Conservation, Retrofitting, MEP and Other Allied and Development Works for Conservation and Adaptive Reuse of Moti Mahal Annexe Historic Building as ICCC, GSCDCL & PDMC Office,

Gwalior, Madhya Pradesh, India

Tender Reference Number: **[***GSCDCL/0037/2018***]**

Date of Issue: **[***12 March 2018***]**

OFFICE OF THE EXECUTIVE DIRECTOR
GWALIOR SMART CITY DEVELOPMENT CORPORATION LIMITED
नगर निगम मुख्यालय, सिटी सेंटर, ग्वालियर

Disclaimer

Gwalior has been selected by the Government of India to implement the Smart Cities Mission, a Centrally assisted scheme as per which the Gwalior Smart City Development Corporation Limited ("GSCDCL"), a special purpose vehicle, constituted as per the provisions of the Companies Act, 2013, jointly owned by the Nagar Nigam, Gwalior and the Madhya Pradesh Urban Development Corporation, is responsible for identification and implementation of certain projects approved by the competent authorities pursuant to the implementation of the Mission.

To this effect, one of the projects identified for implementation, and for which approvals have been accorded by the competent authorities, is the **"Conservation, Retrofitting, MEP and Other Allied and Development Works for Conservation and Adaptive Reuse of Moti Mahal Annexe Historic Building as ICCC, GSCDCL & PDMC Office**", hereinafter referred to the "the Project".

This tender document, pertaining to the project has been prepared by GSCDCL specifying the terms and conditions which every bidder is expected to familiarize himself or herself with. It shall be assumed that by placing the bid, the bidder is in agreement with such terms and conditions as has been set forth in this document.

Although GSCDCL has made every reasonable effort at ensuring that the information contained within this document is accurate, neither GSCDCL or any of its authorities or agencies nor any of their respective officers' employees, agents, or advisors give any warranty or make any representations, express or implied as to the completeness or accuracy of the information contained in this document or any information which may be provided in connection or arising out of it.

The purpose of the information provided in this document is to assist the bidder(s) for preparing their proposals. However, this information is not intended to be exhaustive. Interested parties are expected to make their own inquiries to supplement and verify information in this document. The information is provided on the basis that it is non–binding on GSCDCL or any of its authorities or agencies, or any of their respective officers, employees, agents, or advisors. Each bidder is advised to consider this document as per his or her understanding and capacity. The bidders are also advised to do appropriate examination, enquiry and scrutiny of all aspects mentioned in this document before bidding. Bidders may seek professional help of experts on financial, legal, technical, taxation, and any other matters/ sectors appearing in the document or specified work. The bidders are expected to scrutinize this document in detail and bring to notice of GSCDCL any kind of error, misprint, inaccuracy, or omission.

GSCDCL reserves the right not to proceed with the project, to alter the timetable reflected in this document, or to change the process or procedure to be applied. It also reserves the right to decline to discuss the project further with any party submitting a proposal. No reimbursement of cost of any type will be paid to persons, entities, or consortiums submitting a proposal by under or pursuant to this tender document.

[ON NON-JUDICIAL STAMP PAPER OF RUPEES HUNDRED DENOMINATION ISSUED WITHIN THE STATE OF MADHYA PRADESH, DULY NOTARISED]

{Location, Date}

The Executive Director,
Gwalior Smart City Development Corporation Limited (GSCDCL)
Nagar Nigam Mukhyalay, City Center, Gwalior, Madhya Pradesh

Reference: GSCDCL tender document No. [*insert tender reference number here*] dated [*insert date here*]

Dear Sir/Madam:

Over and above all our earlier confirmations and submissions as per the requirements of the tender document, I/ we hereby declare, confirm and undertake that:

1 I/ We have quoted item rate price considering all items as requested by GSCDCL in the tender document and stand committed to deliver to the highest standards and quality as required by GSCDCL to meet the timelines of the project. My/ Our bid submission is in line with the requirements of GSCDCL as stated in the tender document.

2 I/ We confirm that we have factored in all costs and expenses for meeting the complete scope and deliverables of the tender document.

3 I/ We are completely aware of the service level requirements and timelines specified by GSCDCL and are committed to adhering to the same. I/ We have also clearly taken note of the service level requirements of GSCDCL and expectations from us and wish to confirm that we have taken care of every aspect to meet the same.

4 I/We have gone through the bid documents and its terms and conditions and fully understood it. All the terms and conditions are acceptable to me / us.

5 I/ We have clearly understood GSCDCL's requirements and wish to confirm that I/ we shall abide by the terms and conditions of the tender document.

6 I/ We confirm and understand that all arithmetical totalling errors will be corrected for the purpose of evaluation only and the consideration of that error for payment would be completely according to GSCDCL's discretion. I/ We also confirm and understand that for all other errors which we have made in the bid, GSCDCL, for the purpose of evaluation will take the corrected amount based on the price quoted by me/ us in the price sheets but the payment of such amounts would be completely according to GSCDCL's discretion.

7 I/ We confirm that I/ we will provide the best of my/ our resources and the people proposed by me/ us will be dedicated to GSCDCL for the sake of resource continuity. Further, I/ We also confirm that GSCDCL may interview the key resources proposed by me/ us and confirm its acceptability. In any event if a resource is found unfit by GSCDCL I/ we agree to change the same and provide GSCDCL with a replacement within reasonable time so as to not affect the services/ project timelines.

8 I/ We confirm and understand that GSCDCL has an aggressive rollout schedule and I/ we will adhere to the rollout schedule at no additional cost/burden to GSCDCL.

9 I/ We confirm that all the proposed solution components are compatible and interoperable with each other and the solution will meet the functional and technical requirements of GSCDCL.

10 I/ We confirm that the prices and values quoted by me/ us encompass the complete scope of the project and I/ we will ensure that the quality of deliverables for the project is not affected due to any pricing pressures.

11 There has been no conviction by a Court of Law or indictment / adverse order by a regulatory authority for a grave offence against me/ us. It is further certified that there is no investigation pending against me/us or the CEO, Directors/ Manager/ key employees of my/ our concern.

12 That the decision of GSCDCL will be final and undisputable in accepting a rejection my / our offer.

13 That the self-certified information given in the bid document is fully true and authentic.

14 That:

a) Earnest money, will be deposited ONLINE/RTGS/NEFT/IMPS.

b) Information regarding financial qualification and annual turnover is correct.

c) Information regarding various physical qualifications is correct.

15 No close relative of the undersigned and our firm/company is employed with GSCDCL or any of its affiliates, shareholders or such other agencies that may influence the outcomes of this tender.

Dated this [insert day of the month] the day of [insert month] of the year Two Thousand and Eighteen.

[*Signature of the authorized signatory*]

[*Name of the authorized signatory*]

[*Designation*]

Phone no, [*insert phone number*]

Address: [*insert postal address for correspondence*]

E-mail [*insert e-mail for correspondence*]

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SECTION 1

Gwalior Smart City Development Corporation Limited

NOTICE INVITING TENDER

Tender Reference no. [*GSCDCL/037/2018*] Dated [12 March *2018*]

Gwalior Smart City Development Limited (GSCDCL) invites online **Item Rates** for the following works (estimated as per schedule of rates) from registered contractors and firms of repute, fulfilling eligibility criteria from eligible bidders through www.mpeproc.gov.in for **"Conservation, Retrofitting, MEP and Other Allied and Development Works for Conservation and Adaptive Reuse of Moti Mahal Annexe Historic Building as ICCC, GSCDCL & PDMC Office at Gwalior, Madhya Pradesh, India"**

The details are as under:

Sr. No.	Event's Name	Information
1.	Probable Amount of Contract	Rs. 6,79,20,000.00 Crore (Rupees Six Crores Seventy Nine Lakhs and Twenty Thousand only)
2.	Tender document Fee	Rs 20,000 Only (Rupees Twenty Thousand only) payable online only through e-Tendering Payment Gateway
3.	Earnest Money Deposit (EMD)	Rs 6,79,200.00 (Rupees Six Lakhs Seventy Nine Thousand and Two Hundred Only) ONLINE/RTGS/NEFT/IMPS
4	Last date for sending pre-bid queries	19/03/2018 till 17:30 hours. at gscdcltender@gmail.com
5.	Date, Time & Place of Pre-bid Meeting	20/03/2018 at 15:00 hours. Venue: Gwalior Smart City Development Corporation Limited, Nagar Nigam Mukhyalay, City Center, Gwalior, Madhya Pradesh
6.	Last date for Online Purchase of Tender Document	06/04/2018 till 1730 hours.
7.	Last date of Online Submission of Bids	07/04/2018 till 1730 hours.
8.	Date & Time for Opening of Pre-Qualification	09/04/2018 at 1600 hours.
9.	Date & Time for Opening of Technical Proposal	10/04/2018 at 1600 hours.
10.	Date & Time for Opening of Financial Proposals	12/04/2018 at 1600 hours. Will be intimated later to the technically qualified Bidders
11.	Project Award Criteria	Lowest Bidding

Note: The bidders shall have to submit their bids online and upload the relevant documents as per key schedule (key dates).

1. The bidders intending to participate in this tender are required to get enrolled/ registered on the e-procurement web site https://www.mpeproc.gov.in/. Enrolment /registration on the above portal is mandatory.
2. Tender documents can be purchased only online from https://www.mpeproc.gov.in/ by making online payment as specified above as per key dates. The Bidders shall have to submit their Bids online and upload the relevant documents from as per time schedule (key Dates).
3. At the time of submission of the Bid the eligible bidder shall be required to:
    a. Pay the cost of Bid Document;

b. Deposit the Earnest Money;

c. Submit a check list; (As required in Clause 12 of Bid Data Sheet)

d. Submit an affidavit duly Notarized as per Annexure – B

4. Details can be seen in the Bid Data Sheet
5. Amendment to NIT, if any, would be published on website only, and not in Newspaper.
6. Conditional tender will not be accepted and liable to be rejected. GSCDCL reserves the right to accept or reject any or all tender without assigning any reasons thereof.
7. Since the online bidders are required to sign their bids online using Digital Certificates. Contractors are advised to obtain the same at the earliest.
8. All details relating to the Bid Document(s) can be viewed and downloaded free of cost from the website mentioned in NIT.
9. Bid document can be purchased after making online payment of portal fees through Credit/Debit/Cash Card or via internet banking.
10. ELIGIBILTY FOR BIDDERS:

    (a) Contractor should have a valid PWD registration (i.e. valid on the date of submission of tender) from Madhya Pradesh or from any other State of India. However, such bidders who are not registered with the Department, but meet the criteria, may submit their bid after having applied for registration with Department, provided that such application should have been made prior to the last date of submission of this tender. However, such bidders must ensure that the Public Works Department accepts their registration prior to the award of the contract. Failure to have successfully registered with the Public Works Department shall result in automatic disqualification of the bid.

    (b) Failure to sign the contract by the selected bidder, for any reason that cannot be attributed to (i) Force Majeure, and/or (ii) inability of GSCDCL to pursue the course of signing the contract for any reason, and/or (iii) inability of the bidder or GSCDCL to reach a consensus on any contractual issue not already included in this tender document shall result in forfeiture of the earnest money deposit.

11. Pre-qualification – Prequalification conditions, wherever applicable, are given in the Bid Data Sheet

EXECUTIVE DIRECTOR
Gwalior Smart City Development Corporation Limited,
Gwalior

SECTION 2

INSTRUCTIONS TO BIDDERS (ITB)

A. GENERAL

1. SCOPE OF BID

The detailed scope of work, hereinafter referred to as "**Work"** is "**Conservation, Retrofitting, MEP and Other Allied and Development Works for Conservation and Adaptive Reuse of Moti Mahal Annexe Historic Building as ICCC, GSCDCL & PDMC Office"**. The initial period of **three years** after physical completion of work shall be treated as Defect Liability Period (DLP).

Background

As part of the Gwalior Smart City Mission it is mandated to construct and develop an Integrated Command and Control Centre (ICCC) which would also house the SPV office i.e. Gwalior Smart City Development Corporation Limited (GSCDCL) and Project Development and Management Consultants (PDMC) office. GSCDCL has decided to conserve the existing Moti Mahal Annex historic building and adaptively reuse it for the purpose of ICCC, GSCDCL & PDMC office. This project intends to restore, improve and retrofit the current condition of the existing historic building and make it ready for reuse for the abovementioned offices. A Master System Integrator (MSI) has already been appointed by the UADD, Government of Madhya Pradesh for setting up of Integrated Command and Control Centre in the same building alongside the GSCDCL and PDMC office. The scope of work of the MSI, apart from the setting up of the hardware and software works for the ICCC (which is approximately 500 Sq.m within the building), is also to take up necessary civil, electrical, HVAC, mechanical and other works required for development of the ICCC. It is envisaged that the MSI and the prospective bidder shall work simultaneously within this historic building, the former executing ICCC woks and the later carrying out comprehensive conservation, retrofitting and adaptive reuse works that are required for the setting up of the GSCDCL and PDMC office.

The project is intended to be carried out as;

Building Conservation & Adaptive Ruse Works: A civil tender is to be floated for undertaking the necessary building conservation, retrofitting, MEP and other allied and development works.

Proposed Works

The various works to be performed as part of the tender primarily include:

- Conservation works involving dismantling and demolition activities
- Conservation works involving earthwork and strengthening of foundations
- Conservation works involving masonry works in brick and stone
- Conservation works involving surface cleaning stone embellishments
- Conservation works involving raking of existing masonry
- Conservation works involving strengthening and replacement of existing roof systems
- Conservation works involving pointing and consolidation of stone masonry
- Conservation works involving plastering in lime mortar
- Restoration works involving replacement of broken/missing chajja and ornate brackets
- Restoration works involving replacement of broken/missing stone railing and balustrades
- Conservation works involving lime concrete terracing on roofs
- Restoration, replacement and new construction works involving realignment of staircases
- Protection works involving laying of plinth protection
- Restoration, repair and civil works for the cells (rooms) along Baija Tal level
- Retrofitting and civil works involving provisioning for ceiling level services track frame
- Retrofitting and civil works involving provisioning for services conduits (electrical and A/V)
- Retrofitting and civil works involving provisioning for utility services piping (water supply, drainage & sewage)
- Civil works involving water proofing, pest control, earthwork and laying of flooring
- Civil works involving provision of wooden, glazed and UPVC doors, windows, ventilators and clearstory
- Civil works involving construction of new partition walls
- Civil works involving sanitary and plumbing installation
- Civil works involving finishing works like lime based painting of interior and exterior surfaces

- Electrical works involving supply, installation, testing and commissioning of HV, MV and LV cabling, wiring, main/submain, fixtures and fittings
- Electrical works involving supply, installation, testing and commissioning of fibre optic cabling
- Electrical and HVAC works involving supply, installation, testing and commissioning of HVAC ducting, outdoor units, piping, etc.
- Electro-mechanical works involving supply, installation, testing and commissioning of passenger lifts and hydraulic deck lifts
- Specialized works involving supply, installation, testing and commissioning of firefighting systems and equipment
- Civil and interior refurbishment works involving supplying, installation and construction of fixed furniture
- Civil and interior refurbishment works involving supplying, installation and positioning of movable furniture
- Procurement of equipment, gadgets and machineries
- Civil and other specialized works involving supply, installation and erection of new roofing systems
- Civil and water works involving construction of waste water, sewer and rain water drainage network
- Civil and water works involving construction of rain water harvesting system
- Civil works involving construction of paved pedestrian pathways and walkways
- Horticulture works involving landscaping, development and plantation works
- Specialized works involving supply, installation, testing and commissioning of landscape lighting, façade lighting, etc.
- Civil works involving construction of ramps, staircase, etc.
- Specialized works involving supply and installation of street and garden furniture like tree guard, dustbins, bollards, signage, benches, fountain, art installations, etc.

2. GENERAL QUALITY OF WORK:

The work shall proceed as per approved drawings & direction of a competent professional and/or official deputed by the GSCDCL. The work is to be complete in all respects including labour, tools-tackles and materials**,** technical specifications specified in the Bid Data Sheet/Contract Data. The work shall have to meet high standards of workmanship, as well as meet the statutory requirements for safety and security of workmen.

3. PROCEDURE FOR PARTICIPATION IN E-TENDERING

The procedure for participation in e-tendering is given in the Bid Data Sheet.

4. ONE BID PER BIDDER

4.1 The bidder shall be a single legal entity, viz. (i) a company incorporated as per the provisions of the Companies Act, 2013 or Companies Act, 1956, (ii) a sole proprietorship firm, (iii) a partnership firm constituted as per the provisions of the Partnership Act, 1932, (iv) a Limited Liability Partnership firm constituted as per the provisions of the Limited Liability Partnership Act, 2008, (v) A Cooperative Society constituted under any law within any State of India enacted pursuant to entry 32, list II, Schedule 7 of the Constitution of India, or (vi) a Society registered under Societies Registration Act, 1860 or any analogous law enacted by any State Government pursuant to entry 32, list II, Schedule 7 of the Constitution of India.

4.2 No bidder shall be entitled to submit more than one bid. If he does so, all bids wherein the bidder has participated shall stand disqualified.

5. Cost of Bidding

The bidder shall bear all costs associated with the preparation and submission of its bid, and no claim whatsoever for the same shall lie on the GSCDCL.

6. Site Visit and Examination of Site of Works

The bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the bid and entering into a contract for construction of the work. All costs shall have to be borne by the bidder and no claim whatsoever for the same shall lie on the GSCDCL.

B. BID DOCUMENTS

7. CONTENT OF BID DOCUMENTS

The Bid Document comprises of the following documents:

1. NIT with all amendments.
2. Instructions to Bidders, Bid Data Sheet with all the Annexures.
3. Conditions of Contract:
   i. Part I General Conditions of Contract (GCC) and Contract Data; and
   ii. Part II Special Conditions of Contract (SCC)
4. Specifications
5. Drawings,
6. Price Proposal Sheet
7. Technical and Financial Bid
8. Letter of Acceptance
9. Agreement and
10. Any other document(s), as specified.

8. The bidder is expected to examine carefully all Instructions, Conditions of Contract, the Contract Data, Bid Data, Terms and Specifications, Bill of Quantities, forms and drawings in the Bid Document. Bidder shall be solely responsible for his failure to do so.

9. Pre-Bid Meeting

9.1 Details of venue, date and time shall be as mentioned in the Bid Data Sheet. Any change in the schedule of pre-bid meeting would be communicated on the website only, and intimation to bidders would not be given separately.

9.2 Any prospective bidder may raise his queries and/or seek clarifications in writing before or during the pre-bid meeting. The purpose of such meeting is to clarify issues and answer questions on any matter that may be raised at that stage. GSCDCL may, at its option, give such clarifications as are felt necessary.

9.3 Minutes of the pre-bid meeting including the list of the questions raised and the responses given together with any response prepared after the meeting will be hosted on the website.

9.4 Pursuant to the pre-bid meeting, if GSCDCL deems it necessary to amend the Bid Document, it shall be done by issuing amendment to the online NIT.

10. Amendment of Bid Documents

10.1 Before the deadline for submission of bids, GSCDCL may amend or modify the Bid Documents by publication of the same on the website only.

10.2 All amendments shall form part of the Bid Document.

10.3 GSCDCL may, at its discretion, extend the last date for submission of bids by publication of the same on the website.

C. PREPARATION OF BID

11. The bidders have to prepare their bids online, encrypt their Bid Data in the Bid Forms and submit Bid Seals (Hashes) of all the Covers and documents related to the Bid required to be uploaded as per the time schedule mentioned in the key dates of the NIT after signing of the same digitally by its authorized representative.

12. DOCUMENTS COMPRISING THE BID

The bid submitted online by the bidder shall be in the following parts:

Part 1 – This shall be known as **Cover A** and would apply for all bids. **Cover A** shall contain the following as per details given in the Bid Data Sheet:

i) Registration number or proof of application for registration and organizational details in format given in the Bid Data sheet.

ii) Payment of the cost of Bid Document;

iii) Earnest Money;

iv) EPF Registration

v) An affidavit duly notarized.

Part 2 – This shall be known as **Cover B** and required to be submitted only in works where pre-qualification conditions and/or special eligibility conditions are stipulated in the Bid Data Sheet. Online **Cover B** shall contain a self-certified sheet duly supported by documents to demonstrate fulfilment of pre-qualification conditions.

Part 3 – This shall be known as **Cover C** and would apply to all bids. **Cover C** shall contain financial offer in the format prescribed enclosed with the Bid Data Sheet.

13. LANGUAGE

The bid as well as all correspondence and documents relating to the bid exchanged by the Bidder and GSCDCL shall be in English or Hindi. Supporting documents and printed literature that are part of the Bid may be in another language provided they are accompanied by an accurate translation of the relevant passages in English. In such case, for the purposes of interpretation of the bid, such translation shall govern.

14. TECHNICAL PROPOSAL

14.1 Only, in case of bids with pre-qualification conditions defined in the Bid data sheet, the Technical Proposal shall comprise of formats and requirements given in the Bid Data Sheet.

14.2 All the documents / information enclosed with the technical proposals should be self-attested and certified by the Bidder. The Bidder shall be liable for forfeiture of his Earnest Money Deposit, if document / information are found false/fake/untrue before and after acceptance of Bid. GSCDCL may at its sole discretion forfeit the performance security/guarantee, security deposit, enlistment deposit and take any other suitable action, as applicable.

15. FINANCIAL BID

i. The bidder shall have to quote item rates in format referred in Bid Data sheet.

ii. Item rate offer shall be quoted in figures as well as in words. If any difference in figures and words found, lower of the two shall be taken as valid and correct.

III. The bidder shall have to quote rates inclusive of all duties, taxes, royalties and other levies; and GSCDCL shall not be liable for the same.

16. PERIOD OF VALIDITY OF BIDS

The bids shall remain valid for a period specified in Bid Data Sheet after the date of "close for biding" as prescribed by GSCDCL. The validity of the bid can be extended by mutual consent in writing.

17. EARNEST MONEY DEPOSIT (EMD)

17.1 The Bidder shall furnish, as part of the Bid, Earnest Money Deposit (EMD), of the amount specified in the Bid Data Sheet.

17.2 The amount of EMD to be deposited ONLINE/RTGS/NEFT/IMPS in favour of CEO, Gwalior Smart City Development Corporation Limited (GSCDCL).

17.3 Bid not accompanied by EMD shall be liable for rejection as non-responsive.

17.4 EMD of bidders whose bids are not accepted will be returned within ten working days of the decision on the bid.

17.5 EMD of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the Bank Guarantee of required value as Performance Security.

17.6 Failure to sign the contract by the selected bidder, for whatsoever reason, shall result in forfeiture of its EMD.

D. SUBMISSION OF BID

18. The bidder is required to submit bid online under the digital signature of authorized signatory.

E. OPENING AND EVALUATION OF BID

19 PROCEDURE

19.1 **Cover 'A'** shall be opened first online at the time and date notified and its contents shall be checked. In cases where 'A' does not contain all requisite documents, such bid shall be treated as non-responsive, and **Cover B and/or C** of such bid shall not be opened.

19.2 Wherever Cover 'B' (Technical Bid) is required to be submitted, the same shall be opened online at the time and date notified. The bidder shall have freedom to witness opening of the Cover 'B'. Cover 'C' (Financial Bid) of bidders who are not qualified in Technical Bid (Cover 'B') shall not be opened.

19.3 Cover 'C' (Financial Bid) of the qualified bidders shall be opened online at the time and date notified. The bidder shall have freedom to witness opening of the Cover 'C'.

19.4 After opening Cover 'C' all responsive bids shall be compared to determine the lowest evaluated bid.

19.5 GSCDCL reserves the right to accept or reject any bid, and to annul the biding process and reject all the bids at any time prior to contract award, without incurring any liability. In all such cases reasons shall be recorded.

19.6 GSCDCL reserves the right of accepting the bid for the whole work or for a distinct part of it.

20. Confidentiality

20.1 Information relating to examination, evaluation, comparison and recommendation of contract award shall not be disclosed to bidders or any other person not officially concerned with such process until final decision on the bid.

20.2 Any attempt by a bidder to influence the Employer in the evaluation of the bids or contract award decisions may result in the rejection of its bid.

F. AWARD OF CONTRACT

21. Award of Contract

GSCDCL shall notify the successful bidder by issuing a 'Letter of Acceptance' (LOA) that his bid has been accepted.

22. Performance Security

22.1 Prior to signing of the Contract the bidder to whom LOA has been issued shall have to furnish performance security and Additional Performance Security (if applicable) of the amount, form and duration, etc. as specified in the Bid Data Sheet.

22.2 If the Bid, which results in the lowest evaluated Bid price, is seriously unbalanced or front loaded in the opinion of GSCDCL, GSCDCL after evaluation, taking in to consideration the schedule of the estimated contract price may require Additional Performance Security from the successful bidder for such unbalanced Bid price.

22.3 If the lowest evaluated Bid Price is 15% or more below, the prices of probable amount of contract, such Bids will be deemed as unworkable rate. In such cases successful Bidder should submit Additional Performance Security amount which will be equal to the difference between the unworkable rates @ 15% below SOR amount with agreement amount.

23. Signing of Contract Agreement

23.1 The successful bidder shall have to furnish Performance security & Additional Performance Security and sign the contract agreement within 15 days of issue of LOA.

23.2 The signing of contract agreement shall be reckoned as intimation to commencement of work. No separate work order shall be issued by GSCDCL to the contractor/ successful bidder for commencement of work.

23.3 In the event of failure of the successful bidder to submit Performance Security and additional performance security, if any or sign the Contract Agreement, its EMD shall stand forfeited without prejudice to the right of GSCDCL for taking action against the bidder.

23.4 An indicative terms and conditions of the GCC, SCC and/or the draft contract that shall be executed by and between GSDCL and the successful bidder is attached. GSDCL reserves the right to modify/ amend the said terms and conditions of the GCC, SCC and/or draft contract after consultation with

the successful bidder. Such terms and conditions as may be considered necessary by the GSCDCL at the time of finalization of the Agreement, successful bidder would be required to execute the Agreement with such conditions.

24. CORRUPT PRACTICES

GSCDCL requires that bidders observe the highest standard of ethics during the procurement and execution of contracts. In pursuance of this policy, GSCDCL:

i. may reject the bid for award if it determines that the bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for the Contract.

ii. may debar the bidder if he is being blacklisted by any Department of State Government or Government of India for non-performance/ sub- standard execution or any other reason whatsoever in similar type of works.

iii. may debar the bidder declaring ineligible, either indefinitely or for a stated period of time, to participate in bids, if it at any time determines that the bidder has, directly or through an agent, engaged in corrupt, fraudulent, collusive, or coercive practices in competing for, or in executing, a contract.

For the purposes of this provision, the terms set forth above are defined as follows:

a. **"corrupt practice"** means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;

b. **"fraudulent practice"** means any act or omission, including a misrepresentation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

c. **"coercive practice"** means impairing or harming, or threatening to impair or harm, directly or indirectly, any party or the property of the party to influence improperly the actions of a party;

d. **"Collusive practice"** means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party.

[End of ITB]

Bid Data Sheet

General

S. No.	Particulars	Data	
1	Office inviting Tender	EXECUTIVE DIRECTOR, GWALIOR SMART CITY DEVELOPMENT CORPORATION LIMITED	
2	NIT No	*GSCDCL/0037/2018*	
3	Date of NIT	12 March, 2018	
4	Bid document download available from date & time	12 March, 2018, 10:30 hrs	To 06 April, 2018 till 17:30 hrs
5	Website link	http://www.mpeproc.gov.in	

For Section 1 - NIT

Clause reference	Particulars	Data
2	Portal fees	shall be reflected on the portal
3	Cost of bid document (Online Only)	Rs. 20,000.00 (Rupees Twenty Thousand only)
3	Affidavit	Annexure B
11	Pre-qualifications required	Yes
	If Yes, details	As per Annexure C
2	Key Dates	Annexure A

For Section 2 - ITB

Clause reference	Particulars	Data
1	Name of work	Conservation, Retrofitting, MEP and Other Allied and Development Works for Conservation and Adaptive Reuse of Moti Mahal Annexe Historic Building as ICCC, GSCDCL & PDMC Office, Gwalior
2	Specifications	Annexure D
3	Procedure for participation in e-tendering	Annexure E
4	Whether Joint-venture is allowed	No
9	Pre bid meeting to be held	Yes
	If Yes, Date, Time & Place	20 March, 2018, 15:00 hrs Place – Office of the Chief Executive Officer, Gwalior Smart City Development Corporation Ltd. Nagar Nigam Mukhyalaya, City Centre, Gwalior
12 (Part 1)	Deleted	
12(Part 2)	Cover-B Technical Proposal	Annexure – G (Format G -1 to G -3)
12 (Part 3)	Cover-C Financial Bid	Annexure – H
16	Period of Validity of Bid	180 Days
17	Earnest Money Deposit	Rs 6,79,200.00 (Rupees Six Lakhs Seventy Nine Thousand and Two Hundred Only)
	Forms of Earnest Money Deposit	Amount of EMD to be deposited only ONLINE/RTGS/NEFT/IMPS (Make payments before 48 Hours)
	EMD valid for a period of	Not less than 180 days from the last date of bid submission

	ONLINE/RTGS/NEFT/IMPS	Chief Executive Officer, Gwalior Smart City Development Corporation Limited
21	Letter of Acceptance (LoA)	Annexure I
22	Amount of Performance Security	5 % of contract amount
	Additional Performance Security, if any	As per provision of clause 22.2 of ITB
	Performance Security & Additional Performance Security in the format	Annexure J
	Performance Security & Additional Performance Security in favour of	Executive Director, Gwalior Smart City Development Corporation Limited
	Performance security & Additional Performance Security	After Physical Completion Certificate as per clause 35.1,shall be valid up to DLP plus 180 Days

Annexure – A

(See clause 7 of Section 1 NIT)

Key Dates

S. No.	Works Department Stage	Bidder's Stage	Start		Expiry		Covers
			Date	Time	Date	Time	
1		Purchase of Tender (Online)	12 March, 2018	1030 Hours	06 April, 2018	1730 Hours	
2	Pre-Bid Meeting		20 March, 2018	1500 Hours			
3		Bid Submission (Online)			07 April, 2018	1730 Hours	
4	Proposal Opening				09 April, 2018	1600 Hours	Cover A
	Proposal Opening				10 April, 2018	1600 Hours	Cover B
5	Financial Bid Opening				12 April, 2018	1600 hours.	Cover C

Note: Original Affidavit shall have to be submitted by the Successful Bidder before agreement.

Annexure – B

(See clause 3 of Section 1-NIT)

|| AFFIDAVIT ||

(To be contained in Cover A)

(On Non Judicial Stamp Paper of non-judicial stamp paper of appropriate amount)

I/we _____ who is/ are _____ (status in the firm/ company) and competent for submission of the affidavit on behalf of M/S _____ (contractor) do solemnly affirm an oath and state that:

I/we are fully satisfied for the correctness of the certificates/records submitted in support of the following information in bid documents which are being submitted in response to notice inviting e-tender No. _____ for _____ (name of work) dated _____ issued by the Gwalior Smart City Development Corporation Limited.

I/we are fully responsible for the correctness of following self-certified information/ documents and certificates:

1. That the self-certified information given in the bid document is fully true and authentic.
2. That:
   a. Earnest Money to be deposited online only.
   b. Information regarding financial qualification and annual turn-over is correct.
   c. Information regarding various physical qualifications is correct.
3. No close relative of the undersigned and our firm/company is working in the department.

OR

Following close relatives are working in the department:
Name _____ Post _____ Present Posting _____

Signature with Seal of the Deponent (bidder)

I/ We, _____ above deponent do hereby certify that the facts mentioned in above paras 1 to 3 are correct to the best of my knowledge and belief.

Verified today _____ (dated) at _____ (place).

Signature with Seal of the Deponent (bidder)

Annexure – C

(See clause 11 of Section 1 NIT)

PRE-QUALIFICATIONS CRITERIA

The bidder should have:

A) The bidder should have an Average Annual financial turnover during the last 3 consecutive financial years, ending 31st March 2018, should be at least 30% of the estimated cost.

B) Experience of having successfully executed (Successfully executed would mean successful completion and commissioning of the project),

a) **three** similar works each costing not less than the amount equal to INR **271.68 Lakhs** (40% of the probable amount of contract) during the last 7 financial years; or
b) **two** similar works each costing not less than the amount equal to INR **339.60 Lakhs** (50% of the probable amount of contract) during the last 7 financial years; or
c) **one** similar work of aggregate cost not less than the amount equal to **543.36 Lakh** (80% of the probable amount of contract) during the last 7 financial years;

Similar works means the bidder must have successfully executed any **3** of the following characteristics of works.

i) Conservation works involving restoration/ preservation/ reconstruction/ repair/ retrofitting/ adaptive reuse of heritage buildings which have certain historical or cultural significance duly recognized by statutory or non-statutory competent authorities or custodian agencies such as: any state archaeology & museum department/ state department of culture/ Archaeological Survey of India/ INTACH/ AKDN/ or equivalent organisations.

ii) Civil/ retrofitting/ other site development works in revitalization/ redevelopment/ rejuvenation/ regeneration projects at historical sites/ urban historical precincts or areas/ historical monuments/ museums for which the custodian and/or funding agency is municipal bodies/ tourism departments/ development authorities/ state PWD/ CPWD/ or equivalent departments.

iii) Civil/ repair/ retrofitting works in buildings /monuments/ sites majorly involving (above 51% of the total value of item of works of a contract) works in traditional materials like lime mortar, stone masonry in lime mortar, lime concrete, lime plaster, araish work, ashlar stone works, traditionally carved stone works, etc.

iv) Civil/ building services (mechanical, electrical, plumbing, HVAC)/ site development / infrastructural/ landscaping works in historic/ cultural/ tourism sites for which the custodian or implementation agency is any government or quasi-government organisation or PSU

v) Comprehensive building construction and site development works involving civil works, MEP, and other specialized works in public buildings or large private buildings site area not less than 2 Acres with builtup area not less than 1500 Sq.m

Bidders are required to submit the corresponding Work Order copies & Execution/ Completion Certificates issued by the respective clients. The Certificates should be issued by respective authority (Not below the rank of Executive Engineer) of client. GSCDCL may call for original certificates for verification.

Note: Work execution/ Completion Certificate shall include detailed scope of work, actual cost of work completed with date of commencement and date of completion of the work.

Annexure – D

(See clause 2 of Section 2-ITB & clause 10 of GCC)

Specifications

Shall form part of the technical specifications of this work and shall follow specifications as mentioned in the Schedule of Rates.

The provisions of General/ Special Conditions of Contract, those specified elsewhere in the bid document, as well as execution drawings and notes, details mentioned in the Bill of Quantities, or other specifications issued in writing by GSCDCL shall form part of the technical specification of this work.

For items not covered under any of the schedule of rates, specifications with correction slips or those specifications are not given in the technical specifications appended or not incorporated in the nomenclature of the individual item, the work shall be done as per latest relevant BIS Codes of Practice or as per approval of Engineer-in-charge.

ANNEXURE - E

(See clause 3 of Section 2-ITB)

Procedure for participation in E-Tendering

1. Registration of Bidders on e-Tendering System

All the PWD registered bidders from Madhya Pradesh or any other State of India with relevant experience in Government sponsored or supported building conservation projects are to be registered on the new e-procurement portal https://www,mpeproc.gov.in. The user id will be the contractor ID provided to them by MP Online. The password for the new portal has been sent to the bidders registered email ID. For more details may contact M/s Tata consultancy Services Corporate Block, 5th floor, DB city Bhopal-462011, email id: eprochelpdesk@mpsdc.gov.in. Helpdesk phone numbers are available on website.

2. Digital Certificate:

The bids submitted online should be signed electronically with a class III Digital Certificate to establish the identity of the bidder submitting the bid online. The bidders may obtain class III Certificate issued by an approved certifying authority authorized by the Controller of Certifying Authorities, Government of India. A class III digital Certificate is issued upon receipt of the required proofs along with an application. Only upon the receipt of the required documents, a digital certificate can be issued. For details please visit **http:cca.gov.in.**

Note:

i. It may take up to 7 working days for issuance of class III digital certificate; hence the bidders are advised to obtain the certificate at the earliest. Those bidders who already have valid 7 class III digital certificate need not obtain another Digital Certificate for the same.

The bidders may obtain more information and the APPLICATION FORM REQUIRED TO BE SUBMITTED FOR THE ISSUANCE OF DIGITAL CERTIFICATE FROM **http:cca.gov.in.**

ii Bids can be submitted till bid submission end date. Bidder will require digital signature for the bid submission. The digital certificate issued to the authorized user of a partnership firm/Private limited company/Public Limited Company and user for online bidding will be considered as equivalent to a no-objection certificate/power of attorney to that user.

In case of Partnership firm, majority of the partners have to authorize a specific individual through authority letter signed by majority of partners of the firm.

In case of Private Limited Company, Public Limited Company, the Managing Director may authorize a specific individual through Authority Letter. Alternately a Board resolution may be passed authorizing such individual. Unless the certificate is revoked, it will be assumed to represent adequate authority of the specific individual to bid on behalf of the organization for online bids as per Information Technology Act 2008. This Authorized Representative/ User will be required to obtain a digital certificate. The Digital Signature executed through the use of the responsibility of Management/Partners of the concerned firm to inform the Certifying Authority, if the authorized user changes, and apply for a fresh Digital Certificate for the new Authorized user.

3. Set Up of Bidder's Computer System:

In order for a bidder to operate on the e-tendering System, the Computer system of the bidder is required to be set up for Operating System, Internet Connectivity, Utilities, Fonts, etc. The details are available at https://www.mpeproc.gov.in.

4. Key Dates:

The bidders are strictly advised to follow the time schedule (Key dates as mentioned in **Annexure - A**) of the bid of their side for tasks and responsibilities to participate in the bid, as all the stages of each bid are locked before the start time and date and after the end time and date for the relevant stage if the bid as set by the Department.

5. Preparation and Submission of Bids

The bidders have to prepare their online, encrypt their bid data in the Bid forms and submit Bid of all the Covers and documents related to the Bid required to be uploaded as per the time schedule mentioned in the key dates of the NIT after signing of the same by the Digital Signature of their authorized representative.

6. Purchase of Bid Document

For purchasing of the bid document, bidders have to pay Service Charge online only which is [as per Bid Data Sheet]. The cost of Bid document is separately mentioned in the detailed NIT. The Bid Document shall be available for purchase to concerned eligible bidders immediately after online release of the bids and up to scheduled time and date as set in the key dates. The payment for the cost of bid document shall be made online through Credit/Debit/Cash Card or via internet banking.

7. Withdrawal, Substitution and Modification of Bids

Bidder can withdraw and modify the bid before submission end date.

Note:

- Bidders are requested to visit our e-tendering website regularly for any clarifications and/or due date extension or corrigendum.
- Bidder must positively complete online e-tendering procedure at www.mpeproc.gov.in
- GSCDCL shall not be responsible in any way for delay/ difficulties/ inaccessibility of the downloading facility from the website for any reason whatsoever.
- In case, due date for submission and opening of tender happens to be a holiday, the due date shall be shifted to the next working day for which no prior intimation will be given
- GSCDCL reserves the right for extension of due date of opening of technical bid.

ANNEXURE-F

ORGANIZATIONAL DETAILS
(To be contained in Cover - A)

S.No.	Particulars	Details
1.	Registration No. issued by centralized registration system of Govt. of MP or proof of application for registration	(If applicable, scanned copy of proof of application for registration to be uploaded)
2.	Valid registration of Bidder in appropriate category (B or C) with the Public Works Department, Government of Madhya Pradesh, Central Public Works Department, Government of India	Scanned copy of valid registration; In case of applications under process, copy of acknowledgement receipt of application clearly showing date applied on.
3.	Name of Organization/ Individual/ / Partnership Firm Registered under Partnership Act/ Limited Company (Registered under the Companies Act–1956/ 2013)	
4.	Proof of incorporation or registration	Certificate of incorporation from Registrar of Companies in the State where incorporated, in case of Companies and limited liability partnerships; Registration Certificate/ Certificate of incorporation from Registrar of Firms & Societies or analogous authority in the State where registered, in case of partnership firms, societies, cooperative societies.
5.	Address of Communication	
6.	Telephone Number with STD Code	
7.	Fax Number with STD Code	
8	PAN No.	
9	GST No.	
10	TAN No.	
11	EPF Registration	
12	Mobile Number	
13	E-mail Address for all communications	
	Details of Authorized Representative	
14	Name	
15	Designation	
16	Postal Address with pin code	
17	Telephone Number with STD Code	
20	Fax Number with STD Code	
21	Mobile Number	
22	E-mail Address	

Note: *In the case of partnership firms, a declaration jointly sighed by all partners designating the authorized representative in terms of signing all agreements for and on behalf of the firm as regards the bid submission shall be provided. In the case of companies, limited liability partnerships, copy of board resolution or joint resolution by all partners authorizing signatories of proposals in addition to general power of attorney executed in favour of signatory of the current proposal by such signatories (if applicable) may be provided.*

Signature of Bidder with Seal
Date: _____

Annexure – G

(See clause 14 of Section 2 of ITB)

Cover – B, Technical Proposal

Technical Proposal shall comprise the following documents:

S. No.	Particulars	Details to be submitted
1	Experience - Financial and Physical	Annexure – G (Format : G - 1)
2	List of technical personnel for the key positions	Annexure – G (Format : G - 2)
3	List of Key equipment/ machines for construction work	Annexure – G (Format : G - 3)

Note:

1. *Technical Proposal should be uploaded duly page numbered and indexed.*
2. *Technical Proposal uploaded without page numbering and indexing will not be considered.*

Annexure – G *(Format: G-1)*

(See clause 14 of Section 2 of ITB

FINANCIAL & PHYSICAL EXPERIENCE DETAILS

Bidders to furnish details of minimum requirement for Scope of Work

Annexure – G *(Format: G -2)*

(See clause 14 of Section 2 of ITB)

LIST OF TECHNICAL PERSONNEL FOR THE KEY POSITIONS

Contractor will have to appoint at least the following key personnel during the execution and entire contract period.

S.No.	Discipline	Minimum Qualification	Required Nos.
1	Project Manager	Seven years of progressive experience in similar works with an appropriate technical qualification in management of civil and/or interior works projects, such as architecture, advanced civil draughtsmanship or civil engineering, preferably with a qualification in construction management from an institution of repute such as NICMAR. Or Conservation Architect with masters in conservation architecture and having 5-7 years of experience in heritage conservation projects	One
2	Quantity Surveyor	Seven years of progressive experience in similar works with an appropriate qualification (certificate, diploma or degree in quantity survey)	One
3	Clerk of works	Diploma in a technical field related to construction, with five years of progressive experience in maintaining material inventory, field survey measurement books.	One

Penalty for Non-deployment of above staff are as follows:

S.No.	Discipline	Penalty to be computed on Per Day basis
1	Project manager	Rupees 40,000/- Per Month
2	Quantity Surveyor	Rupees 30,000/- Per Month
3	Clerk of Works	Rupees 30,000/- Per Month

Note: In case the staff is unavailable for a part of the month, the penalty shall be pro-rata.

Annexure – G *(Format: G - 3)*

(See clause 14 of Section 2 of ITB)

The Contractor shall carryout the construction work in such a way that the requirements of the specifications of each item of work under the project are fully satisfied. For achieving the quality parameters as per the specifications, the contractor shall be required to deploy appropriate machinery and equipment for carrying out the work. In this section, the Bidder is required to demonstrate his capacity with respect to Key equipment and machinery that are required to carry out this work successfully.

LIST OF EQUIPMENTS / MACHINES FOR CONSTRUCTION WORK

Minimum Requirement			**Available with the Bidder**	
S. No.	Name of Equipment/ Machinery	Quantity	Name of Equipment/ Machinery	Quantity
1	All machines and equipment's required to furnish the job efficiently in stipulated time as stipulated in the Specification of Works	As required in project		

Annexure – H

(See clause 15 of Section 2 of ITB)

FINANCIAL BID
(TO BE CONTAINED IN COVER C)

TENDER FOR ITEM RATE CONTRACT:

NAME OF WORK: (NAME OF THE WORK AS APPEARING IN THE BID FOR THE WORK)

We do hereby bid for the execution of the above work within the time specified at total ITEM RATE (in figures) ……. (in words) ……. excluding GST based on the rates of each item mentioned in Annexure H-1 bill of quantities. The total rate given therein in all respects are in accordance with the specifications, designs, drawings and instructions in writing in all respects in accordance with such conditions so far as applicable.

We have visited the site of work and are fully aware of all the difficulties and conditions likely to affect carrying out the work. We have fully acquainted ourselves about the conditions in regard to accessibility of site and quarries/kilns, nature and the extent of ground, working conditions including stacking of materials, installation of tools and plant conditions effecting accommodation and movement of labour etc. required for the satisfactory execution of contract.

Should this bid be accepted, we hereby agree to abide by and fulfil all the terms and provisions of the said conditions of contract annexed hereto so far as applicable, or in default thereof to forfeit and pay to the EXECUTIVE DIRECTOR, GWALIOR SMART CITY DEVELOPMENT CORPORATION LIMITED, GWALIOR; Madhya Pradesh or his successors in office the sums of money mentioned in the said conditions.

Note:
i. Item based rates shall be quoted against Bill of Quantities.
ii. Rate shall be quoted in figures as well as in words. If any difference in figures and words is found, lower of the two shall be taken as valid and correct rate. If the Bidder is not ready to accept such valid and correct rate and declines to furnish performance security and/or fails to sign the contract its earnest money deposit shall be forfeited.
iii. It shall be assumed that the quote provided by vendors are accounted for all the items mentioned in BoQ-Annexure-H1
iv. Bidder is required to submit financial bid exclusive of applicable GST, but inclusive of all duties, taxes, royalties and other levies; and the GSCDCL shall not be liable for the same. The GST shall be paid separately as per applicable Government rules.

Signature of Bidder

Name of Bidder

Annexure – I

(See clause 21 of Section 2 of ITB)

LETTER OF ACCEPTANCE (LOA)

No. _____ Dated: _____

To,

M/s. _____

(Name and address of the contractor)

Subject: _____

(Name of the work as appearing in the bid for the work)

Dear Sir (s),

Your bid for the work mentioned above has been accepted on behalf of the GSCDCL at your Item rate price against the bill of quantities.

You are requested to submit the following within **15 (**Fifteen) days from the date of issue of this letter:

a. The performance security/ performance guarantee of Rs. _____ (in figures) (Rupees _____ in words) only (In prescribed Format as per Annexure – J) being 5% of the accepted quoted cost. The performance security shall be in the shape of Term Deposit Receipt/ Bank Guarantee of any nationalized / schedule commercial bank valid up to Contract Period Plus Six months.

b. The Additional Performance Security/ Additional Performance Guarantee of Rs. _____ (in figures) (Rupees _____ in words) only. (In prescribed Format as per Annexure – J). The Additional Performance Security shall be in the shape of Term Deposit Receipt/ Bank Guarantee of any nationalized / schedule commercial bank valid up to Contract Period Plus Six months.

c. Duly signed Contract Agreement in Agreement Form as prescribed in Section - 5

Please note that the time allowed for carrying out the work as entered in the bid is _____ months including/excluding rainy season, shall be reckoned from the date of signing of the Contract Agreement.

Signing the contract agreement shall be reckoned as intimation to commencement of work and no separate letter for commencement of work is required.

Therefore, after signing of the agreement, you are directed to contact Engineer-in-charge for taking the possession of site and necessary instructions to start the work.

Yours faithfully,

EXECUTIVE DIRECTOR
Gwalior Smart City Development Corporation Limited

Annexure – J

(See clause 22 of Section 2 of ITB)

PERFORMANCE SECURITY

To

_____ [Name of Employer]

_____

_____ [Address of Employer]

_____

WHEREAS_____ [name and Address of Contractor]

(Hereinafter called "the Contractor") has undertaken, in pursuance of Letter of Acceptance No._____ Dated _____to execute_____ [Name of Contract and brief description of Works] (herein after called "the Contract").

AND WHEREAS it has been stipulated by you in the said Contract that the contractor shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with his obligation in accordance with the contract;

AND WHREREAS we have agreed to give the Contractor such a Bank Guarantee:

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the Contractor, up to a total of _____[amount of Guarantee]*_____ (in words), such sum being payable in the types and proportions of currencies in which the contract price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sum or sums within the limits of_____[amount of Guarantee] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the contractor before presenting us with the demand. We also state that you are no way required to justify the demand raised to us.

We further agree that no change or addition to or other modification of the terms of the Contract of the Works to be performed there under or of any of the Contract documents which may be made between you and the Contractor shall in any way release us from any liability under this Guarantee, and we hereby waive notice of any such change, addition or modification.

This Guarantee shall be valid until 6(Six) months from the date of expiry of the Contract Period.

Signature, Name and Seal of the Guarantor_____

Name of
Bank_____

Address_____

Phone No., Fax No., E-mail Address, of Signing Authority_____

Date_____

***** An amount shall be inserted by the Guarantor, representing the percentage the Contract Price specified in the Contract including additional security for unbalanced Bids, if any and denominated in Indian Rupees.

SECTION 3

Conditions of Contract
Part – I General Conditions of Contract [GCC]

Table of Clauses of GCC

A. General

1. DEFINITIONS

1.1 **Bill of Quantities**: means the priced and completed Bill of Quantities forming part of the Bid.

1.2 **CEO:** means Chief Executive Officer of Gwalior Smart City Development Corporation Limited

1.3 **Completion**: means completion of the work as certified by the Engineer-in-Charge, in accordance with provisions of Contract.

1.4 **Contract:** means the Contract between GSCDCL and the Contractor to execute, complete and/or maintain the work. Agreement is synonym of Contract and carries the same meaning wherever used.

1.5 **Contract Data Sheet**: means the documents and other information which comprise of the Contract.

1.6 **Contractor**: means a person or legal entity whose bid to carry out the work has been accepted by the Employer.

1.7 **Contractor's bid**: means the completed bid document submitted by the Contractor to the Employer.

1.8 **Contract amount**: means the amount of contract worked out on the basis of accepted bid.

1.9 **Completion of work**: means completion of the entire contracted work. Exhaustion of quantity of any particular item mentioned in the bid document shall not imply completion of work or any component thereof.

1.10 **Day**: means the calendar day.

1.11 **Defect**: means any part of the work not completed in accordance with the specifications included in the contract.

1.12 **Department:** means departments GWALIOR SMART CITY DEVELOPMENT CORPORATION LTD, GWALIOR, M.P. as the case may be.

1.13 **Drawings**: means drawings including calculations and other information provided or approved by the Engineer-in-Charge.

1.14 **Employer**: means **GSCDC**L as defined in the Contract Data, who employs the Contractor to carry out the work. The employer may delegate any or all functions to a person or body nominated by him / her for specified functions. The word Employer/Government/Department wherever used denote the Employer

1.15 **Engineer / Engineer in Charge:** means Engineer of PDMC / Engineer appointed by Gwalior Smart City Development Corporation Ltd.

1.16 **Competent Authority:** means Chief Executive Officer, Gwalior Smart City Development Corporation Limited or any person authorized by CEO, GSCDCL

1.17 **GSCDCL:** GWALIOR SMART CITY DEVELOPMENT CORPORATION LTD, GWALIOR, M.P.

1.18 **Equipment**: means the Contractor's machinery and vehicles brought temporarily to the Site for execution of work.

1.19 **Government**: means Government of Madhya Pradesh.

1.20 **In Writing**: means communicated in written form and delivered against receipt.

1.21 **Material**: means all supplies, including consumables, used by the Contractor for incorporation in the work.

1.22 **Project Development & Management Consultants ("PDMC"):** means such person or persons appointed by GSCDCL to provide technical assistance in developing and implementing the projects pertaining to the Smart City Scheme.

1.23 **Schedule of Rates (SOR)**: shall mean any combination of:

a. the Schedule of Rates published by the Urban Administration & Environment (formerly Urban Administration and Development) Department, Government of Madhya Pradesh on 10th May 2012 as amended from time to time;

b. the Schedule of Rates published by the Public Works Department, Government of Madhya Pradesh as published on 01 August 2014 and amended from time to time;

c. the Schedule of Rates for Delhi, published by the Central Public Works Department, Government of India on 01 July 016 and amended from time to time.

d. Or any other Schedule of Rates in practice by the MP Department of Archaeology for building conservation works carried out on heritage buildings and monuments in the state.

Provided that 'b' will apply or be referred to if and only if a certain item or work and/or material is not indicated in 'a' above and 'c' will apply or be referred to if and only if a certain item or work and/or material is not indicated in either 'a' or 'b' above.

1.24 **Superintending Engineer**: means an engineer so nominated by Engineer-in-Charge to oversee day to day aspects of the project as the case may be.

1.25 **Stipulated date of completion**: means the date on which the Contractor is required to complete the work. The stipulated date/ period is specified in the Contract Data.

1.26 **Specification**: means the specification of the work included in the Contract and any modification or addition made or approved by the Engineer-in-Charge.

1.27 **Start Date:** means the date 14 days after the signing of agreement for the work.

1.28 **Sub-Contractor**: means a person or corporate body who has a Contract (duly authorized by the Employer) with the Contractor to carry out a part of the construction work under the Contract.

1.29 **Temporary Work**: means work designed, constructed, installed, and removed by the Contractor that are needed for construction or installation of the work.

1.30 **Tender / Bid, Tenderer /Bidder**: are the synonyms and carry the same meaning where ever used.

1.31 **UD&E**: Urban Development and Environment (Formerly Urban Administration and Development) Department, Government of Madhya Pradesh

1.32 **Variation**: means any change in the work which is instructed or approved as variation under this contract.

1.33 **Work**: the expression "work" or "works" where used in these conditions shall unless there be something either in the subject or context repugnant to such construction, be construed and taken to mean the work by virtue of contract, contracted to be executed, whether temporary or permanent and whether original, altered, substituted or additional.

2. INTERPRETATIONS AND DOCUMENTS

2.1 Interpretations

In the contract, except where the context requires otherwise:

a. words indicating one gender include all genders;

b. words indicating the singular also include the plural and vice versa.

c. provisions including the word "agree", "agreed" or "agreement" require the agreement to be recorded in writing;

d. written" or "in writing" means hand-written, type-written, printed or electronically made, and resulting in a permanent record;

2.2 Documents Forming Part of Contract:

1. NIT with all amendments.
2. Instructions to Bidders
3. Conditions of Contract:
    i. Part I General Conditions of Contract and Contract Data; with all Annexures
    ii. Part II Special Conditions of Contract.
4. Specifications
5. Drawings
6. Bill of Quantities
7. Technical and Financial Bid
8. Agreement
9. Any other document (s), as specified.

3. Language and Law

The language of the Contract and the law governing the Contract are stated in the Contract Data.

4. Communications

All certificates, notice or instruction to be given to the Contractor by Employer/Engineer shall be sent on the address or contact details given by the Contractor in [Annexure F of ITB]. The address and contract details for communication with the Employer/Engineer shall be as per the details given in Contract Data Sheet. Communication between parties that are referred to in the conditions shall be in writing. The notice sent by facsimile (fax) or other electronic means (email) shall also be effective on confirmation of the transmission. The notice sent by registered post or speed post shall be effective on delivery or at the expiry of the normal delivery period as undertaken by the postal service. In case of any change in address for communication, the same shall be immediately notified to Engineer-in-Charge

5. Subcontracting

Subcontracting shall be permitted for contracts value more than amount specified in the Contract Data with following conditions.

a. The Contractor may subcontract up to 25 percent of the contract price, only with and after the approval of the Employer in writing, but will not assign the Contract. Subcontracting shall not alter the Contractor's obligations.
b. The following shall not form part of the sub-contracting:
   i. hiring of labour through a labour contractor,
   ii. the purchase of Materials to be incorporated in the works,
   iii. hiring of plant & machinery
c. The sub-contractor will have to be registered in the **appropriate category** in the centralised registration system for contractors of the GoMP.

6. Personnel

6.1 The Contractor shall employ for the construction work and routine maintenance the technical personnel as provided in the Annexure I-3 of Bid Data sheet, if applicable. If the Contractor fails to deploy required number of technical staff, recovery as specified in the Contract Data will be made from the Contractor.

6.2 If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within three days and has no further connection with the Works in the Contract.

7. Force Majeure

7.1 The term "Force Majeure" means an exceptional event or circumstance:

a) Which is beyond a party’s control,

b) Which such party could not reasonably have provided against before entering into the contract,

c) Which, having arisen, such party could not reasonably have avoided or overcome, and

d) Which is not substantially attributed to the other Party

Force Majeure may include, but is not limited to, exceptional events or circumstances of the kind listed below, so long as conditions (a) to (d) above are satisfied:

(i) War, hostilities (whether war be declared or not), invasion, act of foreign enemies),

(ii) Rebellion, terrorism, sabotage by persons other than he contractor’s Personnel, revolution, insurrection, military or usurped power, or civil war,

(iii) Riot, commotion, disorder, strike or lockout by persons other than the Contractor’s Personnel,

(iv) Munitions of war, explosive materials, ionising radiation or contamination by radio activity, except ass may be attributed to the Contractor’s use of such munitions, explosives, radiation or radio activity, and

(v) Natural catastrophes such as earthquake, hurricane, typhoon or volcanic activity,

7.2 In the event of either party being rendered unable by force majeure to perform any duty or discharge any responsibility arising out of the contract, the relative obligation of the party affected by such force majeure shall upon notification to the other party be suspended for the period during which

force majeure event lasts. The cost and loss sustained by either party shall be borne by respective parties.

7.3 For the period of extension granted to the Contractor due to Force Majeure the price adjustment clause shall apply but the penalty clause shall not apply. It is clarified that this sub clause shall not give eligibility for price adjustment to contracts which are otherwise not subject to the benefit of Price adjustment clause.

7.4 The time for performance of the relative obligation suspended by the force majeure shall stand extended by the period for which such cause lasts. Should the delay caused by force majeure exceed **twelve months**, the parties to the contract shall be at liberty to foreclose the contract after holding mutual discussions.

7.5 A Party affected by an event of Force Majeure shall notify the other Party of such event as soon as possible to the occurrence of such event, providing evidence of the nature and cause of such event, and shall similarly give notice of the restoration of normal conditions as soon as possible.

7.6 The Parties shall take all reasonable measures to minimise the consequences of any event of Force Majeure.

8. Contractor's Risks

8.1 All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract are the responsibility of the Contractor.

8.2 All risks and consequences arising from the inaccuracies or falseness of the documents and/or information submitted by the contractor shall be the responsibility of the Contractor alone, notwithstanding the fact that designs/drawings or other documents have been approved by the department.

9. Liability for Accidents to Person

The contractor shall be deemed to have indemnified and saved harmless the Government and/or the employer, against all action, suits, claims, demands, costs etc. arising in connection with injuries suffered by any persons employed by the contractor or his subcontractor for the works whether under the General law or under workman's compensation Act, or any other statute in force at the time of dealing with the question of the liability of employees for the injuries suffered by employees and to have taken steps properly to ensure against any claim there under.

10. Contractor to Construct the Works

10.1 The Contractor shall construct, install, fix, test, and commission the Works in accordance with the Specifications and Drawings as specified in the Contract Data

10.2 In the case of any class of work for which there is no such specification as is mentioned in contract Data, such work shall be carried out as per best Engineering practice or as directed by Engineer In Charge. In the event of any disparity between the written specifications and BIS provisions, the provisions in BIS shall prevail.

10.3 The contractor shall supply and take upon himself the entire responsibility of the sufficiency of the scaffolding, timbering, Machinery, tools implements and generally of all means used for the fulfilment of this contract whether such means may or may not approved of or recommended by the Engineer.

11. Discoveries

Anything of historical or other interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Engineer of such discoveries and carry out the Engineer's instructions for dealing with them.

12. Dispute Resolution System

12.1 No dispute can be raised except before the Competent Authority as defined in Contract data in writing giving full description and grounds of Dispute. It is clarified that merely recording protest while accepting measurement and/or payment shall not be taken as raising a dispute.

12.2 No issue of dispute can be raised after 45 days of its occurrence. Any dispute raised after expiry of 45 days of its first occurrence shall not be entertained and the Employer shall not be liable for claims arising out of such disputes.

12.3 The **Competent Authority** shall decide the matter within 45 days.

12.4 Appeal against the order of the Competent Authority can be preferred within 30 days to the Appellate Authority as defined in the Contract data. The **Appellate Authority** shall decide the dispute within 45 days.

12.5 Appeal against the order of the Appellate Authority can be preferred before the Madhya Pradesh Arbitration Tribunal constituted under ***Madhya Pradesh Madhyastham Adhikaran Adhiniyam, 1983***.

12.6 The contractor shall have to continue execution of the works with due diligence notwithstanding pendency of a dispute before any authority or forum.

B. Time Control

13. Programme

13.1 Within the time stated in the Contract Data, the Contractor shall submit to the Engineer for approval a Programme showing the general methods, arrangements, order, and timing for all the activities in the Works.

13.2 The programme shall be supported with all the details regarding key personnel, equipment and machinery proposed to be deployed on the works for its execution**.** The contractor shall submit the list of equipment and machinery being brought to site, the list of key personnel being deployed, along with the Programme

13.3 An update of the Programme shall be showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining Works, including any changes to the sequence of the activities.

13.4 The Contractor shall submit to the Engineer for approval an updated Programme at intervals no longer than the period stated in the Contract Data. If the Contractor does not submit an updated Programme within this period, the Engineer may withhold the amount stated in the Contract Data from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Programme has been submitted.

13.5 The Engineer's approval of the Programme shall not alter the Contractor's obligations

14. Extension of Time

14.1 If the Contractor desires an extension of time for completion of the work on the ground of its having been unavoidably hindered in its execution or on any other grounds, it shall apply, in writing, to the Engineer-in-charge, on account of which it desires such extension. Engineer-in-charge shall forward the aforesaid application to the competent authority as prescribed.

14.2 The competent authority shall grant such extension at each such occasion within a period of 30 days of receipt of application from contractor and shall not wait for finality of work. Such extensions shall be granted in accordance with provisions under clause -7 or clause- 15 of this agreement.

14.3 In case of the work already in progress, the contractor shall proceed with the execution of the works, including maintenance thereof, pending receipt of the decision of the competent authority as aforesaid with all due diligence**.**

15. Compensation for delay

15.1 The time allowed for carrying out the work, as entered in the agreement, shall be strictly observed by the Contractor.

15.2 The time allowed for execution of the contract shall commence from the date of signing of the agreement. It is clarified that the need for issue of work order is dispensed with.

15.3 In the event milestones are laid down in the Contract Data for execution of the works, the Contractor shall have to ensure strict adherence to the same.

15.4 Failure of the Contractor to adhere to the timelines and/or milestones shall attract such liquidated damages as is laid down in the Contract Data

15.5 In the event of delay in execution of the works as per the timelines mentioned in the contract data the Engineer-in- charge shall retain from the bills of the Contractor amount equal to the liquidated damages to be levied until the Contractor makes such delays good. However, the Engineer-in-charge may accept bankable security in lieu of retaining such amount.

15.6 If the Contractor is given extension of time after liquidated damages have been paid, the engineer in charge shall correct any over payment of liquidated damages by the Contractor in the next payment certificate.

15.7 In the event the Contractor fails to make good the delay until completion of the stipulated contract period (including extension of time) the sum so retained shall be adjusted against liquidated damages levied.

C. Quality Control

17. Tests

17.1 The Contractor shall be responsible for:

a. Carrying out the tests prescribed in specifications shall be got carried out through Laboratories accredited by National Accreditation Board of Laboratories (NABL) by the Engineer-In –Charge at the cost of the Contractor or such testing charges will be borne by the employer and will be recovered/deducted from the payments due to the Contractor.
b. For the correctness of the test results, whether preformed in his laboratory or elsewhere.

17.2 Deleted

17.3 Deleted

18. Correction of Defects noticed during the Defect Liability Period

18.1 The defect liability period of work in the contract shall be for a period of 3 (Three) year after the completion of the work

18.2 The Contractor shall promptly rectify all defects pointed out by the Engineer well before the end of the Defect Liability Period. The Defect Liability Period shall automatically stand extended until the defect is rectified.

18.3 If the Contractor has not corrected a Defect pertaining to the Defect Liability Period to the satisfaction of the Engineer, within the time specified by the Engineer, the Engineer will assess the cost of having the Defect corrected, and the cost of correction of the Defect shall be recovered from the Performance Security or any amount due or that may become due to the contractor and other available securities.

D. Cost Control

19. Variations - Change in original Specifications, Designs, and Drawings etc.

19.1 The Engineer-in-charge shall have power to make any alterations, omissions or additions to or substitutions for the original specifications, drawings, designs and instructions, that may appear to him to be necessary during the progress of the work and the Contractor shall carry out the work in accordance with any instructions which may be given to him in writing signed by the Employer, and such alterations, omission, 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 it had agreed to do the main work.

19.2 The time for the completion of the Work shall be extended in the proportion that the altered, additional or substituted work bears to the original contract work and the certificate of the Engineer –in-charge shall be conclusive as to such proportion.

20. Extra items

20.1 All such items which are not in the priced Bills of Quantities (BOQ) shall be treated as extra items.

21. Payments for Variations and / or Extra Quantities

21.1 The rates for the additional (Extra Quantities), altered or substituted work/ extra items under this clause shall be worked out in accordance with the following provisions in their respective order: -

a. The contractor is bound to carry out the additional (Extra quantity), work at the same rates as are specified in the contract for the work.

b. If the item is not in the priced BOQ and is included in the Schedule of Rate (SOR) of the department, the rate shall be arrived at by applying the quoted SOR rate.

c. If the rates of the altered or substituted work are not provided in applicable SOR-such rates will be derived from the rates for a similar class (type) of work as is provided in the contract (priced BOQ) for the work.

d. If the rates are for the altered, substituted work cannot be determined in the manner specified in the sub clause (c) above, then the rates for such composite work item shall be worked out on the basis of the concerned schedule of rates of SoR.

e. If the rates of a particular part or parts of the item is not in the schedule of rates and the rates for the altered, or substituted work item cannot be determined in the manner specified in sub clause (b) to (d) above, the rate for such part or parts will be determined by the Competent Authority as defined in the Contract data on the basis of the rate analysis derived out of prevailing market rates when the work was done.

f. But under no circumstances, the Contractor shall suspend the work on the plea of non-acceptability of rates on items falling under sub clause (a) to (e). In case the Contractor does not accept the rate approved by Engineer-in-charge for a particular item, the Contractor shall continue to carry out the item at the rates determined by the Competent Authority. The decision on the final rates payable shall be arrived at through the dispute settlement procedure.

22. No compensation for alterations in or restriction of work to be carried out.

22.1 If at any time after the commencement of the work, the Government, for any reason whatsoever, not require the whole or any part of the work as specified in the bid to be carried out, the Engineer-in-charge shall give notice in writing of the fact to the Contractor and withdraw that whole or any part of the work.

22.2 The Contractor shall have no claim to any payments or compensation whatsoever, on account of any profit or advantage which he might have derived from the execution of work in full or on account of any loss incurred for idle men and machinery due to any alteration or restriction of work for whatsoever reason.

22.3 The Engineer-in-charge may supplement the work by engaging another agency to execute such portion of the work, without prejudice to its rights.

23. No Interest Payable

No interest shall be payable to the Contractor on any payment due or awarded by any authority.

24. Recovery from Contractors

Whenever any claim against the Contractor for the payment arises under the contract, the Department shall be entitled to recover such sum by:

(a) Appropriating, in part or whole of the Performance Security and additional Performance Security, if any; and/or Security deposit and/or any sums payable under the contract to the Contractor.

(b) If the amount recovered in accordance with (a) above is not sufficient, the balance sum may be recovered from any payment due to the contractor under any other contract/ arrangement of the department, including the securities which become due for release.

(c) The department shall, further have an additional right to effect recoveries as arrears of land revenue under the M.P. Land revenue Code.

25. Tax

25.1 The rates quoted by the Contractor shall be deemed to be inclusive of the Goods & Service Tax, levies, duties, cess, toll, taxes of Central and State Governments, local bodies and authorities.

25.2 The liability, if any, on account of quarry fees, royalties, octroi and any other taxes and duties in respect of materials actually consumed on public work, shall be borne by the Contractor.

25.3 Any increase in price due to changes in the taxes due to change in legislation or for any other reason shall not be payable to the Contractor.

26. Check Measurements

26.1 The Employer reserves to itself the right to prescribe a scale of check measurement of work in general or specific scale for specific works or by other special orders.

26.2 Checking of measurement by superior officer shall supersede measurements by subordinate officer(s), and the former will become the basis of the payment.

26.3. Any over/ excess payments detected, as a result of such check measurement or otherwise at any stage up to the date of completion of the defect liability period specified in this contract, shall be recoverable from the Contractor, as per **clause 24** above.

27. Termination by Engineer–in-Charge

27.1 If the Contractor fails to carry out any obligation under the Contract, the Engineer in charge may by notice require the Contractor to make good the failure and to remedy it within a specified reasonable time.

27.2 The Engineer in charge shall be entitled to terminate the contract if the Contractor

a) Abandons the works or otherwise plainly demonstrates the intention not to continue performance of his obligations under the contract;

b) the Contractor is declared as bankrupt or goes into liquidation other than for approved reconstruction or amalgamation;

c) without reasonable excuse fails to comply with the notice to correct a particular defect within a reasonable period of time;

d) the Contractor does not maintain a valid instrument of financial Security, as prescribed;

e) the Contractor has delayed the completion of the Works by such duration for which the maximum amount of liquidated damages is recoverable;

f) If the Contractor fails to deploy machinery and equipment or personnel or set up a field laboratory as specified in the Contract Data.

g) if the Contractor, in the judgement of the Engineer–in-charge has engaged in corrupt or fraudulent practices in competing for or in executing the contract;

h) Any other fundamental breaches as specified in the Contract Data.

27.3 In any of these events or circumstances, the Engineer–in-charge may, upon giving 14 (fourteen) days' written notice to the contractor, terminate the contract and expel the Contractor from the site. However, in the case of sub paragraph (b) or (g) of clause 27.2, the Engineer-in-charge may terminate the contract immediately.

27.4 Notwithstanding the above, the Engineer-in-charge may terminate the contract for convenience by giving notice to the contractor.

28. Payment upon Termination

28.1 If the contract is terminated under clause 27.3, the Engineer-in-Charge shall issue a certificate for value of the work accepted on final measurements, less advance payments received up to the date of issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data.

28.2 payment on termination under clause 27.4 above, the Engineer-in-Charge shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the contractor's personnel employed solely on the works, and the contractor's costs of protecting and securing the works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.

28.3 If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be recovered as per clause 24 above.

29. Performance Security

The Contractor shall have to submit performance security and additional performance security, if any, as specified in Bid data sheet at the time of signing of the contract. The contractor shall have to ensure that such performance security and Additional performance, if an, security remains valid for the period as specified in the Contract data.

30. Security Deposit

30.1 Security deposit shall be deducted from each running bill at the rate as specified in the contract data. The total amount of security deposit so deducted shall not exceed the percentage of contract price specified in the Contract data.

30.2 The Security may be replaced by equivalent amount of bank guarantee or fixed deposit receipt assigned to the Employer, with validity up to 6(Six) months beyond the completion of defect Liability PERIOD/ extended Defect Liability.

30.3 The Security deposit shall be refunded on completion of defect liability period.

31. Deleted

32. **Deleted**

33. Deleted

34. Payment Certificates

The payment to the contractor will be as follows for construction work:

(a) The contractor shall submit to the engineer monthly statement of the value of the work executed less the cumulative amount certified previously, supported with detailed measurement of the items of work executed as per the Billing Break-up in section 6.

(b) The Engineer-in-Charge shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor.

(c) The value of work executed shall be determined, based on the measurements approved by the Engineer in charge.

(d) The value of work executed shall comprise the value of the quantities of the items in the Billing Breakup given in Section 6.

(e) The value of work executed shall also include the valuation of variations and compensation events.

(f) All payments shall be adjusted for deductions for advance payment, security deposit, other recoveries in terms of contract and taxes at source as applicable under the law.

(g) The Engineer-in-Charge may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

(h) Payment of intermediate certificate shall be regarded as payments by way of advance against the final payment and not as payments for work actually done and completed.

(i) Intermediate payment shall not preclude the requiring of bad, unsound and imperfect or unskilled work to be removed and taken away and reconstructed or be considered as an admission of the due performance of the contractor any part thereof, in any respect or the occurring of any claim.

(j) The payment of final bill shall be governed by the provisions of clause 36 of General Conditions of Contract.

E. Finishing the Contract

35. Completion Certificate

35.1 A completion certificate in the prescribed format in Contract data shall be issued by the Engineer-in-charge after physical completion of the work.

35.2 After final payment to the Contractor, a final completion certificate in the prescribed format in the contract data shall be issued by the Engineer-in-charge.

36. Final Account

36.1 The Contractor shall supply the Engineer-in-Charge with a detailed account of the total amount that the Contractor considers payable for works under the Contract within 21 days of issue of certificate of physical completion of works. The Engineer-in-Charge shall issue a Defects Liability Certificate and certify any payment that is due to the Contractor within 45 days of receiving the Contractor's account if it is correct and complete. If the account is not correct or complete, the Engineer-in-Charge shall issue within 45 days a schedule that states the scope of the corrections or additions that are necessary. If the Account is still unsatisfactory after it has been resubmitted, the matter shall be referred to the Competent Authority as defined in the Contract Data, who shall decide on the amount payable to the Contractor after hearing the Contractor and the Engineer in Charge.

36.2 In case the account is not received within 21 days of issue of Certificate of Completion as provided in clause 35.1 above, the Engineer shall proceed to finalize the account and issue a payment certificate within 28 days.

G. Other Conditions of Contract

37. Currencies

All payments will be made in Indian Rupees.

38. Labour

38.1 The Contractor shall, unless otherwise provided in the Contract, make his own arrangements for the engagement of all staff and labour, local or other, and for their payment, housing, feeding and transport.

38.2 The Contractor shall, if required by the Engineer-in-Charge, deliver to the Engineer-in-Charge a return in detail, in such form and at such intervals as the Engineer-in-Charge may prescribe, showing the staff and the numbers of the several classes of labour from time to time employed by the Contractor on the Site and such other information as the Engineer-in-Charge may require.

39. Compliance with Labour Regulations and Construction Safety

39.1 During continuance of the Contract, the Contractor and his sub-Contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given in the Contract data. The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/byelaws/Acts/Rules/ regulations including amendments, if any, on the part of the Contractor, the Engineer/Employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Employer/Engineer-in-Charge shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

I. The Contractor or its sub-Contractors shall be solely responsible for complying with all statutory provisions relating to manpower engaged by, for, or through them. In the event of any liability on GSCDCL by virtue of its being principal employer due to failure of the Contractor or its sub-Contractors to comply with all applicable labour legislations, the Contractor and its sub-Contractors Bidder shall indemnify and/or reimburse the amount payable by GSCDCL, if any on this account.

II. If any accident, any injury or physical harm to any person is caused during operations within the contract period, the Contractor and its sub-Contractors, as the case may be the Contractor sub56 Contractors shall be solely responsible and shall bear all the cost and consequences' associated with such eventualities. The Contractor and its sub-Contractors also agrees and undertakes to indemnify and keep indemnified GSCDCL, its directors/ employees/ agents and its consultants.

39.2 Construction Safety

The Contractor should be well conversant with technical as well as administrative and legal aspects of safety and judicial pronouncement. The Contractor shall all times take all reasonable precautions and safety measures to maintain safety of personnel and property. The Contractor shall, at its own expenses and throughout the period of the contract ensure appropriate and suitable arrangements for health, safety and hygiene requirements for the surroundings. The State and Central Government prevailing all Statues in this regard must be complied in letter and spirit throughout the period of contract.

40. Audit and Technical examination

Government shall have the right to cause an audit and technical examination of the works and the final bill of the contract including all supporting vouchers, abstract etc. To be made after payment of the final bill and if as a result of such audit and technical examination any sum is found to have been overpaid in respect of any work done by the Contractor under the contract or any work claimed by him to have been done under the contract and found not to, have been executed, the Contractor shall be liable to refund the amount of overpayment and it shall be lawful for government to recover the same from him in the manner prescribed in clause 24 above and if it is found that the contractor

was paid less than what was due to him, under the contract in respect of any work executed by him under it, the amount of such under payment shall be duly paid by government to the Contractor.

41. Death or permanent invalidity of Contractor

During continuance of the contract, the Contractor and his sub-contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications, and bye laws of the state or central government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the state or the major labour laws that are applicable to construction industry are given in the contract data. The Contractor shall keep the employer indemnified in case any action is taken against the employer by the competent authority on account of contravention of any of the provisions of any Act or rules made their under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/ Acts/ Rules regulations including amendments, if any, on the part of the Contractor, the Engineer-in-Charge /employer shall have the right to deduct from any money due to the Contractor including his amount of performance of security. The Employer/ Engineer-in-Charge shall also have right to recover from the contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer. The employees of the contractor and the sub-contractor in no case shall be treated as the employees of the employer at any point of time.

42. Jurisdiction

This contract has been entered into the State of Madhya Pradesh and its validity, construction, interpretation and legal effect shall be subjected to the exclusive jurisdiction of the courts in Gwalior in the courts at the place where this contract is entered into. No other jurisdiction shall be applicable.

43. Monthly RA Bills

The payment certificates shall be regulated as per the provisions of clause 34 of the contract.

43.1 Upon the signing of agreement the Engineer-in-Charge shall decide the date of submission of monthly statement (RA Bills) as mentioned in clause 34 (a)

43.2 The Engineer-in-Charge shall check the Contractor's monthly statement (RA Bills) & certify the amount to be paid to the contractor within 7 days of submission of monthly statement (RA Bills).

43.3 The Employer shall ensure the payment to the Contractor as per clause 34 (d), (e), (f) & (g) within 30 days of submission of monthly statement (RA Bills).

[End of GCC]

Contract Data

Clause reference	Particulars	Data
1.14	Employer	GWALIOR SMART CITY DEVELOPMENT CORPORATION LIMITED
1.15	Engineer-in-Charge/ Superintending Engineer	Engineer as notified by Employer and as deputed by the Engineer in Charge
1.25	Stipulated period of completion	5 (Five) months including rainy season
3	Language	English
	Law of Contract	Indian Laws
4	Address & contact details of the Contractor	As per Annexure F
	Address & contact details of the Employer/Engineer-phone, Fax, E-mail.	_____ _____
5	Subcontracting permitted for contract value	Not allowed
6	Technical Personnel to be provided by the contractor – Requirement & Deployment Committed	As per Annexure G (Format 1-3)
	Penalty, if required Technical personnel not employed	As per Annexure G (Format 1 -3)
1.26	Specifications	Annexure D
	Drawings	As per Annexure H-2
1.16	Competent Authority for deciding dispute under Dispute Resolution System	CEO, GSCDCL
	Appellate Authority for deciding dispute under Dispute Resolution System	Collector, Gwalior District / Executive Director (GSCDCL)
13	Period of submission of updated construction program	15 days upon signing the Agreement and every month thereafter
	Amount to be withheld for not submitting construction program in the prescribed period	0.20% of the Contract Amount
14	Competent Authority for granting Time Extension	Appropriate authority within the GSCDCL after scrutiny and recommendation by Chief Executive Officer
13	Milestones laid down for the contract	-
	If Yes, details of milestones	As per Annexure K
	Liquidated Damages	As per Annexure L
18	Defect Liability Period	36 Months after physical completion of work

Clause reference	Particulars	Data
15	Penalty	Penalty shall include (a) Security deposit as per clause 30 of General conditions of contract and the percentage to apply to the value of work not completed representing the Employer's additional cost for completing the works shall be 20 percent. (b) Liquidated damages imposed as per clause 15 or performance security (Guarantee) including additional performance security (Guarantee), if any, as per clause 29 of General conditions of contract, whichever is higher.
29	Performance Guarantee (security) shall be valid up to	6(Six) months beyond the date of expiry of the Contract Period.
30	Security deposit to be deducted from each running bill	At the rate of 5 %
	Maximum limit of deduction of security deposit	Up to 5 % of Final contract amount, Security Deposit will be returned after successful completion of Defect Liability Period (DLP).

Clause reference	Particulars	Data
35	Completion certificate- After physical completion of the work	As per Annexure – M
	Final Completion Certificate – after final payment on completion of the work	As per Annexure – N
39	39.1 Salient features of some of the major labour laws that are applicable	As per Annexure – O
	39.2 Salient features of some Construction Safety laws that are applicable	As per Annexure – P

Annexure – K

(See clause 15 of Section 3 of GCC)

DETAILS OF MILESTONES

The time allowed for the carrying out the work, as entered in the tender form shall be strictly observed by the contractor and shall be deemed to be essence of the contract and shall be reckoned immediately from the date of issue of the order to commence the work issued to the Contractor.

The work shall, throughout the stipulated period of contract, be proceeded with all due diligence keeping in view that time is the essence of the contract. The contractor shall be bound in all cases, to complete

- 1/8th of the whole work before 1/4th of the whole time allowed under the contract has elapsed,
- 3/8th of the work before 1/2 of such time has elapsed
- 3/4th of the work before 3/4 of such time has elapsed.

The sequence of work proposed for this project in chronological order are:

1. Complete dismantling and demolition works

All conservation works including replacement and reconstruction of damaged roofing systems

2. All new roofing works
3. Complete services retrofitting including fixing of ceiling channels, electrical/AV conduiting, laying of water supply lines, laying of sewage lines, laying of wastewater lines, laying of storm water lines, HVAC piping, fire-fighting network.
4. Complete installation of passenger lift and other hydraulic works
5. All flooring and stone/slab works in rooms, kitchen, pantry, toilets, etc. including anti-termite treatment, water proofing, sub-base preparations, decking works, tile works, etc.
6. Construction of new door, window, ventilator, clearstory in wood/UPVC/glazed
7. Construction of wooden/board partition walls with complete framework
8. Installation of electrical fixtures and wirings
9. Installation of plumbing and sanitary ware fittings and fixtures
10. Installation of HVAC ducting and outdoor units
11. Installation of fire-fighting equipment
12. Installation of biometric systems, surveillance cameras, etc.

13 Installation of rooftop solar system

14 Construction and placement of fixed furniture

15 Painting, polishing and other non-conservation finishing works

16 Procurement and placement of movable furniture and equipment

Annexure – L

(See clause 15 of Section 3 of GCC)

COMPENSATION FOR DELAY

If the contractor fails to achieve the milestones, and the delay in execution of work is attributable to the contractor, the Employer shall retain an amount from the sums payable and due to the contractor as per following scale –

i. Slippage up to 25% in financial target during the milestone under consideration – 2.5% of the work remained unexecuted in the related time span.

ii. Slippage exceeding 25% but up to 50% in financial target during the milestone under consideration – 5% of the work remained unexecuted in the related time span.

iii. Slippage exceeding 50% but up to 75% in financial target during the milestone under construction – 7.5% of the work remained unexecuted in the related time span.

iv. Slippage exceeding 75% in financial target during the milestone under consideration – 10% of the work remained unexecuted in the related time span.

Note: For arriving at the dates of completion of time span related to different milestones, delays which are not attributable to the Contractor shall be considered. The slippage on any milestone if made good in subsequent milestones or at the time of stipulated period of completion, the amount retained as above shall be refunded. In case the work is not completed within the stipulated period of completion along with all such extensions which are granted to the Contractor for either Employer's default or Force Majeure, the compensation shall be levied on the contractor at the rate of 0.05% per day of delay limited to maximum of 10% of contract price.

The decision of Engineer in Charge will be after scrutiny and recommendation by Chief Executive Officer, GSCDCL shall be final and binding upon both the parties.

Annexure - M

(See clause 35 of section 3 -GCC)

Physical Completion Certificate

Name of Work:

_____

_____

_____

Agreement No. _____Date_____

Amount of Contract Rs _____

Name of Agency: _____

Used Measurement Book No.: _____

Last measurement recorded

a. Page No. & MB No.:_____

b. Date: _____

Certified that the above mentioned work was physically completed on..... (Date) and taken over on..... (Date) and that I have satisfied myself to best of my ability that the work has been done properly.

Date of issue

Engineer-in-charge

_____

_____

Annexure-N

(See clause 35 of section 3 -GCC)

Final Completion Certificate

Name of Work:

_____
_____
_____

Agreement No._____ Date: _____

Name of Agency: _____

Used Measurement Book No._____

Last Measurement recorded

b. Page No. & MB No._____

c. Date_____

Certified that the above mentioned work was physically completed on_____ (date)

And taken over on_____ (date).

Agreement amount Rs._____

Final amount paid to contractor Rs._____

Incumbency of officers for the work

I have satisfied myself to best of my ability that the work has been done properly.

Date of Issue

Engineer-in-charge

_____

_____

Annexure – O

(See clause 39 of Section 3 -GCC)

Salient Features of Some Major Labour Laws Applicable

(a) Workmen Compensation Act 1923: - The Act provides for compensation in case of injury by accident arising out of and during the course of employment.

(b) Payment of Gratuity Act 1972: - Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed the prescribed minimum years (say, five years) of service or more or on death the rate of prescribed minimum days' (say, 15 days) wages for every completed year of service. The Act is applicable to all establishments employing the prescribed minimum number (say, 10) or more employees.

(c) Employees Provident Funds and Miscellaneous Provision Act 1952: The Act Provides for monthly contributions by the Employer plus workers at the rate prescribed (say, 10% or 8.33%). The benefits payable under the Act are:

i. Pension or family pension on retirement or death as the case may be.

ii. Deposit linked insurance on the death in harness of the worker.

iii. Payment of provident fund accumulation on retirement/death etc.

(d) Maternity Benefit Act 1951: - The Act provides for leave and some other benefits to women employees in case of confinement or miscarriage etc.

(e) Contract Labour (Regulation & Abolition) Act 1970: - The Act provides for certain welfare measures to be provided by the Contractor to contract labour and in case the Contractor fails to provide, the same are required to be provided, by the Principal Employer by Law. The principal Employer is required to take Certificate of Registration and the Contractor is, required to take license from the designated Officer. The Act is applicable to the establishments or Contractor of Principal Employer if it employs the prescribed minimum (say 20) or more contract labour.

(f) Minimum Wages Act 1948: - The Employer is to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of buildings, roads, runways is scheduled employment.

(g) Payment of Wages Act 1936: - It lays down as to by what date the wages are to be paid, when it will be paid and what deductions can be made from the wages of the workers.

(h) Equal Remuneration Act 1979: - The Act provides for payment of equal wages for work of equal nature to male and female workers and for not making discrimination against female employees in the matters of transfers, training and promotions etc.

(i) Payment of Bonus Act 1965: - The Act is applicable to all establishments employing prescribed minimum (say, 20) or more workmen. The Act provides for payments of annual bonus 'within the prescribed range of percentage of wages to employees drawing up to the prescribed amount of wages, calculated in the prescribed manner. The Act does not apply to certain establishments. The newly set-up establishments are exempted for five years in certain circumstances. States may have different number of employment size.

(j) Industrial Disputes Act 1947: - The Act lays down the machinery and procedure for resolution of industrial disputes, in what situations a strike or lock-out becomes illegal and what are the requirements for laying off or retrenching the employees or closing down the establishment.

(k) Industrial Employment (Standing Orders) Act 1946: - It is applicable to all establishments employing prescribed minimum (say, 100, or 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and gets these certified by the designated Authority.

(l) Trade Unions Act 1926: - The Act lays down the procedure for registration of trade unions of workmen and Employers. The Trade Unions registered under the Act have been given certain immunities from civil and criminal liabilities.

(m) Child Labour (Prohibition & Regulation) Act 1986: - The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulations of employment of

children in all other occupations and processes. Employment of child labour is prohibited in building and construction industry.

(n) Inter-State Migrant Workmen's (Regulation of Employment & Conditions of Service) Act 1979: - The Act is applicable to an establishment which employs prescribed minimum (say, five) or more inter-state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The inter-state migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as Housing, Medical-Aid, Travelling expenses from home up to the establishment and back etc.

(o) Building and Other Construction Workers' Welfare Cess Act, 1996 and the Building and other Construction workers (Regulation of Employment and Conditions of Service Act,1996 - All the establishments who carry on any building or other construction work and employs the prescribed minimum (say, 10) or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as. may be modified by the Government., The Employer of the establishment- is required to provide safety measures at the building or construction work and other welfare measures, such as canteens, first-aid facilities, ambulance, housing accommodations for workers near the-work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

(p) Factories Act 1948: - The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. it is applicable to premises employing the prescribed minimum (say, 10) persons or more with aid of power or another prescribed minimum (say, 20) or more persons without the aid of power engaged in manufacturing process.

Annexure – P
(See clause 39 of Section 3 -GCC)

CONSTRUCTION SAFETY

1) IS: 3696(Part-1, 2) Safety code for scaffolds and ladder
2) IS: 3764 Safety code for excavation work
3) IS: 7205 Safety code for erecting of structural steel work
4) SP: 70-2001 Handbook on Construction Safety Practices

1. On all excavation work, safety precautions for the protection of life and property are essential: While measures to avoid inconveniences to the public are desirable. Such measures and precautions include the erection and maintenance signs (to forewarn public), barricades, bridges, and detours: placing and maintenance of lights both for illumination and also as danger signals, provision of watchmen to exclude unauthorized persons particularly children, from trespassing on the work: and such other precautions as local conditions may dictate.

2. Suitable scaffolds should be provided for workmen for all works that cannot 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 hand-hold shall be provided on the ladder and the ladder shall be given an inclination not steeper than ¼ to 1(¼ horizontal and 1 vertical.)

3. Scaffolding of staging more than 3.6 m (12ft.) above the ground or floor, swung or suspended from an overhead support or erected with stationary support shall have a guard rail properly attached or bolted, braced and otherwise secured at least 90 cm. (3ft.) 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 opening as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the building or structure.

4. Working platforms, gangways and stairways should be so constructed that they should not sag unduly or unequally, and if the height of the platform or the gangway or the stairway is more than 3.6m (12 ft.) above ground level or floor level, they should be closely boarded, should have adequate width and should be suitably fastened as described in (2) above.

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

6. Safe means of access shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9m. (30ft.) in length while the width between side rails in rung ladder shall in no case be less than 29 cm. (11½") for ladder up to and including 3 m. (10 ft.) in length. For longer ladders, this width should be increased at least ¼" for each additional 30 cm. (1 foot) of length. Uniform step spacing of not more than 30 cm shall be kept. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites or work shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The contractor shall provide all necessary fencing and lights to protect the public from accident and shall be bound to bear the expenses of defence of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and cost which may be awarded in any such suit; action or proceedings to any such person or which may, with the consent of the contractor, be paid to compensate any claim by any such person.

7. (a) Excavation and Trenching - All trenches 1.2 m. (4ft.) or more in depth, shall at all times be supplied with at least one ladder for each 30 m. (100 ft.) in length or fraction thereof, Ladder shall extend from bottom of the trench to at least 90 cm. (3ft.) above the surface of the ground. The side of the trenches which are 1.5 m. (5ft.) or more in depth shall be stepped back to give suitable slope or securely held by timber bracing, so as to avoid the danger of sides collapsing. The excavated materials shall not be placed within 1.5 m. (5ft.) of the edges of the trench or half of the depth of the trench whichever is more. Cutting shall be done from top to bottom. Under no circumstances, undermining or undercutting shall be done.

(b) Safety Measures for digging bore holes: -

(i) If the bore well is successful, it should be safely capped to avoid caving and collapse of the bore well. The failed and the abandoned ones should be completely refilled to avoid caving and collapse;
(ii) during drilling, sign boards should be erected near the site with the address of the drilling contractor and the Engineer in-charge of the work.

(iii) Suitable fencing should be erected around the well during the drilling and after the installation of the rig on the point of drilling, flags shall be put 50m all-round the point of drilling to avoid entry of people;
(iv) After drilling the bore well, a cement platform (0.50m x 0.50m x 1.20m) 0.60m above ground level and 0.60m below ground level should be constructed around the well casing;
(v) After the completion of the bore well, the contractor should cap the bore well properly by welding steel plate, cover the bore well with the drilled wet soil and fix thorny shrubs over the soil. This should be done even while repairing the pump;
(vi) after the bore well is drilled the entire site should be brought to the ground level.

8. Demolition - before any demolition work is commenced and also during the progress of the work,
(i) All roads and open areas adjacent to the work site shall either be closed or suitably protected.
(ii) No electric cable or apparatus which is liable to be a source of danger or a cable or apparatus used by the operator shall remain electrically charged.
(iii) All practical steps 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 overloaded with debris or materials as to render it unsafe.

9. All necessary personal safety equipment as considered adequate by the Engineer-in-Charge should be kept available for the use of the person employed on the site and maintained in a condition suitable for immediate use, and the contractor should take adequate steps to ensure proper use of equipment by those concerned. The following safety equipment shall invariably be provided: --.
(i) Workers employed on mixing asphaltic materials, cement and lime mortars shall be provided with protective footwear and protective goggles
(ii) Those engaged in white washing and mixing or stacking of cement bags or any material which is injurious to the eyes, shall be provided with protective goggles.
(iii) Those engaged in welding works shall be provided with welder's protective eye shields.
(iv) Stone breaker shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.
(v) When workers are employed in sewers and manholes, which are in active use, the contractors shall ensure that the manhole covers are opened and ventilated at least for an hour before the workers are allowed to get into the manholes, and the manholes so opened shall be cordoned off with suitable railing and provided with warning signals or boards to prevent accident to the public. In addition, the contractor shall ensure that the following safety measure are adhered to: -

(a) Entry for workers into the line shall not be allowed except under supervision of the JE or any other higher officer.

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

(c) Before entry, presence of Toxic gases should be tested by inserting wet lead acetate paper which changes colour in the presence of such gases and gives indication of their presence.

(d) Presence of Oxygen should be verified by lowering a detector lamp into the manhole. In case, no Oxygen is found inside the sewer line, workers should be sent only with Oxygen kit.

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

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

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

(h) The malba obtained on account of cleaning of blocked manholes and sewer lines should be immediately removed to avoid accidents on account of slippery nature of the malba.

(i) Workers should not be allowed to work inside the manhole continuously. He should be given rest intermittently. The Engineer-in-Charge may decide the time up to which a worker may be allowed to work continuously inside the manhole.

(j) Gas masks with Oxygen Cylinder should be kept at site for use in emergency.

(k) Air-blowers should be used for flow of fresh air through the manholes. Whenever called for, portable air blowers are recommended for ventilating the manholes. The Motors for these shall be vapour proof and of totally enclosed type. Non sparking gas engines also could be used but they should be placed at least 2 meters away from the opening and on the leeward side protected from wind so that they will not be a source of friction on any inflammable gas that might be present.

(l) The workers engaged for cleaning the manholes/sewers should be properly trained before allowing to work in the manhole.

(m) The workers shall be provided with Gumboots or non-sparking shoes, bump helmets and gloves, non-sparking tools, safety lights and gas masks and portable air blowers (when necessary). They must be supplied with barrier cream for anointing the limbs before working inside the sewer lines.

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

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

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

(vi) The Contractor shall not employ men and women below the age of 18 years on the work of painting with products containing lead in any form. Wherever men above the age of 18 are employed on the work of lead painting, the following precaution should be taken: -

(a) No paint containing lead or lead products shall be used except in the form of paste or readymade paint.
(b) Suitable face masks should be supplied for use by the workers when paint is applied in the form of spray or a surface having lead paint is dry rubbed and scrapped.
(c) Overall shall be supplied by the contractors to the workmen and adequate facilities shall be provided to enable the working painters to wash during and on the cessation of work.

10. An additional clause of Safety Code

The Contractor shall not employ women and men below the age of 18 on the work of painting with product containing lead in any form, wherever men above the age of 18 are employed on the work of lead painting, the following principles must be observed for such use:

(i) White lead, sulphate of lead or product containing these pigment, shall not be used in painting operation except in the form of pastes or paint ready for use.
(ii) Measures shall be taken, wherever required in order to prevent danger arising from the application of a paint in the form of spray.
(iii) Measures shall be taken, wherever practicable, to prevent danger arising out of from dust caused by dry rubbing down and scraping.
(iv) Adequate facilities shall be provided to enable working painters to wash during and on cessation of work.
(v) Overall shall be worn by working painters during the whole of working period.
(vi) Suitable arrangement shall be made to prevent clothing put off during working hours being spoiled by painting materials.
(vii) Cases of lead poisoning and suspected lead poisoning shall be notified and shall be subsequently verified by medical man appointed by competent authority.
(viii)The employer may require, when necessary medical examination of workers. (ix) Instructions with regard to special hygienic precautions to be taken in the painting trade shall be distributed to working painters.

11. When the work is done near any place where there is risk of drowning, all necessary 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 obtained during the course of the work.

12. Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following standards or conditions: -

(i) (a) These shall be of good mechanical construction, sound materials and adequate strength and free from patent defects and shall be kept repaired and in good working order.
(b) Every rope used in hoisting or lowering materials or as a means of suspension shall be of durable quality and adequate strength, and free from patent defects.

(ii) Every crane driver or hoisting appliance operator, shall be properly qualified and no person under the age of 21 years should be in charge of any hoisting machine including any scaffolding winch or give signals to operator.
(iii) In case of every hoisting machine and of every chain ring hook, shackle swivel and pulley block used in hoisting or as means of suspension, the safe working load shall be ascertained by adequate means. Every hoisting machine and all gear referred to above shall be plainly marked with the safe working load. In case of a hoisting machine having a variable safe working load each safe working load and the condition under which it is applicable shall be clearly indicated. No part of any machine or any gear referred to above in this paragraph shall be loaded beyond the safe working load except for the purpose of testing.
(iv) In case of departmental machines, the safe working load shall be notified by the Electrical Engineer-in-Charge. As regards contractor's machines the contractors 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 Electrical Engineer concerned.

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

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

15. 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 Engineer-in-Charge or their representatives.

16. Notwithstanding the above clauses from (1) to (14), there is nothing in these to exempt the contractor from the operations of any other Act or Rule in force in the Republic of India.

Section 3
Conditions of Contract
Part-II Special Conditions of Contract [SCC]

1. GENERAL:

The special conditions are supplementary conditions to the TENDER and shall form the part of the contract.

1.1 It shall be the responsibility of Contractor to co-ordinate with traffic authority, Railways, MPRDC, M.P. Electricity Board, Telephone authority, various authorities including Public Health Engineering, Water resource Department for obtaining necessary permissions regarding crossing of road/railway tracks, shift of various types of public utilities like existing pipe line, sewer line, cable etc. as may be required for the due fulfilment of the obligations under this contract. GWALIOR SMART CITY DEVELOPMENT CORPORATION LIMITED shall deposit all charges including charges for Electric Connection, Crossing of Railway and Road way etc. as may be necessary for seeking required permissions from different authorities but it shall be the primary responsibility of the Contractor to pursue with various authorities and obtain the permissions at the earliest. If as a result of excavation of trenches the underground services such as water main electric telephones cable, sewer lines become naked and unsupported it shall be the responsibility of the Contractor to make suitable and necessary arrangement as per direction of the Engineer-in-Charge for their protection and no extra payment on this account will be made to the Contractor. Any damages caused to the above mentioned underground services due to negligence of the Contractor or otherwise the same shall be made good by the Contractor at his own cost.

2.0 Accuracy of Lines, Levels and Grades

2.1 The various works shall be done true to line, level and grade. The periodical checking of these by the Engineer or Engineer's representative shall not absolve the Contractor of his responsibility regarding the accuracy. In case of any deviation or discrepancy in line, level or grade at the meeting faces, the contractor shall make good the discrepancy at his own cost and without any compensation for the additional work, if any involved. Whenever such a discrepancy is found to arise at the junction of works being carried out by different Contractors the responsibility to set right their respective discrepancies shall be fixed by the Engineer-in-Charge whose decision shall be final and binding on the Contractors concerned. Engineer-in-Charge shall further have the unquestioned right if need be to rectify the discrepancies and recover the cost from the Contractor or Contractors according to proportions as he may consider reasonable.

2.2 The details of location and the nearest permanent bench marks.

Reference Grid Marks shall be obtained by the Contractor in writing from the Engineer-in-Charge. Temporary bench mark for day to day use shall be fixed with reference to above permanent bench marks with double leveling. The Grid Co-ordinates and its references may be obtained from the Engineer-in-Charge.

3.0 Arrangements of Water and Electric Power

Arrangement for water and electric power required by the Contractor for the works shall be made by him at his own cost. Employer will however recommend to the State Electricity Board for giving the connection and power to the Contractor. However, the Employer will bear no responsibility in this respect.

4.0 Measures for Prevention of Fire

4.1 The Contractor shall not set fire to any standing Jungle, trees, brush wood or grass without a written permission from the Engineer-in-Charge.

4.2 When such permission is given and also in all cases when destroying out of dug trees, brush wood, grass etc. by fire, the Contractor shall take necessary measures to prevent such fire spreading to or otherwise damaging surrounding property.

4.3 Any damage caused by the spreading of such fire, whether in or beyond limits of the Employer's property, the amount of the damage shall be recovered by the Engineer-in-Charge from the Contractor's Bills as damages or deducted by any other duly authorized officer from any sums that May be due or become due from the Employer to the Contractor under the contractor otherwise.

4.4 The Contractor shall bear the expenses of defending any action or law proceedings that may be brought by any person by injury sustained owing to neglect of precautions to prevent the spread of fire and shall pay any damage and cost that may be awarded in consequence.

5.0 Site Order Book

A site order book shall be kept at the Employer's office regarding the site of the work. As far as possible all orders regarding the works are to be entered in this book. All entries therein shall be signed by the Engineer-in-Charge on his representative and the Contractor or its authorized representative. In important cases the Engineer-in-Charge will countersign the entries which have been made. The site order book shall not be removed from the work site except with written permission of the Engineer-in-Charge and the Contractor or his representative shall be bound to take note of all instructions and directions meant for the Contractor as entered in the site order book without having to be called on separately to note them. The Engineer-in-Charge shall submit periodically copies of the remarks in the site order book to the Employer for record and to the Contractor for submitting compliance report.

6.0 Foundations Depth/Levels.

The drawings indicate the general foundation levels to be adopted for the different conditions of the structures. During execution these levels may be modified to suit the site conditions. The Contractor shall not be liable to any compensation for any minor delays on this account. However, this may be considered for granting suitable extension in the completion period if necessitated by such events.

7.0 Approach Road

Necessary approach roads for various constructions of components of the work shall be satisfactorily constructed and maintained by the Contractor at its own cost.

8.0 Regulation and Bye-Laws

The Contractor shall conform to the regulations, bye laws or any other statutory rules made by any local authorities or by the Government and shall protect and indemnify the Employer against any claims or liability arising from or based on the violations of any such laws, ordinance, regulations, orders and decrees etc.

9.0 Contractor to use Excavated Hard Rock

All useful materials like hard rock etc. excavated by the Contractor at site shall be the property of Employer and shall be issued to the Contractor at the issue rate as decided by Engineer-in-Charge at prevailing market rate. It shall be binding on the Contractor to use it as rubble, metal aggregate etc. after breaking into the required size for concrete work and as directed by the Engineer.

10.0 Income Tax

During the course of contract period, deductions of Income Tax shall be made at the prevailing rate of Department of Income Tax Government of India and as revised from time to time as per the advice of Income Tax authorities.

11.0 Supply and Arrangement of Materials

(1) The Contractor shall make his own arrangement for supply of materials including cement and steel. The Contractor shall be responsible for all transportation and storage of the materials at site and shall bear all the related costs. The Engineer-in-Charge shall be entitled at any time to inspect or examine all such materials. The contractor shall provide reasonable assistance for such inspection or examination as may be required.

(2) The Contractor shall keep an accurate record of use of materials like cement and steel used in the works in a manner prescribed by the Engineers.

12.0 Cement

(a) The Contractor shall stock his requirement so as to ensure utilization of cement within 60 days but in no case later than 90 days Cement older than the period aforesaid shall not be used on any work except with the written permission of the Engineer-in-Charge, and after satisfactorily passing such test as he may specify. The Contractor shall forthwith remove from the work such cement that Engineer-in-Charge has not allowed. The final disposal of such cement shall comply with the rules in force at the time and as the Engineer-in-Charge may approve

(b) Large stocks of cement shall not be kept at the works but only sufficient quantities shall be kept to assure continuity of the work. The Contractor shall provide and maintain efficient water proof storage sheds for cement on the site of work. It shall be stacked on the platform 30 cm above the floor level and shall be covered with tarpaulin or any other impervious covering materials in order to protect the cement bags from moisture. The cement shall be neatly stacked in an orderly manner so as to allow an easy access and count. The arrangement of storage and utilization shall be such as to ensure the utilization of cement in the order of its arrival at the stores and the Contractor shall maintain satisfactory records which would at any time show the date of receipt and proposed utilization of cement laying in the stores at site.

(c) The Engineer-in-Charge shall at all times have access to the stores at sites of the Contractor. He shall have authority to check and examine the method of storage, record accounting and security provided by the Contractor. The Contractor shall comply with instructions that may be issued by the Engineer in this connection. The Contractor shall further at all times satisfy the Engineer-in-Charge on demand and by the production of records and books or submission of returns and proforma or by other proofs that may be demanded that the cement brought from the approved manufacturer with date of receipt & consumption etc. The Contractor shall at all times keep his records up to date to enable the Engineer-in-Charge to apply such checks as he may desire to impose.

The Contractor shall provide a double locking arrangement to the store the key of one of the locks being with the Engineer-in-Charge or his representative at site. The Engineer-in-Charge or his authorized agent will have the authority to verify the stocks and check the consumption in any manner he thinks proper.

13.0 Special Condition Regarding Conditional TENDER

The BIDDER will have to give an undertaking with the instrument of Earnest Money to the effect that there are no conditions in the TENDER and if any conditions are found the same shall be ignored.

If such an under taking is not found with the Earnest Money, the TENDER will not be opened and not taken into consideration. However, in case the Contractor gives such an undertaking at the time of opening of TENDER the same may be considered.

14.0 Design and Drawings

(1) The detailed project report made available by GSCDCL will comprise basic data for guidance of Contractor. Any missing or additional information required by the contractor is to be immediately brought to the notice of the Engineer-in-charge in writing. The contractor will not make any claims whatsoever on account of deficiency in the data of Detailed Project Report.

(2) The approved drawings shall remain in the sole custody of the Engineer-in-Charge. The Contractor shall obtain and make at his own expense any further copies required by him. At the completion of the contract the Contractor shall return to the Engineer-in-Charge all Drawings provided under the Contract.

(3) **One copy of the Drawings to be kept on Site.**

One copy of the Drawings furnished to the Contractor as aforesaid, shall be kept by the Contractor on the site and the same shall at all reasonable times be available for inspection and use by the Engineer-in-Charge and his representatives and by any other person authorized by the Engineer-in-Charge in writing.

(4) **Disruption of Progress**

The Contractor shall give written notice to the Engineer-in-Charge whenever planning or progress of the works is likely to be delayed or disrupted unless any further drawing or order, including a direction, instruction or approval is issued by the Engineer-in-Charge within a reasonable time. The notice shall include details of the drawing or order required and of why and by when it is required and of any delay or disruption likely to be suffered if it is late.

(5) **Delay and Cost of delay of Drawings**

If, by reason of any failure or inability of the Engineer-in-Charge to issue within a time reasonable in all the circumstances any drawing or order required by the Contractor in accordance with sub-clause (3) of this Clause, the Contractor suffers delay then the Engineer-in-Charge shall take such delay into account in determining any extension of time to which the Contractor is entitled under Clause 44 hereof. However, the Contractor shall not be entitled to any compensation for such delay, except extension of time.

(6) **Further Drawings and Instructions**

The Engineer-in-Charge shall have full power and authority to supply to the Contractor from time to time during the progress of the Works such further drawings and instructions as shall be necessary for the purpose of the proper and adequate execution and maintenance of the Works. The Contractor shall carry out and be bound by the same.

(7) Final Completion of Works:

The Work shall be considered as finally complete at the end of the Defects Liability Period subject to the Contractor having replaced and/or rectified and made good all the defective items of work and defects in accordance with clause above, to the satisfaction of the Project Manager, Architect, Owner and provided that the Contractor has performed all its obligations and fulfilled all its liabilities under the Contract, and when the Project Manager has certified in writing that the Works are finally complete. Such Final Completion in respect of those parts of the project for which extended guarantee periods are stipulated elsewhere in the Contract Documents, shall be achieved at the end of such stipulated guarantee periods.

15.0 Building Maintenance: Not Applicable

16.0 Sufficiency of the tender

The Contractor shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of his tender for the Works and of the rates and prices of various Quantities and the Schedule of Rates and Prices, if any, except in so for as it is otherwise provided in the Contract, cover all his obligations under the Contract and all matters and things necessary for the proper execution and maintenance of the Works. If, however, during the execution of the Works the Contractor shall encounter physical conditions, other than climatic conditions on the Site, or artificial obstructions, which conditions or obstruction could, in his opinion, not have been reasonable foreseen by an experienced contractor the Contractor shall forthwith give written notice thereof to the representative of Engineer-in-Charge and if in the opinion of the Engineer-in-Charge, such conditions or artificial obstructions could not have been reasonably foreseen by an experienced Contractor, than the Engineer-in-Charge shall certify and the Employer shall pay the additional cost to which the Contractor shall have been put by reason of such conditions, including the proper and reasonable cost. However, the decision of Engineer-in-charge shall be final and binding.

EXECUTIVE DIRECTOR
GWALIOR SMART CITY DEVELOPMENT CORPORATION LIMITED

Bill of Quantities (BOQ)

"Conservation, Retrofitting, MEP and Other Allied and Development Works for Conservation and Adaptive Reuse of Moti Mahal Annexe Historic Building as ICCC, GSCDCL & PDMC Office, Gwalior, Madhya Pradesh, India"

Probable Amount of Contract: (Rs. In Figure): Rs

(Rs. In Words): Rupees

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
1.1.1	Dismantling doors, windows and clere storey windows of area 3 sqm or below (steel or wood), including shutters, chowkhats, architrave, holdfasts,etc. complete and stacking within 50 metres lead	Each	335.00			
1.1.2	Dismantling doors, windows and clearstorey windows of area beyond 3 sqmts (steel or wood), including shutters, chowkhats, architrave, holdfasts,etc. complete and stacking within 50 metres lead	Each	54.00			
1.1.3	Dismantling wooden boardings upto 10 mm thick in linings of walls and partitions excluding supportings members but including stacking within 50 metres lead	Sqm	445.51			
1.1.4	Dismantling alluminium/gypsum partitions, doors,windows, fixed glazing and false ceiling including disposal of unserviceable material within 50 metres lead as directed by Engineer -in- charge	Sqm	143.27			
1.1.5	Dismantling GI Sheet roofing including ridges,hips, valleys and gutters ,etc. and stacking the material between 50 metres lead	Sqm	594.40			
1.1.6	Dismantling Asbestos Sheet roofing including ridges,hips, valleys and gutters ,etc. and stacking the material between 50 metres lead	Sqm	278.15			
1.1.7	Dismantling wood work in frames, trusses, purlins and rafters upto 10 metresof span and 5 metres of height of sectional area 40 square centimetres and above including stacking the material within 50 metres lead	cum	5.21			
1.1.8	Dismantling wood work in frames, trusses, purlins and rafters upto 10 metresof span and 5 metres of height of sectional area below 40 square centimetres including stacking the material within 50 metres lead	metre	120.10			
1.1.9	Extra for dismantling trusses, rafters,purlins etc. of wood work for every additional span of one metre or part thereof beyond 10 metres of sectional area 40 square centimetres and above	cum per metre span	33.94			
1.1.10	Extra for dismantling trusses, rafters,purlins etc. of wood work for every additional span of one metre or part	mt per metre span	90.10			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	thereof beyond 10 metres of sectional area below 40 square centimetres					
1.1.11	Dismantling steel work in built up sections in angles, tees, flats and channels including all gusset plates, bolts, nuts, cutting rivets, welding etc. including dismembering and stacking within 50metres	kg	10,085.45			
1.1.12	Extra for dismantling trusses, rafters, purlins etc of steel work for every additional span of one meter or part thereof beyond 10 metres.	Kg per meter span	1,05,748.20			
1.1.13	Extra for dismantling trusses, rafters, purlins etc of steel work for every additional height of one meter or part thereof beyond 5 metres.	Kg per meter span	43,180.52			
1.1.14	Dismantling steel work in single section of RS joists, channels angles and tees and stacking within 50metres	kg	1,067.96			
1.1.15	Dismantling C.I., asbestos rain water pipe 100 mm diameter with fittings and clamps including stacking the material within 50 metres lead	metre	154.35			
1.1.16	Demolishing brick work in cement mortar manually including stacking of serviceable and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in charge	Cum	103.80			
1.1.17	Demolishing brick work in lime mortar manually including stacking of serviceable and disposal of unserviceable material within 50 metres lead as per direction of Engineer - in charge	Cum	9.57			
1.1.18	Dismantling dressed stone work in lime mortar/ ashlar face stone work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge	Cum	19.85			
1.1.19	Dismantling tile work of thickness 10mm to 25mm in floors and walls laid in cement mortar including stacking material within 50 metres lead.	Sqm	365.10			
1.1.20	Dismantling stone slab flooring laid in lime/cement mortar including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.	Sqm	2,087.77			
1.1.21	Careful dismantling of vinyl sheet/ tiles in floors including stacking material and disposal of debris and other rubbish as per the direction of Engineer-in-Charge /Conservation Architect.	Sqm	95.10			
1.1.22	Careful dismantling of cement plaster or skirting raking out joints and cleaning the surface for plaster including disposal of rubbish to the dumping ground within 50 metres lead as per directions of EIC/ CA	Sqm	523.63			
1.1.23	Careful removal of existing deteriorated/ damaged/ weathered lime plaster without damaging the suurface below it. Workers have to wear helmet,safety belt and safety gloves Methodology: i. Erect scaffolding enabling the safe platform to work ii. Use precise tools like scalpe etc, to remove the	Sqm	8,178.10			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	plaster iii. Take precaution such that surface below the plaster is not damaged.					
1.1.24	Careful dismantling of lime concrete manually and disposal of material within 50 mts lead as per direction of Engineer - in - charge /Conservation Architect.	Cum	89.69			
1.1.25	Careful dismantling of cement concrete, of nominal mix 1:3:6 or richer, manually and disposal of material within 50 mts lead as per direction of Engineer - in - charge /Conservation Architect.	Cum	56.74			
1.1.26	Careful dismantling & stacking of armoured/unarmoured or single core wire of main, submains, circuits in any system of wiring including recoiling as per direction of Engineer-in-Charge /Conservation Architect.	metre	1,200.00			
1.1.27	Careful dismantling & stacking of D.F. Board, D.P. Switch, TP, TPN switch or DB of any size complete with board or angle/ flat iron frame and making site clear including refilling of holes as per direction of Engineer-in-Charge /Conservation Architect.	Each	120.00			
1.1.28	Careful Dismantling, Transporting and handing over the existing passenger lift upto 3 floors or height upto 15 mts including guide rails from Old Building to specified yard as per direction of the Engineer-in-Charge /Conservation Architect.	Each	1.00			
1.1.29	Careful Dismantling C.I. or asbestos rain water pipe with fittings and clamps including stacking the material within 50 metres lead: upto 150 mm dia pipe	metre	120.00			
1.1.30	Careful Dismantling G.I. pipes (external work) including excavation and refilling trenches after taking out the pipes, manually/ by mechanical means including stacking of pipes within 50 metres lead as per direction of Engineer-in-charge: Above 40 mm nominal bore	metre	118.00			
1.1.31	Careful Dismantling C.I. pipes including excavation and refilling trenches after taking out the pipes, manually/ by mechanical means breaking lead caulked joints, melting of lead and making into blocks including stacking of pipes & lead at site within 50 metre lead as per direction of Engineer-in-charge: Above 300 mm diamete	metre	65.00			
1.1.32	Taking out C.I. cover with frame from R.C.C. top slab of inspection chambers of various sizes including demolishing of R.C.C. work manually/ by mechanical means and stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead as per direction of Engineer-in-charge.	Each	12.00			
1.1.33	Dismantling of R.C.C. spun vent shaft including excavating the cement concrete pit completely, taking out the shaft, refilling the excavated gap, stacking the useful materials near the site and disposal of unserviceable materials within 50 metres lead.	Each	4.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
1.1.34	Dismantling of road gully chamber of various sizes including C.I. grating with frame including stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead including refilling the excavated gap.	Each	8.00			
1.1.35	Dismantling of flushing cistern of all types (C.I./PVC/Vitrious China) including stacking of useful materials near the site and disposal of unserviceable materials within 50 metres lead	Each	4.00			
1.1.36	Careful dismantling of wooden false ceiling manually from the double height central space (220 Sqm) including stacking the dismantled wooden panels within 50 mts lead.	Each	1.00			
1.1.37	Demolishing R.B. work manually by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in- charge.	Cum	95.00			
1.1.38	Extra for cutting reinforcement bars manually/ by mechanical means in R.C.C. or R.B. work (Payment shall be made on the cross sectional area of R.C.C. or R.B. work) as per direction of Engineer- in-charge.	Sqm	493.20			
1.1.39	Providing and fixing double scaffolding system (cup lock type) on the exterior side of building/structure, upto 20 metre height, above ground level, including additional rows of scaffolding in stepped manner as per requirement of site, made with 40mm dia M.S. tube, placed 1.5 metre centre to centre, horizontal & vertical tubes joint with cup & lock system with M.S. Tubes, M.S. tube challis, M.S. clamps and staircase system in the scaffolding for working platform etc. and maintaining it in a serviceable condition for execution of work of cleaning and/ or pointing and/ or applying chemical and removing it thereafter. The scaffolding system shall be stiffened with bracings, runners, connecting with the building etc, wherever required, if feasible, for inspection of work at required locations with essential safety features for the workmen etc., complete as per directions and approval of Conservation Architect/ Engineer-in-charge.	Sqm	3,500.00			
1.1.40	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved.	Cum	750.00			
1.2.1	Earth work in excavation by manual means over areas including getting out and disposal of excavated earth lead upto 50 m and lift upto 1.5 m, as directed by Engineer-in-charge.	Cum	32.70			
1.2.2	Providing and laying in position cement concrete 1:2:4 (1 Cement : 2 coarse sand aggregate 40 mm nominal size) excluding	Cum	0.75			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	the cost of centering and shuttering - All work up to plinth level					
1.3.1	Brick work with modular brick of class designation 75 brick work at all levels in lime mortar 1:1:1 (1 lime putty : 1 surkhi: 1 sand) .	Cum	15.65			
1.3.2	Half brick masonry with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure in cement mortar 1:3 (1 cement :3 coarse sand) above plinth level up to floor V level.	Sqm	171.90			
1.3.3	Coursed rubble masonry (first sort) with hard stone in super structure with at all levels in LIME MORTAR 1:3 (1 lime putty : 3 surkhi)	Cum	47.61			
1.4.1	Cleaning by Sandblasting of multiple layers of limewash, algae, other accretions from plain stone surfaces of stone beams, chajjas, stone brackets etc. using high pressure micro-aero-abrasive cleaning systems with necessary equipments, complete in all aspects. Extreme precaution to be undertaken to clean only the external deposits and not damage the stone's natural composition.	Sqm	3,843.43			
1.4.2	Cleaning by sandblasting / manually of multiple layers of lime-wash, from decorative stone surfaces of stone columns, arches etc. using low pressure micro-aero-abrasive cleaning systems with necessary equipments, complete in all aspects as per the directions of art conservator/ conservation architect. Extreme precaution to be undertaken to clean only the external deposits and not damage the stone's natural composition and decorative details.	Sqm	1,485.21			
1.4.3	Structural steel work in single section, fixed with or without connecting plate, including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer all complete.	Kg	9,091.26			
1.4.4	Structural steel workriveted, bolted or welded, in built up sections, trusses and framed work, including cutting, hoisting, fixing In position and applying a priming coat of approved steel primer all complete.	Kg	2,329.99			
1.4.5	Providing and inserting wooden bed plates in seasoned sal wood under I sections in sections of 100mm x 100 mm complete with anti termite treatment	Cum	0.24			
1.4.6	Careful raking of joints in stone masonry of lime or cement mortar and preparing the surface for replastering or pointing including disposal of rubbish at level including all lift and lead as per the direction of Engineer-in-Charge /Conservation Architect. When raking is undertaken in joints of original masonry, great care is to be taken such that the edges and surfaces of the stone are not damaged with the chisel.	Sqm	8,701.73			
1.4.7	Pointing /consolidation of coursed stone masonry / brick masonry (before plastering) and gaps between masonry surfaces ,on a raked surface including cleaning of the surface and applying/	Sqm	8,701.73			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	inserting traditional lime mortar 1:3 (1 Lime : 1 Coarse Sand: 1 Khakha: 1 Surkhi aggregate), up to desired thickness, properly filled and compacted with appropriate tool to fill and cover the opened joints and applyinga single coat of rough lime mortar to make the surface fit for plastering as per the direction of Engineer-in-Charge /Conservation Architect.					
1.4.8	Plastering with Lime Surkhi plaster matching with existing thickness or as specified by engineer-in-charge including preparation of mortar by traditional methods (by pressure mixing in chakki) in two courses of base course and finished course including tamping, beating, curing till the shrinkage cracks disappear. The work is to be done with all leads and lifts, each coat to be done after 3 days of previous coat. Surfaces to be plastered shall be thoroughly cleaned of all dust, grease, oil and loose mortar.Curing to be done for 21 days with help of water spray pump. In proportion 1:3 (1 lime: 1 surkhi: 1 sand) to be based on the site conditions and specifications of Engineer-in-Charge /Conservation Architect.	Sqm	9,136.73			
1.4.9	Providing and fixing sloping chajja stone slab of thickness upto 40-50mm, matching with existing historic stone in size, pattern, color and texture, including pointing in lime mortar 1:2 (1lime putty : 1 surkhi : 1 sand) with an admixture of pigment matching the stone shade , also removing of broken / missing stone chhajas and preparing the surfaces for fixing new stone chhajas , at all levels including all lift and leads as per the direction of Engineer-in-Charge /Conservation Architect.	Sqm	22.00			
1.4.10	Providing 50-60mm thick sand stone patties for roof, placed over I-section(to be paid separately) and covered with lime concreting laid to slope(to be paid separately)	Sqm	494.70			
1.4.11	Replacing cracked stone beams after supporting and carefully removing the existing cracked stone member	Cum	1.80			
1.4.12	Repair and reconstruction of stone railing with metal balustrade as per existing design	Sqm	80.00			
1.4.13	Providing and fixing missing stone brackets of average size 1500mm x.125mmx 500mm under chajjas & balconies as per existing design & material of thickness upto 100mm, matching with existing historic stone in size, pattern, color and texture, including pointing in lime mortar 1:2 (1lime putty : 1 surkhi :1 sand at all levels including all lift and leads as per the direction of Engineer-in-Charge /Conservation Architect.	nos	16.00			
1.4.14	Lime concrete terracing on roofs and upper floors laid to slope in ratio of 1:1 [1 lime mortar {1 lime:1 surkhi:1 coarse sand} : 1 coarse brick aggregate 25 mm nominal size] rammed and finished with gur/seera and belgiri treatment complete	Cum	142.61			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	including rounding of junctions. Ramming to be undertaken with wooden tools including thapis, chapkis and rammers. The finished surface shall be covered with jute bags kept moist, or the surface may be sprinkled with water several times so as to keep it constantly wet for 21 days. All work to be done as per direction of Engineer-in-Charge /Conservation Architect.					
1.4.15	Providing gola 75 x75mm in lime concrete 1:2:4 (1 lime : 2 coarse sand : 4 graded stone ballast 10mm nomonal size) including finishing with lime mortar 1:2 (1 lime : 2 coarse sand) as per the direction of Engineer-in-Charge /Conservation Architect.	Rmt	384.70			
1.4.16	Providing 300 x 300mm size lime concrete khurra laid to slope. Khurra to be prepared as per approved design on three side all complete as per the direction of Engineer-in-Charge /Conservation Architect.	Nos.	42.00			
1.4.17	Repair and re-alignment of existing staicase blocks on both sides of the entrance foyer including cutting of stone beams and providing new stone steps and landing. (supporting wall masonry for the steps and cut stone beams to be paid for separately)	Each	2.00			
1.4.18	Pointing in joints of chajja slabs with lime mortar matching the colour of the chajja stone	Rmt	744.00			
1.4.19	Repair of ornamental gumbad over parapet walls including raking, pointing and re-plastering with lime mortar	Nos	15.00			
1.5.1	Laying 40-50mm stone slabs in plinth protection over a bed 20mm thick lime mortar 1:4 over 150mm thick layer of brick aggregates of 25-30mm properly rammed and well compacted earth cut to slope including pointing and finishing the top surface smooth and providing adequate slope as per direction of Engineer-in-Charge /Conservation Architect.	Sqm	108.48			
1.5.2	Providing, filling and ramming dry brick ballast 20-40mm nominal size under plinth protection including ramming, consolidation and dressing complete as per direction of Engineer-in-Charge /Conservation Architect.	Cum	21.50			
1.5.3	Site screening for conservation works upto first floor height	Each	1.00			
2.1.1	Steel work in built up tubular in rectangular hollow tubes etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete in Electric resistance or induction butt welded tubes	Kg	11,532.72			
2.1.2	Providing, fixing and welding of Stainless Steel D fan hooks screwed to the top side of the steel tubular channel complete with screw and washer	Each	254.00			
2.1.3	Providing and hoisting of 5mm dia tensile Mild Steel wire attached to D hooks on	Kg	304.80			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	tubular framed structure and existing ceiling hooks complete including SS thimble eye rope fitting and SS end sleeve					
2.1.4	Providing and fixing in position of 5mm dia Aluminium Ferrules to the wire assembly complete with crimping	Each	254.00			
2.1.5	Providing and fixing in position of 5mm dia SS Thimble Eye to the wire assembly,	Each	254.00			
2.1.6	Finishing with Epoxy paint (two or more coats) at all locations prepared and applied as per manufacturer's specifications including appropriate priming coat, preparation of surface, etc. complete On steel work	Sq.m	122.85			
2.2.1	Supplying and fixing of rigid steel conduit ISI marked alongwith the accessories on surface including painting etc. as required in HG Conduit 20mm, Wall thickness 1.6mm (on walls and celieng cahnnel)	meter	3,071.30			
2.2.2	Add extra for supply of 20mm Junction Box, one way (metal)	100 Nos	5.08			
2.2.3	Add extra for supply of 20mm Junction Box, two way (metal)	100 Nos	2.54			
2.2.4	Supplying and fixing of rigid steel conduit ISI marked alongwith the accessories in concealed system including painting etc. as required in HG Conduit 20mm, Wall thickness 1.6mm (for concealed in floors)	meter	364.00			
2.3.1	Providing and fixing G.I. Pipes complete with G.I. fittings and clamps, i/c making good the walls etc. concealed pipe, including painting with anti corrosive bitumastic paint, cutting chases and making good the wall in 15 mm dia nominal bore (for concealed internal water supply)	meter	183.00			
2.3.2	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc. in 20 mm dia nominal bore (for inlet from OHT to service area)	meter	228.00			
2.3.3	Providing and fixing G.I. pipes complete with G.I. fittings including trenching and refilling etc. in 32 mm dia nominal bore (from municipal source to UGT)	meter	149.00			
2.3.4	Making connection of G.I. distribution branch with G.I. main of following sizes by providing and fixing tee, including cutting and threading the pipe etc. complete in 32 mm dia nominal bore (from municipal source to UGT)	meter	71.00			
2.3.5	Fixing water meter and stop cock in G.I. pipe line including cutting and threading the pipe and making long screws etc. complete (cost of water meter and stop cock to be paid separately) (from municipal source to UGT)	Each	1.00			
2.3.6	Providing and fixing G.I. pipes complete with G.I. fittings and clamps, i/c cutting and making good the walls etc. in 40 mm dia nominal bore (from UGT to OHT)	meter	41.00			
2.3.7	Providing and fitting of ISI marked triple layer 100 % UV stabilzed PVC/FRP roof top water storage tank of 2000 Ltrs with minimum 53 inch dia, height less than 50 inches complete with brick masonry	Each	5.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	platform in CM (1:6) and all fittings and fixtures					
2.3.8	Providing and fitting of ISI marked PVC/FRP underground water storage tank of 10000 Ltrs with minimum manhole size less than 550 mm complete with all lining and earthwork	Each	1.00			
2.3.9	Cutting holes up to 15x15 cm in floors and roofs for passing pipe etc. and repairing the hole after insertion of pipe etc. with cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), including finishing complete so as to make it leak proof.	Each	10.00			
2.4.1	Providing and fixing G.I. Pipes complete with G.I. fittings and clamps, i/c making good the walls etc. concealed pipe, including painting with anti corrosive bitumastic paint, cutting chases and making good the wall in 40 mm dia nominal bore (for internal waste water)	meter	135.00			
2.4.2	Providing, laying and jointing of LA Class socket and spigot cast iron (spun) pipes including testing of joints, cost of pipes and jointing materials, etc. complete of 80mm dia (on vertical surface)	meter	380.00			
2.4.3	Providing, laying and jointing of LA Class socket and spigot cast iron (spun) pipes including testing of joints, cost of pipes and jointing materials, etc. complete of 80mm dia (on vertical surface)	meter	100.00			
2.4.4	Providing, laying and jointing of LA Class socket and spigot cast iron (spun) pipes including testing of joints, cost of pipes and jointing materials, etc. complete of 150mm dia (chamber to chamber)	meter	110.00			
2.4.5	Providing and fixing square-mouth S.W. gully trap class SP-1 complete with C.I. grating brick masonry chamber with water tight C.I. cover with frame of 300 x300 mm size (inside) the weight of cover to be not less than 4.50 kg and frame to be not less than 2.70 kg as per standard design in 100x100 mm size P type With Sewer bricks conforming to IS : 4885	Each	24.00			
2.4.6	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design: Inside size 90x80 cm and 45 cm deep including C.I. cover with frame (light duty) 455x610 mm internal dimensions, total weight of cover and frame to be not less than 38 kg (weight of cover 23 kg and weight of frame	Each	24.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	15 kg): With Sewer bricks conforming to IS : 4885					
2.4.7	Constructing brick masonry manhole in cement mortar 1:4 (1 cement : 4 coarse sand) with R.C.C. top slab with 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size), foundation concrete 1:4:8 mix (1 cement : 4 coarse sand : 8 graded stone aggregate 40 mm nominal size), inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with floating coat of neat cement and making channels in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finished with a floating coat of neat cement complete as per standard design: Inside size 120x90 cm and 90 cm deep including C.I. cover with frame (medium duty) 500 mm internal diameter, total weight of cover and frame to be not less than 116 kg (weight of cover 58 kg and weight of frame 58 kg) : With Sewer bricks conforming to IS : 4885	Each	15.00			
2.5.1	Providing general disinfection services, spraying of insecticide and pesticide inside and outside the building (flies, bedbugs, lizards, cockroaches, spiders caterpillars etc., including cost of materials labour lead lift, hire charges of equipments etc., complete. (for all areas on top surface of existing lime concrete)	Sq.m	2,600.00			
2.5.2	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. (for toilets)	Sq.m	195.00			
2.5.3	Providing and laying of Brick Bats	Cu.m	29.25			
2.5.4	Providing and laying of Cement mortar 1:6 (1 cement : 6 fine sand).	Cu.m	3.90			
2.5.5	Providing and laying of Cement mortar 1:6 (1 cement : 6 coarse sand).	Cu.m	3.90			
2.5.6	Providing and Laying Needle punched and mechanically bonded Nonwoven Geotextile indigenously manufactured from high quality synthetic fibres on the prepared subgrade for separator cum filtration cum drainage application with necessary overlaps as per drawing with GSM 150,1.3mm thickness,Grabtensile strength 540N, Puncture strength 315N,Trapezoidal tear 230N,Apparent opening size 180 µm,	Sq,m	672.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
2.5.7	Providing and laying of sand bed (1.5mm to 2.0mm)	Cu.m	15.00			
2.5.8	Providing and laying of high compression hand made cement based tiles of heritage revival type 200x200mm size and 20-25mm thk in specified colors and patterns to be laid in spaces/rooms as specified by the architect in cement mortar 1.5 to 3.5 cm sand cement bed mortar of 36 grade cement of ratio not leaner than 7:1 with neat cement slurry on top of approved thickness. Joints should be fine as possible and filled with mathcing cement mortar as directed by the architect. Joints to be filled by a grouting mixture provided by manufacturer. Rates to be inclusive of of tile, storage, handling, delivery on site, laying as well as cutting required for introdcution of square tile inserts, wastage, and subsequent cutting, curing, polishing as specified by manufacturer etc complete. Poishing recommended by manufacturer is with italian polish machine using no 1 polish stones.	Sq,m	718.00			
2.5.9	Providing and laying of high compression hand made cement based tile border of heritage revival type 200x100mm size and 20-25mm thk in specified colors and patterns to be laid in spaces/rooms as specified by the architect in cement mortar 1.5 to 3.5 cm sand cement bed mortar of 36 grade cement of ratio not leaner than 7:1 with neat cement slurry on top of approved thickness. Joints should be fine as possible and filled with mathcing cement mortar as directed by the architect. Joints to be filled by a grouting mixture provided by manufacturer. Rates to be inclusive of of tile, storage, handling, delivery on site, laying as well as cutting required for introdcution of square tile inserts, wastage, and subsequent cutting, curing, polishing as specified by manufacturer etc complete. Poishing recommended by manufacturer is with italian polish machine using no 1 polish stones.	R.m	1,235.00			
2.5.10	Providing and laying of high compression hand made cement based hexagonal Terrazo Tiles of heritage revival type 200x200mm outside dimension size and 20-25mm thk in specified colors and patterns to be laid in spaces/rooms as specified by the architect in cement mortar 1.5 to 3.5 cm sand cement bed mortar of 36 grade cement of ratio not leaner than 7:1 with neat cement slurry on top of approved thickness. Joints should be fine as possible and filled with mathcing cement mortar as directed by the architect. Joints to be filled by a grouting mixture provided by manufacturer. Rates to be inclusive of of tile, storage, handling, delivery on site, laying as well as cutting required for introdcution of square tile inserts, wastage, and subsequent cutting, curing, polishing as specified by manufacturer etc complete. Poishing recommended by manufacturer is with	Sq,m	360.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	italian polish machine using no 1 polish stones. (in toilets)					
2.5.11	Providing and laying brick tiles over mumty roofs, grouted with cement mortar 1:3 (1 cement : 3 fine sand) mixed with 2% of integral water proofing compound by weight of cement, over 12 mm layer of cement mortar 1:3 (1 cement : 3 fine sand) and finished neat	Sq,m	380.00			
2.6.1	Providing wood work in frames of doors, windows, clerestory windows and other frames, wrought framed and fixed in position with hold fast lugs or with dash fasteners of required dia & length (hold fast lugs or dash fastener shall be paid for separately). in Second class teak wood	Cu.m	17.05			
2.6.2	Extra for additional labour for circular works, such as in frames of fan light in Second class teak wood	Cu.m	0.50			
2.6.3	Providing and fixing panelled or panelled and glazed shutters for doors, windows and clerestory windows, including ISI marked M.S. pressed butt hinges bright finished of required size with necessary screws, excluding panelling which will be paid for separately, all complete as per direction of Engineer-in-charge in Second class teak wood of 35 mm thick shutters	Cu.m	25.21			
2.6.4	Providing and fixing panelling or panelling and glazing in panelled or panelled and glazed shutters for doors, windows and clerestory windows (Area of opening for panel inserts excluding portion inside grooves or rebates to be measured). Panelling for panelled or panelled and glazed shutters 25 mm to 40 mm thick					
2.6.4.1	Second class teak wood	Sq,m	102.80			
2.6.4.2	Toughened glass 12 mm thickness	Sq,m	382.27			
2.6.5	Extra for providing frosted glass panes 4 mm thick instead of ordinary float glass panes 4 mm thick in doors, windows and clerestory window shutters. (Area of opening for glass panes excluding portion inside rebate shall be measured).	Sq,m	16.47			
2.6.6	Providing and fixing ISI marked flush door shutters conforming to IS : 2202 (Part I) decorative type, core of block board construction with frame of 1st class hard wood and well matched teak 3 ply veneering with vertical grains or cross bands and face veneers on both faces of shutters in 35 mm thick including ISI marked Stainless Steel butt hinges with necessary screws	Sq,m	22.57			
2.6.7	Extra for providing lipping with 2nd class teak wood battens 25 mm minimum depth on all edges of flush door shutters (over all area of door shutter to be measured).	Sq,m	22.57			
2.6.8	Extra for cutting rebate in flush door shutters (Total area of the shutter to be measured).	Sq,m	22.57			
2.6.9	Providing 50x50x50 mm 2nd class teak wood plugs including cutting brick work and fixing in lime mortar 1:3 (1 lime : 3 fine sand) and making good the walls etc.	Each	523.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
2.6.10	Providing and fixing expandable fasteners of specified size with necessary plastic sleeves and galvanised M.S. screws including drilling holes in masonry work /CC/ R.C.C./Stone Walls and making good etc. complete. 40mm long	Each	523.00			
2.6.11	Providing and fixing 2nd class teak wood plain lining tongued and grooved, including wooden plugs complete with necessary screws and priming coat on unexposed surface of 25mm thick	Sq,m	82.00			
2.6.12	Providing and fixing wooden moulded beading to door and window frames with iron screws, plugs and priming coat on unexposed surface etc. complete in second class teak wood of 50x12 mm	meter	4,280.64			
2.6.13	Providing and fixing plain jaffri of 35x10 mm laths placed 35 mm apart (frames to be paid separately), including fixing 50x12 mm beading complete with in Second class teak wood	Sq,m	46.00			
2.6.14	Providing and fixing M.S. grills of required pattern in frames of windows etc. with M.S. flats, square or round bars etc. including priming coat with approved steel primer all complete Fixed to openings /wooden frames with rawl plugs screws etc.	Kg	275.00			
2.6.15	Providing and fixing ISI marked oxidised M.S. single acting spring hinges with necessary screws etc. complete (COPPER OXIDISED AS PER IS: 1378) of 150 mm	Each	789.00			
2.6.16	Providing and fixing bright finished brass 100 mm mortice latch and lock with 6 levers and a pair of lever handles of approved quality with necessary screws etc. complete.	Each	50.00			
2.6.17	Providing and fixing bright finished brass casement stays (straight peg type) with necessary screws etc. complete :	Each	168.00			
2.6.18	Providing and fixing bright finished brass handles with screws etc. complete of 125 mm	Each	168.00			
2.6.19	Providing and fixing bright finished brass hasp and staple (safety type) with necessary screws etc. complete of 150 mm	Each	20.00			
2.6.20	Providing and fixing bright finished brass tower bolts (barrel type) with necessary screws etc. complete of 200x10 mm	Each	98.00			
2.6.21	Providing and fixing fire resistant door frame of section 143 x 57 mm having built in rebate made out of 16 SWG G.I. sheet (zinc coating not less than 120 gm/sqm) duly filled with vermuculite based concrete mix, suitable for mounting 60 minutes fire rated door shutters. The frame is fitted with intumuscent fire seal strip of size 10x4 mm (minimum) alround the frame and fixing with dash fastener of approved size and make, including applying a coat of approved brand fire resistant primer etc. complete as per direction of Engineer-in-charge (Dash fastener to be paid for separately).	meter	13.84			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
2.6.22	Providing and fixing 50 mm thick glazed fire resistant door shutters of 60 minutes fire rating conforming to IS:3614 (Part-II), tested and certified as per laboratory approved by Engineer-in-charge, with suitable mounting on door frame, consisting of vertical styles, lock rail, top rail 100 mm wide, bottom rail 200 mm wide, made out of 16 SWG G.I.sheet (zinc coating not less than 120 gm/m2) duly filled FR insulation material and fixing with necessary stainless steel ball bearing hinges of approved make, including applying a coat of approved fire resistant primer etc. all complete as per direction of Engineer-in-charge (panneling to be paid for separately).	Sq,m	9.12			
2.6.23	Providing and fixing glazing in fire resistant door shutters, fixed panels, ventilators and partitions etc., with G.I. beading of appropriate size, made out of 20 SWG G.I.sheet (zinc coating not less than 120 gm/m2), fire resistant sealant, including applying a coat of approved fire resistant primer on G.I. beading etc., complete all as per direction of Engineer-incharge. With clear fire resistant glass panes 6mm thick of approved brand, having minimum 60 minutes fire resistance	Sq,m	4.50			
2.6.24	Providing and fixing panic bar / latch (Double point) fitted with a single body, Trim Latch & Lock on back side of the Panic Latch of reputed brand and manufacture to be approved by the Engineer- in- charge, all complete.	Each	3.00			
2.6.25	Providing, fixing, installation, teting and commissioing of Automatic Glazed Door: Biparting frameless 12mm tempered and laminated glass door with top hung sliding rail; smooth and silent operations with DC brushless motor complete with all sensors, multifunction controller, emergency battery, complete with all fixtures, fittings, equipment, etc. Supply and installation as per specifications	Sq.m	11.34			
2.6.26	Providing and fixing factory made uPVC white colour casement/ Casement cum fixed glazed door comprising of uPVC multichambered frame, sash and mullion (where ever required) extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), uPVC extruded glazing beads of appropriate dimension, EPDM gasket, zinc alloy (white powder coated) 3D hinges and one handle on each side of panels along with zinc plated mild steel multi point locking having transmission gear, cylinder with keeps and one side key, G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws, etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, mullion (if required) shall be also fusion welded including drilling of holes for	Sq.m	32.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealent over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes and silicon sealent shall be paid separately). Note: For uPVC frame, sash and mullion extruded profiles minus 5% tolerance in dimension i.e. in depth & width of profile shall be acceptable. Casement door with top hung ventilator with 3D and S.S. friction hinges (400 x 19 x 1.9 mm) made of (big series) frame 67 x 64 mm, sash 67 x 110 mm & mullion 67 x 80 mm all having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension.(Area of door upto 2.50 sqm					
2.6.27	Providing and fixing factory made uPVC white colour sliding glazed door comprising of uPVC multi-chambered frame with in-built roller track and sash extruded profiles duly reinforced with 1.60 ± 0.2 mm thick galvanized mild steel section made from roll forming process of required length (shape & size according to uPVC profile), appropriate dimension uPVC extruded glazing beads, uPVC extruded interlock and uPVC extruded Inline sash adaptor (if required), EPDM gasket, wool pile, zinc alloy (white powder coated) handle with key on one side of extreme panels along with zinc plated mild steel multi point locking having transmission gear with keeps, zinc alloy (white powder coated) cresent lock (if required), stainless steel (SS 304 grade) body with adjustable double nylon rollers (weight bearing capacity to be 120 kg), G.I fasteners 100 x 8 mm size for fixing frame to finished wall and necessary stainless steel screws etc. Profile of frame & sash shall be mitred cut and fusion welded at all corners, including drilling of holes for fixing hardware's and drainage of water etc. After fixing frame the gap between frame and adjacent finished wall shall be filled with weather proof silicon sealent over backer rod of required size and of approved quality, all complete as per approved drawing & direction of Engineer-in-Charge. (Single / double glass panes, wire mesh and silicon sealent shall be paid separately). Note: For uPVC frame and sash extruded profiles minus 5% tolerance in dimension i.e. in depth & width of profile shall be acceptable. Two track four panels sliding door made of (big series) frame 67 x 50 mm & sash 46 x 82 mm both having wall thickness of 2.3 ± 0.2 mm and single glazing bead / double glazing bead of appropriate dimension. (Area of door above 8.00 sqm upto 10.00 sqm).	Sq.m	10.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
2.6.28	Supply and fixing of chromium plated MS turn latch/baby latch to be fixed on partitions of bathroom	Each	17.00			
2.6.29	Providing and fixing 12 mm thick frameless toughened glass door shutter of approved brand and manufacture, including providing and fixing top & bottom pivot & spring type fixing arrangement and making necessary holes etc. for fixing required door fittings, all complete as per direction of Engineer-in-charge (Door handle, lock and stopper etc.to be paid separately).	Sq.m	63.84			
2.7.1	Steel work in 50mm x 50mm (for normal partitions) and 100mm x 100mm (for CCC Screen Walls) built up tubular (round, square or rectangular hollow tubes etc.) trusses etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete in Electric resistance or induction butt welded tubes grouted and bolted to the floor	Kg	3,850.00			
2.7.2	Providing and Fixing of Cement Bonded Fibre Boards of appropiate make of 19mm thickness as partition walls on both sides of the steel framework complete with all screwing, tucking etc.	Sq,m	270.00			
2.8.1	Providing and fixing white vitreous china wall mounted type water closet (European type W.C. pan) with S trap, seat and lid, 10 litre low level white flushing cistern, including flush pipe, with manually controlled device (handle lever), conforming to IS : 7231, with all fittings and fixtures complete, including cutting and making good the walls and floors wherever required	Each	17.00			
2.8.2	Providing and fixing CP brass toilet paper holder	Each	17.00			
2.8.3	Providing and fixing CP brass powerjet faucet complete with PVC pipe, holder and fittings	Each	17.00			
2.8.4	Providing and fixing of C.P. brass trap 40 mm dia	Each	17.00			
2.8.5	Providing and fixing CP brass valve cock	Each	17.00			
2.8.6	Providing and fixing vitreous china below counter wash basin of 550mm x 400mm with C.I. brackets, including painting of fittings and brackets, cutting and making good the walls wherever require	Each	15.00			
2.8.7	Providing and fixing of CP Brass Bottle trap 38 mm single piece moulded with height of 270 mm, effective length of tail pipe 260 mm from the centre of the waste coupling, 77 mm breadth with 25 mm minimum water seal, weighing not less than 263 gms complete with SS disposal pipes	Each	15.00			
2.8.8	Providing and fixing of C.P. brass trap 40 mm dia	Each	15.00			
2.8.9	Providing and fixing of C.P. brass tower tap	Each	15.00			
2.8.10	Providing and fixing of C.P. brass waste coupling	Each	15.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
2.8.11	Providing and fixing of C.P. brass towel ring	Each	15.00			
2.8.12	Providing and fixing of C.P. brass and opaque glass round soap holder	Each	15.00			
2.8.13	Providing and fixing of C.P. brass and opaque glass tumbler holder	Each	15.00			
2.8.14	Providing and fixing CP brass valve cock	Each	15.00			
2.8.15	Providing and fixing beveled edge mirror of superior glass (of approved quality) complete with 6 mm thick hard board ground fixed to wooden cleats with C.P. brass screws and washers complete.	Sq.m	24.00			
2.8.16	Providing and fixing Stainless Steel A ISI 304 (18/8) kitchen sink with drainboard of 510x1040 mm bowl depth 250 mm as per IS: 13983 with C.I. brackets and stainless steel plug 40 mm, including painting of fittings and brackets, cutting and making good the walls wherever required complete with drainer, pillar faucet, bottle trap	Each	2.00			
2.8.17	Providing and fixing of C.P. brass trap 40 mm dia	Each	2.00			
2.8.18	Providing and fixing CP brass valve cock	Each	2.00			
2.8.19	Providing and fixing CP brass valve cock	Each	2.00			
2.8.20	Providing and fixing of frameless mounted shower console in float glass with approved tint fixed to the walls and floors complete with CP brass glass clips, glass doors, wterproof beading, floor mounted hinges, etc. as/design	Sq.m	12.00			
2.8.21	Providing and fixing uPVC/GRP shower tray in situ as per design and specifications	Sq.m	6.40			
2.8.22	Providing and fixing of C.P. brass trap 40 mm dia	Each	3.00			
2.8.23	Providing and fixing of overhead CP Brass double flow shower	Each	3.00			
2.8.24	Providing and fixing of three way CP Brass wall mixer faucet and controller console with bib cock and teleephone faucet	Each	3.00			
2.8.25	Providing and fixing of two way CP Brass wall mixer bib cock	Each	3.00			
2.8.26	Providing and fixing of 600 mm CP Brass Towel rack with towel rail	Each	3.00			
2.8.27	Providing and fixing of C.P. brass and opaque glass rectangular soap holder	Each	3.00			
2.8.28	Providing and fixing of C.P. brass apparel hook	Each	3.00			
2.8.29	Providing and fixing PTMT angle stop cock 20mm nominal bore,weighing not less than 85gms	Each	28.00			
2.8.30	Providing and fixing PTMT extension nipple of 20 mm nominal bore, weighing not less than 40 gms for water tank pipe, fittings of approved quality and colour	Each	28.00			
2.8.31	Providing and laying Ceramic glazed floor tiles of size 300x300 mm (thickness to be specified by the manufacturer) of 1st quality conforming to IS : 15622 of approved make in approved colours laid on 20 mm thick cement mortar 1:4 (1 Cement : 4 Coarse sand), including	Sq.m	160.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	pointing the joints with white cement and matching pigment etc, complete.					
2.8.32	Providing and fixing 18 mm thick gang saw cut, mirror polished, premoulded and prepolished, machine cut Granite of any colour and shade for kitchen platforms, vanity counters, window sills, facias and similar locations of required size, approved shade, colour and texture laid over 20 mm thick base cement mortar 1:4 (1 cement : 4 coarse sand), joints treated with white cement, mixed with matching pigment, epoxy touch ups, including rubbing, curing, moulding and polishing to edges to give high gloss finish etc. complete at all levels.	Sq.m	32.00			
2.8.33	Providing edge moulding to 18 mm thick granite stone counters, Vanities etc., including machine polishing to edge to give high gloss finish etc. complete as per design approved	meter	54.00			
2.8.34	Extra for fixing granite stone, over and above corresponding basic item, in facia and drops of width upto 150 mm with epoxy resin based adhesive, including cleaning etc. complete.	meter	54.00			
2.8.35	Extra for providing opening of required size & shape for wash basin/ kitchen sink in kitchen platform, vanity counter and similar location in Granite work, including necessary holes for pillar taps etc. including moulding, rubbing and polishing of cut edges etc. complete	Each	2.00			
2.8.36	Providing and fixing Stainless steel cramps of required size & shape in RCC/ CC / Brick masonry backing with cement mortar 1:2 (1 cement :2 coarse sand), including drilling necessary hole in stones and embedding the cramp in the hole (fastener to be paid separately)	Each	4.00			
2.8.37	Providing and fixing hold fastener with threaded dia 12 mm on C.C. /R.C.C./Brick masonry surface backing including drilling necessary holes and the cost of bolt etc complete.	Each	4.00			
2.8.38	Providing and fixing Stainless steel cramps of required size & shape in RCC/ CC / Brick masonry backing with cement mortar 1:2 (1 cement :2 coarse sand), including drilling necessary hole in stones and embedding the cramp in the hole (fastener to be paid separately)	Each	4.00			
2.8.39	Providing and fixing white vitreous china flat back half stall urinal of size 580x380x350 mm with white PVC automatic flushing cistern, with fittings, standard size C.P. brass flush pipe, spreaders with unions and clamps (all in C.P. brass) with waste fitting as per IS : 2556, C.I. trap with outlet grating and other couplings in C.P. brass, including painting of fittings and cutting and making good the walls and floors wherever required : Single half stall urinal with 5 litre P.V.C. automatic flushing cistern	Each	6.00			
2.8.40	Providing and fixing of SS Urinal divider panel 12 to 18 mm	Each	8.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
2.8.41	Toilet partitions matt finish decorative high pressure laminated board panelled and fixed to SS framework complete with all SS clamps and fittings	Sq.m	58.00			
2.9.1	Providing and applying of Vapour Permeable Interior Lime Based paint, superior stone finish for interior, formulated by Pure Lime plaster with selected marble granules, After the cleaning of surface and removing any loose or flaking materials, applying one coat of quartz primer followed by two coat of Lime plaster based finish in approved color and shade and finishing with one coat of mature lime Coating followed by protection coat to achieve desired finish, excluding the cost of surface preparation and scaffolding, apply by special trowel and appropriate tools, all complete as per manufacturer's specification with the direction of Engineer-in-Charge.	Sq.m	7,145.00			
2.9.2	Providing and applying of Eco Friendly Water Based Exterior Texture Paint, formulated with siloxanic resin and quartz powder with a maximum grain size of 0.3mm, having UV resistant, Anti-fungal, Antimould, Anti-algal, water repellent and vapor permeabial properties, suitable for green building application applied one or two coat of siloxanic base texture paint on one coat of appropriate exterior primer of approved color and shade to achieve desired finish on smooth putty surface but approved color and shade to achieve desired finish on smooth putty surface but excluding the cost of surface preparation with putty and scaffolding apply by brush, roller, trowel and spray gun, as per manufacturer specification with the direction of Engineer-in-Charge.	Sq.m	1,163.00			
2.9.3	Two or more coats of French spirit polishing on new works including a coat of wood filler	Sq.m	96.00			
2.9.4	Painting with synthetic enamel paint of approved brand and manufacture to give an even shade : Two or more coats on new work on steel and metal works	Sq.m	52.00			
3.1.1	Wiring for light point/ fan point/ exhaust fan point/ call bell point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed steel conduit, with modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable etc. as required. (from source to SB)					
3.1.1.1	Group A	Each	185.00			
3.1.1.2	Group B	Each	308.00			
3.1.1.3	Group C	Each	740.00			
3.1.2	Wiring for twin control light point with 1.5 sq.mm FRLS PVC insulated copper conductor single core cable in surface / recessed steel conduit, 2 way modular switch, modular plate, suitable GI box and earthing the point with 1.5 sq.mm FRLS PVC insulated copper conductor single	Each	20.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	core cable etc. as required. (from source to SB)					
3.1.3	Wiring for light/ power plug with 4X4 sq. mm FRLS PVC insulated copper conductor single core cable in surface/ recessed steel conduit alongwith 2 Nos. 4 sq. mm FRLS PVC insulated copper conductor single core cable for loop earthing as required. (from source to SB)	meter	3,280.00			
3.1.4	Supplying and drawing following pair 0.5 mm dia FRLS PVC insulated annealed copper conductor, unarmored telephone cable in the existing surface/ recessed steel/ PVC conduit as required in 4 Pair (from source Telephone points)	meter	150.00			
3.1.5	Supplying and drawing co-axial TV cable RG-6 grade, 0.7 mm solid copper conductor PE insulated, shielded with fine tinned copper braid and protected with PVC sheath in the existing surface/ recessed steel/ PVC conduit as required. (from source to TV points)	meter	150.00			
3.1.6	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required in 3 x 2.5 sq. mm (from SPNDB to Switch Boards)	meter	1,640.00			
3.1.6	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required in 3 x 4 sq. mm from VTPNDB to SPNDB)	meter	820.00			
3.1.7	Supplying and drawing following sizes of FRLS PVC insulated copper conductor, single core cable in the existing surface/ recessed steel/ PVC conduit as required in 3 x 6 sq. mm from VTPNDB to SPNDB)	meter	410.00			
3.1.8	Supplying and fixing PVC unbreakeable high impact surface mounted modular boxes with metal threaded inserts of following sizes (nominal size):					
3.1.8.1	85mm x 85mm x 40mm (for 1 and 2 modules)	Each	2.00			
3.1.8.2	85mm x 145mm x 40mm (for 4 modules)	Each	70.00			
3.1.8.3	85mm x 248mm x 40mm (for 8 modules)	Each	132.00			
3.1.8.4	153mm x 214mm x 40mm (for 12 modules)	Each	9.00			
3.1.9	Supplying and fixing following Modular base & cover plate on existing modular metal boxes etc. as required.					
3.1.9.1	1 or 2 Module	Each	2.00			
3.1.9.2	4 Module	Each	70.00			
3.1.9.3	8 Module	Each	132.00			
3.1.9.4	12 Module	Each	9.00			
3.1.10	Supplying and fixing following modular switch/ socket on the existing modular plate & switch box including connections but excluding modular plate etc. as required.					
3.1.10.1	5/6 A switch	Each	781.00			
3.1.10.2	2 way 5/6 A switch	Each	40.00			
3.1.10.3	15/16 A switch	Each	48.00			
3.1.10.4	3 pin 5/6 A socket outlet	Each	280.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
3.1.10.5	6 pin 15/16 A socket outlet	Each	48.00			
3.1.10.5	Telephone socket outlet	Each	35.00			
3.1.10.5	TV antenna socket outlet	Each	8.00			
3.1.10.5	Bell push	Each	8.00			
3.1.11	Supplying and fixing two module stepped type electronic fan regulator on the existing modular plate switch box including connections but excluding modular plate etc. as required.	Each	16.00			
3.1.12	Supplying and fixing modular blanking plate on the existing modular plate & switch box excluding modular plate as required.	Each	100.00			
3.1.13	Supplying and fixing 3 pin, 5 A ceiling rose on the existing junction box/ wooden block including connections etc. as required.	Each	16.00			
3.1.14	Installation, testing and commissioning of wall bracket /ceiling fittings of all sizes and shapes containing upto two GLS/CFL/ LED lamps per fitting, complete with all accessories including connections etc. as required.	Each	98.00			
3.1.15	Supplying and fixing call bell/ buzzer suitable for single phase, 230 V, complete as required.	Each	8.00			
3.1.16	Providing and fixing plain 16/0.20 mm (0.50 sq.mm) twin flat flexible, FRLS PVC insulated, copper conductor cable, in PVC sleeve of suitable size on the floor/ wall, or side of the table/ door etc. as required	meter	160.00			
3.1.17	Installation, testing and commissioning of pre-wired, fluorescent fitting / compact fluorescent fitting of all types, complete with all accessories and tube/lamp etc. directly on ceiling/ wall, including connections with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable and earthing etc. as required.	Each	32.00			
3.1.18	Installation, testing and commissioning of ceiling fan, including wiring the down rods of standard length (upto 30 cm) with 1.5 sq. mm FRLS PVC insulated, copper conductor, single core cable etc. as required.	Each	16.00			
3.1.19	Installation of exhaust fan in the existing opening, including making good the damage, connection, testing, commissioning etc. as required. Upto 450 mm sweep	Each	9.00			
3.1.20	Extra for fixing the louvers/ shutters complete with frame for a exhaust fan of all sizes.	Each	9.00			
3.1.21	Supplying and drawing of UTP 4 pair CAT 6 LAN Cable in the existing surface/ recessed Steel/ PVC conduit as required. 3 run of cable	meter	250.00			
3.1.22	Supplying and fixing following way, single pole and neutral, sheet steel, MCB distribution board, 240 V, on surface/ recess, complete with tinned copper bus bar, neutral bus bar, earth bar, din bar, interconnections, powder painted including earthing etc. as required. (But without MCB/RCCB/Isolator) 12 way, Double door (for SPNDB)	Each	10.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
3.1.23	Supplying and fixing 5 A to 32 A rating, 240/415 V, 10 kA, “C” curve, miniature circuit breaker suitable for inductive load of following poles in the existing MCB DB complete with connections, testing and commissioning etc. as required. Single pole and neutral (inside SPNDB)	Each	120.00			
3.1.24	Supplying and fixing following rating, double pole, 240 V, isolator in the existing MCB DB complete with connections, testing and commissioning etc. as required. of 63A (inside SPNDB)	Each	10.00			
3.1.25	Supplying and fixing of following ways surface/ recess mounting, vertical type, 415 V, TPN MCB distribution board of sheet steel, dust protected, duly powder painted, inclusive of 200 A, tinned copper bus bar, common neutral link, earth bar, din bar for mounting MCBs (but without MCBs and incomer) as required. (Note : Vertical type MCB TPDB is normally used where 3 phase outlets are required.) 4 way (4 + 12), Double door (for VTPNDB)	Each	4.00			
3.1.26	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required. 125 A, 16 kA,TPMCCB (inside VTPNDB)	Each	4.00			
3.1.27	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required. 100 A, 16 kA,TPMCCB (inside VTPNDB)	Each	8.00			
3.1.28	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required. 250 A, 25 kA,TPMCCB (inside VTPNDB)	Each	4.00			
3.1.29	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 1.1 kV grade of following size in the existing RCC/ HUME/ METAL pipe as required of 240 sq.mm (from Main Busbar to VTPNDB)	meter	110.00			
3.1.30	Supplying HDPE pipes conforming to IS 4984:1995 with latest amendments and conveying to work site including loading and unloading at both destination and rolling, lowering into trenches, laying true to line and jointing of pipes and specials (excluding cost of specials) of 90mm dia of PN16 grade (from Main Busbar to VTPNDB)	meter	110.00			
3.1.31	Supplying, installation, testing & commisioning of following capacity Plug In/ tap off box on the existing Air Insulated Compact Type bus trunking/ rising mains for use on 3 phase 4 wire 415 V, 50Hz A.C. supply made with 1.6mm thick sheet steel enclosure (IP54) duly powder coated with provision of MCCB (but without	Each	1.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	MCCB) complete etc. as required 630 A, Isc = 50 kA for 1 second (Main Busbar Panel)					
3.1.32	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required (Main Busbar Panel)					
3.1.32.1	250 A, 35 kA, TPMCCB	Each	1.00			
3.1.32.2	150 A, 16 kA,TPMCCB	Each	1.00			
3.1.32.3	125 A, 16 kA,TPMCCB	Each	1.00			
3.1.32.4	100 A, 16 kA,TPMCCB	Each	2.00			
3.1.33	Supply, installation, testing and commissioning of 630A, 415V 4 Pole Onload Automatic Changeover Switch	Each	1.00			
3.1.34	Providing and fixing following rating and breaking capacity and pole MCCB with thermomagnetic release and terminal spreaders in existing cubicle panel board including drilling holes in cubicle panel, making connections, etc. as required. Incoming 800 A, 50 kA,TPMCCB (between Transformer and Busbar)	Each	1.00			
3.1.35	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required. Of 3 core 120 sq.mm (from Pole to Transformer)	meter	10.00			
3.1.36	Laying of one number PVC insulated and PVC sheathed / XLPE power cable of 11 kV grade of following size direct in ground including excavation, sand cushioning, protective covering and refilling the trench etc. as required. Of 3.5 core 400 sq.mm (from Transformer to Busbar)	meter	60.00			
3.1.37	Supplying and making end termination with brass compression gland and aluminium lugs for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 kV grade as required. 3½ X 240 sq. mm (62mm) (from Main Busbar to VTPNDB)	Each	10.00			
3.1.38	Supplying and making outdoor end termination with cast resin compound including aluminium lugs and other jointing materials for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 kV grade as required. 3½ X 240 sq. mm (from Main Busbar to VTPNDB)	Each	10.00			
3.1.39	Supplying and making straight through joint with cast resin compound including ferrules and other jointing materials for following size of PVC insulated and PVC sheathed / XLPE aluminium conductor cable of 1.1 kV grade as required. 3½ X 240 sq. mm (from Main Busbar to VTPNDB)	Each	10.00			
3.1.40	Supplying and making straight through joint with heat shrinkable kit including ferrules and other jointing materials for following size of PVC insulated and PVC	Each	10.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	sheathed / XLPE aluminium conductor cable of 1.1 kV grade as required. 3½ X 240 sq. mm (from Main Busbar to VTPNDB)					
3.1.41	Supplying and making indoor cable end jointing with cast resin compound, including lugs and other jointing materials, for following size of 3 core, XLPE aluminium conductor cable of 11 kV grade as required.of 400 sq.m (from Main Busbar to Transformer)	Each	2.00			
3.1.42	Supplying and making outdoor cable end jointing with cast resin compound, including lugs and other jointing materials, for following size of 3 core, XLPE aluminium conductor cable of 11 kV grade as required. of 400 sq.m (from Main Busbar to Transformer)	Each	2.00			
3.1.43	Supplying and making straight through cable jointing with cast resin compound, including ferrule and other jointing materials, for following size of 3 core, XLPE aluminium conductor cable of 11 kV grade as required of 400 sq.m (from Main Busbar to Transformer)	Each	2.00			
3.1.44	supplying and making indoor cable end termination with heat shrinkable jointing kit complete with all accessories including lugs suitable for following size of 3 core, XLPE aluminium conductor cable of 11 kV grade as required.of 400 sq.m (from Main Busbar to Transformer)	Each	2.00			
3.1.45	Supply, shipping, installation, fixing, testing and commissioning of 250 KVA DG set comprising of 6 cylinder, in line 4 stroke radiator, radiator cooled engine, 3 Phase PMG Alternator, PC3 Digital Control Panel, Hospital Grade Silencer, Mounting Arrangement, complete with all civil works and acoustic enclosure. 250/200 kVA/kWE power rating, 415V, 50 Hz, 0.8 (lagging) power factor, 348 A, 1500 RPM, Turbo Charged Liquid Cooled Engine.Rates to include minimum 5 year warranty and on site maintenance services.	Lumpsum	1.00			
3.1.46	Providing Task Lighting 70mm wide suspened with die cast aluminium end caps. Luminere to be LED 48W alongwith set of 2 single steel wire suspensions with ceiling fixtures	Each	83.00			
3.1.47	Providing Aluninium Die cast Suspended Down Lighter with reflector Luminere to be LED 20W alongwith set of suspension system with ceiling fixtures	Each	62.00			
3.1.48	Providing Motion Sensor Lights surface mounted with detection distance of 16 mts with LED 7W	Each	119.00			
3.1.49	Providing 1200MM integrated surface mounted Tubelight 18W LED Batten	Each	32.00			
3.1.50	Providing Wall Mounted IP 44 Grade up/down Light with built-in 3W LED	Each	98.00			
3.1.51	Providing IP 67 Grade waterproof 3 TO 5 W floor recessed Light upto depth of 10mm with LED Driver	Each	58.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
3.1.52	Providing 215V to 230V Ceiling fan 1200mm three blade	Each	16.00			
3.1.53	Providing 215V to 230V Wall mounted extractor exhaust fan with window mounting kit and automatic shutter	Each	9.00			
3.2.1	Supplying, fixing, testing and commissioning of 12 core Fibre Optic Cable with PE outer sheath, corrugated steel tape, water blocking tape/yarn, loose tube fibre, rip cord. Cable OD of 12.5mm, Operation temperature range -60 deg C to + 70 deg C, Max. tensile load Short term: 2700N, long term: 800N, Crush resistance 2200 N/10cm and Minimal installation bending radius 15 OD	meter	1,600.00			
3.3.1	Supply, installation, erection, fixing, testing and commissioning of Machine Roomless and Gearless Frequency Control Drive System 5 Passenger Automatic Lift for shaft size of 1.5m x 2.3m with front opening. The installation should include supply of staniless steel interior lift car finish, smooth and silent energy efficient mechanism, wear resistant SS and glass operating panel equiped with touch screen buttons and floor indicators, complete with all traction systems, fittings, fixtures, including required civil and mechanical works and making it good, etc. for a minimum 5 year warranty and on site maintenance services. As per the specification section of this bidding document.	Lumpsum	1.00			
3.4.1	Design, Engineering, Procurement, manufacturing, testing, supply to Site, instalation & commissioning of the HVAC systems as per tender Specifications for Air Conditioning of the Moti Mahal Annexe building. The capacity of the system shall be 30 ton comprising 3 equal outdoor compressor units, ducting, heat exchanger, indoor units, referigerent piping circuit, safety devices, centralized type remote controller, etc. complete including all mechanical, civil works and electrical works. Rates to include all the items required for satifactory commissioning as per specification enclosed and any other item specifically not mentioned here with but required for completion of the job in all respects. The job would also include dismantling of brick masonry, stone masonry at places where ever required for the entry of the branch ducts from the main duct. Rectifying the same after laying of the duct to the satisfaction of the enigneer incharge. Job to include removal/cutting of the stone, dismantling the brick work/concrete rectifying the same after taking the duct inside. Rates to include all the modifications in the wall required for the completion of the job complete in all respects for a minimum 5 year warranty and on site maintenance services.	Lumpsum	1.00			
4.1.1	Supply and fixing of ABC Powder based MAP 50, 4Kg Fire Extinguisher Mono Ammonium Phosphate Powder 50, Stored	Each	6.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	Pressure Type, Pressure Gauge, Gross Weight 6.9 Kg, empty weight 2.9 Kg, Can Height 440MM, Diameter 140MM, Discharge Time less than 13 Secs, Controllable discharge mechanism (Squeeze grip with easy snap safety seal), Range minimum 4 meters, applicable on Class A,B,C and electrically started Fire, A Rating 2A, B Rating 21B, Can construction : Deep drawn & Co., Mig welded, valve Construciton : Forging and Mechining, Internal Coating of Can: Epoxy powder coating, External Coating of Can: Epoxy Polyster power coating, Sheet metal thickness: 1.60MM, Helium Leak Detection Tested, ISI and EN Approved, 5 years Warranty with instalert system with Superior quality EPDM Rubber Hosepipe etc., complete					
4.1.2	Supply and fixing Fire Extinguisher Monnex powder 4kg Stored Pressure Type, Pressure Guage, Gross Weight 7.4Kg, empty weight 3.4 Kg, Can Height 480 MM, Diameter 160 MM, Discharge Time less than 13 Secs, Controllable discharge mechanism (Squeeze grip with easy snap safety seal), Range minimum 4 meters, Can construction : Deep drawn & Co., Mig welded, valve Construciton : Forging and Mechining, Internal Coating of Can: Epoxy powder coating, External Coating of Can: Epoxy Polyster power coating, Sheet metal thickness: 1.60 MM, 5 years warranty. with instalert system with Superior quality EPDM NRubber Hosepipe etc., complete	Each	6.00			
4.1.3	Providing and fixing of Fire Extinguisher for Lite metal fires SPM-TEC Providing 4kg SPM-TEC Powder Based stored presure type melting point at 600-650 degree C, Applicable on Class D metal fires in Magnesium, Aluminium, Zinc, Sodium Potassium, Francium, Lithium, Cesium, Pressure Guage, Gross weight Gross Weight 6.9Kg, empty weight 2.9 Kg, Can Height 440 MM, Diameter 140 MM, Discharge Time less than 15 Secs, Controllable discharge mechanism (Squeeze grip with easy snap safety seal), Range minimum 4 meters, Can construction : Deep drawn & Co., Mig welded, valve Construciton: Forging and Mechining, Internal Coating of Can: Epoxy powder coating, External Coating of Can: Epoxy Polyster power coating, Sheet metal thickness: 1.60 MM, helium leak detection tested, EN approved, 5 years warranty with instalert system with Superior quality EPDM Rubber Hosepipe etc., complete	Each	6.00			
4.1.4	Providing and fixing of Fire Extinguisher for Heavy metal fires SPM-PYRO Providing 6Kg Powder Based stored presure type melting point at 1200 degree C, Applicable on Class D metal fires in heavy metals, alkali metals and alloys Pressure Guage, Gross weight Gross Weight 9.4Kg, empty weight 3.4 Kg, Can Height 480MM, Diameter 160 MM,	Each	6.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	Discharge Time less than 16 Secs, Controllable discharge mechanism (Squeeze grip with easy snap safety seal), Range minimum 4 meters, Can construction: Deep drawn & Co., Mig welded, valve Construciton : Forging and Mechining, Internal Coating of Can: Epoxy powder coating, External Coating of Can: Epoxy Polyster power coating, Sheet metal thickness: 1.60 MM, helium leak detection tested, EN approved, 5 years warranty with instalert system with Superior quality EPDM Rubber Hosepipe etc., complete					
4.1.5	Providing and fixing of Fire Extinguisher Clean Agent HCFC 123 Providing 6Kg Stored Pressure Type, Pressure Gauge, Gross Weight 9.4kg. empty weight 3.4 kg Can Height 480MM, Diameter 160 MM, Discharge Time less than 13 Secs, Controllable discharge mechanism (Squeeze grip with easy snap safety seal), Range minimum 4 Meters, applicable on Class A,B,C and electrically started Fire, A Rating 2A, B Rating 21B Can Construction; Deep drawn & CO, Mig welded, Valve Construction: Forging & Machining, Internal Coating of Can : Epoxy Powder coating, External Coating of Can : Epoxy Polyster Powder coating, Sheet metal thickness: 1.60MM, Helium Leak Detection Tested, EN Approved, 5 years warranty with instalert system with Superior quality EPDM Rubber Hosepipe etc., complete	Each	6.00			
4.1.6	Providing CO2 Aluminium - 4.5kg Providing 4.5Kg CO2 Gas Type aluminium body Squeeze grip Fire Extinugisher, Trolley Mounted, Easy Weight Management, Used Unused Mechanism, Squeeze Grip, Gross Weight 11.16Kg. empty Weight 6.66Kg. Can Height 860MM Diameter 140MM, Discharge Time less than10 Secs, Controllable discharge mechanism, Applicable on Class B&C Fire, B Rating 13B, Can Constuction : Cold Impact Extrusion, Valve Construction : Forging & Machining, Internal Coating of Can : Not Applicable, External coating of Can : Spray Painting, Aluminium metal ISO & PESO Approved, 3 Year Warranty. complete	Each	6.00			
4.1.7	Providing and fixing of Wireless Smoke Detection Control Panel - 28 Wireless Zone, 2 Hardwired Zone, Tamper Altert, passcode protected, RF Jamming recongnition, diagnition, diagnostic feture for RF signal strength between panel and each detector, event reporting using PSTN Telephone line, dialing upto 4 telephone numbers, event reporting as per users choice, remote control using telephone line, LCD Screen Display, Intuitive graphic and audible user interphase, Two Way voice interaction, Battery Backup stand by time upto 12 hrs. complete	Each	1.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
4.1.8	Providing and fixing of Smoke Detector Smoke Detector - Fully Supervised Smoke Detector, Photoelectric detection technology for superior detection sensitivity, sound and transmitted alrerts for smoke, tamper and low battery, works on powercode protocol, easy programming and enrolling to the control panel, Long life 9 volt alkaline or lithium battery simple ceiling mount installation with separate installation bracket. complete	Each	61.00			
4.1.9	Providing and fixing of External Wireless Siren Strobe- a fuly supervised Power Code “outdoor (IP55) wireless siren and strobe light, Designed for external installation, Wirefree connection between control panel and siren, Convenient and rapid no-mess installation, Separate fire alarm signals, 98 db Piezo siren and high power strobe light, Weather-resistant IP55, Two-way communication for local & remote diagnostic, Plug-in powr supply, NIMH rechargeable back up battery, Transmits status, tamper, low battery, supervisior and AC loss messages to the control panel, Tri-state tamper switch identifies screw mainpulation removal of cover or prying from the wall complete	Each	1.00			
4.1.10	Providing and fixing of Escape Singages for Walls/Floors: Photoluminescent rigid plastic, 2 mm thickness, Printed on High Quality glass paint with UV resistance, 5 years warranty, Material Used - Non Radiocactive, non-phosphorous, non toxic and lead free. Available in different types & sizes, Time after removing the light source (in minutes) : 60 minutes, Luminescent intensity (milicandelas * per square meter - mcd/sqm) : 30 mcd/sqm. Luminescent Intensity greater than 0.32 mcd/sqm, Period of Light Decay* (In Minutes) :3100	Sq.cm	2,025.00			
4.1.11	Providing and fixing of Evacution Plan (Price for 10 + unit): Photoluminescent rigid plastic, 2 mm thickness, Printed on High Quality glass paint with UV resistance, 5 years warranty, Material Used - Non Radiocactive, non-phosphorous, non toxic and lead free. Available in different types & sizes, Time after removing the light source (in minutes) : 60 minutes, Luminescent intensity (milicandelas * per square meter - mcd/sqm) : 30 mcd/sqm. Luminescent Intensity greater than 0.32 mcd/sqm, Period of Light Decay* (In Minutes) :3100	Sq.cm	7,500.00			
4.1.12	Supplying, Installing testing and commissioning electrically driven jockey pump of capacity 180.0 Lpm at 70.0m. Head with all the necessary accessories viz. Pressure guages etc., operating on 3Ph 50Hz, 400/440V AC supply including foundation, bolts etc. complete, Control panel shall be per specification stated in Item No.87. (Cost of control pannel is not included)	Each	2.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
4.1.13	FIRE HYDRANT SYSTEM Supplying Installing, testing and commissioning of 63mm mm dia single headed Gun mental Hydrant Valve with flanged inlet, stop valve, spindle and cast iron hand wheel. It has a female instantaneous outlet with Blank Cap and is Hydrostatically tested to 21 Kgf/cm2 pressure having a flow rate of 900 LPM at 7 Kgf/cm 2 of pressure with blank cap and wheel as per IS 5290 etc. complete	Each	2.00			
4.1.14	Supplying Installing, testing and commissioning of Gun metal AIR RELEASE VALVE SIZE OF 25mm dia complete	Each	2.00			
4.1.15	Supplying Installing, testing and commissioning of Reinforced Rubber Lined RRL Fire hose of 63mm dia 15m length as per IS 8423 binded with one set of male and Female Instantainious Gun metal coupling as per IS 903	Each	2.00			
4.1.16	Supplying Installing, testing and commissioning of Hose cabinet made out of 18 gauge M.S.sheet with double glass door with locing arrangement and painted with two coats of Fire red Enamel paint at outer ise of the Box and two coats of white enamel paint at inner side of the box is to accomodated 2 Nos. of Fire hose box size 20”x24”x10” complete	Each	2.00			
4.1.17	Supplying Installing, testing and commissioning of Hose reel cabin M.S.Pressed reel of 600mm dia swinging type motion which allows a 180° swing and conforms to IS:884/85.	Each	2.00			
4.1.18	Supplying Installing, testing and commissioning of 19mm dia 36.50m length hose with rubber lining smooth bore, reinforced of natural/ synthetic fibres, a rubber cover finish shall be smooth, fluted or fabric marked with minimum thickness of 1.50mm and to with stand a working pressure of 10Kgf/sqcm confirms & tested as per IS 444	meter	80.00			
4.1.19	Supply, Installation testing and commissioning of approved make heavy tubes (Class ‘C’) confirming to as per IS1239 Part - I (25mm Nominal bore 4.05mm thick @ 2.97 Kg/m, 32mm Nominal bore 4.05mm thick @ 3.84 Kg/m,40mm Nominal bore 4.05mm thick @ 4.43 Kg/m,50mm Nominal bore 4.47mm thick @ 6.17 Kg/m, 65mm Nominal bore 4.47mm thick @ 7.90 Kg/m, 80mm Nominal bore 4.85mm thick @ 10.10 Kg/m, 100mm Nominal bore5.40mm thick @ 14.40 Kg/m,150mm Nominal bore 5.40mm thick @ 21.20 Kg/m, Such as Tees elbows check nuts unions, Flanger, Nipples etc. including cutting welding, Trending fixing on walls, ceiling (Using 41-Tech pipe/M.S.angle supports work includes two coats of metal primer and two coats of Red enamel paint etc.in Galvanized Iron Pipes 100 mm dia. complete	meter	192.00			
4.1.20	Supplying of four bucket stand alongwith buckets. Complete	Set	2.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
4.1.21	Supplying of Hand gloves. Complete	Pair	4.00			
4.1.22	Supplying of first aid box. Complete	Each	2.00			
4.1.23	Supplying of SAFETY MASK. Complete	Each	4.00			
4.1.24	Supplying of FIRST AID CHART with lamination. Complete	Each	2.00			
5.1.1	Providing and fixing of filling Side Cabinet of 0.45m depth with shutters and 3 drawers in 20mm plyboard carcass. Inside finish: Laminate with PVC edging; Outside Finish: Veener on plyboard shutter complete with telescopic drawer channels, hinges and handles.	Sqm	31.66			
5.1.2	Providing and fixing of Reception Desk of 10.5 m length and 0.75m high in 20mm plyboard carcass; with storage space below and all necessary connections for desktops and other equipments. Visitor counter to be at 0.9m height. Finish: Moulded seamless solid surface	No.	1.00			
5.1.3	Providing and fixing 1m x 0.6m Work Desk at 0.75m height with 0.15m visitor counter at 0.9m height with a drawer storage below Inside finish: Laminate with PVC edging; Outside Finish: Veener on plyboard shutter complete with telescopic drawer channels, hinges and handles.	No.	1.00			
5.1.4	Providing and fixing 25mm thk plyboard 0.8m width Workstation Desk finished with wooden lamnate and edge in half round wooden beading supported on sal wooden frame along the length approximately at every 1.2m - 1.8m distance.	Sqm	31.86			
5.1.5	Providing and fixing kitchen modular Undercounter Storage with drawers , shutters with shelves in 20mm thick BWR plyboard carcass. With soft close hinges and drawers channels, metal sheet lining inside drawers, handles, PU skirting. Finish: Laminate on HDF shutters and drawer facia.	Sqm	36.32			
5.1.6	Providing and fixing Wall Hung Bathroom Wash Basin Counter in 25mm thick BWR ply carcass supported on wall with dash fastners. Finish: Moulded seamless solid surface countertop , front and sides with cutting for basin.	m	13.13			
5.1.7	Providing and fixing 2.1m high Cupboard/Full Height Storage in 20mm plyboard carcass and shelves at 0.6m height. Pannelled wooden shutter with natural polish veneer complete with handles and locks. Inside finish: Laminate on board and PVC edging	Sqm	47.44			
5.1.8	Providing fixed TV System Storage unit of 0.45m depth and 0.45m height with top hung shutters in 20mm plyboard carcass. Inside finish: Laminate with PVC edging; Outside Finish: Veener on plyboard shutter complete with hinges and handles.	Sqm	2.01			
5.1.9	Providing and fixing wooden 1m long, 0.3m wide 50mm thick Shelves fixed on wall with concealed floating shelf brackets in 20mm plyboard finished in polished veener.	No.	1.00			
5.1.10	Providing and fixing of TV Console and Panel of wooden framed wall pannelling in	No.	1.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	0.05x0.05m wooden sections supported on wall with 20mm thk plyboard, finished in veneer and horizontal grooves. Wall hung single long drawer unit for settop box and other audio equipments in 20mm thk plyboard carcass with veneer facia, telescopic drawer channels and complete with handles					
5.1.11	Providing and fixing wall hung bathroom Wash Basin Counter Vanity of 2.33m long and drawers below counter in 25mm thick BWR ply carcass supported on wall with dash fastners. Finish: Moulded seamless solid surface countertop , front and sides with cutting for basin complete with push to open drawer channels	No.	2.00			
5.1.12	Providing and fixing wooden framed TV Wall pannelling and Shelving in 0.05x0.05m wooden sections supported on wall with 20mm thk plyboard, finished in veneer and horizontal grooves. Wall hung single 50mm thick shelf for set top box in 20mm thk plyboard carcass with veneer.	No.	2.00			
5.2.1	Providing Executive Desk Type 1 seasoned shesham wood natural polished table of size 1.8mx0.75m and 0.75m height.	No.	10.00			
5.2.2	Providing Executive Desk Type 2 seasoned shesham wood natural polished table of size 1.5mx0.75m and 0.75m height.	No.	4.00			
5.2.3	Providing Executive Desk Type 3seasoned shesham wood natural polished table of size 1.25mx0.75m and 0.75m height.	No.	4.00			
5.2.4	Providing high back 0.62mx0.66m wide reclining ergonomical Executive Chair with adjustable backrest, multilock tilt , adjustable height, armrest and headrest.Smooth castor wheel movement. Finish: High density cushioned back and seat upholstered with high grade leatherette	No.	16.00			
5.2.5	Providing 0.65x0.5m wide Office Visitor Chair with PU armrest; High density cusioned seat and low back	No.	30.00			
5.2.6	Providing low mesh back 0.62mx0.66m wide reclining ergonomical Office Chair with adjustable lumbar support, multilock tilt, adjustable height and armerest; High density cushoined seat and PU handles	No.	52.00			
5.2.7	Providing 0.6x0.75x0.7m (LxBxH) Under Table Storage set of 3 Drawers made in high density fibreboard (HDF) with telescopic drawer fittings; Castor wheels with stopper; Finish: Veneer and melamine polish	No.	25.00			
5.2.8	Providing 0.65x0.5m wide reclining Conference Chair with adjustable height	No.	44.00			
5.2.9	Provideing 5,4mx1.2m size of wooden Conference Table clamped with wooden and steel supports in the center; flushed push to open power socket box all along the length of the table. Finish: Natural Wooden Laminate with wooden edge	No.	1.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
5.2.10	Providing 1.75m x0.45m x0.6m (LxWxH) Side Unit in water and termite resistant 20mm plyboard side unit, with shutters and drawers for filling and storage.	No.	5.00			
5.2.11	Providing vintage looking harwood legs and armrest 3 Seater Sofa with high density foam cushioned seats. Finish: chenille fabric	No.	8.00			
5.2.12	Providing vintage looking harwood legs and armrest Single Seater Sofa with high density foam cushioned seats. Finish: chenille fabric	No.	8.00			
5.2.13	Providing 0.45x0.35x0.45m (LxBxH) Side Table in natural polished seasoned sheesham wood with four legs and top in tapered and rounded table top edge	No.	24.00			
5.2.14	Providing 0.9x0.5x0.45m (LxBxH) Coffee Table in natural polished seasoned sheesham wood with four legs and top in tapered and rounded table top edge.	No.	9.00			
5.2.15	Providing vintage looking harwood legs and armrest L Shaped 4 Seater Sofa with high density foam cushioned seats. Finish: chenille fabric	No.	2.00			
5.2.16	Providing and fixing 1.2mx 1.2m corner Workstation Cubicle with partition height of 1.5m in 20mm plyboard with MS rigid framework. Countertop finish in polished engineered wood with rounded edge. A set of 3 drawers in 20mm plyboard carcass and veneer finish with telescopic drawer channels. Partition in etched glass fixed with SS clamps and white board in laminate finish.	No.	18.00			
5.2.17	Provideing 30 people seater Wooden Boardroom/Conference Table in U seating format, clamped with wooden and steel supports on the inside edge. Finish: Natural Wooden Laminate with wooden edge.	No.	1.00			
5.2.18	Providing Single Seater Puffs with high density foam cushioned seats and harwood legs . Finish: chenille fabric	No.	6.00			
5.2.19	Providing sheesham wood framed Queen Size Double Bed with mattress and pillow	No.	3.00			
5.2.20	Providing 1.6mx0.9m size sheesham wood 6 Seater Dining Table in natural polish	No.	2.00			
5.2.21	Providing 1.2mx0.75m size sheesham wood 4 Seater Dining Table in natural polish	No.	6.00			
5.2.22	Providing 0.4x0.5m Restaurant Chair with no armrest; High density cusioned seat and low back	No.	36.00			
6.1.1	Steel work in built up tubular in rectangular hollow tubes etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete in Electric resistance or induction butt welded tubes	Kg	12,152.72			
6.1.2	Providing corrugated G.S. sheet roofing including vertical / curved surface fixed with polymer coated J or L hooks, bolts and nuts 8 mm diameter with bitumen and G.I. limpet washers or with G.I. limpet	Sq.m	353.45			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	washers filled with white lead, including a coat of approved steel primer and two coats of approved paint on overlapping of sheets complete (up to any pitch in horizontal/ vertical or curved surfaces), excluding the cost of purlins, rafters and trusses and including cutting to size and shape wherever required. 0.63 mm thick with zinc coating not less than 275 gm/ m²					
6.1.3	Providing & fixing UV stabilised fiberglass reinforced plastic sheet roofing up to any pitch, including fixing with polymer coated 'J' or 'L' hooks, bolts & nuts 8mm dia. G.I plain/bitumen washers complete but excluding the cost of purlins, rafters, trusses etc. The sheets shall be manufactured out of 2400 TEX panel rovigs incorporating minimum 0.3% ultra-violet stabiliser in resin system under approximately 2400 psi and hot cured. They shall be of uniform pigmentation and thickness without air pockets and shall conform to IS 10192 and IS 12866.The sheets shall be opaque or translucent, clear or pigmented, textured or smooth as specified in 2 mm thick corrugated (2.5" or 4.2" or 6") or step-down (2" or 3" or 6") as specified	Sq.m	101.25			
6.1.4	Extra for straight cutting in C.G.S. sheet roofing for making opening of area exceeding 40 sq. decimeter for chimney stacks, sky light etc.: 0.63 mm thick	metre	15.30			
6.1.5	Providing ridges or hips of width 60 cm overall width plain G.S. sheet fixed with polymer coated J or L hooks, bolts and nuts 8 mm dia G.I. limpet and bitumen washers complete. 0.63 mm thick with zinc coating not less than 275 gm/m²	metre	124.00			
6.1.6	Providing and fixing precoated galvanised steel sheet roofing accessories 0.50 mm (+ 0.05 %) total coated thickness, Zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete: Barge board (Upto 300 mm)	metre	39.00			
6.1.7	Providing and fixing 15 cm wide, 45 cm overall semi-circular plain G.S. sheet gutter with iron brackets 40x3mm size, bolts, nuts and washers etc., including making necessary connections with rain water pipes complete. 0.63 mm thick with zinc coating not less than 275 gm/m²	metre	127.50			
6.1.8	Providing and fixing precoated galvanised steel sheet roofing accessories 0.50 mm (+ 0.05 %) total coated thickness, Zinc coating 120 grams per sqm as per IS: 277, in 240 mpa steel grade, 5-7 microns epoxy primer on both side of the sheet and polyester top coat 15-18 microns using self drilling/ self tapping screws complete: Flashings/ Aprons. (Upto 600 mm)	metre	46.75			
6.1.9	Providing and fixing of EPDM Gasket in Kg (Above 60 g / m)	Kg	157.75			
6.1.10	Providing and fixing on wall face unplasticised Rigid PVC rain water pipes	metre	102.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion, (i) Single socketed pipes. 75 mm diameter					
6.1.11	Providing and fixing on wall face unplasticised - PVC moulded fittings/ accessories for unplasticised Rigid PVC rain water pipes conforming to IS : 13592 Type A, including jointing with seal ring conforming to IS : 5382, leaving 10 mm gap for thermal expansion.					
6.1.11.1	Coupler 75 mm	Each	26.00			
6.1.11.2	Single pushfit Coupler 75mm	Each	26.00			
6.1.11.3	Single tee with door 75x75x75 mm	Each	6.00			
6.1.11.4	Single tee without door 75x75x75 mm	Each	6.00			
6.1.11.5	Bend 87.5° 75 mm bend	Each	12.00			
6.1.11.6	Shoe (Plain) 75 mm Shoe	Each	6.00			
6.1.12	Providing and fixing unplasticised -PVC pipe clips of approved design to unplasticised - PVC rain water pipes by means of 50x50x50 mm hard wood plugs, screwed with M.S. screws of required length, including cutting brick work and fixing in cement mortar 1:4 (1 cement : 4 coarse sand) and making good the wall etc. complete. 75 mm	Each	50.00			
6.1.13	Providing and fixing to the inlet mouth of rain water pipe cast iron grating 15 cm diameter and weighing not less than 440 grams.	Each	6.00			
6.1.14	Welded steel wire fabric of required width rectangular mesh painted with two or coats of enamel paint of approved shade over a coat of primer (painting to be paid for seperately)	Kg	2,601.56			
6.1.15	Providing and fixing Precoated galvanised iron profile sheet 0.50 mm TCT in eaves board and gable ends	Sq.m	59.80			
6.1.16	Painting Steel work with Deluxe Multi Surface Paint to give an even shade. Two or more coat applied @ 0.90 ltr/ 10 sqm over an under coat of primer applied @ 0.80 ltr/ 10 sqm of approved brand and manufacture	Sq.m	293.04			
6.2	STRUCTURAL GLAZING					
6.2.1	Designing, fabricating, testing, protection, installing and fixing in position semi (grid) unitized system of structural glazing (with open joints) for linear as well as curvilinear portions of the building for all heights and all levels, including: (a) Structural analysis & design and preparation of shop drawings for the specified design loads conforming to IS 875 part III (the system must passed the proof test at 1.5 times design wind pressure without any failure), including functional design of the aluminum sections for fixing glazing panels of various thicknesses, aluminium cleats, sleeves and splice plates etc. gaskets, screws, toggles, nuts, bolts, clamps etc., structural and weather silicone sealants, flashings, fire stop (barrier)cum-smoke seals, microwave cured EPDM gaskets for water	Sq.m	53.20			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	tightness, pressure equalisation & drainage and protection against fire hazard including: (b) Fabricating and supplying serrated M.S. hot dip galvanised / Aluminium alloy of 6005 T5 brackets of required sizes, sections and profiles etc. to accommodate 3 Dimentional movement for achieving perfect verticality and fixing structural glazing system rigidly to the RCC/ masonry/structural steel framework of building structure using stainless steel anchor fasteners/ bolts, nylon seperator to prevent bimetallic contacts with nuts and washers etc. of stainless steel grade 316, of the required capacity and in required numbers. (c) Providing and filling, two part pump filled, structural silicone sealant and one part weather silicone sealant compatible with the structural silicone sealant of required bite size in a clean and controlled factory / work shop environment , including double sided spacer tape, setting blocks and backer rod, all of approved grade, brand and manufacture, as per the approved sealant design, within and all around the perimeter for holding glass. (d) Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight. (d) Providing and fixing in position flashings of solid aluminium sheet 1 mm thick and of sizes, shapes and profiles, as required as per the site conditions, to seal the gap between the building structure and all its interfaces with curtain glazing to make it watertight. (e) Making provision for drainage of moisture/ water that enters the curtain glazing system to make it watertight, by incorporating principles of pressure equalization, providing suitable gutter profiles at bottom (if required), making necessary holes of required sizes and of required numbers etc. complete. This item includes cost of all inputs of designing, labour for fabricating and installation of aluminium grid, installation of glazed units, T&P, scaffolding and other incidental charges including wastages etc., enabling temporary structures and services, cranes or cradles etc. as described above and as specified. The item includes the cost of getting all the structural and functional design including shop drawings checked by a structural designer, dully approved by Engineer-in-charge. The item also includes the cost of all mock ups at site, cost of all samples of the individual components for testing in an approved laboratory, field tests on the assembled working structural glazing as specified, cleaning and protection till the handing over of the building for					

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	occupation. In the end, the Contractor shall provide a water tight structural glazing having all the performance characteristics etc. all complete as required, as per the Architectural drawings, as per item description, as specified, as per the approved shop drawings and as directed by the Engineer-in-Charge. Note:- 1. The cost of providing extruded aluminium frames, shadow boxes, extruded aluminium section capping for fixing in the grooves of the curtain glazing and vermin proof stainless steel wire mesh shall be paid for separately under relevant items under this sub- head. However, for the purpose of payment, only the actual area of structural glazing (including width of grooves) on the external face shall be measured in sqm. up to two decimal places. Note:- 2. The following performance test are to be conducted on structural glazing system if area of structural glazing exceeds 2500 Sqm from the certified laboratories accreditated by NABL(National Accreditation Board for Testing and Calibration Laboratories), Department of Science & Technologies, India. Cost of testing is payable separately. The NIT approving authority will decide the necessity of testing on the basis of cost of the work, cost of the test and importance of the work. Performance Testing of Structural glazing system Tests to be conducted in the NBL Certified laboratories (1) Performance Laboratory Test for Air Leakage Test (-50pa to - 300pa) & (+50pa to +300pa) as per ASTM E-283-04 testing method for a range of testing limit 1 to 200 mVhr (2) Static Water Penetration Test. (50pa to 1500pa) as per ASTME-331-09 testing method for a range up to 2000 ml. (3) Dynamic Water Penetration (50pa to 1500pa) as per AAMA 501.01- 05 testing method for a range upto 2000 ml (4) Structural Performance Deflection and deformation by static air pressure test (1.5 times desing wind pressure without any failure) as per ASTME-330-10 testing method for a range upto 50 mm (5) Seismic Movement Test (upto 30 mm) as per AAMA 501.4-09 testing method for Qualitative test. Tests to be conducted on site. (6) Onsite Test for Water Leakage for a pressure range 50 kpa to 240 kpa (35psi) upto 2000 ml					
7.1.1	Demolishing lime concrete manually/ by mechanical means and disposal of material within 50 metres lead as per direction of Engineerin-charge.	Cu.m	62.83			
7.1.2	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Engineer - in - charge. Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	Cu.m	12.85			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
7.1.3	Demolishing stone rubble masonry manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Engineer-in-charge : In lime mortar	Cu.m	46.40			
7.1.4	Dismantling steel work in built up sections in angles, tees, flats and channels including all gusset plates, bolts, nuts, cutting rivets, welding etc. including dismembering and stacking within 50 metres lead.	Kg	771.04			
7.1.5	Dismantling stone slab flooring laid in cement mortar including stacking of serviceable material and disposal of unserviceable material within 50 metres lead.	Sq.m	184.32			
7.1.6	Dismantling roofing including ridges, hips, valleys and gutters etc., and stacking the material within 50 metres lead of G.S. Sheet	Sq.m	449.65			
7.1.7	Disposal of building rubbish / malba / similar unserviceable, dismantled or waste materials by mechanical means, including loading, transporting, unloading to approved municipal dumping ground or as approved by Engineer-in-charge, beyond 50 m initial lead, for all leads including all lifts involved.	Cu.m	26.10			
8.2	Earthwork					
7.2.1	Earth work in surface excavation not exceeding 30 cm in depth but exceeding 1.5 m in width as well as 10 sqm on plan including getting out and disposal of excavated earth upto 50 m and lift upto 1.5 m, as directed by Engineer-in-Charge: All kinds of soil	Sq.m	2,910.97			
7.2.2	Excavating trenches of required width for pipes, cables, etc including excavation for sockets, and dressing of sides, ramming of bottoms, depth upto 1.5 m, including getting out the excavated soil, and then returning the soil as required, in layers not exceeding 20 cm in depth, including consolidating each deposited layer by ramming, watering, etc. and disposing of surplus excavated soil as directed, within a lead of 50 m: All kinds of soil Pipes, cables etc. exceeding 300 mm dia but not exceeding 600 mm	meter	269.80			
7.2.3	Filling available excavated earth (excluding rock) in trenches, plinth, sides of foundations etc. in layers not exceeding 20cm in depth, consolidating each deposited layer by ramming and watering, lead up to 50 m and lift upto 1.5 m.	Cu.m	393.77			
7.2.4	Supplying and filling in plinth with sand under floors, including watering, ramming, consolidating and dressing complete. Moorum/Hard Copra	Cu.m	582.19			
7.2.5	Clearing jungle including uprooting of rank vegetation, grass, brush wood, trees and saplings of girth up to 30 cm measured at a height of 1 m above ground level and removal of rubbish up to a distance of 50 m outside the periphery of the area cleared.	100 Sq.m	7.28			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
7.2.6	Felling trees of the girth (measured at a height of 1 m above ground level), including cutting of trunks and branches, removing the roots and stacking of serviceable material and disposal of unserviceable material. Beyond 30 cm girth upto and including 60 cm girth	Each	11.00			
7.2.7	Diluting and injecting chemical emulsion for POST-CONSTRUCTIONAL anti-termite treatment (excluding the cost of chemical emulsion) : Along the external wall below concrete or masonry apron using chemical emulsion @ 2.25 litres per linear metre including drilling and plugging holes etc.: With Chlorpyriphos/ Lindane E.C. 20% with 1% concentration	meter	210.47			
7.2.8	Supplying chemical emulsion in sealed containers including delivery as specified. Chlorpyriphos/ Lindane emulsifiable concentrate of 20%	Litre	473.56			
7.3	Shoulder & SW Drainage					
7.3.1	Cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 40 mm nominal size) in pavements, laid to required slope and camber in panels as required including consolidation finishing and tamping complete.	Cu.m	5.38			
7.3.2	Making bell mouth opening/ entrance of size 100x50x50 cm for drainage pipe under footpath, including providing cement concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) for shape of bell mouth, including plastering providing and fixing precast R.C.C./ S.F.R.C. slab including plastering with cement mortar 1:3 (1 cement : 3 fine sand) of 6 mm thickness on exposed surface of the slab & bell mouth including centring, shuttering & neat cement punning inside the bell mouth etc. all complete.	Each	4.00			
7.4	Paving					
7.4.1	Providing and laying cement concrete in kerbs, steps and the like at or near ground level excluding the cost of centering, shuttering and finishing. 1:1½:3 (1 Cement: 1½ coarse sand(zone-III) : 3 graded stone aggregate 20 mm nominal size).	Cu.m	20.51			
7.4.2	Providing and laying at or near ground level factory made kerb stone of M-25 grade cement concrete in position to the required line, level and curvature, jointed with cement mortar 1:3 (1 cement: 3 coarse sand), including making joints with or without grooves (thickness of joints except at sharp curve shall not to more than 5mm), including making drainage opening wherever required complete etc. as per direction of Engineer-in-charge (length of finished kerb edging shall be measured for payment). (Precast C.C. kerb stone shall be approved by Engineer-in-charge).	Cu.m	38.01			
7.4.3	Providing and laying 100 mm thick factory made cement concrete interlocking paver block of M -30 grade made by block	Sq.m	362.94			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	making machine with strong vibratory compaction, of approved s;ze, design & shape, laid in required colour and pattern over and including 50mm thick compacted bed of coarse sand, filling the joints with line sand etc. all complete as per the direction of Engineer-in-charge.					
7.4.4	40 mm thick rubbed stone local flagstone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints 3 mm thick, side buttered with cement mortar 1:2 (1 cement : 2 stone dust) admixed with pigment to match the shade of stone and pointing with same mortar. in white sandstone	Sq.m	586.08			
7.4.5	40 mm thick fine dressed stone flooring over 20 mm (average) thick base of cement mortar 1:5 (1 cement : 5 coarse sand) with joints finished flush. (on existing steps and well platforms)	Sq.m	184.54			
7.5	Ramps					
7.5.1	Coursed rubble masonry with hard stone (first or second sort) in superstructure above plinth level and upto floor five level. Masonry work (first sort), in cement mortar 1:6 (1 cement : 6 coarse sand)	Cu.m	91.82			
7.5.2	Steel work in built up tubular in rectangular hollow tubes etc., including cutting, hoisting, fixing in position and applying a priming coat of approved steel primer, including welding and bolted with special shaped washers etc. complete in Electric resistance or induction butt welded tubes	Kg	416.16			
7.6	Other Micellaneous Works					
7.6.1	Supply, installation of Prefabricated Guard POTA Cabin of 1800x 1800mm OD size in plan of minimum clear height of 2300mm with three side window and one access door. Wall panelling in prepainted 20mm OSB board, framework in MS tubular/square sections, sliding window in UPVC with minimum 16mm clear glass, flooring in GRP matting, doors in UPVC, GS profile sheet roofing (pyramidical type) with MS rafters complete with all fixtures and fittings as per drawings and specifications.	Sq.m	2.00			
7.6.2	Providing, fixing and installation of head mounted solar panel sensor fitted 10W solar light pole, complete with all fixtures and fittings as per approved design and specification complete with minimum 5 year warranty and on site maintenance services.	Each	20.00			
7.6.3	Providing and fixing of cast iron and wooden composite material seating bench as per approved design and specifications	Each	10.00			
7.7	Horticulture & Landscaping					
7.7.1	Supplying and stacking of good earth at site including royalty and carriage upto 5 km complete (earth measured in stacks will be reduced by 20% for payment).	Cu.m	150.93			
7.7.2	Supplying and stacking sludge at site including royalty and carriage upto 5 km complete (sludge measured in stacks will be reduced by 8% for payment)	Cu.m	37.73			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
7.7.3	Supplying and stacking at site dump manure from approved source, including carriage upto 5 km complete (manure measured in stacks will be reduced by 8% for payment) : Screened through sieve of I.S. designation 4.75 m	Cu.m	75.47			
7.7.4	Spreading of sludge, dump manure and/or good earth in required thickness as per direction of officer-in-charge (cost of sludge, dump manure and/ or good earth to be paid separately)	Cu.m	226.40			
7.7.5	Mixing earth and sludge or manure in the required proportion specified or directed by the Officer-in-charge	Cu.m	226.40			
7.7.6	Grassing with selection No. 1 grass including watering and maintenance of the lawn for 60 days or more till the grass forms a thick lawn, free from weeds and fit for mowing including supplying good earth, if needed (the grass and earth shall be paid for separately). With grass Turf	100 Sq.m	1.93			
7.7.7	Preparation of beds for hedging and shrubbery by excavating 60 cm deep and trenching the excavated base to a further depth of 30 cm, refilling the excavated earth after breaking clods and mixing with sludge or manure in the ratio of 8:1 (8 parts of stacked volume of earth after reduction by 20% : one part of stacked volume of sludge or manure after reduction by 8%), flooding with water, filling with earth if necessary, watering and finally fine dressing, leveling etc. including stacking and disposal of materials declared unserviceable and surplus earth by spreading and leveling as directed, within a lead of 50 m, lift up to 1.5 m complete (cost of sludge, manure or extra earth to be paid for separately)	Cu.m	20.81			
7.7.8	Digging holes in ordinary soil and refilling the same with the excavated earth mixed with manure or sludge in the ratio of 2:1 by volume (2 parts of stacked volume of earth after reduction by 20% : 1 part of stacked volume of manure after reduction by 8%) flooding with water, dressing including removal of rubbish and surplus earth, if any, with all leads and lifts (cost of manure, sludge or extra good earth if needed to be paid for separately) Holes 60 cm dia, and 60 cm deep:	Each	14.00			
7.7.9	Providing and Displaying of Wadelia trilobata plant,full of leaves in 15 cm size of Poly bags & as per direction of the officer-in-charge.	Each	900.00			
7.7.10	Providing Plant Marigold jaffri orange/yellow/Russet colour well developed with fresh & healthy foliage with 40 to 50 flowers in bloom specimen plant 60 to 75 cm ht in 25 cm Earthen Pot/Plastic Pot.	Each	28.00			
7.7.11	Providing Plant Daisy well developed with fresh & healthy foliage in full bloom in 20 cm Earthen Pot/Plastic Pot.	Each	38.00			
7.7.12	Providing Plant Geranium double variety having 30 cm ht., in different colour well developed with fresh & healthy foliage (3	Each	23.00			

Sl. No.	Description of Item	Unit	Quantity	Rate (INR)	Amount (INR)	Amount in Words
	in one) well bloomed in 25 cm Earthen Pot/Plastic Pot.					
7.7.13	Supply and stacking of plant Hibiscus rosasinensis of height 90-105 cm., bushy in big size HDPE bag (for topiary hedge)	Each	148.00			
7.7.14	Supply and stacking of Plumeria alba plant of height 165-180 cm. with 3-4 branches and thick stem in big size HDPE bags as per direction of the officer-in-charge	Each	58.00			
7.7.15	Supply and stacking of Delonix regia (Gulmohar) plant of height 150-165 cm. in big poly bags of size 25 cm as per direction of the officer-in-charge	Each	13.00			
7.7.16	Supply and stacking of Azadirachta indica (Neem) plant of height 120130cm in big polybag of size 25 cm as per direction of the officer-in-charge.	Each	1.00			
7.7.17	Plantation of Trees, Shrubs, and Hedge at site i/c watering and removal of unserveiceable material's as per direction of officer in charge (excluding cast of plant & water) Tree Plant	Each	14.00			
7.7.18	Plantation of Trees, Shrubs, and Hedge at site i/c watering and removal of unserveiceable material's as per direction of officer in charge (excluding cast of plant & water) Shrub Plant	Each	58.00			
7.7.19	Plantation of Trees, Shrubs, and Hedge at site i/c watering and removal of unserveiceable material's as per direction of officer in charge (excluding cast of plant & water) Hedge/ Ground Cover	Each	900.00			

1.1.1. GENERAL

SPECIAL STRUCTURES

a) For structures like retaining walls, wing walls, chimneys, over head reservoirs/ tanks and other elevated structures, where elevations/ heights above a defined datum level have not been specified and identification of floors cannot be done as in case of building. Level, at 1.2 m above the ground level shall be the floor 1 level as well as plinth level. Level at a height of 3.5 m above floor 1 level will be reckoned as floor 2 level and level at a height of 3.5 m above the floor 2 level will be floor 3 level and so on, where the total height above floor 1 level is not a whole number multiple of 3.5 metre. Top most floor level shall be the next in sequence to the floor level below even if the difference in height between the two upper most floor levels is less than 3.5 metres

FOUNDATION AND PLINTH

a) The work in foundation and plinth shall include: (a) For buildings: All works upto 1.2 metre above ground level or upto floor 1 level whichever is lower: (b) For abutments, piers and well steining: all works upto 1.2 m above the bed level: (c) For retaining wall, wing walls, compound walls, chimneys, over head reservoirs/ tanks and other elevated structures: All works upto 1.2 metre above the ground level: (d) For reservoirs/ tanks (other than overhead reservoirs/ tanks): All works upto 1.2 metre above the ground level: (e) For basements: All works upto 1.2 m above ground level or upto floor 1 level whichever is lower. Note: Specific provision shall be made in the estimate for such situations where the foundation level is more than 3 (three) metre depth from the plinth for all types of structures mentioned above.

MEASUREMENTS

a) In booking dimensions, the order shall be consistent and in the sequence of length, width and height or depth or thickness.

b) Rounding off: Rounding off where required shall be done in accordance with IS: 2-1960. The number of significant places rounded in the rounded off value should be as specified.

MATERIALS

a) Samples of all materials to be used on the work shall be got approved by the contractor from the Engineer-in-Charge well in time. The approved samples duly authenticated and sealed shall be kept in the custody of the Engineer-in-Charge till the completion of the work. All materials to be provided by the contractor shall be brand new and as per the samples approved by the Engineer-in-Charge.

b) Materials obtained by the contractor from the sources approved by the Department shall be subjected to the Mandatory tests. Where such materials do not conform to the relevant specifications, the matter shall be taken up by the Engineer-in-Charge for appropriate action against the defaulters. In all such cases, necessary documents in original and proof of payment relating to the procurement of materials shall be made available by the contractor to the Engineer-in-Charge.

c) Samples, whether submitted for approval to govern bulk supplies or required for testing before use and also the sample of materials bearing 'Standard mark,' if required for testing, shall be provided free of cost by the contractor. All other incidental expenditure to be incurred for testing of samples e.g. packaging, sealing transportation, loading, unloading etc. except testing charges shall be borne by the contractor.

d) The materials, supplied by the Department shall be deemed to be complying with the specifications.

e) Materials stored at site, depending upon the individual characteristics, shall be protected from atmospheric effects due to rain, sun, wind and moisture to avoid deterioration.

f) Materials like timber, paints etc. shall be stored in such a way that there may not be any possibility of fire hazards. Inflammable materials and explosives shall be stored in accordance with the relevant rules and regulations or as approved by Engineer-in-Charge in writing so as to ensure desired safety during storage.

g) The unit weight of materials unless otherwise specified shall be reckoned as given in IS: 1911-1967.

SAFETY IN CONSTRUCTION

a) The contractor shall employ only such methods of construction, tools and plant as are appropriate for the type of work or as approved by Engineer-in-Charge in writing.

b) The contractor shall take all precautions and measures to ensure safety of works and workman and shall be fully responsible for the same. Safety pertaining to construction works such as excavation, centering and shuttering, trenching, blasting, demolition, electric connections, scaffolds, ladders, working platforms, gangway, mixing of bituminous materials, electric and gas welding, use of hoisting and construction machinery shall be governed by CPWD safety code, relevant safety codes and the direction of Engineer-in-Charge

1.1.2. DISMANTLING AND DEMOLISHING

c) All materials obtained from dismantling or demolition shall be the property of the Government unless otherwise specified and shall be kept in safe custody until they are handed over to the Engineer in-Charge/ authorized representative.

d) The demolition shall always be well planned before hand and shall generally be done in reverse order of the one in which the structure was constructed. The operations shall be got approved from the Engineer-in-Charge before starting the work.

e) Due care shall be taken to maintain the safety measures prescribed in IS 4130.

f) Necessary propping, shoring and or under pinning shall be provided to ensure the safety of the adjoining work or property before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining work or property. Wherever specified, temporary enclosures or partitions and necessary scaffolding with suitable double scaffolding and proper cloth covering shall also be provided, as directed by the Engineer-in-Charge.

g) Necessary precautions shall be taken to keep noise and dust nuisance to the minimum. All work needs to be done under the direction of Engineer-in-Charge. Helmets, goggle, safety belts etc. should be used whenever required and as directed by the Engineer-in-Charge.

h) The demolition work shall be proceeded with in such a way that it causes the least damage and nuisance to the adjoining building and the public.

i) Dismantling shall be done in a systematic manner. All materials which are likely to be damaged by dropping from a height or by demolishing roofs, masonry etc. shall be carefully removed first. Chisels and cuters may be used carefully as directed. The dismantled articles shall be removed manually or otherwise, lowered to the ground (and not thrown) and then properly stacked as directed by the Engineer-in-Charge.

j) Where existing fixing is done by nails, screws, bolts, rivets, etc., dismantling shall be done by taking out the fixing with proper tools and not by tearing or ripping off.

k) Any serviceable material, obtained during dismantling or demolition, shall be separated out and stacked properly as directed by the Engineer-in-Charge within a lead of 50 metres. All unserviceable materials, rubbish etc. shall be disposed off as directed by the Engineer-in-Charge.

l) The contractor shall maintain/disconnect existing services, whether temporary or permanent, where required by the Engineer-in-Charge.

m) No demolition work should be carried out at night especially when the building or structure to be demolished is in an inhabited area.

n) Screens shall be placed where necessary to prevent injuries due to falling pieces.

o) Water may be used to reduce dust while tearing down plaster from brick work.

p) Safety belts shall be used by labourers while working at higher level to prevent falling from the structure.

q) First-aid equipment shall be got available at all demolition works of any magnitude.

ROOF TRUSSES

r) If a building has a pitched roof, the roof structure should be removed to wall plate level by hand method. Sufficient purlins and bracing should be retained to ensure stability of the remaining roof trusses while each individual truss is removed progressively.

s) Temporary bracing should be added, where necessary, to maintain stability. The end frame opposite to the end where dismantling is commenced, or a convenient intermediate frame should be independently and securely guyed in both directions before work starts.

t) On no account should the bottom tie of roof trusses be cut until the principal rafters are prevented from making outward movement

1.1.3. CONSERVATION WORKS

MATERIALS AND WORKMANSHIP

a) The term "Materials" shall mean all materials, goods and articles of every kind whether raw, processed or manufactured and equipment and plant of every kind to be supplied by the implementing agency for incorporation in the works.

b) All materials shall be of the specified quality and should match the original in colour, texture and composition. New material should be of acceptable conservation grade.

c) Materials shall be transported, handled (stacked where necessary)and stored in such a manner as to prevent deterioration, damage or contamination failing which such damaged materials will be rejected and shall not be used on any part of the works under this contract.

d) Work shall be performed only by mason skilled and competent in the particular class of work. Wherever possible skilled craftsperson must be engaged and traditional methods employed in reconstruction processes. All work should match the standard and quality of the original workmanship of the building.

e) The building conservation works should be carried out in a manner complying with the principles of conservation and good conservation practices as accepted nationally and internationally.

f) H-frame scaffolding and other special scaffolding should be provided for accessing and working on certain parts of the building without causing any harm to the structures. Special care must be taken while working so that flooring is not damaged. Scaffolding may be propped against the face of the building with suitably padded buffer.

g) Recycling of the historic material: The historic material should be reused as far as possible. This essentially includes the historic timber members, stone and bricks. The partially decayed timber members should also be reused after consultation with the client and the principal consultant.

h) The scaffolding should be metal cup lock system and not take support by burrowing into the historic masonry.

i) All vehicular movement within the forecourt for movement of material or man power should move at a minimum distance of 2 meters from the buildings and should follow the demarcated pathway.

SAMPLING AND TESTING OF MATERIALS

a) The implementing agency shall submit samples of such materials (before going for bulk supply, bulk supply shall be taken up after obtaining written approval of the said samples by the authority concerned) as may be required by the Project Manager for Quality Assurance and shall carry out the specified tests directed by the Project Manager at the site or at the supplier's premises or at a laboratory approved by the Project Manager.

b) Samples shall be submitted and tests carried out sufficiently early to enable further samples to be submitted and tested if required by the Project Manager for Quality Assurance.

c) Final specifications of the building materials, to be used for conservation work, should be based on laboratory tests to ensure that they comply with the original materials. Scientific investigations of the art work materials should be carried out to better inform proposed conservation interventions.

d) The implementing agency shall give the Project Manager seven days' notice in writing of the date on which any of the materials will be ready for testing or inspection. The Project Manager shall attend the test at the appointed place within seven days of the said date on which the materials are expected to be ready for testing or inspection according to the implementing agency, failing which the test may proceed in his absence unless instructed by the Project Manager to carry out such a test on a mutually agreed upon date.

e) The implementing agency shall in any case submit to the Project Manager within seven days of every test such number of certified copies (not exceeding six) of the test readings as the Project Manager may require.

f) The provisions of this clause shall also apply to materials supplied under any nominated sub-contract.

STANDARDS

a) The latest specifications, as prepared and published by Public Works Department, Govt. of Uttar Pradesh, shall be construed to be a part of the tender. These shall be followed in respect of all materials, workmanship and various tests to be performed and the acceptance criteria.

b) In respect of items, where Public Works Department, specifications are either not available or do not serve the intent of design, the Central Public Works Department, Govt. of India, Specifications shall govern.

c) Where Specifications are still not found, the latest provisions of National Building Code of India / Indian Standards (IS) / IRC / MORTH / CPHEEO shall hold good.

d) The requirement of these specifications shall be fulfilled by the implementing agency within the tendered rates. The items quoted shall be deemed to have taken these specifications into account.

e) At the request of client, the implementing agency has to provide a certificate stating that the materials supplied comply in all respects with the standard; the implementing agency shall obtain the certificate and forward it to the Project Engineer.

f) If no standard is indicated, the relevant Indian Standard, if any, shall apply. Indian Standards are published by:

Indian Standards Institution,
Manak Bhavan,
9, Bahadur Shah ZafarMarg,
New Delhi – 110 002

g) In case of discrepancy between the Technical Specification and the Standards referred to herein, the Technical Specification shall govern.

SITE CLEARANCE

a) **De-vegetation:** The growth of vegetation in the joints of historic brick buildings is the principle factor in causing their ruin. Therefore the plants and trees growing on and close to the structure need to be removed as specified by conservation architect.

In removing weeds, trees or shrubs, etc. from walls, it is essential that the roots should be completely destroyed, and during the process of raking out, any tendrils found in the joints should be followed up and removed. The stumps can be injected with chemical called Round up or tree killer, arsenic or hot lime slurry shall be poured around the roots.

Joints which have to be raked out in order to destroy the vegetation should, after the earth etc. has been removed, be immediately re-pointed.

The removal of trees from historic masonry is an operation that demands special care. As a rule large trees should be removed in sections in order to prevent injury being done to the masonry.

Refilling shall be done by using earth in layers of 200mm. thickness with compaction in pits.

DISMANTLING AND DEMOLISHING WITHIN HISTORIC BUILDINGS/SITES

a) **Dismantling:** The term ‘Dismantling’ implies carefully separating the parts without damage and removing. This may consist of dismantling one or more parts of the building as specified or shown on the drawings.

b) **Precautions:** All materials obtained from dismantling or demolition shall be the property of the Government unless otherwise specified and shall be kept in safe custody until they are handed over to the Project Manager/ authorized representative.

c) **Findings on site:** The findings should be brought in to notice of the conservation architect. The constructions details will be reviewed on the basis of the new findings. The implementing agency should photo document the various findings on site during the course of conservation works. It is important that the implementing agency adheres to the time plan keeps the conservation architect informed about the various explorations in the building so that the documentation of the findings and relevant changes in the details can be carried.

d) **Marking and keeping material:** All materials removed in accordance with the items of work shall be marked as they are removed, so as to clearly show where they have been removed from, and shall be kept on the site and protected from damage until they are inspected by the Conservation Architect. Marking of the historic material is essentially important.

e) The dismantling shall always be well planned before hand and shall generally be done in reverse order of the one in which the structure was constructed. The operations shall be got approved from the Project Manager before starting the work.

f) Due care shall be taken to maintain the safety measures prescribed in IS 4130.

g) **Care in removal:** All demolition shall be undertaken in a careful manner with minimum disturbance to prevent any damage to other parts or to the rest of the building.

h) While removing the incompatible later additions (lime washes, cement plaster, etc.) the implementing agency shall take all precautions to protect the existing original details (art work, original plaster and original elements). All work on decorative surfaces shall be carried out by Art Conservators only or under their direct supervision. Precautions to safeguard the decorative surfaces/art works shall be carried out prior to commencement of civil dismantling or demolition works on the building. Suitable measures for their protection shall be adopted by the civil works implementing agency and firm carrying out the art conservation work in consultation with each other.

i) **Protection of historic features and materials:** Utmost care must be taken to ensure that the historic fabric of the building is not damaged in the course of demolition works as well as during conservation works. Special care must be taken to protect floor surfaces (brick floors, marble floors, stone etc.), decorative features (doors, wall paintings etc.).

j) Necessary propping, shoring and or under pinning shall be provided to ensure the safety of the adjoining work or property before dismantling and demolishing is taken up and the work shall be carried out in such a way that no damage is caused to the adjoining work or property. Wherever specified, temporary enclosures/ partitions or necessary scaffolding (suitable double scaffolding and proper cloth covering), shall also be provided, as directed by the Project Engineer.

k) Necessary precautions shall be taken to keep noise and dust nuisance to the minimum.

l) All work needs to be done under the direction of Project Manager. Helmets, goggle, safety belts etc. should be used whenever required and as directed by the Project Manager.

m) The demolition work shall be proceeded with in such a way that it causes the least damage and nuisance to the adjoining building and the public.

n) Dismantling shall be done in a systematic manner. All materials which are likely to be damaged by dropping from a height or by demolishing roofs, masonry etc. shall be carefully removed first.

o) Chisels and cutters may be used carefully as directed. The dismantled articles shall be removed manually or otherwise, lowered to the ground (and not thrown) and then properly stacked as directed by the Project Manager.

p) Where existing fixing is done by nails, screws, bolts, rivets, etc., dismantling shall be done by taking out the fixing with proper tools and not by tearing or ripping off.

q) Any serviceable material, obtained during dismantling or demolition, shall be separated out and stacked properly as directed by the Project Manager within a lead of 50 meters. All unserviceable materials, rubbish etc. shall be disposed of as directed by the Project Manager.

r) The implementing agency shall maintain/disconnect existing services, whether temporary or permanent, where required by the Project Engineer.

s) No demolition work should be carried out at night especially when the building or structure to be demolished is in an inhabited area.

t) Screens shall be placed where necessary to prevent injuries due to falling pieces as it a tourist site. Care must be taken for the safety of tourist during implementation. Water may be used to reduce dust while tearing down plaster from brick/stone work.

MASONRY WORK

a) **Materials:** Materials shall comply with the specifications and standards as specified.

b) **Lime:** This specification lays down the general characteristics of lime to be used for the conservation work. No readymade or factory made lime is to be used for any of the work.

The classification of lime to be used for various purposes is as follows:

Lime for concrete terracing: Class A lime: Hydraulic Lime

Lime for making lime mortar: Class B lime: Feebly hydraulic lime

Lime for making lime plaster: Class C lime: Fat lime

Supply and Storage: The lime to be used for concreting of terrace or Class A lime is to be supplied as hydraulic lime only. The class B and class C shall be supplied as quick lime. Lime supplied as quick lime or lump lime at the site should be in a sealed condition and subsequently stacked in a store or any other place which is dry and under cover well protected from rain. This is necessary because quick lime deteriorates quickly as it attracts moisture and carbon dioxide from atmosphere. For storing it should be piled up and covered with a blanket of lime dust to exclude moist air. Therefore it should be slaked as soon as possible in a pit called a '*Haudi'* specially constructed for this. It should be slaked for at least 10 days prior to its use for making lime mortar and plaster.

Rejection of Lime: The lump or quick lime having stone pieces, impurities and powdery shall be rejected. The Implementing agency at his own expense shall remove lime, which has been rejected by the Engineer, from the site of work within 3 days.

Lime slaking in tank*:* A tank or the *'Haudi'* lined with stone or brick and finished with cement large enough to permit, stirring and hoeing shall be prepared (generally tanks suitable for 5 quintals or 10 quintals of quick lime are used in practice). The tank shall be filled to half its depth with water.

Quick lime shall be gradually added till it fills the entire bottom to about half the depth of water. **(Never add water to lime).** While quick lime is being added it shall be constantly stirred and hoed so as to break up the lumps. No part of the lime shall be allowed to expose above water level. As the lime slakes with evolution of heat temperature begins to rise and more lime or water may be added till the required temperature is reached and that temperature should be maintained by the addition of more lime or water till all the lime apparently has slaked, the stirring and hoeing shall be continued during the above process and for some period even after the slaking is apparently over. This whole act has to done with utmost precaution to the body by covering the eyes with glass goggles and wearing rubber boots.

Maturing: After the lime has cooled, more water shall be added if required and it shall be left undisturbed for not more than 7 days. The putty shall be allowed to mature but not allowed to dry out till it is used. Therefore the tank will need to be filled with water to allow the slaked lime to be constantly in submerged in water.

c) **Surkhi:** Surkhi is the powdered burnt bricks, brickbats and is used as an admixture to lime both for making lime mortar and lime plaster. Surkhi shall always be obtained from fully burnt or slightly under burnt, but never from over brunt bricks. Surkhi obtained from burnt loam shall not contain any un-burnt soil. Surkhi shall be perfectly clean, free from an admixture or any foreign element. Surkhi shall not contain soluble sulphate more than 0.5% for exposed work and work in damp situations and not more than 1.0% when used for works in dry and internal situations.

Stacking: Surkhi shall be stacked on masonry or wooden platform in regular stacks as of size2.0M x 2.0M x 0.6M at the places as directed by the Engineer and shall be protected from dust, rains and dampness and shall be kept under adequate coverings provided by the implementing agency.

d) **Sand:** Sand used in the making of mortar should be coarse grained, perfectly clean and sharp and preferably of a yellow and variegated colour. It should, if possible, be obtained from local pits.

It is absolutely essential that it should possess the above mentioned qualities in order that a successful result may be obtained for the lime mortar. Fine grained, dusty or dirty sand must not be allowed, and each fresh consignment should be carefully inspected in order to see that it corresponds with the sample approved in the first case. Many sands which would otherwise be of good quality contain lumps of foreign matter, or a quantity of dusty particles. Such sand may with the Engineers consent, be used after it has been thoroughly washed and sifted.

e) **Mortar mixes** -Lime surkhi mortar and Lime surkhi plaster

Materials used**:** Lime: Lime A, B and C class shall be used in the preparation of mortar and shall, conform to lime specification 2.1.1

Surkhi Aggregates: It shall conform to Surkhi specification

Sand aggregate in lime mortar: *shall* confirm to sand specification

Water: For all mortars water used shall be free from mud, clay, and acidic, basic or organic impurities and shall be drinkable.

Proportion: The lime surkhi mortar shall be in conformance to the DSR-2016 specification for lime in 1:1:1 (1 lime putty: 1 surkhi: 1 fine sand).

The proportion of mix for mortar shall also depend upon the percentage purity of lime with regard to its CaO content. In case the CaO content of lime is lower, the proportion of lime shall be suitably increased to compensate, for the lower CaO content of the lime used. The lime plaster will be as per archaeological specification 3.1 (a) in 1:2 (1 lime: 2 surkhi).

Preparation of mortar: Mortar mill (Lime *Chakki or Mill*) mixing: Slaked lime in the required quantity and fine aggregates in proportions (For lime mortar, 1:1:1 (1 lime putty: 1 surkhi: 1 fine sand) and 1:2 (1 lime: 2 Surkhi) shall be put along with limewater/water in the *chakki* spreading uniformly all along its circumference and ground with a stone *chakki* till a mortar of uniform colour and desired consistency is obtained. As grinding is done the mixture shall be continuously raked and turned over and over especially from corners and sides. Mortar is to be ground to the required consistency depending on the mode of grinding i.e. bullock or tractor for 3 hrs and 1and half hour (at least) respectively. The prepared masala has to be then removed to a rectangular pit that would be used for storing of the masala with enough space to allow the masala to be mixed well for a short duration using feet before delivering it for application.

Addition of surkhi or other pozzolonas in the making of mortars gives the mortars the properties of hydraulic mortars i.e. quick setting properties and should be treated like Class A and Class B lime mortars, depending upon the hydraulicity.

Strengthening of the mortar: The prepared lime mortar should be added with the admixture of*Lapti ka paani + methi+ gulgul ka paani,* which should be added only after being filtered properly. The filtered admixture will be thoroughly mixed with the lime mortar and then added with *rumimastagi ka paani* for extra strengthening of the mortar.

Storage of Mortar: Lime mortars prepared shall be used up as soon as possible after mixing 2 days for Class B limes from the time of making Putty or first grinding. Mortars from Class C limes can be used for periods longer than 3 days after the making of mortar provided they are protected from drying out. The mortar left over at the end of the working hour should be properly covered with moistened jute bags. When the mortar is used after a gap of two days it should be sprinkled with limewater and mixed well using feet covered with gumboot.

Rejection of Mortar: Mortar not found in accordance with the specifications above and unsuitable according to field and laboratory tests of lime mortar shall be rejected. The implementing agency at its own cost shall remove rejected mortar from the site of work within 3 days.

f) **Filling of cracks:** Cracks can be categorized into minute hairline crack and wide crack especially in plaster. Not much action is needed to put a stop or to treat micro-cracks. On the other hand, the wide cracks are filled with putty of lime and the materials originally used for the preparation of plaster at various places. Filling is done with a painted spatula and sometimes with a dropper.

Where the cracks are structural the cracks need to further investigate and the underlying masonry condition assessed to find the cause of the cracks. Often the joints in the stone masonry deteriorated as a result of deteriorating mortar which gives rise to major cracks.

Cracks in the masonry will need to be stitched and the masonry grouted with hydraulic lime grouting 1:1 (1 lime putty: 1 fi ne sieved sand) using pressure grouting to strengthen the masonry.

The gauged brick masonry work shall be of superior quality and be smoothened by physical /abrasive technique so as to achieve hair line joints.

g) **Cutting and Cleaning cement/ lime pointing from masonry joints:** When modern lime or cement pointing has to be cut out from old joints and stone faces from the historic building in the complex, great care is to be taken such that the edges and surfaces of the brick/stone are not touched with chisel. When the cement pointing is hard and compact, a very small chisel is to be used and the centre of the cement joint is cut out, after which the sides of the joints where the cement adheres, are to be picked off with a steel tool, but without the use of a hammer.

SAND STONE WORK

a) **Sand stone slab flooring/ pathway:** The stone flooring with chisel dressed stones will be as per Archaeological specification clause no 5.10. Wherever old paving stones exist; the old stone slab will be re-laid in the same area with missing stones replaced. Where the new paving stones have to be laid care should be taken to see that the stones slab match as much as possible to the old paving stone slab.

b) **Repair of Chhajjas:** To replace chajja either large part of it should be damaged or completely missing. At places where large pieces have fallen off, the remaining pieces should also be carefully removed out and completely new chhajja carved out in the same pattern should be placed in grooves, if possible reusing the old chhajja slabs. In order to maintain the authenticity of the material of the new chhajjas to the old chhajjas, it will have to be made out in the same stone, which is broken off and can be replaced. The newly carved piece should be made in same pattern, matching in colour, texture and size as the existing stone slab chhajja and it should fixed in the same manner.

WOOD WORK

a) **Fixing of new Doors:** The doors should be of best teak or other superior quality wood, free from knots, etc. It should match in size, colour, texture and design as per the existing doors in the west gateway. The door specifications and drawings given by the conservation architect should be referred in all respects.

FINISHING WORK

a) **Treatment of bulging plaster and damaged plaster:** The problem associated with deteriorating plaster is in the form of bulging, flaking and loss of plaster in small or big patches from the ceiling and wall surfaces. In case of severe conditions related to the above the deteriorated plaster can be carefully removed without harming the surface of the underlying masonry and re-plastering it. All this should be done under the strict supervision of art conservator and only for areas specified in the conservation drawings.

In many a place, the plaster separates from the walls and a gap is formed between them. There are two types of separation of plaster from the support, one in which the gap between the support and plaster is considerable with minor cracks formed on surface and another in which plaster is detached, the gap is too much. Here again it is advisable to repair the lime plaster, similar in composition to the original plaster for filling up the lost areas.

b) Lime Surkhi Plaster Work:

Sequence of work: Surface Preparation: Surfaces to be plastered shall be thoroughly cleaned of all dust, grease, oil and loose mortar. The entire surface shall then be thoroughly washed with brush and clean water.

Joints shall be racked out to depth of 20mm minimum with a hooked tool specially made for the purpose. Care should be taken not to damage masonry edges while racking. All surfaces of concrete, old plaster and stone shall be roughened sufficiently for bond with the plaster. Soft or crumbling stonework and other surfaces shall be dismantled and repaired if required. All surfaces to be plastered shall be thoroughly wetted for 24 hours before commencing plaster and shall be kept damp during the progress of work. At the same time the wall should not be too wet, as plaster is then likely to fall out and will also not be appropriate. It is essential to maintain uniform suction of water by receiving surfaces, which shall be ensured by damping evenly all dry patches before applying plaster. The Engineer will inspect and approve all preparatory work before the commencement of plastering work.

Application & Curing: The first coat shall be done as per specified in archaeological specification 3.1 (a) and should be in ratio 1:2 (lime: surkhi). The first coat shall be applied to the wall with trowel in thickness 5 to 8mm. This surface shall be racked out, immediately after applying when it wet, by trowel at distances 30mm to 45mm. in jig jag pattern. This shall be done for complete room and should be left for 2-3 days.

Now the surface shall be thoroughly wetted for 24 hours before applying the next coat of surkhi plaster. The thickness for the surkhi plaster 25mm. in ratio 1:2 (lime: surkhi). The surkhi plaster for wall shall be done from the top to bottom and if possible each wall should be done on the same day if to avoid defects or unevenness at the joints. To ensure even thickness and a true surface, about 150mm. x 150mm. of surkhi plaster shall first be applied horizontally and vertically at 2m centers, approximately over the entire surfaces, to serve as gauges.

The surkhi mortar shall be filled between these to gauge with a straight edge wooden piece (plainer or *butkada*). The plastered surface shall be firmly pressed to uniform plumb and plane. The surface shall be left for 24hours. The surface shall develop cracks after 24 hours. All plastered surface shall be thoroughly wetted for 24 hours before commencing plaster and shall be kept damp during the progress of work. At the same time the wall should not be too wet, as plaster is then likely to fall out and will not be satisfactory.

It is essential to maintain uniform suction of water by receiving surfaces, which shall be ensured by damping evenly all dry patches before applying plaster. The Engineer will inspect all preparatory work and process shall not be commenced, until Engineer approves all preparatory works.

The surface shall be hammered at the cracks with the help of wet wooden sticks (*jaal / baint* wood) made for the purpose. The cracks should seems be mixed. The surface shall be left for 7 days and shall cure during the process.

All corners, angles, junctions, etc. shall be truly vertical, horizontal or carved as the case may be and shall be carefully finished. Rounding or chamfering of corners or junctions wherever required shall be done without any extra payment. No portion shall be left out initially to be patched up later on. Before applying *surkhi*, *loi* the entire surface of the *surkhi* plaster should be rechecked with a true straight edge (wooden or aluminum plainer 2.5m long), plumb, string, level, etc.

If any crack appears on surfaces or if any portion found soft or if sound defective due to less lime, improper curing or any other reason, the relevant portion shall be removed and redone as per the instruction of the Engineer.

The surface is thoroughly wetted before applying *loi* (final coat). Now the *surkhi loi* shall be apply in thickness2mm. (ratio 1:2) is applied with the plainer. The surface shall be smoothened by rubbing and pressing.

c) Surface finish: Removal of lime wash

While removal of lime washes/white wash from an old surface care should be taken to prevent injury to the underlying surface in particular any inscription, painting or relief beneath. Lime wash can be removed by light brushing with soft brush and water or light sponging in case of painted or delicate surface. In certain cases scraping using surgical blade and knife may be resorted to by skilled worker under close supervision and instruction of the engineer in consultation with the conservation architect.

The task of cleaning stucco work or removal of lime wash and dirt from the surface is a specialized and difficult job to be undertaken only under the directions supervision of art conservation expert in consultation with the conservation architect.

1.1.4. EARTHWORK

SITE CLEARANCE

a) Before the earth work is started, the area coming under cutting and filling shall be cleared of shrubs, rank vegetation, grass, brushwood, trees and saplings of girth up to 30cm measured at a height of one meter above ground level and rubbish removed up to a distance of 50 meters outside the periphery of the area under clearance. The roots of trees and saplings shall be removed to a depth of 60cm below ground level or 30 cm below formation level or 15 cm below sub grade level, whichever is lower, and the holes or hollows filled up with the earth, rammed and leveled.

b) The trees of girth above 30 cm measured at a height of one meter above ground shall be cut only after permission of the Engineer-in-Charge is obtained in writing. The roots of trees shall also be removed as specified

c) Existing structures and services such as old buildings, culverts, fencing, water supply pipe lines, sewers, power cables, communication cables, drainage pipes etc. within or adjacent to the area if required to be diverted/removed, shall be diverted/dismantled as per directions of the Engineer-in Charge and payment for such diversion/dismantling works shall be made separately.

d) In case of archaeological monuments within or adjacent to the area, the contractor shall provide necessary fencing around such monuments as per the directions of the Engineer-in-Charge and protect the same properly during execution of works. Payment for providing fencing shall be made separately.

e) Lead of 50 m mentioned in the 'Schedule Of Quantities' is the average lead for the disposal of excavated earth within the site of work. The actual lead for the lead for the disposal of earth may be more or less than the 50 m for which no cost adjustment shall be made in the rates.

f) Disposal of Earth shall be disposed off at the specified location or as decided by the Engineer-in Charge. The contractor has to take written permission about place of disposal of earth before the earth is disposed off, from Engineer-in-Charge.

EXCAVATION IN ALL KINDS OF SOILS

g) All excavation operations manually or by mechanical means shall include excavation and 'getting out' the excavated materials. In case of excavation for trenches, basements, water tanks etc. 'getting out' shall include throwing the excavated materials at a distance of at least one metre or half the depth of excavation, whichever is more, clear off the edge of excavation. In all other cases 'getting out' shall include depositing the excavated materials as specified. The subsequent disposal of the excavated material shall be either stated as a separate item or included with the items of excavation stating lead.

h) During the excavation the natural drainage of the area shall be maintained. Excavation shall be done from top to bottom. Undermining or undercutting shall not be done.

i) In firm soils, the sides of the trenches shall be kept vertical upto a depth of 2 meters from the bottom. For greater depths, the excavation profiles shall be widened by allowing steps of 50 cms on either side after every 2 meters from the bottom. Alternatively, the excavation can be done so as to give slope of 1:4 (1 horizontal: 4 vertical). Where the soil is soft, lose or slushy, the width of steps shall be suitably increased or sides sloped or the soil shored up as directed by the Engineer-in Charge. It shall be the responsibility of the contractor to take complete instructions in writing from the Engineer-in-Charge regarding the stepping, sloping or shoring to be done for excavation deeper than 2 meters.

j) The excavation shall be done true to levels, slope, shape and pattern indicated by the Engineer-in Charge. Only the excavation shown on the drawings with additional allowances for centering and shuttering or as required by the Engineer-in-Charge shall be measured and recorded for payment.

k) In case of excavation for foundation in trenches or over areas, the bed of excavation shall be to the correct level or slope and consolidated by watering and ramming. If the excavation for foundation is done to a depth greater than that shown in the drawings or as required by the Engineer-in-Charge, the excess depth shall be made good by the contractor at his own cost with the concrete of the mix used for levelling/ bed concrete for foundations. Soft/defective spots at the bed of the foundations shall be dug out and filled with concrete (to be paid separately) as directed

l) While carrying out the excavation for drain work care shall be taken to cut the side and bottom to the required shape, slope and gradient. The surface shall then be properly dressed. If the excavation is done to a depth greater than that shown on the drawing or as required by the Engineer-in-Charge, the excess depth shall be made good by the contractor at his own cost with stiff clay puddle at places where the drains are required to be pitched and with ordinary earth, properly watered and rammed, where the drains are not required to be pitched. In case the drain is required is to be pitched, the back filling with clay puddle, if required, shall be done simultaneously as the pitching work proceeds. The brick pitched storm water drains should be avoided as far as possible in filled-up areas and loose soils.

m) In all other cases where the excavation is taken deeper by the contractor, it shall be brought to the required level by the contractor at his own cost by filling in with earth duly watered, consolidated and rammed.

n) In case the excavation is done wider than that shown on the drawings or as required by the Engineer-in-Charge, additional filling wherever required on the account shall be done by the contractor at his own cost.

o) The excavation shall be done manually or by mechanical means as directed by Engineer-in-charge considering feasibility, urgency of work, availability of labour /mechanical equipment and other factors involved. Contractor shall ensure every safety measures for the workers. Neither any deduction will be made nor will any extra payment be made on this account.

EARTH WORK BY MECHANICAL MEANS

a) Earth work by mechanical means involves careful planning keeping in view site conditions i.e. type of soil, nature of excavation, distances through which excavated soil is to be transported and working space available for employing these machines. The earth moving equipment should be accordingly selected.

b) The earth moving equipment consists of excavating and transporting equipment. Excavating equipment may be further classified as excavators and tractor based equipment.

FILLING

a) The earth used for filling shall be free from all roots, grass, shrubs, rank vegetation, brushwood, tress, sapling and rubbish.

b) Filling with excavated earth shall be done in regular horizontal layers each not exceeding 20 cm in depth. All lumps and clods exceeding 8 cm in any direction shall be broken. Each layer shall be watered and consolidated with steel rammer or ½ tonne roller. Where specified, every third and top must layer shall also be consolidated with power roller of minimum 8 tonnes. Wherever depth of filling exceeds 1.5 metre vibratory power roller shall be used to consolidate the filing unless otherwise directed by Engineer-in-charge. The top and sides of filling shall be neatly dressed. The contractor shall make good all subsidence

and shrinkage in earth fillings, embankments, traverses etc. during execution and till the completion of work unless otherwise specified.

SURFACE EXCAVATION

a) Excavations exceeding 1.5 m in width and 10 sqm. on plan but not exceeding 30 cm. in depth in all types of soils and rocks shall be described as surface excavation and shall be done as specified in 2.7 and 2.8.

EXCAVATION IN TRENCHES FOR PIPES, CABLES ETC. AND REFILLING

a) This shall comprise excavation not exceeding 1.5 mts in width or 10 sqm in plan and to any depth trenches for pipes. Cables etc. and returning the excavated material to fill the trenches after pipes, cables etc. are laid and their joints tested and passed and disposal of surplus excavated material upto 50 m lead

FILLING IN TRENCHES, PLINTH, UNDER FLOOR ETC.

a) Earth Normally excavated earth from same area shall be used for filling. Earth used for filling shall be free from shrubs, rank, vegetation, grass, brushwood, stone shingle and boulders (larger than 75mm in any direction), organic or any other foreign matter. Earth containing deleterious materials, salt peter earth etc. shall not be used for filling. All clods and lumps of earth exceeding 8 cm in any direction shall be broken or removed before the earth is used for filling.

SURFACE DRESSING

a) Surface dressing shall include cutting and filling upto a depth of 15 cm and clearing of shrubs, rank vegetation, grass, brushwood, trees and saplings of girth upto 30 cm measured at a height of one metre above the ground level and removal of rubbish and other excavated material upto a distance of 50 metres outside the periphery of the area under surface dressing. High portions of the ground shall be cut down and hollows depression filled upto the required level with the excavated earth so as to give an even, neat and tidy look

FELLING TREES

a) While clearing jungle, growth trees above 30 cm girth (measured at a height of one metre above ground level) to be cut, shall be approved by the Engineer-in-Charge and then marked at site. Felling trees shall include taking out roots upto 60 cm below ground level or 30 cm below formation level or 15 cm below sub-grade level, whichever is lower.

b) All excavation below general ground level arising out of the removal of trees, stumps etc. shall be filled with suitable material in 20 cm layers and compacted thoroughly so that the surfaces at these points conform to the surrounding area. The trunks and branches of trees shall be cleared of limbs and tops and cut into suitable pieces as directed by the Engineer-in-Charge.

ANTI-TERMITE TREATMENT

a) Sub-terranean termites are responsible for most of the termite damage in buildings. Typically, they form nests or colonies underground. In the soil near ground level in a stump or other suitable piece of timber in a conical or dome shaped mound. The termites find access to the super-structure of the building either through the timber buried in the ground or by means of mud shelter tubes constructed over unprotected foundations.

b) Termite control in existing as well as new building structures is very important as the damage likely to be caused by the termites to wooden members of building and other household article like furniture, clothing, stationery etc. is considerable. Anti-termite treatment can be either during the time of construction i.e. pre-constructional chemical treatment or after the building has been constructed i.e. treatment for existing building.

c) Prevention of the termite from reaching the super-structure of the building and its contents can be achieved by creating a chemical barrier between the ground, from where the termites come and other contents of the building which may form food for the termites. This is achieved by treating the soil beneath the building and around the foundation with a suitable insecticide.

1.1.5. CEMENT MORTAR

WATER

a) Water used for mixing and curing shall be clean and free from injurious quantities of alkalies, acids, oils, salts, sugar, organic materials, vegetable growth or other substance that may be deleterious to bricks,

stone, concrete or steel. potable water is generally considered satisfactory for mixing. The Ph value of water shall be not less than 6. The following concentrations represent the maximum permissible values: (of deleterious materials in water).

CEMENT

a) The cement used shall be any of the following grade and the type selected should be appropriate for the intended use.

   i. 33 grade ordinary Portland cement conforming to IS 269.

   ii. 43 grade ordinary Portland cement conforming to IS 8112.

   iii. 53 grade ordinary Portland cement conforming to IS 12269.

   iv. Rapid hardening Portland cement conforming to IS 8041.

   v. Portland slag cement conforming to IS 455.

   vi. Portland Pozzolana cement (flyash based) conforming to IS 1489 (Part 1).

   vii. Portland Pozzolona cement (calcined clay based) conforming to IS 1489 (part 2).

   viii. Hydrophobic cement conforming to IS 8043

   ix. Low heat Portland cement conforming to IS 12600.

   x. Sulphate resisting Portland cement conforming to IS 12330

   xi. White cement conforming to IS 8042

FINE AGGREGATE

a) Aggregate most of which passes through 4.75 mm IS sieve is known as fine aggregate. Fine aggregate shall consist of natural sand, crushed stone sand, crushed gravel sand stone dust or marble dust, fly ash and broken brick (Burnt clay). It shall be hard, durable, chemically inert, clean and free from adherent coatings, organic matter etc. and shall not contain any appreciable amount of clay balls or pellets and harmful impurities e.g. iron pyrites, alkalies, salts, coal, mica, shale or similar laminated materials in such form or in such quantities as to cause corrosion of metal or affect adversely the hardening, the strength, the durability or the appearance of mortar, plaster or concrete. The sum of the percentages of all deleterious material shall not exceed 5%. Fine aggregate must be checked for organic impurities such as decayed vegetation humps, coal dust etc. in accordance with the procedure prescribed.

1.1.6. BRICK WORK

COMMON BURNT CLAY BRICKS

a) Shall conform to IS:1077 and shall be hand moulded or machine moulded. They shall be free from nodules of free lime, visible cracks, flaws warpage and organic matter, have a frog 100 mm in length 40 mm in width and 10 mm to 20 mm deep on one of its flat sides. Bricks made by extrusion process and brick tiles may not be provided with frogs. Each brick shall be marked (in the frog where provided) with the manufacturer's identification mark or initials.

TILE BRICK

a) The bricks of 4 cm height shall be moulded without frogs. Where modular tiles are not freely available in the market, the tile bricks of F.P.S. thickness 44 mm (1-3/4") shall be used unless otherwise specified.

1.1.7. STONE WORK

COURSED RUBBLE MASONRY - FIRST SORT

a) Face stones shall be hammer dressed on all beds, and joints so as to give them approximately rectangular block shape. These shall be squared on all joints and beds. The bed joint shall be rough chisel dressed for at least 80 mm back from the face, and side joints for at least 40 mm such that no portion of the dressed surface is more than 6 mm from a straight edge placed on it The remaining unexposed portion of the stone

shall not project beyond the surface of bed and side joint. The bushing on the face shall not project more than 40 mm as an exposed face and 10 mm on a face to be plastered. The hammer dressed stone shall also have a rough tooling for minimum width of 25 mm along the four edges of the face of the stone, when stone work is exposed.

b) The mortar for jointing shall be as specified.

c) All stones shall be wetted before use. The walls shall be carried up truly plumb or to specified batter. All courses shall be laid truly horizontal and all vertical joints shall be truly vertical. The height of each course shall not be less than 15 cm nor more than 30 cm.

d) Face stones shall be laid alternate headers and stretchers. No pinning shall be allowed on the face. No face stone shall be less in breadth than its height and at least one third of the stones shall tail into the work for length not less than twice their height.

e) The hearting or the interior filling of the wall shall consist of stones carefully laid on their proper beds in mortar; chips and spalls of stone being used where necessary to avoid thick beds of joints of mortar and at the same time ensuring that no hollow spaces are left anywhere in the masonry. The chips shall not be used below the hearting stone to bring these upto the level of face stones. The use of chips shall be restricted to the filling of interstices between the adjacent stones in hearting and these shall not exceed 10% of the quantity of stone masonry.

f) The masonry in a structure shall be carried up uniformly but where breaks are unavoidable, the joints shall be raked back at angle not steeper than 45°. Toothing shall not be allowed.

g) All bed joints shall be horizontal and all side joints vertical. All joints shall be fully packed with mortar, face joints shall not be more than one cm thick.

h) When plastering or pointing is not required to be done, the joints shall be struck flush and finished at the time of laying. Otherwise, joints shall be raked to a minimum depth of 20 mm by raking tool during the progress of work, when the mortar is still green.

STONE CHAJJA

a) Stone slabs shall be hard, sound and durable. These shall be chisel dressed on all faces which are exposed to view and rough dressed at other surface. Angles shall be true and edge lines straight. The finished thickness shall be as stipulated with permissible tolerance of ± 2 mm. The length of stone slabs in chajja shall not be less than 60 cm unless otherwise specified.

b) In case of sloping chajja the stone shall be sloped as specified. It shall have minimum bearing of 20 cm measured horizontally on the wall and the bearing shall also be similarly sloped. Each slab shall have a hole in the centre of the bearing area through which the anchoring M.S. holding down bolt shall pass. The holding down bolts shall be 12 mm diameter and shall be bent at right angles at its lowest end and burried horizontally for at least 7 cm in a joint 30 cm below the bearing surface. Each holding down bolt shall be secured at top by suitable washer and nut.

c) In case of horizontal chajja, the stone shall be fixed horizontally with a slight outer slope of about 1 cm. It shall have minimum bearing of 15 cm on the wall. Holding down bolts shall be provided, only where so specified.

1.1.8. WOOD WORK AND PVC WORK

TIMBER

a) The timber shall be free from decay, fungal growth, boxed heart, pitch pockets or streaks on the exposed edges, splits and cracks. The timber shall be graded as first grade and second grade on the basis of the permissible defects in the timber. For both the grades, knots should be avoided over a specified limit.

b) Control on moisture content of timber is necessary to ensure its proper utility in various climatic conditions. For specifying the permissible limit of moisture content in the timber the country has been divided into four climatic zones as per Appendix B of Chapter 9. In each of the zones, maximum permissible limit of moisture content of timber for different uses, when determined in accordance with the procedure laid down

c) The process of drying timber under controlled conditions is called seasoning of timber. Timber shall be either air seasoned or kiln seasoned and in both cases moisture content of the seasoned timber shall be as specified in Table 9. 2 of Chapter 9 unless otherwise specified, air seasoned timber shall be used. Kiln seasoning of timber, where specified, shall be done as per IS 1141 in a plant approved by Engineer in-Charge.

PANELLING MATERIAL

a) Timber panels shall be preferably made of timber of larger width. The minimum width and thickness of a panel shall be 150 mm and 15 mm respectively. When made from more than one piece, the pieces shall be joined with a continuous tongue and groove joint, glued together and reinforced with metal dowels. The grains of timber panels shall run along the longer dimensions of the panels. The panels shall be designed such that no single panel exceeds 0.5 square metre in area.

b) Plywood boards are formed by gluing and pressing three or more layers of veneers with the grains of adjacent veneers running at right angles to each other. The veneers shall be either rotary cut or sliced and shall be sufficiently smooth to permit an even spread of glue. Face veneers may be either decorative on both sides or one side commercial and the other decorative. Plywood shall be of BWP grade or BWR grade as per IS 303.

c) Particle boards shall be of medium density and manufactured from particles of agro waste, wood or lignocellulose i.e. material blended with adhesive and formed into solid panels under the influence of heat, moisture, pressure etc. The particle boards shall be flat pressed three layered or graded and of Grade-I as per Table 1 of IS 3087. Both surfaces of the boards shall be sanded to obtain a smooth finish and shall conform to IS 3087.

d) Fibre boards shall be of medium density cement board reinforced with wood fibre, produced by fiberizing steamed wood under pressure, blended with adhesive and wax and formed into solid panels under controlled conditions of heat and pressure as per IS 14862.

e) For panel exceeding 0.5 sqm in area, the nominal thickness of the glass to be used shall be as specified.

f) Particle Board Prelaminated particle board Grade-1 (FPT–I or graded wood particle board FPT-I) bonded with BWP type synthetic resin and prelaminated conforming to IS 12823 Grade-I, type II or I shall be used.

g) Fire retardant plywood shall generally conform to IS 5509. The plywood to be given fire retardant treatment shall conform to BWR grade of IS 303 to be able to stand pressure impregnation. Plywood for treatment shall be clean, free from oil or dirt patches on the surface and at a moisture content not exceeding 15 percent. In case of veneered decorative plywood care shall be taken that colour of the solution does not spoil to decorative surface.

DOOR, WINDOW AND VENTILATOR FRAMES

a) Timber for door, window and ventilators frames shall be as specified. Timber shall be sawn in the direction of the grains. All members of a frame shall be of the same species of timber and shall be straight without any warp or bow. Frames shall have smooth, well-planed (wrought) surfaces except the surfaces touching the walls, lintels, sill etc., which may be left clean sawn. Rebates, rounding or moulding shall be done before the members are jointed into frames. The depth of the rebate for housing the shutters shall be 15 mm, and the width of the rebates shall be equal to the thickness of the shutters. A tolerance of ± 2 mm shall be permitted in the specified finished dimensions of timber sections in frames.

b) The Jamb posts shall be through tenoned in to the mortise of the transoms to the full thickness of the transoms and the thickness of the tenon shall be not less than 2.5 cm. The tenons shall closely fit into the mortise without any wedging or filling. The contact surface of tenon and mortise before putting together shall be glued with polyvinyl acetate dispersion based adhesive conforming to IS 4835 or adhesive conforming IS 851 and pinned with 10 mm dia hard wood dowels, or bamboo pins or star shaped metal pins. The joints shall be at right angles when checked from the inside surfaces of the respective members. The joints shall be pressed in position. Each assembled door frame shall be fitted with a temporary stretcher and a temporary diagonal brace on the rebated faces.

c) The frames shall be got approved by the Engineer-in-Charge before being painted, oiled or otherwise treated and before fixing in position. The surface of the frames abutting masonry or concrete and the portions of the frames embedded in floors shall be given a coating of coal tar. Frames shall be fixed to the abutting masonry or concrete with holdfasts or metallic fasteners as specified. After fixing, the jamb posts of the frames shall be plugged suitably and finished neat. Vertical members of the door frames shall be embedded in the floor for the full thickness of the floor finish and shall be suitably strutted and wedged in order to prevent warping during construction. A minimum of three hold fasts shall be fixed on each side of door and window frames one at centre point and other two at 30 cm from the top and bottom of the frames. In case of window and ventilator frames of less than 1 m in height two hold fasts shall be fixed on each side at quarter point of the frames. Hold fasts and metallic fasteners shall be measured and paid for separately.

PANELLED GLAZED OR PANELLED AND GLAZED SHUTTERS

a) Panelled or glazed shutters for doors, windows, ventilators and cupboards shall be constructed in the form of timber frame work of stiles and rails with panel inserts of timber, plywood, block board, veneered particle

board, fibre board wire gauze or float glass. The shutters may be single or multipanelled, as shown in the drawings or as directed by the Engineer-in-Charge. Timber for frame work, material for panel inserts and thickness of shutters shall be as specified. All members of the shutters shall be straight without any warp or bow and shall have smooth well planed face at right angles to each other.

b) Any warp or bow shall not exceed 1.5 mm for door shutter and 1 mm for window and ventilator shutters The right angle for the shutter shall be checked by measuring the diagonals and the difference between the two diagonals should not be more than 3 mm. Generally panelled glazed or panelled and glazed shutter shall conform to IS 1003 (Pt. 1 & 2).

c) Timber for stiles and rails shall be of the same species and shall be sawn in the directions of grains. Sawing shall be truly straight and square. The timber shall be planed smooth and accurate to the required dimensions. The stiles and rails shall be joined to each other by plain or haunched mortise and tenon joints and the rails shall be inserted 25 mm short of the width of the stiles. The bottom rails shall have double tenon joints and for other rails single tenon joints shall be provided. The lock rails of door shutter shall have its centre line at a height of 800 mm from the bottom of the shutters unless otherwise specified. The thickness of each tenon shall be approximately one-third the finished thickness of the members and the width of each tenon shall not exceed three times its thickness.

d) Glass panelling (Glazing) shall be done as specified in 9.2.6. Glazing in the shutters of doors, windows and ventilators of bath, WC and Lavatories shall be provided with frosted glass the weight of which shall be not less than 10 kg/sqm. Frosted glass panes shall be fixed with frosted face on the inside. Glass panels shall be fixed by providing a thin layer of putty conforming to IS 419 applied between glass pane and all along the length of the rebate and also between glass panes and wooden beading.

e) These shall be made from mild steel flat 40 × 5 mm size conforming to IS 7196 without any burns or dents. 5 cm length of M.S. flat at one end shall be bent at right angle and one hole 11 mm dia shall be made in it for fixing to wooden frame with 10 mm dia nut bolt. The bolt head shall be sunk into the wooden frame, 10 mm deep and pluged with wooden plug. At the other end 10 cm length of the hold fast flat shall be forked and bent of length as specified at right angle in opposite direction and embedded in cement concrete block of size 30 x 10 x 15 cm of mix 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate, 20 mm nominal size) or as specified

f) Fitting shall be of mild steel, brass, aluminium or as specified. Some mild steel fittings may have components of cast iron. These shall be well made, reasonably smooth, and free from sharp edges and corners, flaws and other defects. Screw holes shall be counter sunk to suit the head of specified wood screws.

UPVC- DOOR FRAMES

a) UPVC door frame shall be made of PVC material conforming to IS 10151. The door frame shall be made from extruded UPVC section having overall dimensions of 48 x 40 mm or 42 x 50 mm having wall thickness of 2.0 mm + 0.2 mm. Corners of the door frame to be jointed by M.S. galvanized brackets. Joints mitred and plastic welded. The hinge side vertical outer frames shall be reinforced by galvanized M.S. Tube of size 19 x 19 mm of wall thickness 1 mm + 0.1 mm and a tie rod shall be provided at the bottom of the frame. The frame shall be fabricated in factory as per nomenclature of the item and directions of Engineer-in-Charge.

b) The frames are to be fixed in prepared openings in the walls. All civil work and tiling should be completed before the fixing of the frames. The frames are to be fixed directly on the plastered wall. In case tiling is to be done in the place the frames are to be fitted, a 50 mm strip should be left untiled at the location where the frames are to be fitted. The frames are erected in the prepared opening such that the vertical members of the door frame are embedded 50 mm in the floor. The frame shall be fitted truly in plumb. A minimum of three anchor bolts or screws of size 65/100 shall be used to fix each vertical member. One bolt shall be fixed at 200 mm from the top member and one bolt shall be fixed at 200 mm from the floor. The third anchor bolt shall be fixed in the center. The top horizontal member shall be fixed using two 65/100 size anchor bolts or screws at a distance of 200 mm from both the corners.

1.1.9. STEEL WORK

STEEL WORK IN BUILT UP SECTION (WELDED)

a) Straightening, shaping to form, cutting and assembling, shall be as far as applicable, except that the words “riveted or bolted” shall be read as “welded” and holes shall only be used for the bolts used for temporary fastening as shown in drawings.

b) Welding shall generally be done by electric arc process as per IS 816 and IS 823. The electric arc method is usually adopted and is economical. Where electricity for public is not available generators shall be arranged by the contractor at his own cost unless otherwise specified. Gas welding shall only by resorted to using oxyacetylene flame with specific approval of the Engineer-in-charge. Gas welding shall not be

permitted for structural steel work Gas welding required heating of the members to be welded along with the welding rod and is likely to create temperature stresses in the welded members. Precautions shall therefore be taken to avoid distortion of the members due to these temperature stresses.

c) The work shall be done as shown in the shop drawings which should clearly indicate various details of the joint to be welded, type of welds, shop and site welds as well as the types of electrodes to be used. Symbol for welding on plans and shops drawings shall be according to IS 813.

d) As far as possible every efforts shall be made to limit the welding that must be done after the structure is erected so as to avoid the improper welding that is likely to be done due to heights and difficult positions on scaffolding etc. apart from the aspect of economy. The maximum dia of electrodes for welding work shall be as per IS 814. Joint surfaces which are to be welded together shall be free from loose mill scale, rust, paint, grease or other foreign matter, which adversely affect the quality of weld and workmanship.

e) Before welding is commenced, the members to be welded shall first be brought together and firmly clamped or tack welded to be held in position. This temporary connection has to be strong enough to hold the parts accurately in place without any disturbance. Tack welds located in places where final welds will be made later shall conform to the final weld in quality and shall be cleaned off slag before final weld is made.

f) The specification shall be as described except that while erecting a welded structure adequate means shall be employed for temporary fastening the members together and bracing the frame work until the joints are welded. Such means shall consists of applying of erection bolts, tack welding or other positive devices imparting sufficient strength and stiffness to resist all temporary loads and lateral forces including wind. Owing to the small number of bolts ordinarily employed for joints which are to be welded, the temporary support of heavy girders carrying columns shall be specially attended. Different members which shall be fillet welded, shall be brought into as close contact as possible. The gap due to faulty workmanship or incorrect fit if any shall not exceed. 1.5 mm if gap exceeds 1.5 mm or more occurs locally the size of fillet weld shall be increased at such position by an amount equal to the width of the gap.

g) Before the member of the steel structures are placed in position or taken out of the workshop these shall be painted

TUBULAR / HOLLOW SECTION TRUSSES

a) Conforming to the requirement of IS 1161. The steel tubes when analysed in accordance with the method specified in IS 228 shall show not more than 0.06 percent sulphur, and not more than 0.06 per cent phosphorous.

b) Tubes shall be designated by their nominal bore. These shall be light, medium or heavy as specified depending upon the wall thickness. The standard size and weights of tubes are listed in Appendix C. Hollow sections shall be as per IS 4923.

c) Tubes shall be clean finished and reasonably free from scale. They shall be free from cracks, surface flaws, laminations and other defects. The ends shall be cut clean and square with axis of tube, unless otherwise specified.

d) Wall thickness of tubes used for construction exposed to weather shall be not less than 4 mm and for construction not exposed to weather it shall be not less than 3.2 mm where structures are not readily accessible for maintenance, the minimum thickness shall be 5 mm.

e) The component parts of the structure shall be assembled in such a manner that they are neither twisted nor otherwise damaged and be so prepared that the specified cambers, if any, are, maintained. The tubular steel work shall be painted with one coat of approved steel primer after fabrication. All fabrication and welding is to be done in an approved workshop. The joint details shall be generally as per S.P-38 of B.I.S publication.

f) All material before being assembled shall be straightened, if necessary, unless required to be of curvilinear form and shall be free from twist.

g) Where welding is adopted, it shall be as per IS 816.

h) The ends of all the tubes, for columns transmitting loads through the ends, should be true and square to the axis of the tubes and should be provided with a cap or base accurately fitted to the end of the tube and screwed, welded or shrunk on. The cap or base plate should be true and square to the axis of the column.

i) When the end of a tube is not automatically sealed by virtue of its connection be welding to another member the end shall be properly and completely sealed. Before sealing, the inside of the tubes should be dry and free from loose scale.

j) In tubular construction the ends of tubes may be flattened or otherwise formed to provide for welded. Riveted or bolted connections provide that the methods adopted for such flattening do not injure the material. The change of sections shall be gradual.

k) Tubular trusses shall be hoisted and erected in position carefully, without damage to themselves, other structure, equipment and injury to workman.

l) The method of hoisting and erection proposed to be adopted shall be got approved from the Engineer-in-charge. The contractor shall however be fully responsible, for the work being carried out in a safe and proper manner without unduly stressing the various members. Proper equipment such as derricks, lifting tackles, winches, ropes etc. shall be used.

STEEL WORK WELDED IN BUILT-UP SECTIONS FOR HAND RAIL USING M.S. TUBULAR/ERW TUBULAR PIPES AND G.I. PIPES

a) Hot finished welded (HFW) Hot finished seamless (HFS) and electric resistance welded tube shall conform to IS 1161

b) G.I. pipes used for Hand rail to be conforming to IS 1239-Part I for medium grade. GI pipes to be screwed and socketed type and of required nominal bore.

c) All screwed tubes and socket of GI pipes shall have pipe threads conforming to the requirements of IS 554.

1.1.10. FLOORING

RED OR WHITE FINE DRESSED SAND STONE FLOORING

a) The slabs shall be red or white as specified in the description of the item. The stone slabs shall be hard, sound, durable and tough, free from cracks, decay and weathering. In case of red sand stone, white patches or streaks shall not be allowed. However, scattered spots upto 10 mm diameter will be permitted. Before starting the work the contractor shall get samples of slabs approved by the Engineerin-Charge.

b) The slabs shall be hand or machine cut to the requisite thickness along planes parallel to the natural bed of stone and should be of uniform size if required.

c) Every slab shall be cut to the required size and shape and chisel dressed on all sides to a minimum depth of 20 mm. The top and the joints shall be fine tooled so that straight edge laid along the face is fully in contact with it. In case machine cut stones are used, chisel dressing and fine tooling of machine cut surface need not be done provided a straight edge laid anywhere along the machine cut surface is in contact with every point on it.

d) The thickness of the slabs after dressing shall be 40 mm or as specified in the description of item with a permissible tolerance of ± 2 mm.

e) Base concrete on which the slabs are to be laid shall be cleaned, wetted and mopped. The bedding for the slabs shall be with cement mortar 1:5 (1 cement : 5 coarse sand) or as given in the description of the item.

f) The average thickness of the bedding mortar under the slabs shall be 20 mm and the thickness at any place under the slabs shall not be less than 12 mm.

g) Mortar of specified mix shall be spreaded under each slab. The slab shall be washed clean before laying. It shall then be laid on top, pressed and larried, so that all hollows underneath get filled and surplus mortar works up through the joints. The top shall be tapped with a wooden mallet and brought to level and close to the adjoining slabs, with thickness of joint not exceeding 5 mm. Subsequent slabs shall be laid in the same manner. After laying each slab surplus mortar on the surface of slabs shall be cleaned off and joints finished flush.

h) In case pointing with other mortar mix is specified, the joint shall be left raked out uniformly and to a depth of not less than 12 mm when the mortar is still green. The pointing shall be cured for a minimum period of 7 days. The surface of the flooring as laid shall be true to levels and slopes as instructed by the Engineer-in-Charge.

i) Slabs which are fixed in the floor adjoining the wall shall enter not less than 12 mm under the plaster, skirting or dado. The junction between wall plaster skirting and floor shall be finished neatly and without waviness.

j) The finished floor shall not sound hollow when tapped with wooden mallet.

k) In case of chisel dressed stone flooring slight unevenness, if any existing between the edges of slabs at joints shall then be removed by chiselling in a slant.

RED OR WHITE FINE DRESSED AND RUBBED SAND STONE FLOORING

a) The specifications for dressing the top surface and the sides shall be as described. In addition the dressed top and sides shall be table rubbed with coarse grade carborundum stone before paving, to obtain a perfectly true and smooth surface free from chisel marks.

b) The thickness of the slabs after dressing shall be as specified with a permissible tolerance of ± 2 mm.

c) The slabs shall be laid with 3 mm thick or 5 mm thick joints as specified in the description of the item.

d) Where the joints are to be limited to 3 mm thickness, the slabs shall be laid as specified in 11.19.3 except that the bedding mortar shall be as specified in 11.23.3 and sides of the slabs to be jointed shall be buttered with cement mortar 1:2 (1 cement: 2 stone dust) admixed with pigment to match the shade of the slab.

e) Where the slabs are to be laid with 5 mm thick joints, the specifications for laying shall be as described.

f) Finishing shall be as specified except that chisel marks and unevenness shall be removed by rubbing with coarse grade carborundum stone.

1.1.11. ROOFING

CORRUGATED GALVANISED STEEL SHEET ROOFING

a) These shall be of the thickness specified in the description of the item and shall conform to IS 277. The sheets shall be of 275 grade of coating (See Appendix-A) unless otherwise specified in the description of item.

b) The sheets shall be free from cracks, split edges, twists, surface flaws etc. They shall be clean, bright and smooth. The galvanising shall be non-injured and in perfect condition. The sheets shall not show signs of rust or white powdry deposits on the surface. The corrugations shall be uniform in depth and pitch and parallel with the side.

c) The top surfaces of the purlins shall be uniform and plane. They shall be painted before fixing on top. Embedded portions of wooden purlins shall be coal tarred with two coats.

d) Roof shall not be pitched at a flatter slope than 1 vertical to 5 horizontal. The normal pitch adopted shall usually be 1 vertical to 3 horizontal.

e) The sheets shall be laid and fixed in the manner described below, unless otherwise shown in the working drawings or directed by the Engineer-in-Charge.

f) The sheets shall be laid on the purlins to a true plane, with the lines of corrugations parallel or normal to the sides of the area to be covered unless otherwise required as in special shaped roofs.

g) The sheets shall be laid with a minimum lap of 15 cm at the ends and 2 ridges of corrugations at each side. The above minimum end lap of 15 cm shall apply to slopes of 1 vertical to 2 horizontal and steeper slopes. For flatter slopes the minimum permissible end lap shall be 20 cm. The minimum lap of sheets with ridge, hip and valley shall be 20 cm measured at right angles to the line of the ridge, hip and valley respectively. These sheets shall be cut to suit the dimensions or shapes of the roof, either along their length or their width or in a slant across their lines of corrugations at hips and valleys. They shall be cut carefully with a straight edge chisel to give a smooth and straight finish.

h) Lapping in C.G.S. sheets shall be painted with a coat of approved steel primer and two coats of painting with approved paint suitable for G.S. sheet, before the sheets are fixed in place.

i) Sheets shall not generally be fixed into gables and parapets. They shall be bent up along their side edges close to the wall and the junction shall be protected by suitable flashing or by a projecting drip course, the later to cover the junction by at least 7.5 cm.

j) The laying operation shall include all scaffolding work involved.

k) Sheets shall be fixed to the purlins or other roof members such as hip or valley rafters etc. with galvanised J or L hook bolts and nuts, 8 mm diameter, with bitumen and G.I. limpet washers or with a limpet washer filled with white lead as directed by the Engineer-in-Charge. While J hooks are used for fixing sheets on

angle iron purlins, and L hooks are used for fixing the sheet to R.S. joists, timber or precast concrete purlins. The length of the hook bolt shall be varied to suit the particular requirements.

l) The bolts shall be sufficiently long so that after fixing they project above the top of the nuts by not less than 10 mm. The grip of J or L hook bolt on the side of the purlin shall not be less than 25 mm. There shall be a minimum of three hook bolts placed at the ridges of corrugations in each sheet on every purlin and their spacing shall not exceed 30 cm. Coach screws shall not be used for fixing sheets to purlins.

m) The galvanised coating on J or L hooks, and bolts shall be continuous and free from defects such as blisters, flux stains, drops, excessive projections or other imperfections which would impair serviceability.

n) Where slopes of roofs are less than 21.5 degrees (1 vertical to 2.5 horizontal) sheets shall be joined together at the side laps by galvanised iron bolts and nuts 25 × 6 mm size, each bolt provided with a bitumen and a G.I. limpet washer or a G.I. limpet washer filled with white lead. As the overlap at the sides extends to two corrugations, these bolts shall be placed zig-zag over the two overlapping corrugations, so that the ends of the overlapping sheets shall be drawn tightly to each other. The spacing of these seam bolts shall not exceed 60 cm along each of the staggered rows. Holes for all bolts shall be drilled and not punched in the ridges of the corrugations from the underside, while the sheets are on the ground.

o) Wind ties shall be of 40 x 6 mm flat iron section or of other size as specified. These shall be fixed at the eaves of the sheets. The fixing shall be done with the same hook bolts which secure the sheets to the purlins. The ties shall be paid for separately unless described in the item of roofing.

p) The roof when completed shall be true to lines, and slopes and shall be leak proof.

RIDGES AND HIPS OF PLAIN GALVANISED STEEL SHEETS

a) Ridges and hips of C.G.S. roof shall be covered with ridge and hip sections of plain G.S. sheet with a minimum lap of 20 cm on either side over the C.G.S. sheets. The end laps of the ridges and hips and between ridges and hips shall also be not less than 20 cm. The ridges and hips shall be of 60 cm overall width plain G.S. sheet, 0.6 mm or 0.8 mm thick as given in the description of the item and shall be properly bent in shape.

b) Ridges shall be fixed to the purlins below with the same 8 mm dia G.I. hook bolts and nuts and bitumen and G.I. limpet washers which fix the sheets to the purlins.

c) Similarly, hips shall be fixed to the roof members below such as purlins, hip and valley rafters with the same 8 mm dia G.I. hook bolts and nuts and bitumen and G.I. limpet washers which fix the sheets to those roof members. At least one of the fixing bolts shall pass through the end laps of ridges and hips, on either side. If this is not possible extra hook bolts shall be provided.

d) The end laps of ridges and hips shall be joined together with C.G.S sheet by galvanised iron seam bolts 25 x 6 mm size each with a bitumen and G.I. washer or white lead as directed by the Engineer-in-Charge. There shall be at least two such bolts in each end lap.

e) Surface of C.G.I. sheets of ridge and hip sections and the roofing sheets which overlap each other shall be painted with a coat of approved primer and two coats of approved paint suitable for painting G.S. Sheets before they are fixed in place.

f) The edges of the ridges and hips shall be straight from end to end and their surfaces should be plane and parallel to the general plane of the roof. The ridges and hips shall fit in squarely on the sheets.

VALLEY AND FLASHING OF PLAIN GALVANISED STEEL SHEETS

a) Valley shall be 90 cm wide overall plain G.S. sheet 1.6 mm thick or other size as specified in the item bent to shape and fixed. They shall lap with the C.G.S. sheets not less than 25 cm width on other side. The end laps of valley shall also be not less than 25 cm.

b) Valley sheets shall be laid over 25 mm thick wooden boarding if so required.

c) Flashing shall be of plain G.S. sheet of 40 cm overall width 1.25 mm thick or 1.00 mm thick as specified in the item bend to shape and fixed. They shall lap not less than 15 cm over the roofing sheets. The end laps between flashing pieces shall not be less than 25 cm.

d) Flashing and valley sheets shall be fixed to the roof members below, such as purlins and valley rafters with the same 8 mm dia G.I. hook bolts and nuts and bitumen and G.I. limpet washers which fix the sheets to those roof members.

e) At least one of the fixing bolts shall pass through the end laps of the valley pieces on other side. If this is not possible extra hook bolts shall be provided. The free end of flashing shall be fixed at least 5 cm inside masonry with the mortar of mix 1: 3 (1 cement: 3 coarse sand). Refer Fig. 12.3.

f) Surface of G.S. sheets under overlaps shall be painted with a coat of approved primer and two coats of approved paint suitable for painting G.S. sheets.

g) The edges of valley and flashing should be straight from end to end. The surfaces should be true and without bulges and depressions.

GUTTERS MADE OF PLAIN GALVANISED STEEL SHEETS

a) Gutter shall be fabricated from plain G.S. Sheets of thickness as specified in the item.

b) Eaves gutters shall be of the shape and section specified in the description of the item. The overall width of the sheet referred to therein shall mean the peripheral width of the gutter including the rounded edges. The longitudinal edges shall be turned back to the extent of 12 mm and beaten to form a rounded edge. The ends of the sheets at junctions of pieces shall be hooked into each other and beaten flush to avoid leakage.

c) Gutter shall be laid with a minimum slope of 1 in 120.

d) Gutter shall be supported on and fixed to M.S. flat iron brackets bent to shape and fixed to the requisite slope. The maximum spacing of brackets shall be 1.20 metres.

e)

f) Where these brackets are to be fixed to the sides of rafters, they shall be of 40 × 3 mm section bend to shape and fixed rigidly to the sides of rafters with 3 Nos. 10 mm dia bolts, nuts and washers. The brackets shall overlap the rafter not less than 30 cm and the connecting bolts shall be at 12 cm centres.

g) Where the brackets are to be fixed to the purlins, the brackets shall consist of 50 × 3 mm M.S. flat iron bent to shape with one end turned at right angle and fixed to the purlin face with 2 Nos. of 10 mm dia bolts nuts and washers. The bracket will be stiffened by provision of 50 × 3 mm. M.S. flat whose over hung portion bent to right angle shape with its longer leg connected to the bracket with 2 Nos. 6 mm dia M.S. bolts, nuts and washers and its shorter leg fixed to face of purlin with 1 No. 10 mm dia, bolt, nut and washer. The over hang of the vertical portion of the bracket from the face of the purlin shall not exceed 22.5 cm with this arrangement. The spacing of the brackets shall not exceed 1.20

h) The gutter shall be fixed to the brackets with 2 Nos. G.I. bolts and nuts 6 mm dia, each fitted with a pair of G.I. and bitumen washers. The connecting bolts shall be above the water line of the gutters.

i) For connection to down take pipes, a proper drop end or funnel shaped connecting piece shall be made out of G.S. sheet of the same thickness as the gutter and riverted to the gutter, the other end tailing into the socket of the rain-water pipe. Wherever necessary stop ends, angles etc., should be provided.

j) The gutters when fixed shall be true to line and slope and shall be leakproof.

RED OR WHITE SAND STONE ROOFING

a) The stone slabs shall be hard, even, sound and durable and shall conform to standards as detailed in subhead 7.0 of stone work. Slabs shall have been sawn or chiselled in a plane parallel to the natural bed of the stone. The slabs shall be rough chisel dressed on the top so that the dressed surface shall not be more than 6 mm from a straight edge placed on it. The edges of the depressions or projections shall be chisel dressed in a slant, so that surface does not have sharp unevenness. The sides shall also be chisel dressed to a minimum depth of 20 mm so that the dressed edges shall at no place be more than 3 mm from a straight edge butted against it. The thickness of the slab shall be uniform and as specified in the item with a permissible tolerance of 2 mm. The slabs shall be uniform in length, the length being 5 to 8 mm less than the centre to centre spacing of the supporting wooden Joists (Karries) or RCC battens. Unless the design require some other shape the slabs shall be rectangular.

b) The width of the slabs may vary unless otherwise stipulated. It shall not be less than 40 cm.

c) The bearing of slabs over the supporting rafts karries shall not be less than 30 mm. Where a raft karry supports a slab from one side only, the bearing of such slab shall be for full width of the rafts. For bearing over the wall, the stone slabs shall be bedded over a layer of cement mortar 1 : 4 (1 cement : 4 fine sand) of thickness not less than 12 mm.

d) The slabs shall be washed clean and wetted before being laid. The stone slabs shall be jointed in cement mortar 1:4 (1 cement : 4 coarse sand). The width of joints shall not be more than 8 mm not less than 5 mm. The top joints shall be finished flush and ceiling joints pointed with the cement mortar 1:3 (1 cement : 3 fine sand).

e) The finished surface shall be truly levelled or slopped as shown in the plan or as directed by the Engineer-in-Charge. It shall be cleaned off all mortar droppings and cement markings both on top and on the under side.

CAST IRON RAIN WATER PIPES

a) Pipes shall conform to IS 1230 and shall be perfectly, smooth and cylindrical, their inner and outer surfaces being as nearly as practicable concentric. These shall be sound and of uniform castings, free from laps, pin holes or other imperfections and shall be neatly finished and carefully fitted both inside and outside. The ends of pipes shall be reasonably square to their axes.

b) C.I. rain water pipes shall be of the dia specified in the description of the item and shall be in full length of 1.8 metre including socket ends of the pipes, unless shorter lengths are required at junctions with fittings. The pipe lengths shall be in each case be with socket. The pipes shall be supplied without ears unless otherwise specifically mentioned.

c) The pipes supplied shall be factory painted (with a tar base composition) both inside and outside which shall be smooth and tenacious.

d) Every pipe shall ring clearly when struck all over with a light hand hammer. When shorter pipes are cut from full lengths they shall be cut with a hacksaw. The sizes, weights, sockets and tolerances of pipes shall be as shown

e) Pipes shall be either fixed on face of wall or embedded in masonry, as required in the description of the item.

f) Plain pipes (without ears) shall be secured to the walls at all joints with M.S. holder bat clamps. The clamps shall be made from 1.6 mm thick galvanised M.S. sheet of 30 mm width, bent to the required shape and size so as to fit tightly on the socket of the pipe, when tightened with screw bolts. It shall be formed out of two semi-circular pieces, hinged with 6 mm dia M.S. bolt on one side and provided with flanged ends on the other side with hole to fit by the screw bolt and nut, 40 mm long. The clamp shall be provided with a hook made out of 27.5 cm long 10 mm diameter M.S. bar, rivetted to the ring at the centre of one semi circular piece. The details of the clamps are shown in Fig 12.8. The clamps shall be fixed to the wall by embedding their hooks in cement concrete block 10 x 10 x 10 cm in 1:2:4 mix (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) for which necessary holes shall be made in the wall at proper places. The clamps shall be kept about 25 mm clear off finished face of wall, so as to facilitate cleaning and painting of pipes.

g) The pipes shall be fixed perfectly vertical or to the lines as directed. The spigot of the upper pipe shall be properly fitted in the socket of the lower pipe such that there is a uniform annular space for filling with the jointing material. The annular space between the socket and the spigot shall be filled with a few turns of spun yarn soaked in neat cement slurry. These shall be pressed home by means of caulking tool. More skins of yarn shall be wrapped if necessary and shall be rammed home. The joint shall then be filled with stiff cement mortar 1:2 (1 cement : 2 fine sand) well pressed with caulking tool and finished smooth at top at an angle of 45 degree sloping up. The joints shall be kept wet for not less than 7 days by tying a piece of gunny bag, four fold, to the pipe and keeping it moist constantly.

h) Where pipes are to be embedded in masonry, these shall be fixed in masonry work as it proceeds. In such cases care shall be taken to keep the pipes absolutely vertical or to the line as directed by the Engineer-in-Charge. The pipe shall have a surrounding of 12 mm minimum thickness of mortar at every portion of the external surface. The mortar shall be of the same mix as is used in the masonry. The joint shall be caulked with lead as soon as the next length of pipe is placed in position.

i) The open end (socket end) of the pipe shall be kept closed till the next length is fitted and jointed, to prevent any brick bats or concrete or pieces of wood falling in and choking the pipe.

j) The depth of lead from the lip of socket shall be 25 mm minimum. In case of 100 mm dia. 75 mm and 50 mm pipes, the quantity of lead required per joint shall be 1.00 kg, 0.66 kg and 0.50 kg respectively for purpose of reckoning theoretical Consumption.

k) In order to ensure that required quantity of lead is poured into the joint and to control wastage of lead, at the beginning, three or four samples shall be made and the quantum of lead per joint approved by the Engineer-in-Charge.

l) The actual consumption of lead should be within ± 5% of the approved sample job subject to the provision that a variation of ± 20% shall be allowed over the theoretical quantity of lead due to dimensional tolerances allowed as per Indian Standards. This variation includes allowances of wastage also.

m) The spigot end shall butt the shoulder of the socket and leave no gap in between. The annular space between the socket and the spigot will be first well packed in with spun yarn leaving 25 mm from the lip of the socket for the lead. The joint shall then be lead caulked as described in detail under jointing of S.C.I soil, waste and vent pipes.

CAST IRON ACCESSORIES FOR RAIN WATER PIPES

a) C.I. accessories such as bends of various degrees, heads, offsets of different projections, branches and shoes shall conform to IS 1230.

b) Bends shall be of the nearest standard degree as actually required at site. Heads shall be of the flat or corner type as required. Offsets shall be of the projection as stipulated in the description of the item. Branches shall be single or double as described in the item and shall be of the nearest standard degree as actually required. Standard shoes shall be of overall vertical length, 180 mm for 75 mm dia., 205 mm for 100 mm dia and 275 mm for 150 dia sized pipe from top of socket to lowest tip of shoe. Shoes of longer lengths if used shall be in lengths 300 mm, 375 mm, 450 mm, or 600 mm from top of socket to lowest tip of shoe of as actually required at site.

c) The fittings shall be of the diameter specified in the description of the item. The thickness of the fittings and details of spigots and sockets shall be same as those of the corresponding size of straight pipes. The fittings shall be supplied without ears unless otherwise specifically mentioned in the item. The fittings shall be factory painted with a tar basis composition both inside and outside which shall be smooth and tenacious. Every fittings shall ring clearly when struck all over with a light hard hammer. The fittings shall be of standard size and their individual weights shall conform to the weights

1.1.12. FINISHING

PAINTING

a) Materials Paints, oils, varnishes etc. of approved brand and manufacture shall be used. Only ready mixed Paint (Exterior grade) as received from the manufacturer without any admixture shall be used.

b) If for any reason, thinning is necessary in case of ready mixed Paint, the brand of thinner recommended by the manufacturer or as instructed by the Engineer-in-Charge shall be used.

c) Approved Paints, oil or varnishes shall be brought to the site of work by the contractor in their original containers in sealed condition. The material shall be brought in at a time in adequate quantities to suffice for the whole work or at least a fortnight's work. The materials shall be kept in the joint custody of the contractor and the Engineer-in-Charge. The empties shall not be removed from the site of work, till the relevant item of work has been completed and permission obtained from the Engineer-in-Charge.

d) Painting shall not be started until the Engineer-in-Charge has inspected the items of work to be painted, satisfied himself about their proper quality and given his approval to commence the painting work. Painting of external surface should not be done in adverse weather condition like hail storm and dust storm.

e) Painting, except the priming coat, shall generally be taken in hand after practically finishing all other building work.

f) The rooms should be thoroughly swept out and the entire building cleaned up, at least one day in advance of the Paint work being started.

g) The surface shall be thoroughly cleaned and dusted off. All rust, dirt, scales, smoke splashes, mortar droppings and grease shall be thoroughly removed before painting is started. The prepared surface shall have received the approval of the Engineer-in-Charge after inspection, before painting is commenced.

h) Before pouring into smaller containers for use, the Paint shall be stirred thoroughly in its containers, when applying also, the Paint shall be continuously stirred in the smaller containers so that its consistency is kept uniform.

i) The painting shall be laid on evenly and smoothly by means of crossing and laying off, the latter in the direction of the grains of wood. The crossing and laying off consists of covering the area over with Paint, brushing the surface hard for the first time over and then brushing alternately in opposite direction, two or three times and then finally brushing lightly in a direction at right angles to the same. In this process, no brush marks shall be left after the laying off is finished. The full process of crossing and laying off will constitute one coat.

j) Where so stipulated, the painting shall be done by spraying. Spray machine used may be (a) high pressure (small air aperture) type, or (b) a low pressure (large air gap) type, depending on the nature and location of work to be carried out. Skilled and experienced workmen shall be employed for this class of work. Paints used shall be brought to the requisite consistency by adding a suitable thinner.

k) Spraying should be done only when dry condition prevails. Each coat shall be allowed to dry out thoroughly and rubbed smooth before the next coat is applied. This should be facilitated by thorough ventilation. Each coat except the last coat, shall be lightly rubbed down with sand paper or fine pumice stone and cleaned off dust before the next coat is laid.

l) No left over Paint shall be put back into the stock tins. When not in use, the containers shall be kept properly closed.

m) No hair marks from the brush or clogging of Paint puddles in the corners of panels, angles of mouldings etc. shall be left on the work.

n) In painting doors and windows, the putty round the glass panes must also be painted but care must be taken to see that no Paint stains etc. are left on the glass. Tops of shutters and surfaces in similar hidden locations shall not be left out in painting. However, bottom edge of the shutters where the painting is not practically possible, need not be done nor any deduction on this account will be done but two coats of primer of approved make shall be done on the bottom edge before fixing the shutters.

o) On painting steel work, special care shall be taken while painting over bolts, nuts, rivets overlaps etc.

p) The additional specifications for primer and other coats of Paints shall be as according to the detailed specifications under the respective headings.

PAINTING PRIMING COAT ON WOOD, IRON OR PLASTERED SURFACES

a) The primer for wood work, iron work or plastered surface shall be as specified in the description of item

b) The primer shall be ready mixed primer of approved brand and manufacture.

c) Where primer for wood work is specified to be mixed at site, it shall be prepared from a mixture of red lead, white lead and double boiled linseed oil in the ratio of 0.7 kg : 0.7 kg : 1 litre.

d) Where primer for steel work is specified to be mixed at site, it shall be prepared from a mixture of red lead, raw linseed oil and turpentine in the ratio of 2.8 kg : 1 litre : 1 litre.

e) The wood work to be painted shall be dry and free from moisture. The surface shall be thoroughly cleaned. All unevenness shall be rubbed down smooth with sand paper and shall be well dusted. Knots, if any shall be covered with preparation of red lead made by grinding red lead in water and mixing with strong glue sized and used hot. Appropriate filler material conforming to IS 345 with same shade as Paint shall be used where specified. The surface treated for knotting shall be dry before Paint is applied. After obtaining approval of Engineer-in-Charge for wood work, the priming coat shall be applied before the wood work is fixed in position. After the priming coat is applied, the holes and indentation on the surface shall be stopped with glazier's putty or wood putty. Stopping shall not be done before the priming coat is applied as the wood will absorb the oil in stopping and the latter is therefore liable to crack.

f) All rust and scales shall be removed by scrapping or by brushing with steel wire brushes. Hard skin of oxide formed on the surface of wrought iron during rolling which becomes loose by rusting, shall be removed.

PAINTING SYNTHETIC ENAMEL PAINT OVER G.S. SHEETS

a) Paint, suitable for painting over G.S. sheets, of approved brand and manufacture and of the required shade shall be used. New or weathered G.S. sheets shall be painted with a priming coat of one coat of redoxide zinc chromate Paint. Primer shall be applied before fixing sheets in place.

b) The painting of new G.S. sheets shall not usually be done till the sheets have weathered for about a year. When new sheets are to be painted before they have weathered they shall be treated with a mordant solution prepared by mixing 38 gm of copper acetate in a litre of soft water or 13 gm hydrochloric acid in a solution of 13 gm each of copper chloride, copper nitrate and ammonium chloride dissolved in a litre of soft water. This quantity of solution is sufficient for about 235 sqm. to 280 sqm of area and is applied for ensuring proper adhesion of Paint. The painting with the mordant solution will be paid for separately.

c) Before painting on new or weathered G.S. sheets, rust patches shall be completely cleaned with coarse emery paper and brush. All grease marks shall also be removed and the surface washed and dried and rusted surface shall be touched with synthetic enamel paint of approved brand, manufacturer and shade.

d) If the old Paint is firm and sound, it shall be cleaned of grease, smoke etc. The surface shall then be rubbed down with sand paper and dusted. Rusty patches shall be cleaned up and touched with synthetic enamel paint.

e) If the old Paint is blistered and flaked, it shall be completely removed as described in 13.41. Such removal shall be paid for separately and painting shall be treated as on new work.

f) The number of coats to be applied shall be as in the description of item. In the case of C.G.S. sheets, the crowns of the corrugations shall be painted first and when these get dried the general coat shall be given to ensure uniform finish over the entire surface without the crowns showing signs of thinning.

g) The second or additional coats shall be applied when the previous coat has dried.

PAINTING CAST IRON RAIN WATER, SOIL, WASTE AND VENT PIPES AND FITTINGS

a) The primer shall be prepared on site or shall be of approved brand and manufacture as specified in the item.

b) Paint shall be anti-corrosive bitumastic Paint, aluminium Paint or other type of Paint as specified in the description of the item.

c) The number of coat of painting over the priming coat shall be as stipulated in the description of the item. The application of Paint over priming coat shall be carried out as specified

1.1.13. SANITARY INSTALLATION

PLASTIC OVERHEAD STORAGE TANK

a) Plastic overhead storage tanks shall be of polyethylene (PE) of external black colour and internal PE lining in white. The tank material shall e non toxic suitable for potable water. The materials must be as per Bureau of Indian Standards. The capacities of the tanks shall be as specified in the BOQ.

INDIAN TYPE W.C.PAN

a) Indian Type W.C.Pan (IWC) : The WC pan shall be of 1st quality white vitreous china of specified size and pattern. It shall be of back flush inlet type. The pan shall be of approved best quality and shall bear the mark of the manufacturer. The pan shall be provided with a 100 mm 'P' or 'S' trap as specified in the item with a min. 50 mm seal.

b) Fixing : The WC pan shall be sunk or raised from the general floor as shown in drawing, but its surrounding floor shall be sloped towards the pan. Care shall be taken so that the pan is not damaged in the process of fixing; if damaged in any way, it shall be replaced immediately. It shall be fixed in a proper cement concrete base of 1:3:6 proportion (with a wire netting where required) taking care that the cushion is uniform and even without having any hollows between the concrete base and pan.

c) The joint between the pan and the trap shall be made with epoxy putty (M-seal or equivalent) and shall be leak proof.

EUROPEAN TYPE W.C.

a) European type W.C. Pan (EWC) : Shall be of wash down type, shall bear the mark of an approved firm and shall be of best quality. The closet shall be of 1st quality vitreous china ware having integrated trap 'P' or 'S' type with or without vent outlet,

b) Seat : The seat with lid shall be of PVC/Thermoplastic (black) and shall be fixed in position by using aluminium or plastic hinges supplied by manufacturer.

URINAL

a) Lipped Front Urinal : The urinal shall be of flat back lipped front basin of required dimensions in first quality white vitreous china ware of an approved make. It shall be fixed in position by using rawl plugs embedded in the wall with S.S. screws 75 mm long. Each urinal shall be connected to a 40 dia flexible PVC waste pipe which shall discharge into a 100 mm half round white porcelain channel & CI floor trap.

b) Wall Type Urinal This shall be a standing urinal with 300 x 300 wall glazed tiles set on the vertical wall at an inclination of 1:30 (aprox.). Height of tiles shall be 1200 mm and inside width of urinal shall be 700 mm.

Division plates shall be 25 mm thick gray kota stone or black stone 470 mm wide x 750 mm high. The stone shall be embedded in wall by 25-35 mm. The balance will protrude from the vertical wall edge. A half-round white porcelain channel will be embedded at the bottom of the wall tiles in a PCC (1:3:6) platform 125 mm thick. The platform will protrude 600 mm from the wall. The platform flooring will be with 300 x 300 mm non-skid ceramic tiles set in cement/sand mortar (1:4) – 12 mm thick. The bed will slope towards the channel. All details are shown in drawings.

LAVATORY WASH BASIN (WHB)

a) Lavatory Basin : The basins shall be 1st class of white vitreous china of approved pattern. The size of the basin shall be as shown in drawing and BOQ. The basins shall be of approved quality and make.

b) Fittings: Each WHB shall be provided with a PTMT pillar tap (15 mm) and fitted with 32 mm dia PTMT waste complete in all respect of approved quality.

c) Fixing: The basin shall be supported on a pair of C.I., painted concealed type brackets embedded in wall with PCC (1:3:6) blocks. These brackets shall be painted to the required shade as specified.

d) 32 mm dia flexible PVC waste pipe with brass coupling nut shall discharge into the floor trap inlet below the WHB.

TOILET REQUISITES

a) Water connection: Water connection to flushing cistern, lavatory basins shall be by means of white PVC 15 mm dia connector with PTMT coupling nuts. The length of connector shall be 375 mm.

b) Shelf : This shall be of PTMT approx. 500 mm. Long. Shelf shall be fixed to wall with SS screw and PVC hold fasts.

BRASS/C.P. ON BRASS WATER FITTINGS

a) All fittings shall be of standard manufacture and shall in all respect comply with the Indian Standard Specifications. The brass fittings shall be fixed in pipe line in a workman like manner. Care must be taken to see that joints between fittings are made leak proof. The fittings and joints shall be tested to a pressure of 7 Kg per sq.cm. unless otherwise specified. The defective fittings and the joints shall be repaired, redone or replaced at the contractors expense. PTMT (Polytetra Methylene Terepthalate) with hardness 75 on Rockwell scale, dimensionally stable upto 1200C. These fittings should conform to BIS recommendation or equivalent IS code if any

BIB COCK

a) The bib cock shall be of brass CP/PTMT specified quality with flat seat opening of screw down pattern of the size as specified.

STOP COCK

a) The stop cock shall be of brass CT/PTMT specified quality with flat seat opening of screw down pattern of the size as specified.

SHOWER ROSE

a) The shower rose (fixed mounted or telephone) shall be of brass CT/PTMT specified quality 100 mm ϕ with uniform perforation. The inlet size shall be 20 mm or 15 mm as specified.

HOT & COLD WATER MIXER

a) Shall be brass CP 15 mm inlet with or without integrated spout wall mounted of specified quality as approved.

H.C.I., SOIL, WASTE, AND VENT (ANTISYPHONAGE) PIPES AND FITTINGS:

a) H.C.I. Pipes and fittings: The heavy cast iron pipes and fittings shall be I.S.I marked pipes & fittings conforming to I.S. 3989/1970 & IS 1729/1979 of approved quality. The pipes shall be free from cracks and other flaws. The interior of pipes and fittings shall be clean and smooth and painted inside with approved anticorrosive paint. The painting will be factory furnished. Tolerance : In thickness & masses shall be as per IS of latest edition.

b) Fixing: The pipes and fittings shall be fixed to walls /ceilings by using proper clamps or ears integrated with the pipes. The pipes shall be fixed perfectly vertical or in a line as directed and shown in drawing. If eared pipes are used fixing will be done with galvanised nail125-150 long embedded in pcc (1:2:4) with non- shrink grout.

c) Where pipes are laid along walls, the cast iron pipes are to be fixed 25 mm away from the wall surface. Cast iron bobbins etc. are to be used for this purpose.

d) The access door fittings shall be of proper design so as not to form any cavities in which filth may accumulate. Doors shall be provided with SS bolts and synthetic rubber gaskets. The doors shall be secured to make it leak proof.

e) Connections between main pipe and the branch pipes shall be made by using required types of fittings with/without access doors for cleaning.

f) Jointing : The annular space between the sockets and spigots will be first well packed in with spun yarn for half the depth of the socket. The remaining space in the socket will be filled with molten lead by using jointing collars or clay. After pouring lead the joint will be cooled and caulked with caulking tools to drive home the lead 3 mm behind socket edge.

g) Lead for Joints : It shall be bluish grey in colour very soft and malleable, free from mixture of zinc or tin conforming to IS 782.

h) Spun Yarn for Joints : This shall be of best quality dense rope. It shall be free from dust etc. It shall be caulked inside the socket in dry condition.

i) Procedure of Jointing : The spigot shall be carefully centred in the socket by laps of spun yarn. Twisted ropes of uniform thickness will be caulked into the annular space between spigot and socket, leaving the requisite depth for lead. Molten lead shall be poured and caulked as mentioned above. Alternatively joints may be caulked with a stiff mixture of cement/sand (1:1) with requisite quantity of waterproofing compound as described in BOQ.

j) Joints may also be with rubber gaskets as described in BOQ.

k) Testing : All H.C.I. pipes and fittings including joints will be tested by smoke test and left in working order after completion. The smoke test shall be carried out as stated below:

l) Smoke shall be pumped into the piping system at the lowest end from a smoke generator. The materials usually burnt are greasy cotton waste which form clear pungent smoke, which is usually detectable by sight as well as by smell, if leaks occur at any point of the pipes. The contractor will have to rectify all defects traced in such tests at their own expense to the complete satisfaction of the Engineer-in-Charge. The traps and soil fittings should be of heavy cast iron and should have water seal at least 50 mm., deep. While testing operation is done all traps should be filled with water. The pressure for smoke test shall be 38 mm WC.

m) Paintings: All the exposed H.C.I. pipes and fittings shall be painted with two coats of black bituminastic paint over a coat of primer.

n) The surface of the pipes and fittings to be painted shall be cleaned thoroughly before application of paint and primer.

1.1.14. WATER SUPPLY

GALVANISED IRON PIPES & FITTINGS

a) The pipes shall be of galvanised (as per IS 4736), screwed and socketed and shall conform to I.S. 1239 (Part- I) with ISI mark. The fittings shall be of malleable cast iron (galvanised) (IS: 1879) with ISI mark.

b) Laying & Fixing: Where pipes have to be cut or re-threaded, ends shall be carefully reamed and filed so that no obstruction to bore is visible.

c) Jointing shall be done by applying a layer of white zinc paste and fine jute threads on the threaded part (external & internal) and the socket or fitting is to be screwed tight to a torque of approximately 4 kg-m During pressure testing the joint shall show no sign of leakage.

d) All cutting holes, chases, trenches etc. at any place necessary in connection with the work as per items of this tender and subsequent mending damages are to be included in the rates.

e) Internal works: Internal G.I. pipes and fittings inside the duct walls shall be fixed exposed by means of M.S. galvanised holder bat clamps keeping the pipe 25 mm clear off the wall every where or concealed as directed. It shall be by chasing floors and walls as directed. The holder bat clamps shall be fixed at distances mentioned in the drawings and BOQ.

f) All pipes and fittings shall be fixed truly vertical or horizontal or as directed by the Engineer-in-Charge.

g) For internal works in toilets etc. pipes may be concealed within wall chases. The depth of chase shall be at least the outer dia of pipes and fittings. The pipes shall be anchored by means of galvanised hooks.

h) External Works: For external work G.I. pipes and fittings shall be laid in trenches. The width of the trench shall be as shown in drawing. The pipes laid underground shall be at approx. 900 mm below ground level. The work of excavation and refilling shall be done in accordance with the general specification for earthwork. All buried pipes shall be painted with 2 coals of coal tar epoxy paint to a DFT of maximum 100 microns.

i) Painting: All internal G.I. pipes and fittings shall be painted with 2 coats of enamel paint of approved quality over a coat of epoxy primer. The cost of such painting shall be included in the contractor's rate. All pipes and fittings in external work shall be painted with 2 coats of enamel paint over a coat of epoxy primer.

j) Testing : All G.I. pipes and fittings shall be tested by hydraulic pressure machine to a pressure of 7 kg per sq.cm. All leaky joints must be made leak proof by tightening or re-doing at contractor's expense. Water for testing shall be at contractors own cost.

SECTION 5
AGREEMENT FORM
AGREEMENT

(On Non Judicial Stamp Paper of appropriate amount as per guidelines)

This agreement, made on the day of _____between (name and address of Employer) (hereinafter called “the Employer) and _____(name and address of contractor) hereinafter called "the Contractor" of the other part.

Whereas the Employer is desirous that the Contractor execute _____(name and identification number of Contract) (hereinafter called "the Works") and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein, at a cost of Rs. _____

NOW THIS AGREEMENT WITNESSED as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the conditions of contract hereinafter referred' to and they shall be deemed to form and be read and construed as part of this Agreement.
2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the contract.
3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be ready and construed as part of this Agreement viz.
    i. Letter of Acceptance
    ii. Contractor's Technical & Financial Bid
    iii. Condition of Contract: General and Special
    iv. Contract Data
    v. Bid Data
    vi. Drawings
    vii. Bill of Quantities and _
    viii. Any other documents listed in the Contract Data as forming part of the Contract.

In witnessed whereof the parties there to have caused this Agreement to be executed the day and year first before written.

The Common Seal of affixed in the presence of:

Signed, Sealed and Delivered by the said

_____ In the presence of:

Witness – 1

Witness - 2

Binding Signature of Employer _____

Binding Signature of Contractor_____

SECTION 6
DRAWINGS