined as giving, receiving or soliciting directly or indirectly, anything of value to influence improperly the actions of the Institute.
- ii. In case there is any improper demand from any employee of the Institute (directly or indirectly), they are to inform the Institute’s Chief Vigilance Officer (CVO). Currently the CVO is **Asstt. Prof. Anjalu A Basumatary, Mb no. 07896120498, Email: aa.basumatary@cit.ac.in**

1.19 Requirement of Technical Representative(s) and Recovery Rate

The contractor shall depute at least the following qualified and experienced Engineers to supervise the execution of the works in such manner as will ensure work of the best quality. In case the contractor fails to depute the required technical representative, the Engineer-in-Charge shall have full powers to suspend the execution of the work until such date as suitable Technical Representative is appointed and the contractor shall be held responsible for the delay so caused to the work. In addition, if the Engineer-in-Charge, whose decision in this respect is final and binding on the contractor, is convinced that the minimum required Technical representatives have not been appointed or are not effectively attending the work, a recovery shall be affected from the contractor as per the following table:

Sl.no	Qualification of Technical Representative	Discipline	Min. Nos. required for the work	Recovery rate in the event of non-fulfilling the Minimum Requirement (Rs.)
1	Graduate	Civil Engg.	1	25000/- per month
2	Diploma Engineer	Civil Engg	1	15000/- per month
3	Diploma Engineer	Electrical Engg	1	15000/- per month

NOTE: Diploma Engineers with 8 years' experience will be considered equivalent to a Graduate Engineer.

1.20 Recovery for Non Deployment of Machineries

The contractor shall depute machineries as per list proposed by him as per ANNEXURE VII (A). In case the contractor fails to deploy the machineries as per commitment, recovery at the prevailing rates of hire charge of machineries shall be affected from the contractor.

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SECTION - 2
INSTRUCTIONS TO TENDERERS

Tenders are invited for “Installation of 30 KLD STP at Hostels at CIT, Kokrajhar- Phase - I” in the district of Kokrajhar, Assam.

GENERAL:

Before tendering, the tenderer shall inspect the site through site visits and study the conditions prevailing in and around the proposed site. They will cover all such aspects in their rates carefully and no claims whatsoever shall be entertained later on the plea of ignorance of site conditions.

In case of any difference / discrepancies in the provisions of NIT, General Conditions and the special instructions, the stipulations under Special Instructions shall prevail.

Tenderers are advised to read these instructions carefully to ensure that his response complies fully therewith. Failure to provide the information and documents required by this invitation to tender may render the tender to be unacceptable. For tenderer's convenience, the instructions to tenderers are divided into three main sections, as follows:

2.1.0 General Conditions of Tendering

2.2.0 Tender Requirement

2.3.0 Proposal of the Tender

2.1.0 General Conditions of Tendering

2.1.1 Tender document

One set of tender document along with two sets of BOQ are issued/ sent herewith along with the drawings. Tenderer shall submit the tender document along with their offers. Tenderer shall also sign each page of the tender document as token of his acceptance.

2.1.2 Tender validity

Tender shall remain valid for acceptance for a period of 120 (one hundred twenty) days from the date of opening of the tender. The tenderer shall not be entitled during the said period to revoke or cancel his tender or to vary the tender given or any term thereof. In case of tenderer revoking or cancelling his tender or varying any term in regard thereof, the owner shall forfeit the earnest money paid by him along with the tender. Tender shall be revalidated for extended period as required by owner in writing.

2.1.3 Tender submission

2.1.3.1: Tenders must be submitted by the time and date mentioned in the Notice Inviting Tender in the office of Central Institute of Technology, Kokrajhar. The Institute takes no responsibility for any delay, loss or non-receipt of tender documents sent by post. Tenders received after the time and date fixed for receipt of tenders shall be rejected.

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2.1.3.2: The tender and all details submitted subsequent to the tender shall be signed by any one, legally authorized to enter into commitment on behalf of the tenderer. Tenderer shall submit power of attorney in favour of the person who is authorized to enter into commitments on behalf of the tenderer. Owner will not be bound by any power of attorney granted by the tenderer or changes in the constitution of the firm made subsequent to submission of the tender or the award of the contract. The owner may, however, recognize any such power of attorney and changes after obtaining proper legal advice, the cost of which will be chargeable to the tenderer.

The cancellation of any document such as power of attorney, partnership deed etc. should be communicated by the tenderer to the owner in writing well in time, failing which it shall have no responsibility or liability for any action taken by it on the strength of the said documents.

Should the tenderer have a relative or relatives or in the case of a firm or a company, one or more of its shareholders or a relative or relatives of the shareholder(s) employed in a superior capacity in Central Institute of Technology, Kokrajhar, the authority inviting tenders shall be informed of the fact at the time of submission of the tender, failing which the tender may be disqualified or, if such fact subsequently comes to light, the owner reserves the right to take any other action as it deems fit in accordance with any applicable law, rules, regulations or the like in force for the time being.

2.1.4 Arrangement of tender

The tender shall be neatly arranged, and typewritten on white paper with consecutively numbered pages. They should not contain any terms and conditions printed or otherwise, which are not applicable to the tender. Insertions, postscripts and corrections shall not be recognized unless confirmed by the tenderer's signature.

2.1.5 Tenderer's responsibility for quotation

Although the details presented in this tender document consisting of conditions of contract, scope of work, technical specifications and drawings have been compiled with all reasonable cares, it is the tenderer's responsibility to ensure that the information provided are adequate and clearly understood.

The contractor shall be deemed to have inspected and examined the site of work and the surroundings and information available in connection therewith and to have satisfied himself before submitting his tender as to all the prevailing conditions and deemed to have obtained all necessary information as to the risks, contingencies and other circumstances which may influence or effect his tender. Tenderer's quotation is the responsibility of tenderer and no relief or consideration can be given for errors and omissions.

2.1.6 Clarifications requested by tenderer

Tenderer may request clarification at any time up to one week prior to the pre-bid meeting date. Such clarification requests shall be addressed to the Chief Project Engineer, Central Institute of Technology, Kokrajhar.

2.1.7 Tender clarifications/amendments by owner

Owner may issue clarifications/ amendments in the form of addendum/ corrigendum during the tendering period (date of issue to date of receipt of tender) and may also issue amendments subsequent to receiving the tenders. For the addendum/ corrigendum issued during the tendering period, tenderer shall confirm their impact,

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in the tender. For clarifications issued by owner subsequent to receiving the tenders, the tenderer shall confirm receipt and for any impact on the quoted prices, the tenderer shall follow the instructions issued along with addendum/ corrigendum.

Tenderer shall examine the tender documents thoroughly and submit to the owner any apparent conflict, discrepancy or error in drawings, specifications, schedule of items and any other conditions. The owner shall issue appropriate clarification or amendment. Any failure by tenderer to comply with the aforesaid shall not excuse the tenderer, if subsequently awarded the contract, from performing the services in accordance with the agreement.

Techno-commercial discussion with the tenderers shall be arranged, if needed. The tenderer shall depute his representative(s) for attending the discussion. The representative(s) attending the discussion shall produce authorization from his organization.

2.1.8 Scope of work

The complete scope of work has been defined in the tender document. Only those tenderers who undertake total responsibility for the complete scope of work in line with basic scheme and scope as defined in the tender document shall be considered.

2.1.9 Deviations in terms and condition

Tenderers are required to submit offers strictly as per the terms and conditions and specifications given in the tender document and not to stipulate any deviations/ exceptions. **Conditional tenders are liable to rejection.**

2.1.10 Confidentiality of documents

Tenderer shall treat tender documents and contents therein as private and confidential. If, at any time during the tender preparation period, tenderer decides not to submit the tender, all documents must be immediately returned.

2.1.11. Owner's right

Owner reserves the right to accept a tender other than the lowest and to accept or reject any tender in whole or in part, or to reject all tenders with or without notice or reasons. Such decisions by owner shall bear no liability whatsoever consequent upon such decisions.

Owner may allot the work in whole or in parts at its own discretion. The quoted rates shall remain valid for such division. Such decisions by owner shall bear no liability whatsoever to tenderer's consequent upon such decisions.

2.1.12 Applicable language

The tenders and all correspondences incidental to and concerning this tender shall be in the English language. For document submitted in any other language, an English Translation shall also be submitted.

2.1.13 Caution and disclaimer

Tenderer may make his own interpretation of any and all information provided in the tender documents. Owner shall not be responsible for the accuracy or completeness of such information and/or interpretation.

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Tenderer shall be responsible for obtaining and verifying all necessary data and information and although certain information is provided in the tender documents, it shall be confirmed by tenderer.

2.1.14 Earnest money

The tender is to be accompanied by earnest money (interest free) for the amount indicated in NIT in the form of a Demand Draft / Banker's Cheque/Bank Guarantee drawn on any Nationalised/scheduled-A Bank in favour of 'CIT Kokrajhar', payable at 'Kokrajhar'.

If the tenderer, after submitting his tender, revokes his offer or modifies the terms and conditions thereof during the validity of his offer except where the owner has given opportunity to do so, the earnest money shall be liable to be forfeited. Tenders not accompanied by earnest money shall not be considered.

After placement of order on successful tenderer, the earnest money will be returned to the unsuccessful tenderers.

Should an 'Invitation to Tender' be withdrawn or cancelled by the owner, which it shall have the right to do at any time, the earnest money paid with the tender will be returned to tenderers without any interest.

The successful tenderer shall be required to deposit initial security deposit of 2% of the total contract value with the owner in the manner indicated in Clause No. 19.1 of the 'General Conditions of Contract'. Should the successful tenderer fail or refuse to duly sign the agreement or furnish the initial security deposit within the period fixed by the owner as indicated above, the earnest money shall be forfeited without prejudice to his being liable to any further loss or damage incurred in consequence by the owner.

2.1.15 Earnest money refund order

Earnest Money to unsuccessful tenderers shall be returned directly by owner.

2.1.16 Contract

The tenderer, whose tender owner has accepted shall enter into formal agreement with owner as per terms of these tender documents.

The entire work covered in the tender document shall be treated as works contract. Tenderer should quote for the work accordingly. The quoted rates shall be firm and should include all taxes, royalties, duties, octroi, excise, freight, works contract tax applicable in the state etc. whatsoever from time to time.

2.1.17 Contract document

The statement of agreed deviations, if any, shall be prepared based on the finally retained and agreed deviations by the Owner and all correspondences and **MOM's** held between the Owner and the tenderer prior to issue of Fax/Telegram/Telex /Letter of Intent shall be treated as Null and Void. Any deviations or stipulations made and accepted by the OWNER after award of the job shall be treated as amendments to the contract documents made as above.

2.1.18 Compliance to requirements of tender document

Tenderer shall confirm his compliance to the requirement of tender document as per enclosed Annexure.

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2.2 Tender requirement

2.2.1 Technical and un-priced Bid

Tenderer is advised that owner intends to fully evaluate the technical and un-priced Bids submitted. It is important that tenderer clearly demonstrates his ability, giving to owner a high level of confidence that the tenderer will be able to perform the works within the schedule and meeting the other requirements listed in the tender document. Failure to do so may result in disqualification of the tender.

Tenderer shall provide narrative on his approach for execution of services in line with the owner's own project execution approach. Priced Commercial Tenders of only those contractors whose Technical and un-priced commercial tenders are found suitable for the work shall be opened. As a minimum, the following shall be covered.

2.2.2 Organization

2.2.2.1: A description of the tenderer's corporate organization and operations. Description of any relationship with any parent company, or any other company which tenderer proposes as a sub-contractor for any portion of the works. Details of organization of proposed sub-contractor, if any.

An organization chart showing details of the tenderer's head office organization, levels of responsibility and lines of communication, indicating names of key personnel at management level.

Organization charts together with an assignment schedule (by position), proposed for the execution of this work along with the bio-data of key personnel.

2.2.2.2: The tenderer shall mention clearly if the electrical works are proposed to be executed directly by them. In that case, copies of the valid electrical contractor's license may be submitted along with the tender. In case, the tenderer proposes to execute the electrical part through sub-contractor, the name of the of electrical sub-contractor proposed to be engaged shall be furnished along with the copy of the valid electrical contractor's license.

Organizational capacity of a contractor or their sub-contractor, will be judged on the basis of the data furnished by him in respect of personnel and plant, equipments/testing equipments along with the tender. The firm is expected to have at least one Graduate Engineer, one Jr. Engineer/Foreman, two Supervisor (possessing valid supervisor's license) and three electrician/wireman (possessing valid license) under permanent employment. It is expected that the contractor or their sub-contractor has experience in executing complete electrification works of large multistoried buildings along with telephone/ intercom, fire alarm system, external lighting etc.

The past performance of an applicant is established in respect of works executed by the firm in terms of a) quality & workmanship of job, b) quality of materials supplied, c) time of completion and d) relation with the client.

For this purpose, testimonials etc. from client for whom the applicant has executed similar types of works in the past will have to be submitted by the applicant, Reference to the previous client and also visit to such works executed by the applicant, may be made for necessary about the performance.

If the ability of the tenderer to perform the electrical work is found to be not satisfactory from the documents furnished along with the tender, the owner shall have the right to

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split the electrical work. The extra financial involvement for executing the work through other agency due to split of work will be reimbursed from the contractor from his bills.

2.2.2.3: In case the tenderer is a partnership firm, certified copy of the partnership deed together with a certified extract from the register of firms containing names and addresses of all the partners of the firm should be furnished along with the tender.

2.2.2.4: In case of a company (whether private or public), certified copy of the certificate of incorporation together with certified Memorandum of Articles of Association and a list containing names and addresses of all the directors should accompany the tender.

2.2.2.5: In case of a proprietorship firm, the name and address of proprietor, should be furnished.

2.2.3. Project scheduling & monitoring

The tenderer shall follow project schedules and project monitoring in accordance with overall completion, and the manner given in special conditions of contract. Tenderer should submit along with a completion schedule **bar /pert/cpm chart** covering all major activities.

2.2.4 Financial documents

2.2.4.1: Audited balance sheet including profit and loss accounts for the last three years shall be submitted.

2.2.4.2: Valid Income Tax Clearance Certificate issued by Income Tax Authorities issued during last 12 months and attested copy of registration certificate under state sales tax Act. in the prescribed Performa. Attested copies of the valid ITCC in the Performa prescribed by the Govt. Of India should accompany the tender. The ITCC should be in the name of the firm/individual quoting for the work. In the absence of the above ITCC, tenderer may not be awarded the work tendered for in the light of Central Govt directives/instructions.

2.2.5: Latest Solvency Certificate from any Nationalised/Scheduled Bank shall be submitted.

2.2.6 Pricing requirements

2.2.6.1 All rates set forth in tenderer's quotation, shall be in Indian Rupees.

2.2.6.2: The rate should be written both in figures and words. In case of difference between the two, the lower of the two shall be considered.

2.2.6.3: **The tenderers are requested to furnish the rebate, if any, only in the specified place of 'Bill of Quantities' in the price bid only. Rebate if offered at any other place shall be considered INVALID.**

2.2.6.4: No condition, whatsoever, shall be stipulated in price part of the bid. Any condition if stipulated shall be treated as **Null and Void**.

2.2.7 Quality assurance & quality control programme

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Tenderer shall include in his offer the quality Assurance Programme containing the overall quality management and procedures which is required to be adhered during the execution of contract. After the award of the contract detailed quality assurance programme to be followed for the execution of contract under various divisions of work will be mutually discussed and agreed to.

- i) To ensure quality of construction, the contractor shall ensure inspection and testing of all materials and works at their own cost conforming to specifications.
- ii) All certificates and guarantees obtained by the contractor from different suppliers of materials, sub-contractors doing part job, manufacturers of doors, windows etc. shall be passed on the purchaser.
- iii) All defective materials / works which don't conform to the specification shall be dismantled and removed from site by the contractor at his own cost.
- iv) The contractor shall provide a site laboratory with equipments, maintain and engage qualified technical personnel at the site to run the site laboratory at their own cost. All routine tests of cement, aggregate, sand, bricks, concrete cubes, moisture content for timber etc. shall be conducted at site and equipment required for the same shall be kept in site laboratory.
- v) For tests which are not possible to be carried out at site laboratory, contractor shall arrange to send requisite sample to approved laboratory outside the site and get those tested as required entirely at his cost.
- vi) Before starting any concreting or erection work at site, the stage passing certificates have to be obtained from the engineer in the formats to be mutually discussed and agreed.
- vii) Before covering up any work within excavated pits, clearance has to be taken from engineer in respect of completion of said works as per drawing and specifications.

2.2.7.1: The CONTRACTOR shall establish document and maintain an effective quality assurance system as outlined in recognized codes.

2.2.7.2: Quality Assurance system Plans/Procedures of the Contractor shall be furnished in the form of a quality assurance manual. This document should cover details of the personnel responsible for the Quality assurance, plans or procedures to be followed for quality control.

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2.2.7.3: The Owner /Consultant or their representative reserve the right to inspect/witness, review any or all stage of work at shop/site as deemed necessary for quality assurance.

2.3: Proposal of the tender: The tenderer shall arrange his tender in the following order:

ATTACHMENT

- a) Submission of tender letter along with original set of tender document and drawings duly sealed & signed.
- b) Earnest Money Deposit and its details.
- c) Power of Attorney in the name of person who signs the tender document,
- d) Organization details
- e) Project schedule
- f) Balance Sheets along with Profit and Loss Account
- g) Valid ITCC and STCC
- h) Latest Solvency Certificate
- i) ANNEXURE I to ANNEXURE-XII (duly filled in)
- j) Any other relevant documents, tenderer desires to submit.
- k) Bidder should have valid electrical license or attach MOU with the person having valid electrical license.
- l) Certificate of Registration for ESI and EPF.
- m) BOQ duly filled and signed with seal.

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SECTION - 3

EVALUATION PROCEDURE FOR TECHNO-COMMERICAL BID TO QUALIFY FOR OPENING OF PRICE BID FOR AWARD OF WORK

3.1: Techno-Commercial bids which do not fulfill any of the qualifying criteria specified in the NIT shall be rejected and shall not be considered for further evaluation.

3.2 Technical bids received will be ranked by awarding marks out of 100 (T) by an Evaluation Committee based on the marks earmarked for the following sub-heads.

3.2.1 Financial capacity: 10

i) Having turn-over from construction works only not less than 30% of the value of work during the immediate last three consecutive years shall be awarded 5 marks,

ii. Each additional year having turn-over not less than 30% of the value of work shall carry 2.5 marks

3.2.2 Experience: 15

Having experience of executing similar Works during the last seven years.

i. Each work of value not less than 80% of the value of work – 7.5 marks

ii. Each work of value not less than 60% of the value of work – 3.75 marks,

iii. Each work of value not less than 40% of the value of work – 2.5 marks

3.2.3 Maximum size work during last 7 years. 15

i. Each works of minimum value not less than 80% the value of work under consideration completed during the last seven years shall carry 5 marks.

ii. Each works of minimum value not less than 60% the value of work under consideration completed during the last seven years shall carry 3 marks.

3.2.4 Record of completion in time of major works during the last 7 years. 15

i. Each work of value not less than 80% of the value of work shall carry 7.5 marks

ii. Each work of value not less than 60% of the value of work shall carry 5 marks,

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- iii. Each work of value not less than 25% of the value of work shall carry 3 marks

3.2.5 Experience of executing works in the North-East region of India during the last 7 years. 10

- i. Each work of value not less than 25% of the value of work – 2.5 marks.

3.2.6 Firm's Infrastructure (Shall be awarded as per the proposed man power, tools and plants for respective projects) 10

3.2.7 Testimonials from clients of major works that have been completed or are nearing completion. 10

- i. Each testimonial regarding good quality and good progress shall be awarded 5 marks. Value of work shall not be less than 25% of the value of work under consideration.

3.2.8 Quality of work of value not less than 25% of the value of the work under consideration in recent works (through inspections or through testimonials if inspections are not feasible) very good- 5 marks, good-3 and satisfactory- 1.5 marks, 15

3.2.9 The minimum mark to be secured by a bidder to qualify for opening of the price bid of the work shall be 50 or as decided by the Building & Work's Committee of the Institute if necessary.

3.3 The owner reserves the right to take inputs regarding performance of a bidder on any similar work (on-going or completed) from a client whether disclosed in the tender or not. If any such report from the client is found to be un-satisfactory, the tender is liable to be rejected at the Technical Evaluation stage.

3.4 Price Bids and justified estimate: Price bids of only those contractors who have secured the minimum qualifying marks as mentioned herein above shall be opened. During the opening of the price bid a justified estimate prepared based on the prevailing market rates as on the date of tender for the work shall also be opened and value of the justified estimate shall be declared to all the members present in the opening of the price bids. The justified estimate shall be prepared by detailed analysis of rates by taking market rates of labour, materials, T&P, cartage etc. by following standard norms and practices for the major items on the whole costing at least 90% of the estimated cost put to tender.

Reasonability of the rates quoted by the contractors shall be determined by comparing to the justified estimated rates. In case the lowest bidder (L1) backs out or fails to

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submit the initial security deposit and the additional security deposit within the stipulated time, the offer will be cancelled and their EMD will be forfeited. In such case, the work will then be offered to the next lowest bidder (L2) at L2s' quoted rate and so on. Quoting of tender with variation of 10% of the justified estimate shall be a reason for rejection of any tender. Lowest quotes above 10% of the justified estimate will not be accepted in any case and fresh tender invited.

3.4 Details to be furnished along with the enclosure:

The applicants shall enclose all relevant documents / supplementary papers etc. along with the application. The key information / documents to be furnished along with the application are listed below:

- a. Details as per **ANNEXURE-II**, duly filled up & signed.
- b. Attested / Notarized copy of deed of articles of association of the firm.
- c. Power of attorney in the name of person who signed the application.
- d. Financial Statement in **ANNEXURE-III**, duly filled up.
- e. Solvency Certificate in **ANNEXURE-IV**
- f. Details about past experience as per **ANNEXURE-VIII (A), (B) & (C)**.
- g. Audited Balance sheet of the company for last five (5) years.
- h. Attested / Notarized copy of the latest Income Tax Clearance Certificate.
- i. Attested / Notarized copy of the latest Sales Tax Clearance Certificate.
- j. Attested / Notarized copies of work order & completion certificate in support of information furnished **ANNEXURE-VIII (A) & (B)**
- k. Testimonials from clients of major works that have been completed or are nearing completion regarding quality of work/ completion time etc.
- l. **ANNEXURE-VII (A), (B)** duly filled in and signed.
- m. Organization chart, list of manpower / employees, list of zone / branch offices/ **ANNEXURE-V (A)** duly filled in and signed.
- n. All other **ANNEXURE(s)** duly filled and signed.

NOTE:

1. Contractors / firms shall submit all the documents mentioned at para 3.4 of Section -3 without fail. Marks shall be awarded based on the data/ information submitted with an undertaking that data/ information furnished are true in all respects. If after verification any such data/ information are not found true or has attempted to conceal any unfavorable data/ information his tender shall be summarily rejected.
2. The list of plant and machineries and manpower viz Degree/ Diploma Engineers proposed to be engaged are to be mentioned clearly as asked in **ANNEXURE-VII (A) & (B)** and **ANNEXURE – V(A) & (B)** at Para 3.3 if not mentioned, marks will not be awarded.
- 3.

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ANNEXURE - I

Acknowledgement letter to NIT no.

To,

The Registrar,
Central Institute Technology
Kokrajhar –783370, Assam.

Sub: “Installation of 30 KLD STP at Hostels at CIT, Kokrajhar- Phase - I”.

Dear Sir,

We acknowledge receipt of your invitation to Tender which was received on
..... and understand that the documents received remain the property of Central
Institute Technology Kokrajhar. We indicate below our intentions with respect to the
letter Inviting Tender.

A) We intend to tender as requested and furnish following details with respect to
our quoting office:

i) Postal address :

ii) Telephone no. :

iii) Fax no. :

iv) Contact person :

B) We are unable to tender for the reasons given below and hereby
return the Tender Documents.

Reasons for non-submission of tender:

Company's name :

Signature :

Name :

Designation :

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ANNEXURE-II

Particulars of contractor:

1. Name & Address of Contractor/ firm :
Telephone no. :
Fax no. :
2. Whether the firm is private or public limited (attested copies of deed for articles of Association to be enclosed) :
3. Name of person holding the power of attorney :
(attested copy of power of attorney to be enclosed)
State his present nationality and liabilities :
4. Name of partners, their present nationalities with their liabilities(attested copy of partnership deed to be enclosed)
5. Name & Address of Bankers :

I/ We authorize Central Institute of Technology, Kokrajhar to make any investigation to verify the correctness of the statements and documents submitted with this application and obtain clarifications or information on the technical a financial aspects of the applicant.

Seal of the Company

Signature of Company/ Contractor

Date :.....

(STAMP & SIGNATURE OF BIDDER)

ANNEXURE-III**Financial statement:**

(to be given separately for each partner in case of Joint Venture/ Consortium)

1. Name of the contractor/ firm :
(partner in case of Joint Venture/ consortium)
2. Capital
 - a) Authorized :
 - b) Issued & paid up :
3. Attach audited balance sheet and profit & Loss statement for the last three years.
4. Financial Position
 - a) Cash
 - b) Current assets
 - c) Current Liabilities
 - d) Working capital
 - e) Net Worth
 - f) Annual turnover for last 3 years.
5. Total Liabilities :
 - a) ratio of current assets to current liabilities.
 - b) Ratio of cash, temporary investment held in lieu of cash and current receivable to current liabilities.
 - c) Ratio of total liability to net worth.
6. Annual value of RCC building construction works, undertaken for each of the last three years.

Current year (projected)	One Year before	Two Year before
--------------------------	-----------------	-----------------

7. Net profit before tax :
 - a) Current Period

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- b) During the last financial year
- c) During each of the three previous financial years.

The profit and loss statements have been certified through by.....

- 8. Applicant's financial arrangements
 - a) Own resources:
 - b) Bank credits :
 - c) Others (specify):
- 9. Details and value of property owned by the Applicant
(Attached Valuation Report Bankers reference).
- 10. Approximate value of works in hand :
- 11. Value of anticipated orders for next financial year :

Seal of Company

Signature of Company/ Contractor

Date

ANNEXURE-IV

Banker's solvency certificate from schedule bank:

This is to certify that to the best of our knowledge and information

M/s.

(Name and Address of the applicant/ contractor)

a customer of our bank is respectable and can be treated as good for any engagement upto a limit of Rs. (in **figure**).....(**in words**).

This certificate is issued without any guarantee or responsibility on the part of in the Bank or any its officers.

Signature and Seal of the Bank

Name of the Bank.....

Address

Date

(STAMP & SIGNATURE OF BIDDER)

ANNEXURE -V (A)**Details of key personnel to be employed for the proposed works (civil):**

	Designation	Name of Nominee	Qualification, Experience & present of posting
Head quarters			
Project Management			
Site Office			
Planning & monitoring			
Engineering Supervision & Measurements			
Quality Control			
Material Management			
Accounts			
Other Staff			

NOTE: Non deployment of Engineers as per the list will attract penalty as per clause no.1.21 of Section-I of SCC.

Seal of Company

Signature of Company/Contractor

Date:

(STAMP & SIGNATURE OF BIDDER)

ANNEXURE –V (B)**Details of key personnel to be employed for the proposed works (electrical):**

	Designation	Name of Nominee	Qualification, Experience & present of posting
Head quarters			
Project Management			
Site Office			
Planning & monitoring			
Engineering Supervision & measurements			
Quality Control			
Material Management			
Accounts			
Other Staff			

Note: In case, the electrical works are proposed to be executed through sub-contractor, list of key personnel under permanent employment of the sub-contractor shall be furnished. Non deployment of Engineers as per the list will attract penalty as per clause no.1.21 of Section-I of SCC.

Seal of Company

Signature of Company/Contractor

Date:

(STAMP & SIGNATURE OF BIDDER)

ANNEXURE- VI**SCHEDULE OF LABOUR RATES**

Sl. No.	Designation/Category	Rate per day per head
1.	Head Mason	
2.	Mason	
3.	Head Carpenter	
4.	Carpenter	
5.	Head Plumber	
6.	Plumber	
7.	Rod bender/binder	
8.	Welder	
9.	Painter	
10.	Mixer machine operator	
11.	Concrete vibrator operator	
12.	Mechanics	
13.	Fitter	
14.	Electricians	
15.	Grinder operator	
16.	Helper	
17.		
18.		
19.		

NOTE: Labour wages quoted shall include all benefits as per (Current) Labour Acts/ Regulation

Seal of Company
Date:

Signature of Company/Contractor

(STAMP & SIGNATURE OF BIDDER)

ANNEXURE VII (A)

Construction plants & equipments (civil) proposed to be used by the contractor for the work:

Description (Type, Model, Make etc.)	Manufacturer with year of manufacture	Capacity t/m ³	Nos. Proposed to be used for the work
--	---	------------------------------	--

NOTE: Non deployment of Equipments as per the list will attract penalty as per clause no.1.22 of Section-I of SCC

We hereby confirm that the number and type of equipment he will deploy for construction will not be less than those listed above, and agrees to bring more equipment, if so warranted in the opinion of the engineer, at no extra cost to CIT, Kokrajhar.

Seal of the Company

Signature of Company/ Contractor

Date :

(STAMP & SIGNATURE OF BIDDER)

ANNEXURE-VII (B)**Construction plants & equipments (electrical) proposed to be used by the contractor for the work:**

Description (Type, Model, Make etc.)	Manufacturer with year of Manufacture	Capacity t/m ³	Nos. Proposed to be used for the work
--	---	------------------------------	--

-

NOTE: Non deployment of Equipments as per the list will attract penalty as per clause no.1.22 of Section-I of SCC.

We hereby confirm that the number and type of equipment he will deploy for construction will not be less than those listed above, and agrees to bring more equipment, if so warranted in the opinion of the engineer, at no extra cost to CIT Kokrajhar.

Seal of the Company
Date :

Signature of Company/ Contractor

Note: In case, the electrical works are proposed to be executed through sub-contractor, plants and equipments /testing equipments possessed by the sub-contractor shall be furnished.

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ANNEXURE – VIII (A)**List of similar Civil Works executed during last five years:**

Sl. No	Full Postal Address of client & Name of Officer-in-Charge	Description of the work with contract no.	Value of contract	Date of Commencement of work	Stipulated date of completion	Actual date of completion

Note: Original or attested copies of work order and completion certificates from the client should be attached by the applicant. Otherwise it will not be considered.

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ANNEXURE – VIII (B)**List of similar Electrical Works executed during last five years:**

Sl. No	Full Postal Address of client & Name of Officer-in-Charge	Description of the work with contract no.	Value of contract	Date of Commencement of work	Stipulated date of completion	Actual date of completion

Note: Original or attested copies of work order and completion certificates from the client should be attached by the applicant.

(STAMP & SIGNATURE OF BIDDER)

ANNEXURE – VIII (C)**List of Building Works undertaken in North-East Region**

Sl. No .	Full Postal Address of client & Name of Officer-in-Charge	Description of the work with contract no.	Value of contract	Date of Commencement of work	Stipulated date of completion	Actual date of completion

Note: Original or attested copies of work order and completion certificates from the client should be attached by the applicant.

(STAMP & SIGNATURE OF BIDDER)

ANNEXURE-IX**List of concurrent commitments:**

Sl. No.	Full Postal Address of client & Name of Officer-in-Charge	Description of the work	Value of contract	Date of Commencement of work	Scheduled completion period	%age completion as on date		Expected date of completion	Remarks
						Physical	Financial		

Seal of Company
Date :.....

Signature of Company/ Contractor

Note: Original or attested copies of work order from the client should be attached by the applicant.

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ANNEXURE-X

Compliance to requirement of tender documents:

We confirm that our tender complies with the total techno-commercial requirements of bidding document without any deviation.

Signature of Company/ Contractor

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ANNEXURE - XI

TENDER VALIDITY

Tender shall remain valid for acceptance for a period of 120 (One hundred twenty) days from the date of opening of the tender. The tenderer shall not be entitled during the said period to revoke or cancel his tender or to vary the tender given or any term thereof. In case of tenderer revoking or cancelling his tender or varying any term in regard thereof, the OWNER shall forfeit the earnest money paid by him along with the tender. Tender shall be revalidated for extended period as required by Owner in writing.

Signature of Company/ Contractor

(STAMP & SIGNATURE OF BIDDER)

ANNEXURE – XII

Turnover for Civil Engineering Construction during the last five years :

Year 2012-2013 =

Year 2013-2014 =

Year 2014-2015 =

Year 2015-2016 =

Year 2016-2017 =

Seal of Company
Date :.....

Signature of Company/ Contractor

Note: Original or Attested / Notarized copies of work order and completion certificates from the client should be attached by the applicant.

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ANNEXURE – XIII**ELECTRICAL CONTRACTOR**

(To be submitted before award of work)

- i.) Name of Electrical Contractor : M/s
- ii.) Address :
- iii.) Class of Registration :
- iv.) Details of Registration of the Electrical Contractor

S.No	Department	Registered Yes/No	Registration No.	Tendering limits Lacs	Validity of Registration	Debarred from Tendering Yes/No
1	2	3	4	5	6	7
1.						
2.						
3.						

Note :- All columns of above Performa must be filled in.

Contractor's Signature

CONSENT LETTER

I hereby give my consent to work as electrical contractor till the completion of work. Also I will be responsible for necessary action to hand over the installation and for rectification of defects and repair during the obligatory maintenance period. I will execute the work as per NIT Specifications and Additional Conditions of the Contract. I will also engage suitable Engineer for the work as per condition of the contract. I further certify that the above particulars pertaining to me are correct.

Dated:

Signature of Electrical Contractor

(STAMP & SIGNATURE OF BIDDER)

TECHNICAL SPECIFICATION

(STAMP & SIGNATURE OF BIDDER)

TECHNICAL SPECIFICATIONS

1.0 SCOPE OF WORK

The scope of work envisaged under this tender covers includes:

“Installation of 30 KLD STP at Hostels at CIT, Kokrajhar- Phase - I”, as per tender specifications, drawings and standards etc.

2.0 SPECIFICATIONS

- **GENERAL**

Unless otherwise specified, Technical Specifications of Works shall generally conform to the relevant DSR Specifications of latest edition including amendments thereafter. In absence of any detailed specifications, work shall be carried out as per relevant Indian Standard Specifications or Code of Practice. Wherever the codes and specifications are silent then the same shall be governed by sound engineering practices and the decision of the Engineer-in-Charge/ Consultant in matters of interpretation etc., shall be final and binding on the Contractor. The Contractor shall carefully acquaint himself with these specifications to determine his contractual obligations for the work. The conditions of these specifications will be binding on the Contractor and no deviation shall be permissible unless specifically approved by the Consultant/ Engineer-in-Charge in writing. The work under this tender shall be executed strictly in accordance with the constructional and material requirements defined under these specifications. However brief specifications are given hereunder for general guidance purpose of the tenderers. It shall clearly be noted that the bidders are required to give their lump-sum rates taking into consideration all aspects as per site requirements and drawings/specifications enclosed along with this tender document. Quoted offers shall be inclusive of all materials and labour cost. Water and Power shall have to be arranged by the contractor for execution of the tendered work. The contractor shall be responsible to complete the entire work in all respects and any other works necessary to complete the job though especially not covered in the scope of work.

- **DRAWINGS/ DIMENSIONS**

Figured dimensions on drawings shall supersede measurements by scale and drawings to a large scale take precedence over those to a smaller scale. Special dimensions in the specifications shall be checked on site. The dimensions where stated do not allow for wastage, laps joints etc., the levels. Measurement and other information concerning the existing site on the drawings are believed to be correct, but the contractor shall verify them for himself and also examine the nature of the ground as no claim or allowance whatsoever shall be entertained hereinafter on account of any errors or omissions in the levels or the description of the ground turning out to be different from what was expected or shown on the drawings.

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- **CORRELATION OF DRAWINGS**

Before commencement of work, the contractor shall correlate all relevant structural, construction and services drawings and satisfy himself that the information available is complete and unambiguous. The contractor shall be responsible for any error/ difficulty in execution/ damage incurred owing to any discrepancy in the drawings which has been over looked by him and has not been brought to the notice of the Engineer-in-charge/ Consultant before execution.

- **BIS CODES OF PRACTICE**

Wherever any reference is made in the specifications to any Bureau of Indian Standard (BIS) code of practice, it shall be understood to indicate the latest version of the code of practice in usage at the time of construction.

- **MATERIALS**

- ❖ The materials to be used in permanent works shall be new and of the best quality. All materials shall be in accordance with Specifications and approved by the Engineer-in-Charge or his representative.
- ❖ Except otherwise specified or permitted by the Engineer-in-Charge or his representative all materials shall conform to the relevant Indian Standard Specifications (latest edition).
- ❖ In addition to special provisions made herein for sampling and testing of materials by particular methods, samples of all materials and proposed methodology for the execution of the works shall be submitted by the contractor for approval well in advance. The contractor shall supply the same to the testing lab, all carriages etc. shall be paid by the contractor, Samples, when approved will be retained by the Engineer's representative and for this purpose suitable labeled boxes for storage of samples shall be provided by the contractor. No material shall be supplied or used on permanent works until the samples of the same have been approved by the Engineer-in-Charge. If any material is rejected in testing the contractor shall promptly remove the rejected materials from the vicinity of the works to the satisfaction of the Engineer-in-charge.
- ❖ Material shall be packed, transported handled and stored on the site carefully and in a satisfactory manner so as to prevent any damage and/or deterioration of any kind either during transit or storage.
- ❖ Notwithstanding any tests that the Engineer-in-Charge or his representative may direct to be carried out at the contractor's sub -contractor's and/or manufacturer's premises, the Engineer's representative shall be at liberty to carry out any further test after delivery of the materials at the site, at the cost of the contractor and may reject any or all materials which fail to comply with the required specifications.
- ❖ Where items are specified by trade names or manufacturer's reference, the contractor may provide alternative items, equal in quality and design, in case of non-availability of specified manufacturer, with approval of Engineer-in-Charge. At no extra cost, provided samples of all such alternative along with a sample of the specified material have been previously submitted and

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- approved by the Engineer- in-Charge.
- ❖ Should the Engineer-in-Charge or his representative at any time condemn any material or goods intended for use in the works as:
 - a) Being inferior to samples previously submitted
 - b) Having deteriorated in transit or on storage or on the site.

OR

- c) Not complying with the specifications. The contractor shall promptly remove all such materials from the vicinity of the works to the satisfaction of the Engineer-in-Charge. Should the Engineer-in-Charge discover on the works any materials other than those approved, he may order their immediate removal from the site. Any work executed with inferior materials is to be taken out and reinstated with approved material at the contractor's risk & cost.

- **BRIEF OUTLINE OF THE SCOPE OF WORK:**

The following brief outline of various items to be executed is listed out which are to be read in conjunction with the Technical specifications and drawings.

- Anti-termite treatment as per DSR specifications to be executed by reputed party (license holder)
- Earth work in excavation in all kinds of soils and in all lead & lift.
- Filling with surplus excavated earth.
- Filling with selected earth brought from outside at any lead & lift.
- Providing and filling silt earth / sand under floor in foundation.
- Providing and laying plain cement concrete 1:1.5:3 (1 cement: 1.5 coarse sand: 3 graded stone agg; 40mm nominal size) in foundation bed.
- Providing and laying M25 grade of concrete design mix.
- Providing cutting bending and placing steel reinforcement as per detail structural drawings.
- Providing and laying brick work in CM 1:4 (1 cement : 4 coarse sand) in foundation strength of the bricks should be of class designation 7.5.
- Providing and laying brick work in CM 1:4 (1 cement : 4 coarse sand) in superstructure strength of the bricks should be of class designation 7.5.
- High Density PVC rain water/ sanitary pipe with all specials and jointing.
- 12 mm cement plaster of mix 1: 4 (1 cement: 4 fine sand) on fair side of brick/concrete surface.
- 6mm ceiling plaster in CM 1:3 (1 cement : 3 fine sand)
- 15mm cement plaster of mix 1:4 (1 cement: 4 fine sand) on rough side of brick wall surface.
- 18 mm thick cement plaster in two coats under layer 12 mm thick cement plaster in 1:5 (1 cement: 5 coarse sand) finished with a top layer of 6 mm thick cement plaster 1:6 (1 cement: 6 fine sand)
- Providing drip course (bulging) on all external projected slabs and chajjas.

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- Two or more coats of weather coat long life paint over a coat of cement primer on all exterior walls surfaces as specified in the schedule of finishes.
- Acrylic emulsion/ oil bound washable distemper as specified in the schedule of finishes over wall putty prepared surfaces.
- Enamel paint over wood /steel surfaces over a coat of approved quality primer.
- Plinth protection with 50 mm thick of cement concrete 1:3:6(1 cement: 3 coarse sand: 6 stone aggregate; 20 mm nominal size) over 75 mm thick bed of dry bricks with 12 mm thick cement plaster in 1:5 (1 cement:5 coarse sand) finished neat cement slurry.
- Wall putty with white cement base of average thickness 1 mm.
- Water proofing treatment to vertical and horizontal surfaces of sunken slab of W.C., kitchen etc. consists of cement slurry @4.4 KG per sqm with water proofing compound conforming to I.S.2645 and 20 mm thick cement plaster in 1:3(1 cement: 3 sand) mixed with water proofing compound of approved make.
- House drains as per drawings/specifications.
- All exposed MS members to be painted with deluxe multi-surface paint of required shade as per DSR specifications.
- All wood shall be kiln seasoned and chemically treated.
- Painting wood work with deluxe multi-surface paint of required shade as per DSR.
- MS roof truss including purlin fabricated out of MS rectangular / square/tubular hollow section conforming or relevant IS code including providing MS cleats, base plates, bolts and nuts including necessary cleats etc. for fixing ceiling joists as per drawing and roofing.
- Septic Tank and Soak Pit as per drawings.
- Pre painted galvanized iron sheet roofing (PPGI) of 0.5 mm thick.
- M.S. grill with MS flat, MS square bar as per drawing.

DOORS:

- Flush Door with wooden frame of seasoned timber (sal/ hollock).
- Door shutters should conform to ISI 2202 Part I.The details is as per the finishing schedule.

WINDOWS/ VENTILATORS:

- Windows and Ventilators shall be of aluminum type.

FLOORING & PAVING:

- Marble Work in flooring, skirting, wall etc.: Thickness of the marble should not be less than 18 mm and the size of the slab up to 0.5 sqm.
- Ceramic Tile flooring and double charged Vitrified Tile flooring as per DSR specifications.
- Granite work in counter top and steps: Thickness of the granite should not be less than 18 mm and the size of the slab area should not be less than 0.5 sqm.

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The granite is laid over 20 mm thick cement mortar in 1:4 (1 cement:4 coarse sand), joints treated with white cement mixed with matching pigment including rubbing, curving, moulding and polishing to edges to give high glossy finish.

- Pavers: Providing and laying 60 mm thick factory made cement concrete interlocking pavers block of M30 grade made by block making machine with strong vibratory compacted bed of coarse sand.

SANITARY AND PLUMBING WORKS:

- Indian/ European pattern W.C. as per drawing.
- Table top Wash basin at toilet as per drawing.
- Mirror 600mmx450mm.
- Providing soap dish in the Toilet.
- Towel ring/ rail as per drawings
- Rain water pipe (PVC) – 150mm dia with necessary fittings like bends, tees, junctions floor traps, terminal guard etc. with pipe clips and joints as per requirements
- Floor trap with CP jalli of 125 mm nominal dia in toilet, kitchen.
- PVC soil/ waste water pipe (110mm dia,); vent pipe (75mm dia,) with necessary fittings like bends, tees, junctions floor traps, terminal guard etc. with pipe clips and joints as per requirements of sanitary scheme.
- Septic Tank with Soak pit, Inspection chambers, manholes, drainage pipes etc. as per drawings.

SPECIFICATIONS FOR CIVIL WORK

1.0 SPECIFICATIONS FOR EXCAVATION AND EARTHWORK:

1.1 SCOPE:

The scope of work broadly includes but is not necessarily limited to the following i.e. clearing of the site, excavation of foundation trenches, back filling, disposal of surplus earth as required including dewatering, shoring and strutting. Contractor shall provide all tools, labour, equipment and incidentals necessary required for completion of all aspects of work covered in these specifications.

1.2 TYPES OF SOIL:

Contractor shall thoroughly acquaint himself with the types of soil in excavation by an inspection of nature of the ground at site & scrutiny of the investigation details available with the Consultant.

1.3 CLEARING THE SITE:

The site on which the structure is to be built shown on the drawings and the area required for setting out and other operations like road, drains, sheds, etc. should be cleared and all obstructions, loose stones, materials and rubbish of all kinds, stump, brush wood and trees removed as directed, roots being entirely grubbed up. All useful materials obtained will be the property of the Engineer-in-charge and will be handed over to the Consultant. Rejected materials will be removed by the contractor to his own dump.

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1.4 GROUND LEVELS AND SITE LEVEL PLAN:

Before starting the excavations, the requisite block levels of the entire plot shall be taken by the contractor in consultation with the consultant and a proper record of these levels to be kept, which shall be jointly signed by the Contractor and the Consultant. A block level plan showing all the ground levels of the plot shall be prepared and shall jointly be signed by the Contractor and the Consultant/Engineer-in-Charge.

1.5 SETTING OUT:

After clearing the site, and preparing the site level plan, the Contractor will set out the center lines of the buildings or other involved works and get the same approved from the Consultant.

It shall be the responsibility of the Contractor to install substantial reference marks, bench marks etc. and maintain them as long as required by the Consultant. The Contractor will assume full responsibility for proper setting out, alignment, elevation and dimension of each and all parts of the work.

1.6 EXCAVATION AND PREPARATION OF FOUNDATIONS FOR CONCRETING:**1.6.1 General:**

Foundations trenches shall be dug wet or dry to the dimensions as shown on the drawings or as directed by the Consultant. The excavated materials shall be stacked at a sufficient distance away from the edge of the excavated pit so as not to endanger the stability of the sides. The soil heap shall not exceed more than 2m from the ground.

The Contractor shall, at his expense and without any extra charge, make provision for all shoring and strutting, extra excavation in slope, extra excavation in working space, dredging or bailing out water, and the excavation shall be kept free from water when the foundation work is in progress.

If the excavation is carried out to greater width, length or depth than specified, extra depth shall be made up by filling in lean concrete and extra length or width by filling in with earth rammed hard or by masonry as directed by the Consultant's. Cost of such extra excavation and the filling required therein as specified above shall be borne in full by the Contractor.

If required to protect the sides of the pits and trenches, timber shoring and strutting shall be erected. The timbering shall be closed or open depending on the nature of the soil and work, and arrangement of timbering including sizes and spacing of members used shall be as approved by the Consultant. NO EXTRA CHARGES shall be admissible on this account.

The bottoms of all excavation shall be trimmed and leveled in accordance with drawings / directions of the Consultant / Engineer-in-Charge. The bottoms of all excavation shall be rammed and wetted before deposition of concrete. The Contractor shall report to the Consultant / Engineer-in-Charge when the excavation is ready to receive concrete. NO concrete shall be placed in foundations until the contractor has obtained the approval of Consultant/ Engineer-in-charge.

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1.6.2 PROTECTION:

All foundation trenches and similar excavations shall be strong, fenced and marked with red lights at night for watchmen to avoid accidents.

Adequate protective measures shall be taken to see that the excavation does not affect or damage adjoining structures. All measures required for the safety of the excavation the people working in and near the foundation trenches, property and the people in the vicinity shall be taken care by the contractor at his own cost, being entirely responsible for any injury and damage to property caused by his negligence or accident due to his construction operations.

1.6.3 STACKING OF EXCAVATED MATERIALS:

Work for excavation shall include sorting out useful materials and stacking them on site as directed. Materials suitable and useful for back filling, plinth filling, leveling of the plot or other use shall be stacked convenient places, but not in such a way as to obstruct free movement of men, equipment and vehicles or encroach on the area required for constructional purposes.

1.7 BACKFILLING:

1.7.1 Earth obtained from excavation (or approved earth brought from outside for which no extra payment shall be made) shall be filled in layers as described in 1.7.3 around foundations and under floors. In case extra earth used for filling is required under floors, plinth protection including sit outs, courtyards, and the contractor will do at their own cost. The lumpsum offer shall be deemed to include the earth filling required under floors and plinth protection with plinth height shown in drawing above the bottom of the foundation concrete and finished courtyard level shown in Drawing below DPC coping level of the main building.

1.7.2 QUALITY OF FILLING:

Fill shall be well compacted, well graded earth or sand and shall be free from tree stumps, organic matter, seed and peat etc. Where earth or sand from source other than excavation at site is used, the quality of such earth or sand shall be the same as that obtained from excavation at site, or superior to it. Fine sand for filling is River Sand. Black Cotton soil shall not be used for back filling or plinth filling.

1.7.3 COMPACTION:

The fill shall be spread in layers not exceeding 20 cm thick and each layer shall be watered and thoroughly consolidated by suitable mechanical rollers, rammers, vibrators or other approved plant or system of compaction. The fill material shall be pulverized before depositing in place. Optimum moisture content shall be maintained for the filled materials. Compaction shall be done so as to achieve a dry density of not less than 90% of the maximum density obtained at optimum moisture content, except for the upper 20 cm layer which shall be compacted to a density of not less than 95% of the maximum density. In order that the fill shall be reasonably uniform throughout,, the material shall be dumped in place in approximately horizontal layers "Edge dumping", a process by which materials is pushed off edge of the fill and allowed to roll down the slope shall not be carried out, If there is traffic over the fill during construction, either by construction equipment or otherwise, it should be routed to make the compaction as uniform load shall be maintained and also care

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shall be taken to prevent any wedging action.

1.8 DE-WATERING:

Work for excavation shall include bailing or pumping out water which may accumulate in the excavation during the progress of work either from subsoil, seepage, springs, rain or any other cause and diverting surface flow if any by bunds or other means. Pumping out water shall be done in such approved manner as to preclude the possibility of any damage to the foundation trenches, Concrete or masonry of any adjacent structure. When water is met with in foundation trenches, pumping out water shall be from an auxiliary pit of adequate size dug slightly outside the building excavations. The depth of the auxiliary pit shall be more than the working foundation trench levels. The auxiliary pit shall be refilled with approved excavated materials after de-watering is over. The excavation shall be kept free from water -

1. When Concrete/Reinforcement Work/water Proofing work is in progress.
2. Till the Consultant consider that concrete / mortar is sufficiently set.

1.9 SURPLUS EXCAVATED MATERIAL:

All excavated material certified as surplus and not useful, shall be removed by the Contractor from the site an approved manner at his own cost and risk so as indemnify owner from any claims any time of whatsoever nature.

1.10 CONTRACT SUM TO INCLUDE:

Apart from other factors mentioned elsewhere in this contract, the contract sum shall also include for the following:

- (a) Clearing site.
- (b) Setting out works, profiles etc. as required and setting up bench marks and other reference marks.
- (c) Providing shoring and strutting and subsequently removing the same.
- (d) Bailing and pumping out water as required and directed.
- (e) Excavation at all depth (unless otherwise specified in the drawings) and removal of all materials of whatever nature wet or dry and necessary for the construction of foundation etc. and preparing bed for laying concrete.
- (f) Sorting out useful excavated materials, transporting them beyond the structure and stacking them neatly on the site for back filling or reuse as directed.
- (g) Back filling the trenches alongside masonry or concrete with approved excavated material up to the natural ground level including watering and ramming.
- (h) Necessary protection (including labour, materials and equipment) to ensure safety against risk of accident.
- (i) Drilling small holes as directed to explore the nature of substratum if necessary
- (j) Excavation if soft rock / hard rock if necessary.

2.0 SPECIFICATIONS FOR ANTITERMITE TREATMENT:

2.1 GENERAL:

Prevention of termite from reaching the super structure can be achieved by creating a chemical barrier between the ground and the building by treating the soil beneath and around the foundations. The work shall be carried out as per

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IS 6313 part II of 2001 or latest edition.

This shall be provided to sides and bottom of trenches and footing including treating the backfill of foundations up to ground level and the vertical surface of wall, and filling of each under floors and treating the surface at ground level 900mm around the building.

2.2 MATERIAL:

Anti termite treatment, shall be carried out strictly in accordance with Assam PWD specifications using Chloropyriphos (CPP) an Emulsified concentrate @ 1% concentration or any other approved chemical.

2.3 PRE-CONSTRUCTION CHEMICAL TREATMENT:

This is a process in which chemical treatment is applied to a building in the early stage of its construction at the rate specified in IS 6313 part II of 2001 or the latest edition.

Hand operated pressure pump shall be used for uniform spraying of the chemical. To have proper check for uniform spraying of chemical graduated containers shall be used. Proper check should be kept that specified quantity of chemical is used for the required areas during the operation.

2.4 TIME OF APPLICATION:

Soil treatment shall start when foundation trenches and pits are ready to take lean concrete in foundations. Laying of lean concrete shall start when chemical emulsion has been absorbed by the soil and the surface is quite dry. Treatment should not be carried out when it is raining or the soil is wet with rain or sub soil water. The foregoing applies also in the case of treatment to the filled earth surface within the plinth before laying the sub grade for the floor.

2.5 DISTURBANCE:

The treated soil barriers shall not be disturbed after they are formed. If by chance, treated soil barriers are disturbed, immediate steps shall be taken to restore the continuity and completeness of the barrier system.

2.6 TREATMENT OF COLUMNPITS AND WALL TRENCHES:

- (a) The bottom surface and the sides (up to a height of above 300mm) of the excavation made for column pits and trenches shall be treated with the chemical at the rate specified in IS 6313 part II of 2001 or the latest edition.
- (b) After the column foundation and the wall foundation come up, the back fill in immediate contact with the foundation structure shall be treated at the rate specified in IS 6313 parts of 2001 or latest edition of the vertical surface of the substructure for each side. If water is used for ramming the earth fill, the chemical treatment shall be carried out after ramming operation is done by prodding the earth at 150mm centers close to the wall surface and spraying the chemical with the above dose. The earth is usually returned in layers and the treatment shall be carried out in similar stages. The chemical emulsion shall be directed towards the concrete to masonry surface of the columns and walls so that the earth in contact with these surfaces is well treated with the chemical.
- (c) In the case of R.C.C framed structure with columns and plinth beams and R.C.C basement with concrete, mix is rich and dense (being 1:2:4 or richer), it is unnecessary to start treatment from bottom of excavation for columns and

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plinth beams. The treatment shall start at the depth of 500 mm below ground level. From this depth the back fill around the column, beams and R.C.C basement wall shall be treated at the rate as per IS 6313 part II of 2001 or the latest edition. The other details of treatment shall be as laid down in the clause (b) above.

2.7 TREATMENT OF TOP SURFACE OF PLINTH FILLING:

The top surface of the filled earth within plinth wall shall be treated with chemical emulsion at the rate as per IS 6313 part II of 2001 or latest direction (surface area) before the sand/sub-grade is laid. Holes up to 50 to 70 mm deep at 150mm centers both ways shall be made with crow bars on the surface of the soil with chemical emulsion.

2.8 TREATMENT OF JUNCTIONS OF WALL AND FLOOR:

To achieve continuity of the vertical chemical barrier on inner wall surface from the ground level, small channel 30 x 30 mm shall be made at all junctions of wall and columns with the floor (before laying the sub-grade) and rod holes made in the channel up to ground level 150mm apart and the chemical emulsion poured along the channel as per rate of application, mentioned in IS 6313 Part II of 2001 or the latest edition so as to soak the soil right up to bottom. The soil shall be tamped back into place after this operation.

2.9 TREATMENT OF SOIL ALONG EXTERNAL PERIMETER OF BUILDING:

During progress of work, provide hole in the soil with iron rods along the external perimeter of the building at intervals about 150 mm and depth 300 mm and filling these holes with chemical emulsion at the rate (as per IS 6313 part II of 2001 or the latest edition) per meter of perimeter of the external wall.

2.10 TREATMENT FOR EXPANSION JOINTS:

Anti termite treatment shall be supplemented by treating through expansion joints after the sub grade has been laid as per IS 6313 part II of 2001 or the latest edition.

2.11 TREATMENT OF SOIL SURROUNDING PIPE AND CONDUITS:

When pipes and conduits enter the soil inside the area of the foundations, the soil surrounding the points of entry shall be loosened around each such pipe or conduit for a distance of 150 mm and up to depth of 75 mm before treatment is commenced. When they enter the soil external to the foundations, they shall be similarly treated unless they stand clear of the walls of the building by about 75 mm for distance of over 300 mm from ground level.

2.12 SAFETY PRECAUTIONS:

All chemicals used for anti termite are poisonous and hazardous to health. These chemicals can have an adverse effect upon health when absorbed through skin, inhaled as vapors or spray mists or swallowed.

Person using or handling these chemicals should be warned of these dangers and advised that absorption through the skin is the most likely source of accidental poisoning. They should be cautioned to observe carefully the safety precautions given below:

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These chemicals are usually brought to site in the form of emulsifiable concentrates. The containers should be clearly labeled and should be stored carefully so that children and pets cannot get at them. They should be kept securely closed.

Special care should be taken to prevent skin contact with concentrates. Prolonged exposure to dilute emulsions should be avoided. Workers should wear clean clothing and should wash thoroughly with soap and water, especially before eating or smoking. In the event of severe contamination, clothing should be removed at once and skin washed with soap and water, if chemicals splash into the eyes they should be flushed with plenty of fresh water and immediate medical attention should be sought.

The concentrates are oil solutions and present a fire hazard owing to the use of petroleum solvents. Flames should not be allowed nearby during mixing. Care should be taken in the application and present a fire hazard owing to the use of petroleum solvents. Flames should not be allowed nearby during the mixing.

Care should be taken in the application of chemicals to see that they are not allowed to contaminate wells or springs which serve as source of drinking water.

2.13 GUARANTEE:

The Contractor shall guarantee through a guarantee bound, the anti termite work for 10 years from the date of completion of project and shall indemnify the Engineer-in-charge against any defects that arise therein during the guarantee period as aforesaid. They shall immediately rectify, any defects that may occur therein, and repair all other damage occurring to any part of the structure on account of defect in Antitermite Treatment during the guarantee period of aforesaid.

3.0 SPECIFICATIONS FOR CAST - IN - SITU REINFORCED CEMENT CONCRETE:

3.1 GENERAL:

3.1.1 DESCRIPTION:

This section covers the requirements for finishing of cement concrete, proportioning, batching, mixing, testing, placing, compacting, finishing, jointing, curing and all other work as required for cast in place reinforced concrete. The contractor shall provide all the materials including cement, steel, labour, equipment, 'form work', scaffolding etc., required for completion of all reinforced concrete works as per drawings and documents. Cement concrete shall be composed of cement, fine aggregates, coarse aggregates, water with or without admixture as approved, proportioned and mixed as specified herein.

RELATED WORK SPECIFIED ELSEWHERE

- (a) Steel Reinforcement
- (b) Form Work

APPLICABLE CODES AND STANDARDS:

The codes and standards generally applicable to the work of this section are
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listed hereinafter.

IS :	383	Coarse and fine aggregates from natural sources for concrete.
IS :	456	Code of practice for plain and reinforced concrete.
IS :	516	Methods of testing for strength of concrete.
IS :	1199	Methods of sampling and analysis of concrete.
IS :	1838	Performed fillers in expansion joints in concrete non-extruding and resilient Type
IS :	1946	Code of practice for use of devices in walls, ceiling and floors of solid Construction
IS :	2389	Methods of testing of aggregates for concrete's
IS :	2505	Concrete vibrators, immersion type
IS :	2645	Integral cement water proofing compounds
IS :	3414	Code of practice for design and installation of joints in buildings Code of practice for use for immersion vibrators for consolidating concrete
IS :	3558	Recommendation on stacking and storage of construction materials
IS :	4082	Code of practice for extreme weather concretizing
IS :	7861	Recommended practice for hot weather (Part I) concretizing
IS :	8112	Ordinary Portland Cement (Grade - 43)
IS :	12269	Ordinary Portland Cement (Grade - 53)
IS :	269	Ordinary Portland Cement (Grade - 33)

PART-I

The following clauses are intended to amplify the requirements of the reference document listed above and the contractor shall comply with these clauses.

3.2 SUBMITTALS:

3.2.1 Material Report:

Prior to start of delivery of materials required, the following shall be submitted by the contractor to the Consultant / Engineer - in - Charge for approval.

Suppliers and / or sources of all consumable materials including cement, steel, fine and coarse aggregates, water additives, bricks and timber etc.

Quality Inspection Plan to ensure continuing quality control of ingredients by periodic sampling, testing and reporting to the Consultant on the quality of materials being supplied.

3.3 PLANTS EQUIPMENT:

The Contractor shall obtain the approval of the Consultant / Engineer-in-Charge for all plant items he proposes to use for the manufacture and placing of concrete. Hand mixing of concrete is strictly prohibited. The contractor should use weigh batched concrete mixers in all structural works. The concrete mixer should be calibrated as per specifications of Bureau of Indian standards and the calibration report should be submitted to the Engineer- in-charge from time to time. All other tools and tackles like concrete lifting hoist, Vibrator nozzles, mortar pans, trowel, floats etc. should be adequate at site up to the satisfaction of the Engineer-in-charge.

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The arrangement shall maintain all items of plant at all times in a clean and efficient working condition.

3.4 REPORTS FOR INSPECTION AND TESTING:

During concreting operations, the contractor shall conduct all inspection and testing, and all reports thereon shall be submitted in summary form to the Consultant/ Engineer-in-Charge.

3.5 SCHEDULES:

Before commencement of the work the contractor shall prepare working schedules of concreting giving dates and rate of pour for each item of work and submit the same to the Consultant / Engineer - in - Charge for their approval.

3.6 MATERIALS:

Before bringing to the site, all materials for cement concrete shall be approved by the Consultant / Engineer - in - Charge. All approved samples shall be deposited in the office of the Consultant / Engineer - in - Charge before placing orders for the materials with suppliers. The materials brought on to the work shall conform in every respect of their approved samples.

Fresh samples shall be deposited with the Consultant / Engineer-in-Charge whenever type or source of any material changes. The contractor shall check fresh consignment of materials as it is brought on to the works to ensure that they conform to the specification and / or approved samples.

The Consultant / Engineer-in-Charge shall have the option to have any of the materials tested to find whether they are in accordance with specifications at the contractor's expense. All bills vouchers and test certificates which in the opinion of the Consultant / Engineer - in - Charge are necessary to convince him as to the quality of materials or their suitability shall be produced for his inspection when required.

Any materials which have not been found to the specification and not approved by the Consultant / Engineer - in - Charge shall be rejected forthwith and shall be removed from the site by the Contractor's at his own cost within the time stipulated by the Consultant / Engineer - in - Charge. The Consultant / Engineer - in - Charge shall have the powers to cause the contractors to purchase and use materials from any particular source, as many in their opinion be necessary for the proper execution of work.

3.6.1 CEMENT:

Cement shall be provided and stored by the Contractor at his own cost. Cement shall be stored on a raised floor in dry weather proof & dust free but well ventilated shed. Cement bags shall be stacked close together away from external walls and in stacks of not more than ten bags to avoid lumping under pressure. Cement stored during monsoons or cement expected to be in store for more than eight weeks shall be completely enclosed in 700 micron polyethylene sheet so arranged that the flap close on the top stack. The contractor shall ensure that protective polyethylene sheet is not damaged at any time during use.

Consignments of cement shall be used in order of delivery. A record shall be
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kept of the batch numbers of cement deliveries in such a form that the part of the works in which the cement is used can be readily identified, If during delivery or by test, the cement is found to be defective, the same shall be returned back forthwith.

The contractor shall be responsible for the storage of cement at the site and no claim will be entertained in the event of any damage occurring to cement due to faulty storage by the contractor or on account of his negligence.

Cement stored on site for a period longer than eight weeks shall be tested to the satisfaction of the Consultant / Engineer-in-Charge before it is used in the works. Cement that has failed the tests' conducted shall not be used in the works and shall be remarked from the site immediate by without fail.

On the following types of cement as specified shall be used

- Ordinary Portland Cement 33 grade confirming to IS 269
- Ordinary Portland Cement 43 grade confirming to IS 8112
- Ordinary Portland Cement 53 grade confirming to IS 12269
- Portland Pozzolana Cement conforming to IS 1489(Part 1 and part 2)

For concrete to be used in all structural elements in load bearing and RCC framed construction, ordinary Portland cement of 43 grade or higher is to be used. In rest of the works all the aforementioned types of cement can be used.

3.6.2 AGGREGATES:

STORING OF AGGREGATE:

Aggregate shall be stored on a suitable well drained raft of concrete, timber, metal or other approved material. The storage of aggregate on the ground will not be permitted.

Each size of aggregate shall be stored separately in such a manner as to prevent spillage and mixing of one aggregate with an adjacent aggregate. The dividing walls of any bins shall be of sufficient height and the aggregate shall be so deposited that a distance of 100 mm shall be left between the top of the division wall and any part of the aggregate stack. When stacking piling, the aggregate shall not form pyramids resulting in segregation of different size particles. The stacks shall be regular and of a height not exceeding two meter

- a) Aggregates from natural sources shall be in accordance with IS 383. The contractor shall submit to the Consultant / Engineer - in - Charge certificates of grading and compliance from the suppliers for all consignments of aggregates. In addition at site from time to time, the contractor shall test the aggregates in accordance with IS 2386 parts I, II, III and IV. The contractor shall allow for and provide all necessary apparatus for carrying out each test and for supplying test records to the Consultant.
- b) For fair faced concrete, the contractor shall ensure that aggregates are free from iron pyrites, and impurities which may cause discoloration.

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- c) The fine aggregates shall be river sand, stone dust or other approved sand. It shall be free from clay, loam, and earth or vegetables matter and from salt or other harmful chemical impurities. It shall be clean, sharp, strong angular and composed of hard siliceous material.

The grading of sand as determined by the method prescribed in IS 2386 part I shall be within the limits of grading zone HI given below in Table I. When the grading falls outside the percentage limits given for sieves other than 600 micron, 300 micron and 150 micron (I.S) sieves by not more than 5 percent, it shall be regarded as falling within this zone. The 5 percent can be excess submission on one more sieves.

TABLE -1:- FINE AGGREGATES

I.S. Sieve	Percentage passing for Grading			
	ZONE -I	ZONE-II	ZONE-III	ZONE -IV
10 mm	100	100	100	100
4.75 mm	90-95	90-100	90-100	95-100
2.36 mm	60-95	75-100	85-100	95-100
1.18mm	30-70	55-90	75-100	90-100
600 micron	15-34	35-59	35-60	80-100
300 micron	5-20	8-30	8-30	20-65
150 micron	0-10	0-10	0-10	0-15

The maximum quantity of silt as determined by the method prescribed in IS 2386 Part II shall not exceed 8%.

Stone dust shall be within the limits of Grading Zone III given in table -1. When the grading falls outside the percentage limits given for the sieves other than 600 micron and 300 micron (IS) sieves by not more than 5 percent and on 150 micron sieves by not more than 20 percent it shall be regarded as falling within this zone. The 5 percent can be excess summation on one or more services.

3.6.2.1 COARSE AGGREGATES:

The coarse aggregates shall be crushed stone or broken stone. Coarse aggregate obtained from crushed or broken stone shall be angular, hard, strong, dense, durable clean and free from soft, friable, thin, flat, elongated flaky pieces. The coarse aggregate should be from the approved source/quarry.

Coarse aggregate river shingle or pit gravel shall be rounded, sound hard, clean, non porous, suitably graded in size with or without broken fragments and free from flat particle of shale, clay, silt, loam and other impurities.

Except where it can be shown to the satisfaction of the Consultant that a supply of properly graded aggregate of uniform quality can be maintained over the period of the obtaining the coarse aggregate in different sizes & blending them in correct proportions as and when required.

The maximum size of coarse aggregate shall be such that the concrete can be placed without difficulty so as to surround all reinforcement thoroughly and
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fill the corners of form work.

3.6.3 WATER:

Water used in the works shall be potable water and free from deleterious materials. Water used for mixing and curing concrete as well as for cooling and / or washing aggregate shall be fresh and clean, free from injurious amounts of oil, salts, acids, alkali, other chemical and organic matter.

Water shall be from the source approved by the consultant / Engineer-in-Charge and shall be in accordance with clause 4.3 of IS 456.

Before starting any concreting work and whenever the source of water changes the water shall be tested for its chemical and other impurities to ascertain its suitability for use in concrete for approval of the Consultant. No waters shall be used until tested and found satisfactory. Cost of all such tests shall be borne by the Contractor.

3.6.4 ADMIXTURES AND ADDITIVES:

Chemical admixtures are not to be used until permitted by the Consultant / Engineer-in-Charge in case their use is permitted, the type, amount and method of use of any admixture proposed by the contractor shall be submitted to the Consultant for approval.

The contractor shall further provide the following information concerning each admixture to the Consultant / Engineer-in-Charge.

- (a) Normal dosage and detrimental effects, if any, of under dosage and over dosage.
- (b) The chemical names of the main ingredients in the admixture.
- (c) The chloride ion content, if any, expressed as a percentage by weight of admixture.
- (d) Whether or not the admixture leads to the entrainment of air when used in manufacturer's recommended dosage.
- (e) Where two or more admixtures are proposed to be used in any one mix, the manufacturer's written confirmation of their compatibility.

In reinforced concrete, the chloride ion of any admixture as determined in accordance with IS 6925 and the total chloride ion in all admixture used in concrete mix shall not exceed 0.30 percent by weight of cement.

The admixture when used shall conform to IS 9103. The suitability of all admixtures shall be verified by trial mixes.

The addition of calcium chloride to concrete containing embedded metal will not be permitted under any circumstances.

Regarding admixtures when used shall be based on lingo-sulphonates with due consideration to clause 5.2 and 5.30 of IS 7861.

Waterproofing admixtures shall comply with IS 2645.

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3.7 GRADES OF CONCRETE:

The grades of concrete shall be in accordance with the following table. The grade of concrete to be used in each section of work will be shown in the drawings.

CHARACTERISTIC STRENGTH

Grade of Concrete	Characteristic strength i.e., compressive strength of 15 cm cubes at 28 days (N/mm ²)	Nominal maximum aggregate size (mm)
10	10	25
15	15	25
20	20	20
25	25	20
30	30	20
35	35	20

Unless otherwise specified in the drawings the maximum nominal size of coarse aggregate for different grades of concrete shall as under:

(a)	For concreting in very narrow space or in very small thickness.	12mm
(b)	For all reinforced concrete work except in massive foundations.	20mm
(c)	For all ordinary plain concrete and massive reinforced foundations.	10mm

3.8 WATER-CEMENT RATIO:

The water cement ratio shall be within 0.45 & 0.70 depending upon the workability.

3.9 WORKABILITY:

The workability of fresh concrete shall be such that the concrete is just suitable for the conditions of handling and placing so that after compaction, it becomes completely consistent and homogeneously surrounds all the reinforcement and completely fills the formwork.

The workability of fresh concrete at the place of mixing shall be measured by compacting factor test and at the place of disposition by means of slump test. During the finalization of trial mixes, the relationship between compacting factor and slump test shall be established for each grade of concrete as well as for various levels for workability.

Normally, in the condition of low water cement ratio as well as medium / high workability, the workability shall be achieved by increasing the cement content.

In case where the cement content is to be limited to reduce the heat of hydration, and the water cement ratio is also kept low to reduce the permeability or due to other requirements the desired workability may be achieved with the use of limited doses of plasticizer or air entraining agent. In such cases, the method of mixing and dosages of the plasticizer/air entraining agent shall be according to the manufacturer's specification and with the approval of Engineer-in-Charge.

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Consistency and workability of the concrete shall be checked by measuring the slump of a truncated cone of concrete straight from the mixer under normal working conditions. The conical mould shall be of metal, 300mm high and 100mm and 200mm in diameter at top and bases respectively.

Moulds shall be prepared by the contractor. The slump range of concrete shall be as per the tabulation given below, as well as standards.

Slump test shall be performed as per IS 1881 at intervals established by the Engineer at the contractor's cost in such a way as to check that the degree of consistency established by the Engineer for work in progress is maintained. The table below gives a general slump range to be followed for various types of construction unless otherwise shown on drawings or instructed by the Engineer.

Various types of Construction	Slump in mm	
	Maximum	Minimum
Reinforced foundation walls and footings	80	35
Plain footings, caissons and structure walls	75	20
Compressor foundations and for heavy mass constructions	50	20
Pumps and other misc. equipments foundations	75	35
Columns, slabs, beams and reinforced walls	100	50

3.10 DURABILITY:

The durability of concrete, depending on the exposure condition, is to be taken into account while designing the mix. For given aggregates, the cement content should be sufficient to make sufficiently low water/cement ratio and Appendix A of IS 456 shall be taken as guideline for durability considerations.

3.11 NOMINAL MIX CONCRETE:

Nominal mix concrete may be used for all concrete of grade up to M-20. Nominal mix concrete shall be in accordance with Table - 3 of clause 8.3 of IS 456. The stipulations of clauses 8.3.1 and 8.3.2 of IS 456 shall be taken into consideration.

3.12 VOLUMETRIC MIX CONCRETE:

Where concrete is specified in volumetric proportions such as 1:4:8, 1:3:6, 1:2:4, 1:1.5:3 etc. in the bill of quantities, coarse & fine aggregates shall be measured by volume & cement by weight. The water cement ratio shall be within 0.45 & 0.70 depending upon the workability.

3.13 CAST IN-SITU CONCRETING:

Before commencement of concreting, there must be a request for inspection in the prescribed format as decided by the EIC. Casting shall be done only after inspection and verification. The criteria for approval of concrete pour card will be:

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4.0 BRICKS:

All conventional bricks shall be of minimum class designation 7.5 of standard dimension or as locally available as approved by the EIC. Compressive strength, water absorption, warpage and dimensional tolerances etc. must conform to DSR specifications. If required by the EIC, tests, in addition to those specified in the List of Mandatory Tests shall be conducted at the contractor's expense to ensure quality. In general, the bricks shall be the best quality locally available within the specified minimum class designation.

Brick ballast:

Under burnt bricks shall not be used for making brick ballast. These shall be made from lump ballast or bats, Ballast that is brittle and easily crushed under beaters shall not be used.

4.1 CONVENTIONAL BRICK WORK:

- a) Brick work in cement mortar with 1st class brick including racking out joints and curing complete as directed should be executed as per DSR specifications. No bricks may be used until after they have been soaked in water for a minimum period as specified in DSR specifications.
- b) The brickwork should be kept moist for a period of 7 days and the methodology of curing should adhere to DSR specifications.
- c) Brickwork in half Brick walls shall conform to DSR specifications.

5.0 FLOORING/SKIRTING/CLADDING:

Preparation of plinth filling:

All plinth fillings shall be properly consolidated in layers, watered, rammed and allowed to consolidate to the EIC's satisfaction before any flooring is laid. When the flooring is to be laid over a foundation of sand, broken stone or brick or a combination of sand and broken stone or brick the filling shall be removed to a depth equal to the thickness of the flooring plus such foundation layers.

Foundations:

- i) Sub-layer of sand:
After the plinth filling has been prepared as detailed in specification above a sub layer of sand 300mm deep shall be laid watered and brought to an even surface.
- ii) Layer of broken stone or brick:
Over the sand a foundation course of bricks shall be laid and the interstices filled in with sand, The bricks shall be tightly packed and laid so as to break joint.

Tile floors:

- i) Foundation and cement floating under tiles:
Over the foundation as in (b) above 2 coats of cement plaster, 1 part of cement to 1 part of sand, prepared in a very liquid condition will be floated over it and allowed to set.
- ii) Laying:
After the tiles have been soaked in water for at least two hours and the cement foundation sprinkled with water, laying work may commence

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and shall start from the centre of the room or area to be tiled, work being continued in both directions so that borders are laid last. Each tile will be laid in and drawn up in neat cement, care being taken to exclude air bubbles. Threads shall be stretched cross the surface, at intervals, parallel to the short sides of the area to be tiled to serve as guide lines.

- iii) Cleaning:
After a small area has been laid all superfluous cement will be wiped off the surface. Stains shall be removed by moistening with hydrochloric acid and rubbing with pumice stone and afterwards washing with warm water.
- vi) Fixing to walls:
In fixing tiles to walls the walls shall be rendered with cement plaster and the plaster scored diagonally and allowed to set. When laying the tiles work shall commence from the bottom, the back of each tile being smeared with neat cement of the consistency butter and the tile pressed into position.

6.0 DOOR SHUTTERS:

6.1 FACTORY MADE DOOR SHUTTER:

Providing, fitting and fixing 32 mm thick ISI marked Archid Lamydoor conforming to IS 2202 (Part-1) core of block board construction with frame of first class hard wood and well matched decorated laminate in both faces of shutter.

7.0 CEMENT PLASTERING:

- Internal plaster should be of 6mm, 12mm and 15mm. 6mm plaster should be on all concrete surfaces. 12 mm plaster should be on fair side of brickwork and 15mm cement plaster is to be executed on the rough side of brickwork.
- External cement plaster should be 18mm thick in 2 layers (top layer of 6mm thick cement mortar in proportion 1:6 with an under layer of 12mm thick cement mortar in proportion 1:5).
- Chicken wire mesh is to be embedded in cement concrete plaster of all RCC and brick joints.
- Ceiling plaster is to be completed before commencement of wall plaster and should conform to DSR Specifications.
- **Preparation of surface:**
All putlog holes in brick work and junction between concrete and brick work shall be properly filled in advance. Joints in brick work shall be raked about 10mm and concrete surface hacked to provide grip to the plaster. Projecting burrs of mortar formed due to gaps at joints in shuttering shall be removed. The surface shall be scrubbed clean with wire brush/coil brush to remove dirt, dust etc. and the surface thoroughly washed with clean water to remove efflorescence, grease and oil etc. and shall be kept wet for a minimum of six hours before application of plaster.
- **Proportion:**
For 12mm & 15mm thick cement plaster in prop 1:4; 6mm thick cement

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plaster in prop. 1:3 and for 18mm thick cement plaster the underlayer is 1:5 prop and the top layer is 1:6.

- **Mixing:**

The cement and sand should be thoroughly mixed in dry condition. After dry mixing, the materials shall be wetter with just sufficient water to bring the mortar to proper consistency of thick paste. Mortar should be used immediately after mixing and arrangements shall be made so that not more than 30 minutes elapse between the cement first coming in contact with the moisture and laying.

- **Placing:**

Plaster shall be laid over the prepared surface in one coat to the specified thickness and rubbed with 'PATAS' and trowel and shall be smooth, free from waviness and trowel marks. Curing the plaster must be kept wet throughout the entire process and for ten days after four hours of completion of plastering.

8.0 PAINTING:

8.01 Acrylic Emulsion Paint:

The surface shall be prepared by cleaning the surfaces of the structure and making free from all dust and dirt. Interior surfaces are to be provided with 1.5mm thick wall putty punning. A primer coat either of cement primer or of an approved distemper shall be applied. After the priming coat has dried the surface shall be lightly sand papered and dusted to make it smooth to receive distemper.

Distemper shall be prepared as per the directions of the manufacturers and conforming to the shade approved. It shall be applied in specified coats taking care to allow for drying of each coat before subsequent coats are applied.

8.02 Painting over wood work:

- a) The surface to be painted shall be thoroughly dry. All projections such as glue, all tool marks and other irregularities shall be carefully removed by means of a stopping knife and smoothed over and all head of nails or screws set 6mm below the surface.
- b) Knotting shall be carried out for all resinous woods such as pitch or red pine, an application of hot lime shall be applied to the portion to be stopped and allowed to remain for 24 hours after which it will be scraped off and the stopping completed.
- c) After the surface has been prepared as described above the primary coat shall be applied. When the primary coat has dried all nails and screw holes and all cracks shall be stopped and all irregularities shall be smoothed out with sand paper or pumice stone. Water proof sand paper is to be used.
- d) After the primary coat has dried out the subsequent coats shall be applied to the number specified. Each coat being allowed to dry thoroughly before the next coat is applied. Each coat when dry except the finishing coat should lightly rubbed down with sand paper and washed before the next coat is applied. The paint shall be applied evenly and properly by means of crossing and lying off the latter in the direction of the grain of the wood work.

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e)

8.03 Purchase of paint, varnish or oil:

Only the best brands obtainable will be used and should the contract permit the contractor to supply any paint, oil or varnish he shall purchase only such brands as the EIC shall approve of in writing. All purchases must be made direct from the manufacturers or through an agent approved of in writing by the EIC. Should the EIC so direct copies of all indents and receipts for purchase must be submitted for inspection.

8.04 Paint etc. to be purchased in sealed containers:

All paints, oil or varnishes supplied by the contractor must be produced for the inspection of the Engineer in charge of the work in the manufacturers sealed and unopened containers. All containers from which the contents have been removed and are not required on the work must be destroyed and no extra payment will be granted for such destruction.

8.05 Only ready mixed paint to be used:

Only ready mixed or varnished of the make or brand specified will be permitted to be used exactly as received from the manufacturer without any admixture what so ever unless previously authorized, in writing , by the EIC.

9.0 DAMP PROOFING COURSE:

It shall consist of 1:2:4, plain cement concrete with approved water proofing materials of specified thickness. Edges of DPC shall be straight, even and vertical side shuttering shall consist of wooden or steel forms and shall be strong and properly fixed so that it is not disturbed during compaction and mortar or cement slurry does not leak through. When forms are struck the surface should be smooth without any honey combing. The surface shall be kept wet for seven days.

Before commencing the superstructure work, the top of concrete course shall be dried and cleaned of all materials. Blown type bitumen shall then be applied uniformly on the surface and the side of the concrete coming in contact with flooring on the inside shall also be painted with bitumen.

10.0 WALL PUTTY:

Surface preparation for plastered wall, ceiling etc. to be done by providing average 1 mm thick polymer based wall putty punning including clearing, rubbing with sand paper, filling gaps/depression etc, to make the surface even and smooth.

11.0 WATERPROOFING:**Waterproofing of Roof, Terrace:**

Providing and laying in situ seven course water proofing treatment with APP (Atactic poly-propylene) modified Polymeric memberane over roof consisting of first coat of bitumen primer @ 0.40 Kg per sqm, 2nd, 4th & 6th courses of bonding material @ 1.20 Kg/sqm, which shall consist of blown type bitumen of grade 85/25 conforming to IS : 702, 3rd and 5th layers of roofing membrane APP modified Polymeric membrane 1.5 mm thick of 2.25 Kg/sqm weight

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consisting of five layers prefabricated with centre core as 20 micron HMHDPE film sandwiched on both sides with polymeric mix and the polymeric mix is protected on both side with 20 micron HMHDPE film. 7th, the top most layer shall be finished with brick tiles of class designation 10 grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% integral water proofing compound by weight of cement over a 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat (item of laying brick tiles shall be paid for separately).

Waterproofing of sunken slabs:

Providing and laying water proofing treatment in sunken portion of WCs, bathroom etc., by applying cement slurry mixed with water proofing cement compound consisting of applying : (a) First layer of slurry of cement @ 0.488 kg/sqm mixed with water proofing cement compound @ 0.253 kg/ sqm. This layer will be allowed to air cure for 4 hours. (b) Second layer of slurry of cement @ 0.242 kg/sqm mixed with water proofing cement compound @ 0.126 kg/sqm. This layer will be allowed to air cure for 4 hours followed with water curing for 48 hours. The rate includes preparation of surface, treatment and sealing of all joints, corners, junctions of pipes and masonry with polymer mixed slurry.

12.0 OVER HEAD WATER TANK

Over head water tank of plastic cylindrical vertical closed top (PCVC) tank over the staging with manhole cover with locking and cleaning arrangement including providing pads of size as required for inlet and outlet pipes complete as directed.

13.0 BLINDS

Supplying, fitting and fixing horizontal/ vertical blinds as per design and specifications complete as directed by the department.

SPECIFICATION OF SANITARY /PLUMBING WORK:

1.0 SANITARY WARES AND ALLIED FITTINGS:

All sanitary wares with their allied fittings must be first quality (best) as per approved make these should be approved by the Architects/Consultants, before use. No extra claim will be entertained for concreting for encasing the bottom or making bed for setting of IPWC, which are to be included in tender items. The flushing cisterns shall be automatic or manually operated high level or low level, as specified for water closets and urinals.

2.0 WATER CLOSET (INDIAN/ EUROPEAN TYPE) As per IS: 2556 :

The WC shall be of white vitreous Chin unless otherwise specified of one piece construction of wash down type with integral 'P' or 'S' trap as required. It shall be of approved quality and pattern. The rest of the execution methodology

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should conform to DSR Specifications. Colour, Make and model are to be approved by the Engineer-in-charge/ Consultant.

INSTALLATION

The weight of the fixture and user are supported on the floor and not on the drainage pipe and this should be done in standard approved method.

SEAT AND COVER

The seat with lid shall be of plastic seat as specified with rubber buffers and shall be fixed in position by using Chromium plate hinges and screws, The seat shall be non-absorptive and from cracks and crevices in the materials. The plastic seat and cover where specified shall conform to L.S. specification and shall be of white colour unless otherwise specified.

3.0 WASH BASIN BASIN

The wash basins shall be of white or coloured vitreous China as specified and of approved quality, make and pattern, conforming to IS Specification. It shall be one piece construction with an integral combined overflow. The size of the basin shall be as specified.

FITTINGS

Each wash basin shall be provided with 15 mm CP brass pillar taps as specified, 32 mm CP waste CP Chain and rubber plug, union joints CP brass bottle trap of approved quality and design, with CP brass stop cock and P.V.C water inlet pipe of standard length dia. etc. complete in all respects of approved quality.

PAINTING

All brackets pipes etc shall be painted with two coats of enamel paint over a coat of primer.

FIXING

The counter top basin shall be supported on a granite platform.

WASTE CONNECTION

The waste shall discharge into a bottle trap.

4.0 TOILET FITTINGS

4.1 MIRROR

The mirror shall be of approved make glass with beveled edges. The size and shape of the mirror shall be as specified.

4.2 CHROMIUM PLATED STOP COCK, TAPS BIB COCKS, SHOWER SET, GUN METAL PEETS VALVES

Where not mentioned, cock's ant taps are to be of brass standard head chromium plated and are to be of approved make and brand as specified.

They must be capable to withstand at least 10.5 Kg / cm² pressure applied for 5 minutes without leakage. The valves are to be of peat type gunmetal valves of 'Leader' brand. Other conditions remain same as cocks and taps.

4.3 BOTTLE TRAP

PTMT bottle trap are provided for wash basin and urinal. Bottle trap of 3/4" single pair moulded with height of 270mm, effective length of tail pipe 260mm from the centre of the waste coupling, 77mm breadth, with 25mm min. water

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seal.

4.4 TOWEL RING / RAIL

Towel ring shall be CP brass or aluminium bracket.

4.5 SOAP DISH

This shall be glass or PVC or CP brass as specified. It shall be fixed in position by means of CP brass screws to wooden cleats embedded in the wall.

5.0 TESTING

The soil and waste Pipes and fittings as laid shall be smoke tested to the entire satisfaction of the Architects/Consultants. Cost of testing shall be included in rates including the tools, machinery and fuel. No extra claim for this will be entertained. The material usually burnt is grease cotton waste, which gives out a clear pungent smoke, which is easily detected by sight and smell. Smoke shall be pumped into the drains of the lowest end from a smoke machine, which consists of blower and burner.

6.0 UPVC WASTE PIPE:

UPVC pipes are chemical resistance and insulation mix uniform wall thickness. UPVC pipes are conforming to IS-12818. These pipes are manufactured as per BIS standard and are available in deep blue colour. One end of the pipe is male threaded where as other end is female threaded socket. Threads are either V or trapezoid type and protection caps are provided on the threads to protect the threads in transit. Two types of pipes i.e. Shallow Well (C.S.) and Medium Well (C.M.) are available. Shallow Well Pipes can be used for depths up to 80 meters and Medium Well pipes can be used up to 250 meters.

6.1 UPVC FITTINGS:

The UPVC waste pipes fittings and their installation should conform to the specifications of approved manufacturer as per the approval of Engineer-in-charge.

6.2

a) Shallow Well - C. S. (Suitable upto 80 meters depth)					
Sizes	Outer Diameter (D) (mm)		Wall Thickness (t) (mm)		Length
	Min.	Max.	Min.	Max.	L (meter)
150 mm (6")	165	165.4	5.7	6.5	3
175 mm (7")	200	200.5	7.0	7.8	3
200 mm (8")	225	225.5	7.6	8.8	3
250 mm (10")	280	280.5	9.6	11.0	3
b) Medium Well - C.M. (Suitable upto 250 meters depth)					
40 mm (1½")	48	48.2	3.5	4.0	3
50 mm (2")	60	60.2	4.0	4.6	3
80 mm (3")	88	88.3	4.0	4.6	3
100 mm (4")	113	113.3	5.0	5.7	3
125 mm (5")	140	140.4	6.5	7.3	3
150 mm (6")	165	165.4	7.5	8.5	3
175 mm (7")	200	200.5	8.8	9.8	3
200 mm (8")	225	225.5	10.0	11.2	3
250 mm (10")	280	280.5	12.5	14.0	3

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POLYVINYL CHLORIDE (PVC) SOIL AND RAIN WATER PIPES:

The specification covers requirements for plain and socket end polyvinyl chloride (pvc) pipes with nominal outside diameters 40 mm to 160 mm for use for rain water applications. In this specification nominal outside diameter DN of pipes are 40, 50, 63, 75, 90, 110, 125, 140 and 160 mm. Surface colour of the pipes shall be dark shed of grey. For other details and specifications refer code IS: 13592-1992 (amended to 1995).

7.0 SEWERS AND DRAINS

7.1 Excavation of trenches

The gradient is to be set out by means of sidewall and the depth of trench shall not be less than 1 meter measured under the ground. The width of the trench shall be the nominal diameter of the pipe plus 40 cm but it shall not be less than 52cm.

The bed of the trench, if in soft or made up earth, shall be well watered and rammed before laying the pipes and the depressions if any shall be properly filled with earth and consolidated in 20 cm layers. Depending on soil condition piling may even be necessary if so desired by the Architects / employer.

If rock is met with, it shall be removed 15 cm below the level of the pipe and the trench will be refilled with excavated materials and consolidated.

The excavated materials shall not be placed within 1 (one) meter or half of the depth of the trench whichever is greater from the edge of the trench.

The materials excavated shall be separated and stacked so that in refilling they may be re-laid and compacted in the same order to the satisfaction of the Architects / employer.

After the excavation of the trench is completed foundation of cement concrete (1:3:6) or lime conc. & specified of proper width and thickness to be laid with proper level all along under the length of the of the pipe with haunching as per drawing.

7.2 Laying, Jointing, Haunching of the Pipe and fittings

Drainpipes shall be laid in straight lines and to even gradients as shown on the drawings. The socket end of the pipes shall face upstream. Adequate care shall be exercised in getting out and determining the levels of the pipes and the contractor shall provide suitable instruments, for setting out, boning, rods and equipments necessary for the purpose. The joints are to be kept wet until the cement joints are properly set with wet bag. The cement mortar joints shall be cured at least for seven days. In case of SW Pipes joints (socket and spigot), they should be caulked first with tarred jute (spun) soaked in cement slurry of requisite diameter, almost quarter depth of the socket, after which cement mortar(1:1) is pushed with wooden chisel and finished bevelled at outside at 45 deg. instead of jute or hemp rubber gasket of proper size may also be used.

In case of pipes less than 25 cm dia. joints should be made at ground level with 3 pipes at a time and for larger ones 2 pipes at a time and after curing they should be rolled in foundation with the help of ropes.

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All pipes should be properly honchoed and/or provided with chair as per drawing. Details of the foundation and covering etc are to be taken from the drawing provided. Where the pipes are crossing the building or road around concrete (1:3:6) is to be done to 15 cm thick over the barrel of the pipe.

7.3 Testing of line

The whole of the drain work shall be tested when laid and on the completion of the contract to the satisfaction of the Architect/ Consultants and shall be retested if necessary until found satisfactory.

The tests shall be by means of water under pressure at the highest point of the section under test and providing an air pipe at the lower end of the line. Maximum head 1.5 M must be maintained for 5 minutes. Contractor must consider in rates in the tender for concreting, encasing, Charges for cradle, testing, cleaning and washing the line etc. before handover.

8.0 EXCAVATION AND REFILL

Excavation for drain trenches shall be straight and to the correct depth and gradient. The trench bottom shall be of sufficient width to allow working space for pipe joints. The contractor must include the cost for excess width for excavation in the rate.

Where necessary sides of the excavation should be supported by planking and strutting, Suitable precautions are to be taken to prevent ingress of water into excavated areas, trenches, pits during construction to the satisfaction of Architects / employer.

The Contractor at his own expenses shall pump out or otherwise remove any or all water, which during the continuance of contract may be found in the excavation trenches and shall provide all pipe and drains, and other means necessary for the works clear of water during their progress.

In the extent of excavation being made deeper than necessary, it shall be filled to the proper level with 1:3:6 concrete at contractors own expense.

No excavation for pipeline shall be filled and line covered with earth or concrete until the line therein has been tested and passed Earth filling to the bottom of trenches and to a height of 30 cm above the top of the pipes shall be of selected materials, hand packed, watered if necessary, and well rammed on either side of the pipe. The remainder of the earth filling shall be in 15 cm. layers, each layer wetted, if necessary, well consolidated by proper ramming.

9.0 BURIED SERVICES

All pipes, ducts, table mains and other services exposed by the excavations shall be effectively supported and protected by timbering or other means for which no extra payment will be allowed. The Contractors shall be responsible for any damage occurring to the buried services and make good the same at his own cost to the satisfaction of the Architect/ Consultant. Any treasure-trove coil or object of antiquity which may be found on the site shall be handed over to the Employer.

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10.0 INSPECTION CHAMBERS / MANHOLES

10.1 At every change of alignment, gradient or diameter of a drain there shall be a manhole or inspection pit. The maximum distance between manhole chamber shall be 30 meter for road or 15 meters within compound.

10.2 Size

All manholes Inspection / Chambers shall have internal dimensions as shown on drawings. The depth of invert shall be according to the gradient.

10.3 Foundation

The base concrete shall be 15 cm thick and with 1:3:6 concrete mixture laid over one brick flat soling. The slope shall be finished 75 mm beyond the external faces of the brick

10.4 Brick Work & Plaster:

The brick work shall be in cement sand mortar in the proportion 1:5 and 250 mm thick. The Joints be raked out and finished with cement and sand mortar, 1:2 trowel led hard and smooth to a thickness of 20 mm.

Inside of the walls shall be plastered as specified in the item and shall be finished with floating coat of neat cement. In wet ground 15 mm thick plaster shall be done on the interior surface of the walls also and this plaster shall be waterproofed with the addition of approved water proofing compound as per manufacturer's specification. Outside & middle surface – to have rough Plaster in cm (1:5) 15 mm thick averages.

10.5 Hunching and construction

On the top slab from pipe channel longitudinally at the centre, the channel is to be haunched up with concrete slopping upwards from the edge of channel to meet the side of the chamber at gradient of 1:6. The channel and the haunchings are to be floated to smooth hard surface with a coat of cement. Sewers of unequal sectional area shall not be jointed at the invert in a manhole unless it is unavoidable. The branch sewers should deliver sewage in the manhole in the direction of main flow and the junction must be made with care so that flow in main is not impeded. In case of drop connection CI shall be provided with heel rest bend at the bottom and bend with access door at the top for cleaning purposes.

10.6 Channel

Channel for drains coming from side of the manhole chamber shall be curved to meet the main drainage channel. The channels and benching shall be done in cement concrete 1:3:6 and rendered smooth with neat cement.

The brickwork in shallow manhole shall be corbelled to the required size for the cast-iron manhole cover and frame.

10.7 Footrest

CI footrests or MS Square rods of 20 mm shall be embedded in masonry. They shall be fixed 225 mm apart and projecting 125 mm from the wall face. Footrest shall be painted with bitumen as directed.

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11.0 CUTTLNG HOLES, CHASES, ETC REPAIRING THE SAME

Holes and chases to be cut into walls, slab etc. must be of the minimum size and extent required to run the service and in no case superfluous cutting is to be resorted to. After the service is laid, the chase and holes must be made good in cement concrete with suitable finish. These repairs must be done very carefully so that the finished surface is uniform and harmonious with the rest of the adjoining surface. No extra claim will be entertained in this respect.

12.0 CAST IRON MANHOLE COVERS AND FRAMES

Unless otherwise mentioned the covers and frames shall obtain from approved manufacturer and shall be of following grades with ISI mark. Heavy-duty covers etc. under heavy vehicular traffic conditions and capable of bearing loads as per IS: 1720.

Covers and frames shall be cleanly cast, double water seal type and they shall be free from air and sand holes cold shuts and warping which are likely to impair the utility of the Casting. All casting shall be free from voids whether due to shrinkage, gas inclusion or other causes. The cover shall be gas tight and water tight with proper seal arrangement, but can be easily opened and closed and it shall be fitted in the frame in workmanship like manner. The cover used for sewer line should bear sewer engraved on top of casting. Similarly for storm line it shall be marked storm Size and dimensions are given below with weight, Covers shall have raised checkered design to provide an adequate non-slip grip. The covers and frames shall be coated with a material having tar base or with black bituminous composition The coating shall be smooth and tenacious. It shall not flow when exposed to temperature of 60 deg. C. and shall not so brittle as to chip off at a temperature of 0 deg C. The frame of manhole cover shall be firmly embedded to correct aligns and level s in RCC slab or plain concrete as the case may be sizes specified are the clear internal dimensions. Covers for manholes in the road proper shall not weigh less than 200 Kg on footpath and back yards, light weight covers of 45 cm. diameter having weight not less than 58 Kg or covers of size 92 cm x 45 cm or 61 cm x 45 cm having weight of 90 kg shall be used.

SPECIFICATIONS FOR ELECTRICAL WORK**SCOPE OF WORK:**

- All conduits shall be of 2mm thick PVC and all accessories such as normal bends, unions circular junction boxes and pull boxes, lock, nuts etc. shall be heavy gauge type of approved make and in all respects shall conform to IS-3738-1966.
- Lighting installations to be designed in accordance with modern practice and in accordance with IS code for interior lighting.
- All non -current carrying metal parts of electrical installations shall be earthed as per IS 3034-1966. Earthing shall be in conformity with provision of the Electricity Act 2003.
- Lying of cables shall be as in detailed specification for electrical works.
- Ceiling Fan shall be provided with electronic regulator.

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- Exhaust fans in hall & toilets.
- Metal clad socket cover point shall match the wall surface.
- Telephone wire conduit shall be provided up to JB with double pair 0.6mm dia., ATC telephone cable from each point to Telephone JB tag Block. Telephone connections shall be provided in drawing rooms and bedrooms.
- Telephone wire conduit shall be provided up to JB with six pair 0.6mm dia., ATC telephone cable from each point to Telephone JB tag Block for the VIP rooms of Guest House.
- PVC pipe under floor for crossing telephone cables etc.
- Lighting protection shall be provided at top of building with 1 nos. 25mm dia 300mm long spike having single 25 x 3mm G.I. tape over horizontal and vertical down conductor up to testing joints to earth station should be 32x6mm and 4 nos. plate earthing as approved by Architect Point earthing shall be provided.
- Telephone tag blocks having minimum 10 pairs shall be provided and 1 no. telephone shaft.
- For anything not mentioned here, please refer to drawings for details.

1.0 GENERAL:

- 1.1 All electrical work shall be carried out in compliance with specifications given here under in this section and in compliance with Indian Standard specifications and Indian Electricity Act and Rules in force. The works shall also conform to any special requirement of local State Electricity Board. In case, the above mentioned , regulations etc. are not in accord, the decision of the Engineer-in-charge/Consultant regarding rules to be followed or manner of execution of work shall be final and binding. The work shall be executed under the direct supervision of person holding a certificate of competency issued by the State Government (Chief Electrical Inspector)
- 1.2 These special conditions of contract shall be read in conjunction with the General Conditions of contract, Schedule of Quantities, Technical Specifications, Drawings and other documents relating to the work and shall have preference over laid down general conditions and specifications.
- 1.3 Notwithstanding the sub-division of the documents into these separate sections and volumes, every part of each shall be deemed to be supplementary and complementary to every other part and shall be read with and into the contract, so far as it may be practicable to do so.
- 1.4 The contractor shall mobilize and employ sufficient resources to achieve the detailed schedule within the board framework of the accepted methods of working and safety. The contractor shall provide everything necessary for the proper carrying out of the work, including tool plant and other materials.
- 1.5 No additional payment will be made to the contractor for any multiple shift work of other incentive methods contemplated by him in his work schedule even though the time schedule is approved by the Architect/Engineer-in-charge.
- 1.6 The work shall be executed as per the programme drawn on approved by the Architect and it shall be so arranged as to have to full co-ordination with any other agency employed at site. No claim on account of the delay in the completion of the building work be tenable except extension of time secured

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by the contractor as stated elsewhere.

- 1.7 The contractor shall permit free access and afford normal facilities and usual conveniences to other agencies or departmental workmen to carry out connected work or other work services under separate arrangements. The Contractor will not be allowed any extra payment on this account.
- 1.8 All soil, filth or other matter of any offensive nature taken out of any trench, sewer drain, cesspool or other place shall not be deposited on the surface but shall at once be carted away by the contractor from of charge to a suitable pit or place to be provided to him.
- 1.9 The contractor shall provide all equipment, instruments, labour and such other assistance required by the Engineer-in-charge for measurements of the work, materials etc.

2.0 MATERIALS

- 2.0 All materials, equipment, fittings and fixtures used in electrical works shall conform to I.S.I. All material shall be new, soundly and robust in construction and well finished. Surplus materials after completion of work shall be taken back by the contractor and the cost shall be recovered if the advance payment has been made earlier by the Client.
- 2.2 Unless otherwise stated in the conditions of contract samples of all materials, fittings and fixtures to be supplied by the contractor shall be submitted to the EIC/Consultant for his approval. The contractor shall not commence the work until the samples are approved, in writing from the EIC/Consultant. The contractor shall ensure that all the material incorporated in the work are identical in all respects with the approved sample. All samples not destroyed in testing shall be returned to the contractor after completion of contract. No payment shall be made for samples destroyed in testing.

3.0 DRAWINGS

- 3.1 The drawings and specifications shall be considered as a part of this contract. Any work or materials shown on the drawings but not included in the schedule of quantities or vice-versa, shall be executed as if specifically called for in both without any additional cost. The contract drawings indicate the extent and general arrangement of various equipment and their wiring etc. and are essentially diagrammatic. The work shall be installed as indicated on the drawings, however, any minor change if found essential to co-ordinate the installation of this work with other trade shall be made without any additional cost to the Owner. The data given herein and on the drawings is as could be secured, but its complete accuracy is not guaranteed. The drawings and specifications are for the assistance and guidance of the contractor, the exact locations, distances and levels will be governed by the space conditions. The contractor shall be responsible to check exact location of all electrical outlets, the routes and lengths of cables etc.

4.0 CLARIFICATIONS OF DISCREPANCIES

- 4.1 In case of any discrepancy between specifications and drawings etc., furnished by the Architect or disputes in respect thereof, the interpretation of the Director (Technical) shall be final and binding.

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5.0 MISCELLANEOUS

- 5.1 A site order book will be maintained at site which will be in the custody of the Architect or his representative and all instructions given to the contractor will be recorded in the site order book and the same has to be signed by the contractor to comply with the instruction given therein.
- 5.2 After completion of the whole installation shall be tested by the contractor in the presence of the Architect. The tests shall comply the following I.E.E. Regulations and shall be submitted along with the final bill.
- a) The result of the insulation test shall comply with the I.E.E. Regulations 1101 to 1108A and 1108B with latest amendment as may be applicable.
 - b) Test shall be carried out to ascertain that all the non-linked SP switches have been connected to the phase conductor.
 - c) The continuity test of the earthing system shall comply with I.E.E. Regulations 1108 to 1109 to the latest addition.

If the results of the above tests does not comply with the I.E.E. Regulations, the contractor shall be bound to rectify the faults so that the required results are obtained at no extra cost. The contractor shall be responsible to provide all the necessary testing instruments, such as mage up to 2.5 kV range insulation tester, earth tester multimeter, AVO meter etc. for carrying out the above tests.

- 5.3 The work will not be considered as complete and taken over by the Employer till all the components of the work after being completed at site in all respects have been inspected/tested by the Engineer-in- charge/Consultant to his entire satisfaction and a completion certificate issued by the EIC/Consultant to this effect.
- 5.4 At the completion of the work and before issuance of certificate of virtual completion, the contractor shall submit to Architect layout drawings one reproducible and 4 set of prints drawn at approved scale indicating the complete wiring/ conduiting/ cabling/ earthing system as installed.
- 5.5 The contractor will submit within 15 days of the award of work, a detailed sequence of work.

6.0 WORK AND WORKMANSHIP

- 6.1 The work shall be of the highest standard,/both as regard its design and workmanship. Modern tools and first class, latest techniques shall be employed for its execution.
- 6.2 Any damage done to the building during the execution of work shall be responsibility of the contractor and it shall be made good by him, at his cost, to the entire satisfaction of the Consultant.
- 6.3 All electrical work shall be executed by skilled and duly licensed electricians under the direct supervision of whole time, fully qualified licensed electrical engineers and supervisors. The contractor shall produce requisite evidence regarding the qualification of the engineer, supervisors and other workers.
- 6.4 The contractor shall possess all the relevant and valid licenses as per the **(STAMP & SIGNATURE OF BIDDER)**

regulations of the Indian Electricity Rules and the Local Electrical Inspector's requirements.

- 6.5 The work shall have to be in co-ordination with the building work and other allied jobs/trades to the entire satisfaction of Engineer-in-charge/Consultant.

7.0 CERTIFICATE OF INSPECTION

- 7.1 The contractor shall be responsible for getting the installation inspected and approved by the Electrical Inspector and other, level electrical supply company as required.
- 7.2 The contractor shall obtain and deliver to the Architect the certificate of final inspection and approval of the local electrical authorised concerned. The inspection fees etc. shall be borne by the contractor.
- 7.3 In case of any defect/s pointed out by the Electrical Inspector, the contractor shall remove these defects at his own cost and arrange for re-inspection or inspection by the electrical inspector, till such time the installation is finally approved and the required certificate is issued. The contractor shall bear all expenses and deposit the necessary fees for subsequent inspections by the Electrical Inspector.
- 7.4 The Consultant shall have full powers to get the material or workmanship etc. inspected and tested by an independent agency, at the contractor's expenses in order to ascertain their soundness and adequacy.
- 7.5 Conduit layout for Electrical works shall be prepared by the contractor and got approved before starting of the work.
- 7.6 In the event of any clarification necessary. The contractor should consult EIC/Consultant.

CONDUITING:

All PVC conduits shall be of manufactured 2mm thick up to 32mm dia and of 3mm for sizes higher than this. Both inner and outer surfaces shall be smooth without burrs, dents and kinks. Conduits shall be black stove enameled inside and outside. The cross section of conduit shall be uniform throughout. The welding shall be uniform such that welded joints do not yield when subjected to flattening test. Welded joint shall not break when threaded or bent at an angle. Conduit shall conform to specifications of IS-1653-1972 and the capacity conduits shall be in accordance with the standards and shall never be exceeded. The minimum size of the conduit shall be 20mm dia.

Conduit accessories such as normal bands, unions, circular junction boxes and pull boxes, lock nuts etc. shall be heavy gauge type and approved make. Conduit accessories shall conform in all respects to IS-3837-1966.

Conduits shall be laid before casting in the upper portion of a slab or otherwise, as may be instructed or in accordance with approved drawings, so as to conceal the entire run of conduits and ceiling outlet boxes. Vertical drops shall be buried in columns or walls. Wherever necessary, chases will be put by the contractor with the

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prior orders of the Consultant In case of exposed brick/rubble masonry work special care shall be taken to fix the conduit and accessories in position along with the building work.

Sufficient depth of the chases will be made to accommodate the required number of conduit. The chase will be filled with cement, coarse sand mortar (1:3) and properly cured by watering for one week. If a chase is cut in an already finished surface the contractor shall fill the chase and finish it to match the existing finish. Contractor must not cut any iron bars to fix conduits. Conduits shall be kept at a minimum distance of 100mm from the pipes of other non-electrical services. Where the conduits is to be embedded in a concrete member it shall be adequately tied to the reinforcement to prevent displacement during casting, conduits in chases shall be held by steel hooks of approved design at maximum of 60cm centers .The embedding of conduits in walls shall be so arranged as to allow at least 12mm plaster cover the same. All threaded joints of conduit pipes shall be treated with some approved 'preservative compound' to secure protection against rust.

Suitable expansion joints fittings of approved make and design shall be provided at all the points where the conduit crosses any expansion joints in the building.

Separate conduit shall be used for:

- a) Normal light, fan and 5A 3 pin/2 pin sockets.
- b) Power outlets
- c) Telephones
- d) TV/Antenna

Wiring for short extensions to outlet in hung ceiling or to vibrating equipment, motors etc. shall be installed in flexible conduits. Flexible conduits shall be formed from a continuous length of spirally wound interlocked wire steel with a fused zinc coating on both sides. The conduit shall be watertight type with approved type adopted. A separate and accessible earth connection shall bond across the flexible conduit.

Conduit runs on surfaces shall be supported with metal 12 gauge thick saddles, which in turn are properly approved on to G.I. M.S. spacer to the wall or ceiling, saddled shall be at intervals of not more than 50 cm. Fixing screws shall be with round or cheese head and of rust proof materials. Exposed conduits shall be nearly run parallel or at right angles to the walls of the building and shall be painted in colour matching the adjoining area. Unseemly conduit bends and offsets shall be avoided by using better appearance. Cross cover of conduits shall be minimum and entire conduit installation shall be clean and with good appearance.

No conduits are allowed to be run in the floor except by special permission of consultant and this only in extra ordinary circumstances by coating of bitumen over conduit.

PVC bushes of approved quality shall be used in each conduit termination in a switch box, draw box, lighting fixtures and circular junction boxes as required.

Exposed conduits running above false ceilings shall be suitably clamped with the dropped ceiling. Perforated straphangers or twisted attachment shall not be acceptable. In no case shall raceways be supported or fastened to other pipe for repair and maintenance.

They shall be arranged symmetrically and in the cost compact design in no way unduly criss-crossing each other. Proper spacing shall be maintained when two or more conduits run side by side. The layout of the pipes shall be co-ordinated with the

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shop drawing for dropped ceiling.

The conduit of each circuit or section shall be completed before conductors are drawn in. The entire system of conduit after erection shall be tested for mechanical and electrical continuity throughout and permanently connected to berth conforming to the requirements by means of special approved type of earthing clamp efficiently fastened to conduit pipe in a workman like manner for a perfect continuity between the earth and conduit.

The conduit system shall be so laid out that it will obviate the use of tees, elbows and sharp bends. No length of conduit shall have more than the equivalent of two quarter bends from inlet to outlet. The conduit itself being given required smooth bend with radius of bends suiting to the site conditions but not less than 6 times overall diameter.

The conduits shall be of ample sectional area to facilitate the drawings of wires/cables. In no case shall the total cross section of wires/cables measured overall, be more than half the area of the conduit. Outlet boxes shall be of 18 SWG sheet steel and so installed as to maintain continuity throughout. These shall be no protected at the time of lying that no mortar finds it was during concept concrete filling on plastering. For fluorescent fitting, 2 Nos. outlet boxes shall be provided 300mm off centre for a 1200mm fitting and 150mm off centre for a 600mm fitting.

Draw boxes of ample dimensions shall be provided at convenient points to facilitate pulling of long runs of cables. They shall be completely concealed with M.S. covers flush with plaster work painted to match the wall. These boxes will be as few as possible and located where found suitable by the consultant. All the G.I. sheet/zinc passivated boxes used for housing switches, plugs, fan regulator etc. shall be five sided conforming to IS-5133 Part I-1969 with latest amendment. The boxes shall be provided with four to six fixing lugs located at the corners and vertical sides. All fixing lugs shall be threaded to receive standard machined chromium plated brass screws. Sufficient number of knockouts shall be provided for conduit entry. Conduits carry wires of different circuit can terminate in common J.B. having metal compartments. Necessary G.I. pill wires shall be inserted into the conduit for drawing wires.

The switch boxes used for housing switches, plug/ fan regulator etc. shall be in passivated /GI five sided. Provision of bridge for mounting fan regulator and necessary brass earth point shall be provided on the box, as required. These shall be attached to conduits by means of check nuts on either side of their walls. These shall be completely concealed leaving edges flush with all surfaces. Moulded switch plates shall be fixed to these by means of chromium plated brass machine screws as required. The switch box shall be provided with earth terminal. No. timber shall be used for any supports. Boxes, which come within concrete, shall be installed at the time of casting. Care shall be taken to fix the box rigidly so that its position is not shifted while concreting.

The entire conduit system including outlet and boxes shall be thoroughly cleaned after completion of erection and before drawing in cables.

To safeguard against filling up with the plaster etc. all the outlet boxes and switch boxes will have to be provided with temporary covers or PVC stoppers within the tendered cost which shall be replaced by 3mm thick Bakelite covers/moulded type switch plates as required.

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WIRING:

P.V.C. insulated copper conductor cable shall be used for sub-circuit runs from the distribution boards to the points and shall be pulled into conduits. They shall be stranded copper conductors with thermoplastic insulation of 660 volts grade. Colour Code for wiring shall be followed.

Looping system of wiring shall be used, wires shall not be jointed. Where joints are unavoidable, they shall be made through approved mechanical connectors with prior permission of the consultant. No. reductions of strands are permitted at terminations. No wire smaller than 1.5 sq.mm shall be used. Wherever wiring is run through trunkings or raceways, the wires emerging from individual distributions shall be bunched together with cable straps at required regular intervals. Identification ferrules indicating the circuit and D.B. number shall be used for sub mains, sub-circuit wiring. The ferrules shall be provided at both end of each submain and sub-circuit.

Where single phase circuits are supplied from a three phase and a neutral distribution board, no conduit shall contain the wiring fed from more than one phase. In any one room in the premises where all or part of the electrical load consists of lights, fans and/or other single phase current consuming devices, all shall be connected to the same phase of the supply. Circuits fed from distinct sources of supply or from different distribution boards or through switches or M.C.Bs shall not be bunched in one conduit. In large areas and other situations where the load is divided between two or three phases. no two single phase switches connected to different phase shall be mounted within two meters each other.

All splicing shall be done by means of terminal blocks or connectors and no twisting connection between conductors shall be allowed.

Metal clad sockets shall be of dia cast non-corroding zinc alloy and deeply recessed contact tubes. Visible scraping type earth terminal shall be provided. Socket shall have push on protective cap. Socket shall have MCB as specified in the schedule of work.

All power sockets shall be piano type/moulded plate switches with associated switch of same capacity, switch and socket shall be enclosed in a G.I. sheet steel/zinc passivated boxes enclosure with the operating knob projecting. Entire assembly shall be suitable for wall mounting with a Moulded plate switch cover.

Switches shall be connected on the live wire and neutral of each circuit shall be continuous everywhere having no fuse or switch installed in the line excepting at the main panels and boards. Each power plug shall be connected to each separate and individual circuit unless specified otherwise. The power wiring shall be kept separate and distinct from lighting and fan wiring. 10/20A metal clad socket outlet cover shall be spray painted matching to the wall surface.

Balancing of circuits in three phases installation shall be arranged before installation is taken up. Unless otherwise specified no more than ten light points shall be ground on one circuit and the load per circuit shall not exceed 1000 watts. The earth continuity PVC insulated copper wire in Green colour shall be run inside the conduit to earth the third pin or socket outlets earth terminal of light fixtures, fans etc. as required. Light points shall be either of single control, twin control or multiple points controlled by a single switch/MCB as per schedule of work. Bare copper wire shall be provided with each circuit from DB as specified in the item of work and terminated in earth bar of DBs and switch boxes with proper lugs as required.

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LUMINARIES

The lighting installation has been designed in accordance with modern practice and generally in accordance with modern practice and generally in accordance with ISI code for Interior Lighting. The scope of the work shall be supply, installation, connection and commissioning of all lighting fixtures as specified herein and shown in the drawings.

Light fixtures shall be fixed in a workman like manner as per best trade practices and according to the instructions of the manufacturers, Lighting fixtures which are recessed in the dropped ceiling shall be thoroughly matched and co-ordinated with the pattern and design of the dropped ceiling as shown in architectural drawings. Care shall also be taken to co-ordinate the lighting fixtures details with all other services such as air-conditioning, plumbing. It has to be ensure that all light fixtures in a row are in the same line and level and at exactly equal distances unless otherwise required.

All the materials used in the construction of luminaries shall be of such quality, design and construction that will provide adequate protection in normal use, against mechanical, electrical failures/faults and exposure to the risk of injury or electric shock and shall withstanding the effects of exposure to atmosphere.

EARTHING

All non current carrying metal parts of electrical installation shall be earthed as per IS 3043-1966. All metal conduits, cable sheathes, switchgear, DBs, light fixture, equipment and all other parts made of metal shall be bonded together and connected to earth electrodes. Earthing shall be in conformity with provision of Rules 32,61,62,67, and 63 of Indian Electricity Rules 1956.

All earthing shall be of high conductivity copper, G.I. and shall be protected against mechanical damage. The cross-sectional area of earth conductors shall not be smaller than half that of the largest current carrying conductor. However the contractor shall use the sizes specified in the bill of quantities.

- a) All fixtures, socket outlets, fans switch boxes and junction boxes etc. shall be earthed PVC insulated copper wire as specified in item of work. The earth wires ends shall be connected with solderless bottle type copper lugs.
- b) All single phase DBs up to 60Amps shall be earthed with 8 SWG GI wire as per Item of work.
- c) All three phases switch board up to 100 Amps rating shall be earthen with 2 Nos. distinct and separate 4 SWG GI wire as per item of work.
- d) All switch board of rating more than 100 A and above shall be earthen with 2 Nos. separate and 25x6mm G.I. tape or as per item of work/drawing.
- e) All the earthen wires in switch boxes, DBs and light fixture shall be provided with green colour PVC sleeving.

Main earth bus shall be taken from the L.T. switch board to earth electrodes. The electrical resistance of earthing conductors shall be low enough to permit passage of fault current necessary to operate fuse or circuit breaker and shall not exceed 1 ohm.

The earthing electrodes shall consist of plate (60cm x 60cm x3mm) thick tinned copper plate or GI MS plate electrode (60cm x 60cm x 6mm) or GI pipe 40mm dia and 4.5 meter length 'B' class as described under schedule of quantities, Galvanising of the pipe/plate shall conform to relevant Indian Standards. The plate electrode shall

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be buried in ground with its face vertical and top not less than 3mm below G.L. The earth plate pipe shall be buried in the ground below the permanent moisture level but not less than 3.7 metre below ground level. The plate shall be filled with charcoal dust and common salt filling extending 15 cm around it on all sides. There shall be "a" 20mm dia 'B' class GI pipe running from top of plate up to the ground level for watering pipe. The top of the pipe shall be provided with a funnel and a GI mesh screen for watering the earth. This will be housed in a masonry sump with cement plastering or a cement concrete sump not less than 30cm square and 30cm dep. A.M.S. frame with hinged cover and locking arrangement shall be suitably provided over the G.I. pipe electrode shall be cut tapered at the bottom and provided with holes of 12mm dia, drilled not less than 7.5cm from each other up to 2.0 metre of length from bottom. The pipe shall be buried in the ground vertically with its top not less than 20cm below ground level. The earthing lead from electrode onwards shall be suitably protected from mechanical injury by a 15mm dia, GI pipe in case of wire and by 40mm dia 'B' class GI pipe in case of strip portion of this protection pipe within ground shall be buried at least 30cm deep (to be increased to 60cm in case of road crossing and pavements). The portion within the building shall be recessed in walls and floors to adequate depth. In the case of plate earth electrode the earthing lead shall be securely bolted to the plate with two bolts, nuts checknuts and washers. In case of pipe earth electrode, it shall be connected by means of through bolt, nuts and washers and cable socket. All materials used for connecting the earth lead with electrode shall be GI in case of GI pipe and GI plate earth electrodes and of tinned brass in case of copper plate electrode.

No earth pit shall be fixed within 2 metre of a wall or foundation. Efforts shall be made to locate them in grass lawns or near flower beds or water taps. The distance between two earthing stations shall be at least 2 metres.

CABLE TERMINATIONS

All the cable termination shall be executed with crimping tool using DOWEL make cable socket. Compression brass cable glands wherever used shall be of correct size for cable and terminations. No. oversize cable glands shall be used. The gland must grip the armour of the cable firmly, so that in the event of ground movement no undue stress is transferred to the cable conductors. Corrosion inhibiting compound shall be applied on the conductor before crimping the lugs. The gland must establish good electrical contact between cable armour, load sheath and body of switch gear. Identification ferrules indicating the circuit shall be used for incoming and outgoing cables. The ferrules shall be provided at both ends of each cable.

CABLE WORK:

While laying underground cables, care should be taken so that any underground structure such as water pipes, sewage lines etc. are not damaged. Any telephone or other cable coming in the way shall be properly protected as per instructions of the Architect.

The LT cables shall be laid not less than 90cm below ground level in a trench 45cm wide minimum. The depth of the trenches shall be uniform throughout.

When the cables is properly strengthened and laid in the trench, it should be covered all around 80mm thick layer of sand. Approved cable indicators shall be fixed at suitable distance along the route of the cable.

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Unless otherwise specified the cables shall be protected by second class bricks of not less than 22.5 x 10 x 7cm or stone tiles or any other approved material placed on sides and top of the cable to form a channel throughout the length.

Stoneware pipes or spun reinforced concrete pipes shall be provided for all road crossings. The size and nature of the shall be decided by the Engineer-in-charge and shall not be less than 10cm in dia meter for a single cable and not less than 20cm for more than one cable. These pipes shall be laid in the ground with 10cm in diameter for a single cable and not less than 20cm for more than one cable. These pipes shall be laid in the ground with 10cm thick bed of cement concrete 1:5:10 and may be loose jointed. The top surface of pipe shall be at a minimum depth of 90cm from the ground level when laid under the roads/pavements.

DISTRIBUTION BOARDS

Distribution boards shall be of standard make with MCBs as per approved make given Appendix 'A' Distribution boards shall be constructed out of 16 SWG sheet shall be painted with enamel paint. Ample clearance between the conductors of opposite pole, between conductors and sheet steel body shall be maintained in other to obviate any chance of short circuit. Removal conduits entry plates shall be provided at top and bottom to facilitate drilling holes at site to suit individual requirements. The MCBs shall be mounted on a high grade rigid insulating support and connected by electrolytic copper bus bars. Each incoming MCB isolator shall be provided with solderless cable sockets for crimping Phase separation barriers made out of are resistant materials shall be provided between the phases. Bus bars shall be colour coded for phase identification.

Distribution board shall be recessed in wall nitch or if required mounted on the surface of the wall with necessary clamp bolts etc. as required at a height not exceeding 1600mm from finished floor level. Distribution board shall be provided with proper identification name plate danger mark etc.

All the distribution board shall be marked 'lighting' 'power' or 'Emergency' as the case may be. Each DB shall be provided with a circuit list giving details of each circuit. All the outgoing circuit wiring shall be provided with identification ferrules giving the circuit number and phase.

Each distribution board shall have a separate neutral connection bar and a separate earth connection bar mounted within the board each having the same number of terminals as the total number of outgoing individual circuits from the distribution board. Suitable earth terminal shall be provided on the distribution board for bonding to earth. Distribution boards shall be duly rust inhibited through a process of degreasing, acid picking phosphating and spray primer. The entire board shall be rendered dust and vermin proof with necessary sealing gaskets.

MCBs shall have quick make and break non- welding silver alloy contacts, both on the manual and automatic operation. MCBs shall be of thermal magnetic type with reverse time-delay over-current tripping having a short circuit rupturing capacity of 9 KA. In case of multiple brackets, the tripping must be on all the poles and shrouded, wherever MCB isolators are specified they are without the tripping elements. Necessary adopter box of suitable size shall be provided to facilitate the wiring and nothing shall be payable on this account.

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SWITCH BOARDS (CUBICAL TYPE) WITH MCCB

The switch board shall be metal clad, totally enclosed, single front, floor mounted, cubical type for use on 415 volts 3 phase, 50 cycles systems with a fault level withstand of 35 KA RMS symmetrical. The switchboard shall be made up of the requisite vertical sections, which when coupled together shall form continuous dead front switchboards of dust and vermin proof construction. The panels shall be fully compartmentalised and shall be arranged in multi-tier-formation. The top and bottom of each compartment shall have barrier of minimum 14 SWG M.S sheets. The structure shall be of rigid welded/bolted construction with C.R.C. sheet steel of not less than 14 SWG thicknesses. The doors, covers, barriers etc. shall be made of 14 SWG thick sheet steel. A base channel of minimum 75mmx75mmx5mm thickness shall be provided at the bottom. At least 250mm space shall be provided above channel (i.e. 325mm from floor) in which no switch gear shall be fixed. Joints of any kind in sheet metal shall be seam welded, all welding slog grounded off and welding pits wired smooth with plumber metal.

All panels and covers shall be properly fitted and square with the frame. Holes in the panels shall be correctly provided and tapped into an adequate thickness of metal or provided with nuts, for convenient fixing of screws, self threading of screws shall not be used in the fabrication of the panels. All doors shall be provided with neoprene gaskets. Each vertical panel structure shall contain a cable way alloy of adequate width with provision for suitable cable supports. The cable compartment shall have hinged door. There shall be a separate gland plate for each cable entry so that there will not be dislocation for already wired circuits when new feeders are added. The entire switch board shall be factory assembled conforming to IS:8623 and shall be made in the works of the switchgear manufacturer of approved make. The contractor shall get shop drawings approved by the consultant before undertaking manufacture of switchboards.

The panel shall include the required number of MCCB aluminium bus bars, as per requirement and item of work.

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The units should be arranged in their formation to provide a compact switchboard having a pleasing appearance. The minimum depth of switch board shall be 300mm and the height be restricted to 2000mm. Steel sheet hinged lockable doors shall be duly interlocked with fuse switch unit to prevent opening of the panel when the switches is in 'ON' position. Safety interlocks shall be provided also. All the M.C.C. Bs shall be provided with vertical operation.

The bus bars shall be positioned at top or side position. The bus bars shall be air insulated and made of high conductivity. High strength aluminium alloy of current density not less than 1 Amps/sq.mm complying with the requirements of glass E91E of IS: 5082 designed and shall uniform cross section throughout the length. The bus bars shall be held by especially polyester glass moulded (SMC) at sufficiently close intervals to prevent bus bar sag and to effectively withstand electromagnetic stresses in the event of a short circuit. All the bus bars and risers shall be fully insulated with PVC sleeving with necessary colour coding. High tensile bolts and spring washers shall be provided at all bus bars joints. Vertical bus bars for outgoing compartments shall run the full height of the panel to cater to all combinations of modules in a section.

All indicating instruments shall be of the flush mounting industrial pattern, conforming to the requirement of IS: 1248, indicating lamps shall be of the neon type. Separate compartment shall be provided for accommodating instruments, indicating lamps control contractor and fuses etc. There shall be accessible for testing and maintenance without any danger of accidental contact with live parts of the circuit breaker, fuse switch units, bus bars and connections.

Horizontal wire way with screwed cover shall be provided at the top to take interconnecting control wiring between different vertical sections. Control wiring shall be of copper conductor and shall be colour coded for easy identification of circuits. This should be of not less section than 2.5 sq.mm not more than two connections shall be made off any one terminal.

All cables shall neatly bunch and shall be secured to wiring cradles. All outgoing

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cabled shall be fitted with identification ferrules at each end. Circuit diagram showing the arrangement of circuits shall be pasted on the inside of panel door and covered with transparent plastic sheet. Knockout holes of appropriate size and numbers shall be provided with panel in conformity with the location of incoming and outgoing cables/conduits. Facility shall be provided for termination of cables from both above and below the panel. Where cables enter from below, cable glands shall be fitted at the bottom and arranged in tiers to facilitate making connections to the upper and lower unit. Clamps shall be provided to support the weight of the cables. Aluminum flat of suitable size with two earthing cables eyes shall be provided for connections to main earth. The earth bar scale run within the base frame.

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SCHEDULE OF APPROVED MAKES OF MATERIALS

1	Water proofing compound	:	SIKA/ Pidilite/ Choksi/ Penetron/ Dr Fixit
2	Plastic emulsion paint	:	Asian Paint, Berger, ICI, Nerolac
3	Weather coat acrylic emulsion paint	:	Asian Paint, Berger, ICI, Nerolac, Unicem
4	Synthetic enamel paint	:	Asian Paint, Berger, Dulux, Nerolac
5	Cement	:	Topcem, ACC, Dalmia, Lafarge, Star, Ultratech, L&T.
6	Reinforcement bars	:	TATA, SAIL, JSW, JINDAL
7	MS angle, plates, etc.	:	TATA, SAIL, JSRM, Nezone
8	GI pipes	:	TATA, JINDAL, Nezone, Hindustan
9	Factory made flush door	:	Archidply, Greenply, Centuryply
10	Glass	:	Modi, Saint Gobain, Asahi
11	Ceramic glazed tiles	:	Nitco, Orient, Johnson, Qutone, Kazaria
12	Ceramic anti skid tiles	:	Nitco, Orient, Johnson, Qutone
13	Polished vitrified tiles	:	Nitco, Orient, Johnson, Qutone
14	Paver block	:	Nitco, Orient, Johnson, Qutone, Kazaria
15	Granite	:	Makrana, Kumari, Dongri
16	19 mm block board	:	Archidply, Greenply, Centuryply
17	12 mm ply	:	Archidply, Greenply, Centuryply
18	CP plumbing fixtures	:	Hindware, Jaquar
19	Locks	:	Godrej, IPSA, Dorset
20	Wall putty	:	JK, Birla, Berger
21	Sanitary fittings	:	Hindware, Jaquar, Cera, Hindustan
22	PVC pipes	:	Supreme, Prince, SFMC, Ujjwal
23	Pump	:	Kirloskar, Crompton & Greaves
24	Water tanks	:	Sintex, Qutone
25	Anti termite	:	Chloropyriphos by Tricel, Lindane
26	Valves	:	Leader, Annapurna, Zoloto
27	Conduit pipe (ISI marked)	:	Polypack, Berlia, AKG
28	Copper conductor cable (660 V/ 1100V)	:	Finolex, Havells, CCI, Gloster, Polycab, KEI
29	Moulded switch plate with switch boxes with ceiling fan electronic regulator	:	Havells, Legrand, MK
30	Distribution boards with MCBs 10KA	:	Havells, Anchor, C&S, Legrand
31	Exhaust fan, ceiling fan	:	Crompton, Havells, Orient
32	ELCB 100 MA	:	Schneider, Havells, Legrand, ABB
33	LDB	:	Schneider, Havells, Legrand
34	MCCB	:	Schneider, Havells, ABB, Legrand, C&S

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35	LT cables	:	Schneider, Gloster, L&T, Havells, KEI
36	Luminaries	:	Philips, Wipro, Havells, C&S
37	Piano type switch & socket, plugtop	:	MK, Havells, Legrand, Anchor, C&S

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LIST OF MANDATORY TESTS

SN	MATERIAL	TEST	FIELD / LABORATORY TEST	MINIMUM QTY. OF MATERIAL FOR CARRYING OUT THE TEST	FREQUENCY OF TESTING IF QTY. IS BEYOND THE MINIMUM QTY.	REFERENCE FOR TESTING / REQUIREMENTS
1.	Sand	Bulking of sand	Field	20 cum.	Every 20 cum. or part thereof or more frequently as decided by EIC	As per DSR specifications
		Silt Content	Field	20 cum.	Every 20 cum. or part thereof or more frequently as decided by EIC	As per DSR specifications
		Particle Size Distribution	Field	40 cum.	Every 40 cum. of fine aggregate / sand required in RCC work only.	As per DSR specifications
2.	Stone Aggregate	Percentage of soft or deleterious materials	General visual inspection, laboratory test wherever required by the EIC or as specified	As required by the EIC	For alternate quantities	IS:2386, Part-II, 1963
		Particle Size Distribution	Field or Laboratory as required by EIC	45 cum.	For every 45 cum. or part thereof as decided by EIC	As per DSR specifications
		Ten Percent fine value	Laboratory	45 cum.	Initial test and subsequent test as and when required by EIC	As per DSR specifications
3.	Cement (OPC)	I. Consistency	Laboratory	1000 bags	One from each source / manufacturer or more frequently as decided by EIC	IS:8112, 43 Grade IS:12269, 53 Grade
		II. Strength	Laboratory			
4.	Steel for Reinforcement	I. Tensile Strength	Laboratory	20 MT	One from each source / manufacturer or more frequently as decided by EIC	IS:1608-1972 IS:1599-1985
		II. Bend Test	Laboratory			
		III. Weight	Field / Lab.			
5.	(a) Water for Construction purposes	I. Chemical Properties	Laboratory	From each source	Before commencement of work and thereafter every three months till completion of work.	IS:3025-1986
		II. Physical Properties	Laboratory			

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	(b) Water potability	I. Chemical Properties	Laboratory	From each source	As decided by EIC	IS:10500-1991
		II. Physical Properties	Laboratory			
6.	Cement Concrete or Reinforced Cement Concrete	Slump test	Field	15 cum.	15 cum. or part thereof or more frequently as required by EIC	As per DSR specifications
7.	Reinforced Cement Concrete (a) Nominal mix	Cube Test	Laboratory	(a) 20 cum. in slab, beams & connected columns	(a) Every 20 cum. of a day's concreting	IS:516-1956 & DSR specifications
8.	Brick / Brick Tiles	Testing of Bricks / Brick Tiles for dimensions, compressive strength, water absorption and efflorescence	Laboratory	2000 nos.	As per DSR specifications	IS:3495-1976
9.	Timber	I. Moisture II. Bulk Density III. Species	Field (by moisture meter) or laboratory test as required by EIC	1 cum.	Every one cum. or part thereof	IS:287-1973 IS:1003-1004
10.	Flush Door	I. End Immersion Test II. Knife Test III. Adhesion test Thickness of anodic coating.	Laboratory	26 shutters	As per DSR specifications	IS:2202-1991 (Part-I & II)
11.	Aluminium door and window fittings	Thickness of anodic coating	Laboratory	If the cost of fittings exceed Rs.20,000/-	Rs.20,000/- or part thereof as required by EIC	IS:5523-1969
NOTE:						
(1) FOR MATERIALS BEARING "STANDARD MARK (ISI)", MANDATORY TESTS ARE NOT REQUIRED, HOWEVER, IN CASE OF DOUBT, RANDOM TESTING MAY BE CARRIED OUT AS DECIDED BY EIC.						
(2) IN CASE OF ANY AMBIGUITY, DSR SPECIFICATIONS AND RELEVANT IS CODES SHALL TAKE PRECEDENCE.						

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**CENTRAL INSTITUTE OF TECHNOLOGY
BALAGAON, KOKRAJHAR, BTAD, ASSAM**

TENDER DOCUMENT

NIT NO: CITK/MC/NIT/405/2020/42 Date: 18/06/2020

Part - B: PRICE BID

NAME OF WORK

Installation of 30 KLD STP at Hostels at CIT, Kokrajhar- Phase - I



**CENTRAL INSTITUTE TECHNOLOGY, KOKRAJHAR
Kokrajhar - 783370, Assam
Phone: (03661) 277143**

Name of Work: Installation of 30 KLD STP at Hostels at CIT, Kokrajhar - Phase - I
NIT No with Date: CITK/MC/NIT/405/2020/42 Date: 18/06/2020

BILL OF QUANTITY

Item No.	Description	Unit	Quantity	Quoted Rate		Amount
				In Figure	In Words	
1	MS epoxy painted Bucket Screen with cleaning arrangement	each	1.00			
2	PVC MMBR media	Lot	1.00			
3	Raw Sewage pumps Make: Kirloskar	each	2.00			
4	Aeration Blowers capable of treating 45 cum per day @ 3.5 mtr. Head. Make: Akash Blowers	each	2.00			
5	Aeration pipe of various sizes in Heavy Quality PVC including all accessories, brackets, etc.	Lot	1.00			
6	Aeration Tanks & Tube Settler fabricated in 6mm thick Epoxy painted MS steel metal	Lot	1.00			
7	Sludge pumps for Sludge handling. Make: Kirloskar	each	2.00			

No of Cutting
No of Correction:
No of Overwriting:
No of Omission:

Name of Work: Installation of 30 KLD STP at Hostels at CIT, Kokrajhar - Phase - I
NIT No with Date: CITK/MC/NIT/405/2020/42 Date: 18/06/2020

BILL OF QUANTITY

Item No.	Description	Unit	Quantity	Quoted Rate		Amount
				In Figure	In Words	
8	Sludge Drying Beds fabricated in Brick Masonry	Set	1.00			
9	2 H.P. 3 Phase Pumps for filter feed. Make: Kirloskar.	each	2.00			
10	MS Pressure Multi Grade sand filter fabricated in 6mm thick Epoxy painted MS sheet complete with all valves etc.	each	1.00			
11	Activated carbon Filter fabricated in 6mm thick Epoxy painted MS sheet complete with all valves etc.	each	1.00			
12	Electric starter panel for pumps, blowers, etc. with Main switch, Busbars, Starters, timer, Relays etc.	each	1.00			
13	Cabling and connections to panel using copper wires.	Lot	1.00			
14	Piping and valves using best quality MS/PVC/GI pipes	Lot	1.00			

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Name of Work: Installation of 30 KLD STP at Hostels at CIT, Kokrajhar - Phase - I
NIT No with Date: CITK/MC/NIT/405/2020/42 Date: 18/06/2020

BILL OF QUANTITY

Item No.	Description	Unit	Quantity	Quoted Rate		Amount
				In Figure	In Words	
15	500 ltr. Tanks with heating arrangement and digital temarature controllers and with ball valves. Make: Sintex, Reno.	each	2.00			
16	2" Electro-Magnetic water meter. Make: Kranti or equivalent.	each	1.00			
17	Treated water Pumps 5 H.P. Make: Kirloskar.	Nos	2.00			
18	Filter Feed & Treated water tanks fabricated in 6 mm thick Epoxy painted MS sheet complete.	Set	1.00			
					Total Amount in Rs.	
					Discount if any	
					Net total Rs.	
					Round off Rs.	
					Say Rs.	

In Words:

No of Cutting
No of Correction:
No of Overwriting:
No of Omission: