

Invitation for Bids

[Letterhead of the Employer]

Date: **1<sup>st</sup> January 2021**

Loan No: Applied For [Project No: 38272 - 044]

Loan Title: Uttarakhand Integrated Urban Development Project [UIUDP]

Contract Package No: WW – DDN - 02

Contract Title: Development of Sewerage System involving STP, Trunk Sewer and Allied Works including 5 Years Operation and Maintenance, at Raipur, Dehradun, in Uttarakhand.

Deadline for Submission of Bids: **11<sup>th</sup> February 2021**, till 15:00 Hrs IST (3:00 PM)

1. **The Government of India has applied for a loan** from Asian Development Bank (ADB) towards the cost of **Uttarakhand Integrated Urban Development Project [UIUDP]**. Part of this financing will be used for payments under the contract named above. Bidding is open to Bidders from eligible source countries of ADB.
2. The “**Program Director**”, Uttarakhand Urban Sector Development Agency (UUSDA), Government of Uttarakhand” (the **Employer**) invites online bids through the Uttarakhand state e-procurement portal <https://uktenders.gov.in>, from eligible Bidders for the design, execution, commissioning and O&M of the work as detailed below.

Contract Title	Completion Time (Months)	Bid Security (INR)	Date of Issue of Bid Document
<b>Development of Sewerage System involving STP, Trunk Sewer and Allied Works including 5 Years Operation and Maintenance, at Raipur, Dehradun, in Uttarakhand.</b>	Execution = 42, O&M = 60	<b>5,72,00,000.00</b>	<b>1<sup>st</sup> January 2021</b>

3. Open Competitive Bidding (**OCB - National**) will be conducted, from National Market, in accordance with ADB’s Single Stage Two Envelope (**1S2E**) procedure and is open to all qualified Bidders from eligible countries as described in the Bidding Document.
4. To be qualified under this package, the Bidder should meet the following minimum requirement (relevant supporting documents need to be attached with the bid);

	Qualifying Criteria	Minimum Value (INR)
1.	Average Annual Construction Turnover <b>(AACT)</b> for the last <b>Three (3)</b> Financial Years [FYs 2017-18, 2018-19, 2019-20]	Equal to or more than <b>INR 163,31,00,000.00</b>
2.	Should have completed at least one similar work/s, in the last Seven (7) years, starting from the bid submission date including any extension, as detailed below;  1. <b>Construction of Sewage Treatment Plant and Providing, laying, jointing testing and commissioning of gravity sewers of any material and type</b>  <b>OR</b>  2. <b>Providing, laying, jointing testing and commissioning of gravity sewers of any material and type</b>	<b>INR185,77,00,000.00</b>
3.	Should have a minimum construction experience in the following key activities:	
a)	<b><i>Design and construction, of at least one sewerage system, comprising of gravity sewers, appurtenant works, including Road cutting/ Restoration works for at least Fifty-Eight [58] Km, in the last 7 years, in a single contract.</i></b>	
b)	<b>Design and construction, testing, commissioning of STP of minimum Nine [9] MLD in the last 7 years, in a single contract.</b>	

c)	Provision of at least Four Thousand and Five Hundred [4500] house service connections in the last 7 years, in a single contract.	
d)	Providing, laying, jointing, testing, commissioning of gravity sewer pipeline of minimum Fifty-Eight [58.00] Km length in the last 7 years, in a single contract. Out of 58 kms length, 2.0 kms of length shall have minimum diameter of 700 mm of any material	
e)	Operating, maintaining and managing a sewerage scheme with a minimum of Twenty-Nine [29.00] Km length for a minimum period of 1 year over the last 7 years, in a single contract.	
f)	Installation, Testing commissioning of PLC based centralized SCADA system for 9 MLD STP in the last 7 years, in a single contract.	
4.	Must demonstrate availability of <b>Financial resources</b> (less its financial obligations for current contract commitments), meets or exceeds the total requirement for the subject contract, as detailed below;	
	Sole Bidder	INR 20,41,00,000.00
	For JV: One Partner must meet or exceed	INR 8,17,00,000.00
	For JV: Each Partner must meet or exceed	INR 5,10,00,000.00
5.	Availability of Dedicated <b>Line of Credit</b> for the subject contact in the format given in Section 4, FIN 3A	

5. To obtain further information, Bidders may contact the following, on working days (from 10.00 to 17:00 hours – IST);

The Program Director, UUSDA,  
777, Saatvik Tower, Kaulagarh Road, Rajendra Nagar, Dehradun – 248001,  
Telephone: +91-135-2753894, Tele-fax +91-135-2754895  
Email: [uusdip@gmail.com](mailto:uusdip@gmail.com)

6. Availability of the bidding documents;
- (a) The bid documents for the work of **“Development of Sewerage System involving STP, Trunk Sewer and Allied Works including 5 Years Operation and Maintenance, at Raipur, Dehradun, in Uttarakhand”** shall be available online on the e-Government Procurement System (e-GPS) portal <https://uktenders.gov.in> from **1<sup>st</sup> January 2021 (from 11:00 AM) onwards, till 11<sup>th</sup> February 2021**, (up to **02:30 PM**). The bidding document will appear under the **“Latest Active Tenders”** tab, in the portal. The Bidder can download the bid document only during the date & time mentioned above, after which the same will be removed from the list of Latest Active Tenders. The bidders would be responsible for ensuring that any addenda available on the website is also downloaded and incorporated.
- (b) The bidders will pay a nonrefundable “Bid Document” fee of INR 10,000/- + GST (Indian Rupees Ten thousand Only + GST), as given in point 7 (e), below.
7. Submission of bid
- (a) For submission of the bid, the bidder is required to have Digital Signature Certificate (DSC) from one of the Certifying Authorities authorised by Government of India for issuing DSC. Aspiring bidders who have not obtained the user ID and password for participating in e-procurement in this Project, may obtain the same from the website: <https://uktenders.gov.in>. Any bidder not having the DSC may obtain the same from NIC on payment of requisite fees, before the bid submission deadline.
- (b) Bids must be submitted online on <https://uktenders.gov.in> on or before **11<sup>th</sup> February 2021**, up to **03:00 PM** and the ‘Technical Part’ of the bids will be opened publicly online on the same day at **03:30 PM (IST)**. The “Financial Part” shall remain unopened in the e-procurement system until the public Bid opening for the financial part. Any bid or modifications to bid (including discount) received outside e-procurement system will not be considered.
- (c) All Bids must be accompanied by a Bid Security as specified in paragraph 2 and shall have to be valid for **28** days beyond the validity of the bid. Procedure for submission of bid security is described in 7 (d).

- (d) The Bidder shall furnish a bid security for the amount as mentioned in the table above, using the instruments specified in ITB 19.3 and submit it online, on or before the bid submission deadline given in point 7 (b) above.
- (e) The bidders are required to submit the “Bid Document Fee” in the amount as detailed in point 6 (b) above through RTGS / NEFT, in the bank account, on or before the bid submission deadline given in point 7 (b) above, as detailed below;

A/c Holder Name: Programme Director UUSDIP

A/c no: 3968000100215502

IFSC code: PUNB0396800

SWIFT code: PUNBINBBISB

Bank Address: Punjab National Bank, Yamuna Colony, Chakrata Road, Dehradun- 248001.

- 8. Technical Bids will be opened immediately after the deadline for bid submission in the presence of Bidders' representatives who choose to attend.
- 9. The Employer will not be responsible for any costs or expenses incurred by bidders in connection with the preparation or delivery of bids.
- 10. Pre-bid meeting will be held virtually at **Office of the Program Director, UUSDA**, at **11:30 AM (IST)** on **17<sup>th</sup> January 2021**. The interested bidders may mail their request for “Invitation” to participate in the meeting at [biddersuusda@gmail.com](mailto:biddersuusda@gmail.com) and may join the meeting using the invite.
- 11. Any “Corrigendum” and / or “Addendum”, Clarification/s, if issued, will only be uploaded in the Employers' website: <https://uktenders.gov.in>

Program Director, UUSDA  
777, Saatvik Tower, Kaulagarh Road,  
Rajendra Nagar, Dehradun – 248001

# **Procurement of Works**

**Single-Stage: Two-Envelope Bidding Procedure**

## **BIDDING DOCUMENT for Procurement of**

**“Development of Sewerage System involving STP, Trunk Sewer and Allied Works including 5 Years Operation and Maintenance, at Raipur, Dehradun, in Uttarakhand.”**

**Volume - 1**

**Issued on: 1<sup>st</sup> January 2021**

**Invitation for Bid No: UIUDP/OCB - N/WW - DDN - 02/2020-21**

**OCB No: N/ WW - DDN - 02/2020-21**

**Employer: Uttarakhand Urban Sector Development Agency (UUSDA),  
Government of Uttarakhand**

**Country: India**

# Preface

This Bidding Document for the Procurement of Works has been prepared by **Uttarakhand Urban Sector Development Agency (UUSDA), Government of Uttarakhand** and is based on the following:

- i. Part I – Standard Bidding Document for the Procurement of Works (SBD Works) issued by the Asian Development Bank dated **[June 2018]**.
- ii. Part II – Employer's Requirements customised for each sub-project
- iii. Part III – Conditions of Contract and Contract Forms is based on Conditions of Contract for Design, Build and Operate Projects (First Edition 2008), prepared by the Fédération Internationale des Ingénieurs-Conseils or FIDIC (FIDIC Gold Book) available at <http://fidic.org/bookshop>. The GCC is deemed to include the General Conditions of Dispute Adjudication Agreement and the Procedural Rules for Dispute Adjudication Board Members of the FIDIC Gold Book

# Table of Contents - Summary Description

## PART I BIDDING PROCEDURES

### Section 1 - Instructions to Bidders (ITB) ----- 1-1

This Section specifies the procedures Bidders should follow when preparing and submitting their Bids. Information is also provided on the submission, opening, evaluation of bids, and on the award of contract.

### Section 2 - Bid Data Sheet (BDS) ----- 2-1

This Section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section 1 - Instructions to Bidders.

### Section 3 - Evaluation and Qualification Criteria (EQC) ----- 3-1

This Section contains the criteria to determine the lowest evaluated bid and the qualifications of the Bidder to perform the contract.

### Section 4 - Bidding Forms (BDF) ----- 4-1

This Section contains the forms which are to be completed by the Bidder and submitted as part of its Bid.

### Section 5 - Eligible Countries (ELC) ----- 5-1

This Section contains the list of eligible countries.

## PART II REQUIREMENTS

### Section 6 - Employer's Requirements (ERQ) ----- 6-1

This Section contains the Specifications, Drawings, and Supplementary Information that describe the Works to be procured, Personnel Requirements, and Equipment Requirements.

## PART III CONDITIONS OF CONTRACT AND CONTRACT FORMS

### Section 7 - General Conditions of Contract (GCC) ----- 7-1

This Section contains the general clauses that govern the Contract. These General Conditions shall be the Conditions of Contract for Design, Build Operate prepared by the Fédération Internationale des Ingénieurs-Conseil (FIDIC Gold Book first edition 2008). These Conditions are subject to the variations and additions set out in Section 8 (Particular Conditions of Contract).

### Section 8 - Particular Conditions of Contract (PCC) ----- 8-1

This Section contains provisions that are specific to each contract and that modify or supplement the GCC. Whenever there is a conflict, the provisions herein shall prevail over those in the GCC.

### Section 9 - Contract Forms (COF) ----- 9-1

This Section contains forms, which, once completed, will form part of the Contract. The forms for Performance Security and Advance Payment Security, when required, shall only be completed by the successful Bidder after contract award.

# Section 1:

## Instructions to Bidders

# Section 1: Instructions to Bidders

This Section specifies the procedures to be followed by Bidders in the preparation and submission of their Bids. Information is also provided on the submission, opening, evaluation of bids, and award of contract.

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## A. General

- 1. Scope of Bid**
  - 1.1 In connection with the Invitation for Bids (IFB) indicated in the Bid Data Sheet (BDS), the Employer, as indicated in the BDS, issues this Bidding Document for the procurement of Works as specified in Section 6 (Employer's Requirements). The name, identification, and number of contracts of the open competitive bidding (OCB) are provided in the BDS.
  - 1.2 Throughout this Bidding Document,
    - (a) the term "in writing" means communicated in written form and delivered against receipt;
    - (b) except where the context requires otherwise, words indicating the singular also include the plural and words indicating the plural also include the singular; and
    - (c) "day" means calendar day.
- 2. Source of Funds**
  - 2.1 The Borrower or Recipient (hereinafter called "Borrower") indicated in the BDS has applied for or received financing (hereinafter called "funds") from the Asian Development Bank (hereinafter called "ADB") toward the cost of the project named in the BDS. The Borrower intends to apply a portion of the funds to eligible payments under the contract(s) for which this Bidding Document is issued.
  - 2.2 Payments by the ADB will be made only at the request of the Borrower and upon approval by ADB in accordance with the terms and conditions of the Financing Agreement between the Borrower and ADB (hereinafter called "Financing Agreement"), and will be subject in all respects to the terms and conditions of that Financing Agreement. No party other than the Borrower shall derive any rights from the Financing Agreement or have any claim to the funds.
- 3. Fraud and Corruption**
  - 3.1 ADB's Anticorruption Policy (1998, as amended to date) requires Borrowers (including beneficiaries of ADB-financed activity), as well as Bidders, Suppliers, and Contractors under ADB-financed contracts, observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, ADB
    - (a) defines, for the purposes of this provision, the terms set forth below as follows:
      - (i) "corrupt practice" means the offering, giving, receiving, or soliciting, directly or indirectly, anything of value to influence improperly the actions of another party;
      - (ii) "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;
      - (iii) "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;

- (iv) “collusive practice” means an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;
  - (v) “abuse” means theft, waste, or improper use of assets related to ADB-related activity, either committed intentionally or through reckless disregard;
  - (vi) “conflict of interest” means any situation in which a party has interests that could improperly influence that party’s performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations;
  - (vii) “obstructive practice” means (a) deliberately destroying, falsifying, altering, or concealing of evidence material to an ADB investigation, or deliberately making false statements to investigators, with the intent to impede an ADB investigation; (b) threatening, harassing, or intimidating any party to prevent it from disclosing its knowledge of matters relevant to a Bank investigation or from pursuing the investigation; or (c) deliberate acts intended to impede the exercise of ADB’s contractual rights of audit or inspection or access to information; and
  - (viii) “integrity violation” is any act, as defined under ADB’s Integrity Principles and Guidelines (2015, as amended from time to time), which violates ADB’s Anticorruption Policy, including (i) to (vii) above and the following: violations of ADB sanctions, retaliation against whistleblowers or witnesses, and other violations of ADB’s Anticorruption Policy, including failure to adhere to the highest ethical standard.
- (b) will reject a proposal for award if it determines that the Bidder recommended for award has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations in competing for the Contract;
  - (c) will cancel the portion of the financing allocated to a contract if it determines at any time that representatives of the Borrower or of a beneficiary of ADB-financing engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity violations during the procurement or the execution of that contract, without the Borrower having taken timely and appropriate action satisfactory to ADB to remedy the situation;
  - (d) will impose remedial actions on a firm or an individual, at any time, in accordance with ADB’s Anticorruption Policy and Integrity Principles and Guidelines, including declaring ineligible, either indefinitely or for a stated period of time, to participate<sup>1</sup> in ADB-financed, -administered, or -supported activities or to benefit from an ADB-financed, -administered, or -supported contract, financially or otherwise, if it at any time determines that the firm or individual has, directly or through an agent, engaged in corrupt, fraudulent, collusive, coercive, or obstructive practices or other integrity

<sup>1</sup> Whether as a Contractor, Subcontractor, Consultant, Manufacturer or Supplier, or Service Provider; or in any other capacity (different names are used depending on the particular Bidding Document).

violations; and

- (e) will have the right to require that a provision be included in bidding documents and in contracts financed by ADB, requiring Bidders, suppliers and contractors to permit ADB or its representative to inspect their accounts and records and other documents relating to the bid submission and contract performance and to have them audited by auditors appointed by ADB.

3.2 All Bidders, consultants, contractors, suppliers, and other third parties engaged or involved in ADB-related activities have a duty to cooperate fully in any screening or investigation when requested by ADB to do so. Such cooperation includes, but is not limited to, the following:

- (a) being available to be interviewed and replying fully and truthfully to all questions asked;
- (b) providing ADB with any items requested that are within the party's control including, but not limited to, documents and other physical objects;
- (c) upon written request by ADB, authorizing other related entities to release directly to ADB such information that is specifically and materially related, directly or indirectly, to the said entities or issues which are the subject of the investigation;
- (d) cooperating with all reasonable requests to search or physically inspect their person and/or work areas, including files, electronic databases, and personal property used on ADB activities, or that utilizes ADB's Information and Communications Technology (ICT) resources or systems (including mobile phones, personal electronic devices, and electronic storage devices such as external disk drives);
- (e) cooperating in any testing requested by ADB, including but not limited to, fingerprint identification, handwriting analysis, and physical examination and analysis; and
- (f) preserving and protecting confidentiality of all information discussed with, and as required by, ADB.

3.3 All Bidders, consultants, contractors and suppliers shall ensure that, in its contract with its sub-consultants, Subcontractors, and other third parties engaged or involved in ADB-related activities, such sub-consultants, Subcontractors, and other third parties similarly undertake the foregoing duty to cooperate fully in any screening or investigation when requested by ADB to do so.

3.4 The Employer hereby puts the Bidder on notice that the Bidder or any Joint Venture partner of the Bidder (if any) may not be able to receive any payments under the Contract if the Bidder or any of its Joint Venture partners, as appropriate, is, or is owned (in whole or in part) by a person or entity subject to applicable sanctions.

- 3.5 Furthermore, Bidders shall be aware of the provision stated in Subclause 1.15 and 15.6 of the Conditions of Contract.

#### **4. Eligible Bidders**

- 4.1 A Bidder may be a natural person, private entity, or government-owned enterprise subject to ITB 4.5—or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture. In the case of a Joint Venture,
- (a) all partners shall be jointly and severally liable; and
  - (b) the Joint Venture shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the Joint Venture during the bidding process and, in the event the Joint Venture is awarded the Contract, during contract execution.
- 4.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of an eligible country, in accordance with Section 5 (Eligible Countries). A Bidder shall be deemed to have the nationality of a country if the Bidder is a citizen or is constituted, incorporated, or registered, and operates in conformity with the provisions of the laws of that country. This criterion shall also apply to the determination of the nationality of proposed Subcontractors or Suppliers for any part of the Contract including related services.
- 4.3 A Bidder shall not have a conflict of interest. All Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to be in a conflict of interest with one or more parties in the bidding process if any of, including but not limited to, the following apply:
- (a) they have controlling shareholders in common; or
  - (b) they receive or have received any direct or indirect subsidy from any of them; or
  - (c) they have the same legal representative for purposes of this bid; or
  - (d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to material information about or improperly influence the bid of another Bidder, or influence the decisions of the Employer regarding this bidding process; or
  - (e) a Bidder participates in more than one bid in this bidding process, either individually or as a partner in a Joint Venture, except for alternative offers permitted under ITB 13 of the Bidding Document. This will result in the disqualification of all Bids in which it is involved. However, subject to any finding of a conflict of interest in terms of ITB 4.3(a)-(d) above, this does not limit the participation of a Bidder as a Subcontractor in another Bid or of a firm as a Subcontractor in more than one Bid; or
  - (f) a Bidder, Joint Venture partner, associates, parent company, or any affiliated entity, participated as a Consultant in the preparation

of the design or technical specifications of the works that are the subject of the Bid; or

(g) a Bidder was affiliated with a firm or entity that has been hired (or is proposed to be hired) by the Employer or Borrower as Engineer for the contract; or

(h) a Bidder would be providing goods, works, or nonconsulting services resulting from or directly related to consulting services for the preparation or implementation of the project specified in the BDS ITB 2.1 that it provided or were provided by any affiliate that directly or indirectly controls, is controlled by, or is under common control with that firm.

4.4 A firm shall not be eligible to participate in any procurement activities under an ADB-financed, -administered, or -supported project while under temporary suspension or debarment by ADB pursuant to its Anticorruption Policy (see ITB 3), whether such debarment was directly imposed by ADB, or enforced by ADB pursuant to the Agreement for Mutual Enforcement of Debarment Decisions. A bid from a temporary suspended or debarred firm will be rejected.

4.5 Government-owned enterprises in the Employer's country shall be eligible only if they can establish that they (i) are legally and financially autonomous, (ii) operate under commercial law, and (iii) are not a dependent agency of the Employer.

4.6 A Bidder shall not be under suspension from bidding by the Employer as the result of the execution of a Bid–Securing Declaration.

4.7 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request.

4.8 Firms shall be excluded if by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations, the Borrower's country prohibits any import of goods or contracting of works or services from that country or any payments to persons or entities in that country.

4.9 In case a prequalification process has been conducted prior to the bidding process, this bidding is open only to prequalified Bidders.

## **5. Eligible Materials, Equipment and Services**

5.1 The materials, equipment, and services to be supplied under the Contract shall have their origin in eligible source countries as defined in ITB 4.2, and all expenditures under the Contract will be limited to such materials, equipment, and services. At the Employer's request, Bidders may be required to provide evidence of the origin of materials, equipment, and services.

- 5.2 For purposes of ITB 5.1 above, “origin” means the place where the materials and equipment are mined, grown, produced, or manufactured, and from which the services are provided. Materials and equipment are produced when, through manufacturing, processing, or substantial or major assembling of components, a commercially recognized product results that differs substantially in its basic characteristics or in purpose or utility from its components.

## B. Contents of Bidding Document

6. **Sections of Bidding Document**
- 6.1 The Bidding Document consist of Parts I, II, and III, which include all the sections indicated below, and should be read in conjunction with any addenda issued in accordance with ITB 8.
- PART I Bidding Procedures**
- Section 1 - Instructions to Bidders (ITB)
  - Section 2 - Bid Data Sheet (BDS)
  - Section 3 - Evaluation and Qualification Criteria (EQC)
  - Section 4 - Bidding Forms (BDF)
  - Section 5 - Eligible Countries (ELC)
- PART II Requirements**
- Section 6 - Employer’s Requirements (ERQ)
- PART III Conditions of Contract and Contract Forms**
- Section 7 - General Conditions of Contract (GCC)
  - Section 8 - Particular Conditions of Contract (PCC)
  - Section 9 - Contract Forms (COF)
- 6.2 The IFB issued by the Employer is not part of the Bidding Document.
- 6.3 The Employer is not responsible for the completeness of the Bidding Document and their addenda, if they were not obtained directly from the source stated by the Employer in the IFB.
- 6.4 The Bidder is expected to examine all instructions, forms, terms, and specifications in the Bidding Document. Failure to furnish all information or documentation required by the Bidding Document may result in the rejection of the bid.
7. **Clarification of Bidding Document, Site Visit, Pre-Bid Meeting**
- 7.1 A prospective Bidder requiring any clarification on the Bidding Document shall contact the Employer in writing at the Employer’s address indicated in the BDS or raise his inquiries during the pre-bid meeting if provided for in accordance with ITB 7.4. The Employer will respond in writing to any request for clarification, provided that such request is received no later than 21 days prior to the deadline for submission of bids. The Employer shall forward copies of its response to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3, including a description of the inquiry but without identifying its source. Should the Employer deem it necessary to amend the Bidding Document as a result of a request for clarification, it shall do so following the procedure under ITB 8 and ITB 22.2.

- 7.2 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 Works. The costs of visiting the Site shall be at the Bidder's own expense.
- 7.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection.
- 7.4 The Bidder's designated representative is invited to attend a pre-bid meeting, if provided for in the BDS. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage.
- 7.5 The Bidder is requested to submit any questions in writing, to reach the Employer not later than 1 week before the meeting.
- 7.6 Minutes of the pre-bid meeting, including the text of the questions raised, without identifying the source, and the responses given, together with any responses prepared after the meeting, will be transmitted promptly to all Bidders who have acquired the Bidding Document in accordance with ITB 6.3. Any modification to the Bidding Document that may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively through the issue of an addendum pursuant to ITB 8 and not through the minutes of the pre-bid meeting.
- 7.7 Nonattendance at the pre-bid meeting will not be a cause for disqualification of a Bidder.
- 8. Amendment of Bidding Document**
- 8.1 At any time prior to the deadline for submission of Bids, the Employer may amend the Bidding Document by issuing addenda.
- 8.2 Any addendum issued shall be part of the Bidding Document and shall be communicated in writing to all who have obtained the Bidding Document from the Employer in accordance with ITB 6.3.
- 8.3 To give prospective Bidders reasonable time in which to take an addendum into account in preparing their Bids, the Employer may, at its discretion, extend the deadline for the submission of Bids, pursuant to ITB 22.2

## **C. Preparation of Bids**

- 9. Cost of Bidding**
- 9.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the Employer shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the



bidding process.

**10. Language of Bid**

- 10.1 The Bid, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Employer, shall be written in the language specified in the BDS. 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 the language specified in the BDS, in which case, for purposes of interpretation of the Bid, such translation shall govern.

**11. Documents Comprising the Bid**

- 11.1 The Bid shall comprise two envelopes submitted simultaneously, one called the Technical Bid containing the documents listed in ITB 11.2 and the other the Price Bid containing the documents listed in ITB 11.3, both envelopes enclosed together in an outer single envelope.

- 11.2 The Technical Bid shall comprise the following:

- (a) Letter of Technical Bid;
- (b) Bid Security or Bid-Securing Declaration, in accordance with ITB 19;
- (c) alternative Bids, if permissible, in accordance with ITB 13;
- (d) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 20.2;
- (e) documentary evidence in accordance with ITB 17, establishing the Bidder's qualifications to perform the contract;
- (f) Technical Proposal in accordance with ITB 16; and
- (g) any other document required in the BDS.

- 11.3 The Price Bid shall comprise the following:

- (a) Letter of Price Bid;
- (b) completed Price Schedules, in accordance with ITB 12 and ITB 14;
- (c) alternative price Bids, at Bidder's option and if permissible, in accordance with ITB 13; and
- (d) any other document required in the BDS.

- 11.4 In addition to the requirements under ITB 11.2, Bids submitted by a Joint Venture shall include a copy of the Joint Venture Agreement entered into by all partners. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful Bid shall be signed by all partners and submitted with the Bid, together with a copy of the proposed agreement.

**12. Letters of Bid and Schedules**

- 12.1 The Letters of Technical Bid and Price Bid, and the Schedules, including the Bill of Quantities, shall be prepared using the relevant forms furnished in Section 4 (Bidding Forms). The forms must be completed without any alterations to the text, and no substitutes shall be accepted. All blank spaces shall be filled in with the information requested and as required in the BDS.

**13. Alternative Bids**

- 13.1 Unless otherwise indicated in the BDS, alternative Bids shall not be considered.
- 13.2 When alternative times for completion are explicitly invited, a statement to that effect will be included in the BDS, as will the method of evaluating different times for completion.
- 13.3 Except as provided under ITB 13.4 below, Bidders wishing to offer technical alternatives to the requirements of the Bidding Document must first price the Employer's design as described in the Bidding Document and shall further provide all information necessary for a complete evaluation of the alternative by the Employer, including drawings, design calculations, technical specifications, breakdown of prices, and proposed construction methodology and other relevant details. Only the technical alternatives, if any, of the lowest evaluated Bidder conforming to the basic technical requirements shall be considered by the Employer.
- 13.4 When specified in the BDS, Bidders are permitted to submit alternative technical solutions for specified parts of the Works. Such parts will be identified in the BDS and described in Section 6 (Employer's Requirements). The method for their evaluation will be stipulated in Section 3 (Evaluation and Qualification Criteria).

**14. Bid Prices and Discounts**

- 14.1 The prices and discounts quoted by the Bidder in the Letter of Price Bid and in the Bill of Quantities shall conform to the requirements specified below.
- 14.2 The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which no rate or price is entered by the Bidder will not be paid for by the Employer when executed and shall be deemed covered by the rates for other items and prices in the Bill of Quantities.
- 14.3 The price to be quoted in the Letter of Price Bid, in accordance with ITB 12.1, shall be the total price of the Bid, excluding any discounts offered. Absence of the total bid price in the Letter of Price Bid may result in the rejection of the Bid.
- 14.4 The Bidder shall quote any discounts and the methodology for their application in the Letter of Price Bid, in accordance with ITB 12.1.
- 14.5 The prices shall be either fixed or adjustable as specified in the BDS.
- (a) In the case of Fixed Price, prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A Bid submitted with an adjustable price will be treated as nonresponsive and rejected.
- (b) In the case of Adjustable Price, prices quoted by the Bidder shall be subject to adjustment during performance of the contract to reflect changes in the cost elements such as labor, material, transport, and contractor's equipment in accordance with the provisions of the Conditions of Contract. A Bid submitted with a fixed price will be treated as nonresponsive and be rejected. The

Bidder shall furnish the indexes and weightings for the price adjustment formulas in the Tables of Adjustment Data included in Section 4 (Bidding Forms) and the Employer may require the Bidder to justify its proposed indexes and weightings. Any bid that omits indexes and weightings shall be subject to clarification with the Bidder.

- 14.6 If so indicated in ITB 1.1, bids are being invited for individual contracts or for any combination of contracts (packages). Bidders wishing to offer any price reduction for the award of more than one Contract shall specify in their bid the price reductions applicable to each package, or alternatively, to individual Contracts within the package. Price reductions or discounts shall be submitted in accordance with ITB 14.4, provided the Bids for all contracts are submitted and opened at the same time.
- 14.7 All duties, taxes, and other levies payable by the Contractor under the Contract, or for any other cause, as of the date 28 days prior to the deadline for submission of bids, shall be included in the rates and prices and the total Bid Price submitted by the Bidder.

#### **15. Currencies of Bid and Payment**

- 15.1 The unit rates and the prices shall be quoted by the Bidder entirely in the currency specified in the BDS.
- 15.2 Bidders shall indicate the portion of the bid price that corresponds to expenditures incurred in the currency of the Employer's country in the Schedule of Payment Currencies included in Section 4 (Bidding Forms).
- 15.3 Bidders expecting to incur expenditures in other currencies for inputs to the Works supplied from outside the Employer's country and wishing to be paid accordingly may indicate the other currencies in the Schedule of Payment Currencies included in Section 4 (Bidding Forms).
- 15.4 The rates of exchange to be used by the Bidder for currency conversion during bid preparation shall be the selling rates for similar transactions prevailing on the date 28 days prior to the deadline for submission of bids published by the source specified in the BDS. If exchange rates are not so published for certain currencies, the Bidder shall state the rates used and the source. Bidders should note that for the purpose of payments, the exchange rates confirmed by the source specified in the BDS as the selling rates prevailing 28 days prior to the deadline for submission of Bids shall apply for the duration of the Contract so that no currency exchange risk is borne by the Bidder.
- 15.5 Foreign currency requirements indicated by the Bidders in the Schedule of Payment Currencies shall include but not limited to the specific requirements for
- (a) expatriate staff and labor employed directly on the Works;
  - (b) social, insurance, medical and other charges relating to such expatriate staff and labor, and foreign travel expenses;

- (c) imported materials, both temporary and permanent, including fuels, oil and lubricants required for the Works;
- (d) depreciation and usage of imported Plant and Contractor's Equipment, including spare parts, required for the Works;
- (e) foreign insurance and freight charges for imported materials, Plant and Contractor's Equipment, including spare parts; and
- (f) overhead expenses, fees, profit, and financial charges arising outside the Employer's country in connection with the Works.

15.6 Bidders may be required by the Employer to clarify their foreign currency requirements, and to substantiate that the amounts included in the unit rates and prices and shown in the Schedule of Payment Currencies are reasonable and responsive to ITB 15.3 above, in which case a detailed breakdown of its foreign currency requirements shall be provided by the Bidder.

15.7 Bidders should note that during the progress of the Works, the foreign currency requirements of the outstanding balance of the Contract Price may be adjusted by agreement between the Employer and the Contractor in order to reflect any changes in foreign currency requirements for the Contract, in accordance with Subclause 14.15 of the Conditions of Contract. Any such adjustment shall be effected by comparing the percentages quoted in the bid with the amounts already used in the Works and the Contractor's future needs for imported items.

**16. Documents  
Comprising the  
Technical  
Proposal**

16.1 The Bidder shall furnish a Technical Proposal including a statement of work methods, equipment, personnel, schedule, and any other information as stipulated in Section 4 (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.

**17. Documents  
Establishing the  
Qualifications of  
the Bidder**

17.1 To establish its qualifications to perform the Contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section 4 (Bidding Forms).

17.2 Domestic Bidders, individually or in Joint Ventures, applying for eligibility for domestic preference shall supply all information required to satisfy the criteria for eligibility as described in ITB 36.

**18. Period of Validity  
of Bids**

18.1 Bids shall remain valid for the period specified in the BDS after the bid submission deadline date prescribed by the Employer. A bid valid for a shorter period shall be rejected by the Employer as nonresponsive.

18.2 In exceptional circumstances, prior to the expiration of the bid validity period, the Employer may request Bidders to extend the period of validity of their Bids. The request and the responses shall be made in writing. If a bid security is requested in accordance with ITB 19, it shall also be extended 28 days beyond the deadline of the extended validity period. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request shall not be required or permitted to modify its Bid.

**19. Bid Security/Bid-Securing Declaration**

- 19.1 Unless otherwise specified in the BDS, the Bidder shall furnish as part of its Bid, in original form, either a Bid-Securing Declaration or a bid security as specified in the BDS. In the case of a bid security, the amount and currency shall be as specified in the BDS.
- 19.2 If a Bid-Securing Declaration is required pursuant to ITB 19.1, it shall use the form included in Section 4 (Bidding Forms). The Employer will declare a Bidder ineligible to be awarded a Contract for a specified period of time, as indicated in the BDS, if the Bid-Securing Declaration is executed.
- 19.3 If a bid security is specified pursuant to ITB 19.1, the bid security shall be, at the Bidder's option, in any of the following forms:
- (a) an unconditional bank guarantee,
  - (b) an irrevocable letter of credit,
  - (c) a cashier's or certified check, or
  - (d) SWIFT message in the form of MT760.
- all from a reputable source from an eligible country as described in Section 5 (Eligible Countries). In the case of a bank guarantee, the bid security shall be submitted either using the Bid Security Form included in Section 4 (Bidding Forms) or another form acceptable to the Employer. The form must include the complete name of the Bidder. The bid security shall be valid for 28 days beyond the original validity period of the bid, or beyond any period of extension if requested under ITB 18.2.
- 19.4 Unless otherwise specified in the BDS, any Bid not accompanied by a substantially compliant bid security or Bid-Securing Declaration, if one is required in accordance with ITB 19.1, shall be rejected by the Employer as nonresponsive.
- 19.5 If a bid security is specified pursuant to ITB 19.1, the bid security of unsuccessful Bidders shall be returned promptly upon the successful Bidder's furnishing of the performance security pursuant to ITB 45.
- 19.6 If a bid security is specified pursuant to ITB 19.1, the bid security of the successful Bidder shall be returned promptly once the successful Bidder has signed the Contract and furnished the required performance security.
- 19.7 The bid security may be forfeited or the Bid Securing Declaration executed, if
- (a) notwithstanding ITB 24.3, a Bidder withdraws its bid during the period of bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid, except as provided in ITB 18.2; or
  - (b) the successful Bidder fails to
    - (i) sign the Contract in accordance with ITB 44;
    - (ii) furnish a performance security in accordance with ITB 45;
    - (iii) accept the arithmetical correction of its Bid in accordance with

ITB 34; or

(iv) furnish a domestic preference security, if so required.

19.8 If the bid security is required as per ITB 19.1, the bid security of a Joint Venture shall be in the name of the Joint Venture that submits the Bid. If the Joint Venture has not been legally constituted at the time of bidding, the bid security shall be in the name of any or all of the Joint Venture partners. If the Bid-Securing Declaration is required as per ITB 19.1, the Bid-Securing Declaration of a Joint Venture shall be in the name of the Joint Venture that submits the Bid. If the Joint Venture has not been legally constituted at the time of bidding, the Bid-Securing Declaration shall be in the names of all future partners as named in the letter of intent mentioned in ITB 4.1.

## **20. Format and Signing of Bid**

20.1 The Bidder shall prepare one original set of the Technical Bid and one original set of the Price Bid comprising the Bid as described in ITB 11 and clearly mark it “ORIGINAL - TECHNICAL BID” and “ORIGINAL - PRICE BID.” Alternative Bids, if permitted in accordance with ITB 13, shall be clearly marked “ALTERNATIVE.” In addition, the Bidder shall submit copies of the Technical and Price Bids, in the number specified in the BDS, and clearly mark each of them “COPY.” In the event of any discrepancy between the original and the copies, the original shall prevail.

20.2 The original and all copies of the Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the BDS and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature. If a Bidder submits a deficient authorization, the Bid shall not be rejected in the first instance. The Employer shall request the Bidder to submit an acceptable authorization within the number of days as specified in the BDS. Failure to provide an acceptable authorization within the period as stated in the Employer’s request shall cause the rejection of the Bid. If either the Letter of Technical Bid or Letter of Price Bid or Bid-Securing Declaration (if applicable) is not signed, the Bid shall be rejected.

20.3 Any amendments such as interlineations, erasures, or overwriting shall be valid only if they are signed or initialed by the person signing the Bid.

## **D. Submission and Opening of Bids**

### **21. Sealing and Marking of Bids**

21.1 Bidders may always submit their Bids by mail or by hand. When so specified in the BDS, Bidders shall have the option of submitting their Bids electronically. Procedures for submission, sealing, and marking are as follows:

(a) Bidders submitting Bids by mail or by hand shall enclose the original of the Technical Bid, the original of the Price Bid, and each copy of the Technical Bid and each copy of the Price Bid, in separate sealed envelopes, duly marking the envelopes as

“ORIGINAL - TECHNICAL BID,” “ORIGINAL - PRICE BID,” and “COPY NO... - TECHNICAL BID” and “COPY NO.... - PRICE BID.” These envelopes, the first containing the originals and the others containing copies, shall then be enclosed in one single envelope per set. If permitted in accordance with ITB 13, alternative Bids shall be similarly sealed, marked and included in the sets. The rest of the procedure shall be in accordance with ITB 21.2 and ITB 21.5.

- (b) Bidders submitting Bids electronically shall follow the electronic bid submission procedures specified in the BDS.

21.2 The inner and outer envelopes shall

- (a) bear the name and address of the Bidder;
- (b) be addressed to the Employer in accordance with BDS 22.1; and
- (c) bear the specific identification of this bidding process indicated in the BDS 1.1.

21.3 The outer envelopes and the inner envelopes containing the Technical Bid shall bear a warning not to open before the time and date for the opening of Technical Bid, in accordance with ITB 25.1.

21.4 The inner envelopes containing the Price Bid shall bear a warning not to open until advised by the Employer in accordance with ITB 25.7.

21.5 If all envelopes are not sealed and marked as required, the Employer will assume no responsibility for the misplacement or premature opening of the Bid.

**22. Deadline for Submission of Bids**

22.1 Bids must be received by the Employer at the address and no later than the date and time indicated in the BDS.

22.2 The Employer may, at its discretion, extend the deadline for the submission of Bids by amending the Bidding Document in accordance with ITB 8, in which case all rights and obligations of the Employer and Bidders previously subject to the deadline shall thereafter be subject to the deadline as extended.

**23. Late Bids**

23.1 The Employer shall not consider any Bid that arrives after the deadline for submission of bids, in accordance with ITB 22. Any bid received by the Employer after the deadline for submission of Bids shall be declared late, rejected, and returned unopened to the Bidder.

**24. Withdrawal, Substitution, and Modification of Bids**

24.1 A Bidder may withdraw, substitute, or modify its Bid – Technical or Price – after it has been submitted by sending a written notice, duly signed by an authorized representative, and shall include a copy of the authorization in accordance with ITB 20.2 (except for withdrawal notices, which do not require copies). The corresponding substitution or modification of the Bid must accompany the respective written notice. All notices must be

- (a) prepared and submitted in accordance with ITB 20 and ITB 21 (except for withdrawal notices, which do not require copies), and in addition, the respective envelopes shall be clearly marked

“WITHDRAWAL,” “SUBSTITUTION,” “MODIFICATION”; and

- (b) received by the Employer no later than the deadline prescribed for submission of Bids, in accordance with ITB 22.

24.2 Bids requested to be withdrawn in accordance with ITB 24.1 shall be returned unopened to the Bidders.

24.3 No Bid may be withdrawn, substituted, or modified in the interval between the deadline for submission of Bids and the expiration of the period of bid validity specified by the Bidder on the Letters of Technical Bid and Price Bid or any extension thereof.

## **25. Bid Opening**

25.1 The Employer shall open the Technical Bids in public at the address, on the date and time specified in the BDS in the presence of Bidders' designated representatives and anyone who chooses to attend. Any specific electronic bid opening procedures required if electronic bidding is permitted in accordance with ITB 21.1, shall be as specified in the BDS. The Price Bids will remain unopened and will be held in custody of the Employer until the specified time of their opening. If the Technical Bid and the Price Bid are submitted together in one envelope, the Employer may reject the entire Bid. Alternatively, the Price Bid may be immediately resealed for later evaluation.

25.2 First, envelopes marked “WITHDRAWAL” shall be opened and read out and the envelope with the corresponding Bid shall not be opened, but returned to the Bidder. No bid withdrawal shall be permitted unless the corresponding withdrawal notice contains a valid authorization to request the withdrawal and is read out at bid opening.

25.3 Second, outer envelopes marked “SUBSTITUTION” shall be opened. The inner envelopes containing the Substitution Technical Bid and/or Substitution Price Bid shall be exchanged for the corresponding envelopes being substituted, which are to be returned to the Bidder unopened. Only the Substitution Technical Bid, if any, shall be opened, read out, and recorded. Substitution Price Bid will remain unopened in accordance with ITB 25.1. No envelope shall be substituted unless the corresponding substitution notice contains a valid authorization to request the substitution and is read out and recorded at bid opening.

25.4 Next, outer envelopes marked “MODIFICATION” shall be opened. No Technical Bid and/or Price Bid shall be modified unless the corresponding modification notice contains a valid authorization to request the modification and is read out and recorded at the opening of Technical Bids. Only the Technical Bids, both Original as well as Modification, are to be opened, read out, and recorded at the opening. Price Bids, both Original as well as Modification, will remain unopened in accordance with ITB 25.1.

25.5 All other envelopes holding the Technical Bids shall be opened one at a time, and the following read out and recorded:

- (a) the name of the Bidder;
- (b) whether there is a modification or substitution;
- (c) the presence of a bid security or Bid-Securing Declaration, if



required; and

(d) any other details as the Employer may consider appropriate.

Only Technical Bids and alternative Technical Bids read out and recorded at bid opening shall be considered for evaluation. Unless otherwise specified in the BDS, all pages of the Letter of Technical Bid are to be initialed by at least three representatives of the Employer attending bid opening. No Bid shall be rejected at the opening of Technical Bids except for late bids, in accordance with ITB 23.1.

25.6 The Employer shall prepare a record of the opening of Technical Bids that shall include, as a minimum, the name of the Bidder and whether there is a withdrawal, substitution, or modification; alternative proposals; and the presence or absence of a bid security or Bid-Securing Declaration, if one was required. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders who submitted Bids on time, and posted online when electronic bidding is permitted.

25.7 At the end of the evaluation of the Technical Bids, the Employer will invite bidders who have submitted substantially responsive Technical Bids and who have been determined as being qualified for award to attend the opening of the Price Bids. The date, time, and location of the opening of Price Bids will be advised in writing by the Employer. Bidders shall be given reasonable notice of the opening of Price Bids.

25.8 The Employer will notify Bidders in writing who have been rejected on the grounds of their Technical Bids being substantially nonresponsive to the requirements of the Bidding Document and return their Price Bids unopened.

25.9 The Employer shall conduct the opening of Price Bids of all Bidders who submitted substantially responsive Technical Bids, in the presence of Bidders' representatives who choose to attend at the address, on the date, and time specified by the Employer. The Bidder's representatives who are present shall be requested to sign a register evidencing their attendance.

25.10 All envelopes containing Price Bids shall be opened one at a time and the following read out and recorded:

- (a) the name of the Bidder;
- (b) whether there is a modification or substitution;
- (c) the Bid Prices, including any discounts and alternative offers; and
- (d) any other details as the Employer may consider appropriate.

Only Price Bids discounts, and alternative offers read out and recorded during the opening of Price Bids shall be considered for evaluation. Unless otherwise specified in the BDS, all pages of the Letter of Price Bid and Bill of Quantities are to be initialed by at least three representatives of the Employer attending bid opening. No Bid

shall be rejected at the opening of Price Bids.

- 25.11 The Employer shall prepare a record of the opening of Price Bids that shall include, as a minimum, the name of the Bidder, the Bid Price (per lot if applicable), any discounts, and alternative offers. The Bidders' representatives who are present shall be requested to sign the record. The omission of a Bidder's signature on the record shall not invalidate the contents and effect of the record. A copy of the record shall be distributed to all Bidders who submitted Bids on time, and posted online when electronic bidding is permitted.

## **E. Evaluation and Comparison of Bids**

- 26. Confidentiality**
- 26.1 Information relating to the examination, evaluation, comparison, and postqualification of Bids and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on the Contract award is communicated to all Bidders.
- 26.2 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.
- 26.3 Notwithstanding ITB 26.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the bidding process, it may do so in writing.
- 27. Clarification of Bids**
- 27.1 To assist in the examination, evaluation, and comparison of the Technical and Price Bids, the Employer may, at its discretion, ask any Bidder for a clarification of its Bid. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change in the substance of the Technical Bid or prices in the Price Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Price Bids, in accordance with ITB 34.
- 27.2 If a Bidder does not provide clarifications of its Bid by the date and time set in the Employer's request for clarification, its Bid may be rejected.
- 28. Deviations, Reservations, and Omissions**
- 28.1 During the evaluation of Bids, the following definitions apply:
- (a) "Deviation" is a departure from the requirements specified in the Bidding Document;
  - (b) "Reservation" is the setting of limiting conditions or withholding from complete acceptance of the requirements specified in the Bidding Document; and
  - (c) "Omission" is the failure to submit part or all of the information or documentation required in the Bidding Document.
- 29. Examination of Technical Bids**
- 29.1 The Employer shall examine the Technical Bid to confirm that all documents and technical documentation requested in ITB 11.2 have

been provided, and to determine the completeness of each document submitted.

29.2 The Employer shall confirm that the following documents and information have been provided in the Technical Bid. If any of these documents or information is missing, the offer shall be rejected.

- (a) Letter of Technical Bid;
- (b) written confirmation of authorization to commit the Bidder;
- (c) Bid Security or Bid-Securing Declaration, if applicable; and
- (d) Technical Proposal in accordance with ITB 16.

### **30. Responsiveness of Technical Bid**

30.1 The Employer's determination of a Bid's responsiveness is to be based on the contents of the bid itself, as defined in ITB11.

30.2 A substantially responsive Technical Bid is one that meets the requirements of the Bidding Document without material deviation, reservation, or omission. A material deviation, reservation, or omission is one that,

- (a) if accepted, would:
  - (i) affect in any substantial way the scope, quality, or performance of the Works specified in the Contract; or
  - (ii) limit in any substantial way, inconsistent with the Bidding Document, the Employer's rights or the Bidder's obligations under the proposed Contract; or
- (b) if rectified, would unfairly affect the competitive position of other Bidders presenting substantially responsive Bids.

30.3 The Employer shall examine the technical aspects of the Bid submitted in accordance with ITB 16, Technical Proposal, in particular, to confirm that all requirements of Section 6 (Employer's Requirements) have been met without any material deviation, reservation, or omission.

30.4 If a Bid is not substantially responsive to the requirements of the Bidding Document, it shall be rejected by the Employer and may not subsequently be made responsive by correction of the material deviation, reservation, or omission.

### **31. Nonmaterial Nonconformities**

31.1 Provided that a Bid is substantially responsive, the Employer may waive any nonconformities in the Bid that do not constitute a material deviation, reservation, or omission.

31.2 Provided that a Technical Bid is substantially responsive, the Employer may request that the Bidder submit the necessary information or documentation, within a reasonable period of time, to rectify nonmaterial nonconformities in the Technical Bid related to documentation requirements. Requesting information or documentation on such nonconformities shall not be related to any aspect of the Price Bid. Failure of the Bidder to comply with the request may result in the rejection of its Bid.

31.3 Provided that a Technical Bid is substantially responsive, the Employer shall rectify quantifiable nonmaterial nonconformities related to the Bid Price. To this effect, the Bid Price shall be adjusted, for comparison purposes only, to reflect the price of a missing or non-conforming item or component. The adjustment shall be made using the method indicated in Section 3 (Evaluation and Qualification Criteria).

## **32. Qualification of the Bidder**

32.1 The Employer shall determine to its satisfaction during the evaluation of Technical Bids whether Bidders meet the qualifying criteria specified in Section 3 (Evaluation and Qualification Criteria).

32.2 The determination shall be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, pursuant to ITB 17.1. Unless permitted in the BDS, the determination shall not take into consideration the qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, Subcontractors (other than Specialist Subcontractors if permitted in ITB 33.2 of the Bidding document), or any other firm(s) different from the Bidder.

32.3 An affirmative determination shall be a prerequisite for the opening and evaluation of a Bidder's Price Bid. The Employer reserves the right to reject the bid of any bidder found to be in circumstances described in GCC 15.2(e). A negative determination shall result into the disqualification of the Bid, in which event the Employer shall return the unopened Price Bid to the Bidder.

## **33. Subcontractors**

33.1 Unless otherwise stated in the BDS, the Employer does not intend for the contractor to execute any specific elements of the Works through nominated subcontractors.

33.2 If subcontractors are proposed for any of the key activities listed in Section 3 (Evaluation and Qualification) Criteria 2.4.2, they shall be considered as "Specialist Subcontractors" and shall meet qualification requirements for the relevant key activities.

## **34. Correction of Arithmetical Errors**

34.1 During the evaluation of Price Bids, the Employer shall correct arithmetical errors on the following basis:

- (a) If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected.
- (b) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail and the total shall be corrected.
- (c) If there is a discrepancy between the bid price in the Summary of Bill of Quantities and the bid amount in item (c) of the Letter of Price Bid, the bid price in the Summary of Bill of Quantities will prevail and the bid amount in item (c) of the Letter of Price Bid will

be corrected.

- (d) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetic error, in which case the amount in figures shall prevail subject to (a), (b) and (c) above.

34.2 If the Bidder that submitted the lowest evaluated bid does not accept the correction of errors, its Bid shall be disqualified and its bid security may be forfeited or its Bid-Securing Declaration executed.

**35. Conversion to Single Currency**

35.1 For evaluation and comparison purposes, the currency(ies) of the Bid shall be converted into a single currency as specified in the BDS.

**36. Domestic Preference**

36.1 Unless otherwise specified in the BDS, domestic preference shall not apply.

**37. Evaluation and Comparison of Price Bids**

37.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted.

37.2 To evaluate the Price Bid, the Employer shall consider the following:

- (a) the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities, but including Daywork items, where priced competitively;
- (b) price adjustment for correction of arithmetic errors in accordance with ITB 34.1;
- (c) price adjustment due to discounts offered in accordance with ITB 14.4;
- (d) converting the amount resulting from applying (a) to (c) above, if relevant, to a single currency in accordance with ITB 35;
- (e) adjustment for nonmaterial nonconformities in accordance with ITB 31.3;
- (f) assessment whether the bid is abnormally low in accordance with ITB 38; and
- (g) application of all the evaluation factors indicated in Section 3 (Evaluation and Qualification Criteria).

37.3 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation.

37.4 If this Bidding Document allows Bidders to quote separate prices for different contracts, and the award to a single Bidder of multiple contracts, the methodology to determine the lowest evaluated price of the contract combinations, including any discounts offered in the Letter of Price Bid, is specified in Section 3 (Evaluation and Qualification Criteria).

37.5 The Employer shall compare all substantially responsive Bids to determine the lowest evaluated Bid price, in accordance with ITB 37.2.

**38. Abnormally Low bids**

38.1 An abnormally low bid is one where the bid price, in combination with other elements of the bid, appears to be so low that it raises concerns as to the capability of the Bidder to perform the contract for the offered bid price.

38.2 When the offered bid price appears to be abnormally low, the Employer shall undertake a three-step review process as follows:

- (a) identify abnormally low costs and unit rates by comparing them with the engineer's estimates, other substantially responsive bids, or recently awarded similar contracts;
- (b) clarify and analyze the bidder's resource inputs and pricing, including overheads, contingencies and profit margins; and
- (c) decide whether to accept or reject the bid.

38.3 With regard to ITB 38.2 (b) above, the Employer will seek a written explanation from the bidder of the reasons for the offered bid price, including a detailed analysis of costs and unit prices, by reference to the scope, proposed methodology, schedule, and allocation of risks and responsibilities. This may also include information regarding the economy of the manufacturing process; the services to be provided, or the construction method to be used; the technical solutions to be adopted; and any exceptionally favorable conditions available to the bidder for the works, equipment or services proposed.

38.4 After examining the explanation given and the detailed price analyses presented by the bidder, the Employer may:

- (a) accept the bid, if the evidence provided satisfactorily accounts for the low bid price and costs, in which case the bid is not considered abnormally low;
- (b) accept the bid, but require that the amount of the performance security be increased at the expense of the bidder to a level sufficient to protect the Employer against financial loss. The amount of the performance security shall generally be not more than 20% of the contract price; or
- (c) reject the bid if the evidence provided does not satisfactorily account for the low bid price, and make a similar determination for the next ranked bid, if required.

**39. Unbalanced or Front-Loaded Bids**

39.1 If the Bid, which results in the lowest evaluated Bid Price, is seriously unbalanced or front-loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed, as well as the pricing and sources of materials, equipment and labor.

39.2 After the evaluation of the information and detailed price analyses presented by the Bidder, the Employer may as appropriate:

- (a) accept the Bid; or
- (b) accept the Bid, but require that the total amount of the Performance Security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in

the event of default of the successful Bidder under the Contract subject to ITB 45.2; or

- (c) reject the Bid and make a similar determination for the next ranked bid.

- 40. Employer's Right to Accept Any Bid, and to Reject Any or All Bids**      40.1 The Employer reserves the right to accept or reject any Bid, and to annul the bidding process and reject all Bids at any time prior to contract award, without thereby incurring any liability to Bidders. In case of annulment, all Bids submitted and specifically, bid securities, shall be promptly returned to the Bidders.
- 41. Notice of Intention for Award of Contract**      41.1 If Standstill provisions apply as specified in the BDS, the standstill period shall be defined in the BDS to specify the duration subsequent to notification of intention for award of contract (before making the actual contract award) within which any unsuccessful bidder can challenge the proposed award.

## F. Award of Contract

- 42. Award Criteria**      42.1 The Employer shall award the Contract to the Bidder whose offer has been determined in line with ITB 37 to ITB 39 above to be the lowest evaluated Bid and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily.
- 43. Notification of Award**      43.1 Prior to the expiration of the period of bid validity and upon expiry of the standstill period specified in ITB 41.1, or upon satisfactory resolution of a complaint filed within standstill period, if applicable, the Employer shall transmit the Notification of Award using the form included in Section 9 (Contract Forms) to the successful Bidder, in writing, that its Bid has been accepted.
- 43.2 Unless standstill period applies, upon notification of award, unsuccessful Bidders may request in writing to the Employer for a debriefing seeking explanations on the grounds on which their Bids were not selected. The Employer shall promptly respond in writing and/or in a debriefing meeting to any unsuccessful Bidder who, after publication of contract award, requests a debriefing.
- 43.3 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract.
- 43.4 Within 2 weeks of the award of contract or expiry of the standstill period, where such period applies, or, if a complaint has been filed within the standstill period, upon receipt of ADB's confirmation of satisfactory resolution of the complaint, the borrower shall publish in an English language newspaper or widely known and freely accessible website the results identifying the bid and lot or package numbers, as applicable and the following information:
- (a) name of each Bidder who submitted a Bid;
  - (b) bid prices as read out at bid opening;
  - (c) name and evaluated prices of each Bid that was evaluated;

(d) name of Bidders whose bids were rejected and the reasons for their rejection; and

(e) name of the winning Bidder, and the price it offered, as well as the duration and summary scope of the contract awarded.

**44. Signing of Contract**

44.1 Promptly after notification, the Employer shall send the successful Bidder the Contract Agreement.

44.2 Within 28 days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.

**45. Performance Security**

45.1 Within 28 days of the receipt of notification of award from the Employer, the successful Bidder shall furnish the performance security in accordance with the conditions of contract, subject to ITB 38 and ITB 39, using for that purpose the Performance Security Form included in Section 9 (Contract Forms), or another form acceptable to the Employer. If the institution issuing the performance security is located outside the country of the employer, it shall have a correspondent financial institution located in the country of the employer to make it enforceable.

45.2 Failure of the successful Bidder to submit the abovementioned Performance Security or to sign the Contract Agreement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security or execution of the Bid-Securing Declaration. In that event, the Employer may award the Contract to the next lowest evaluated Bidder whose offer is substantially responsive and is determined by the Employer to be qualified to perform the Contract satisfactorily.

45.3 The above provision shall also apply to the furnishing of a domestic preference security if so required.

**46. Bidding-Related Complaints**

46.1 The procedures for dealing with Bidding-Related Complaints arising out of this bidding process are specified in the BDS.



# **Section 2 :**

## **Bid Data Sheet**

## Section 2 - Bid Data Sheet

This Section consists of provisions that are specific to each procurement and supplement the information or requirements included in Section 1 - Instructions to Bidders.

### A. General

ITB 1.1	The number of the Invitation for Bids (IFB) is: <b>UIUDP/OCB - N/ WW - DDN - 02/2020-21</b>
ITB 1.1	The Employer is: <b>“Uttarakhand Urban Sector Development Agency (UUSDA), Government of Uttarakhand”</b>
ITB 1.1	The name of the Open Competitive Bidding (OCB) is: <b>“Development of Sewerage System involving STP, Trunk Sewer and Allied Works including 5 Years Operation and Maintenance, at Raipur, Dehradun, in Uttarakhand”</b>  The identification number of the OCB is: <b>WW - DDN - 02</b>  The number and identification of lots comprising this OCB is: <b>None</b>
ITB 2.1	The Borrower is: <b>India</b>
ITB 2.1	The name of the Project is: <b>Uttarakhand Integrated Urban Development Project [UIUDP]</b>

### B. Contents of Bidding Documents

ITB 7.1	For <u>clarification purposes</u> only, the Employer's address is: Attention: Program Director, UUSDA, Street address: <b>777, Saatvik Tower, Kaulagarh Road</b> , Rajendra Nagar, Floor/Room number: <b>2<sup>nd</sup> Floor</b> City: Dehradun ZIP code: 248001, Country: <b>India</b> Telephone: +91-135-2753894 Fax: +91-135-2754895 E-mail: <a href="mailto:uusdip@gmail.com">uusdip@gmail.com</a>
ITB 7.4	A pre-Bid meeting will take place as follows:  Pre-bid meeting will be held virtually at <b>Office of the Program Director, UUSDA</b> . The interested bidders may mail their request for “Invitation” to participate in the meeting at <a href="mailto:biddersuusda@gmail.com">biddersuusda@gmail.com</a> and may join the meeting using the invite.  Date : <b>17<sup>th</sup> January 2021</b> Time: 11:30 hrs [ <b>11:30 AM</b> ] IST Place: <b>Office of the Program Director, UUSDA.</b>

	<p><i>A site visit <b>will</b> be organised by the Employer.</i></p> <p>The bidder is expected to acquaint themselves with local conditions at site in accordance with GCC 4.10.</p>
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### C. Preparation of Bids

<b>ITB 10.1</b>	The language of the Bid is: <b>English</b>
<b>ITB 12.1</b>	In the e-procurement portal, the bidders will be required to enter only the rates of each item in the BOQ, in excel format. Except the rate all other cells will be locked.
<b>ITB 13.1</b>	Alternative Bids <b>shall not be</b> permitted.
<b>ITB 13.2</b>	Alternative times for completion <b>shall not be</b> permitted.
<b>ITB 13.4</b>	Alternative technical solutions shall be permitted for the following parts of the Works: <b>None</b>
<b>ITB 14.5</b>	<p>The prices quoted by the Bidder shall be <b>subject to price adjustment</b>.</p> <p>The formula for adjusting the prices and explanatory details are provided in the tables of adjustment data included in Section 4 (Bidding forms).</p>
<b>ITB 14.7</b>	The bidder shall have to quote rates and prices and the Total Bid Price inclusive of all duties, royalties, levies and taxes as of the date 28 days prior to the deadline for submission of bids including Goods and Services Tax (GST). The amount of applicable GST will be included in the payment released to the Contractor against each bill.
<b>ITB 14.8</b>	<p>Add the following new clause:</p> <p>Unit rates and prices for all items of works described in the Bill of Quantities shall be expressed in positive values. If unit rates and prices are expressed in negative values, the bid will be rejected. Any discount offered by the Bidder must be clearly stated in the Letter of Price Bid together with the Methodology of their application.</p>
<b>ITB 15.1</b>	The unit rates and the prices shall be quoted by the Bidder entirely in <b>Indian Rupees Only</b> .
<b>ITB 15.4</b>	The rates of exchange shall be the selling rates 28 days prior to the deadline for submission of bids published by the <b>Reserve Bank of India</b> .
<b>ITB 16.1</b>	<p>Add the following to ITB 16.1;</p> <p>“Technical Proposal shall also include a Health and Safety COVID-19 Plan (HS-C19 Plan), in accordance with the relevant government regulations and guidelines on COVID-19 prevention and control issued by Ministry of Health, Government of India, as given in Appendix – A, in PCC of the bid document.</p> <p>Any bid not accompanied by the HS-C19 Plan shall be rejected by the Employer as nonresponsive. If a Bidder submits a HS-C19 Plan that does not provide sufficient information in accordance to the required submission information listed in the bidding document by the Employer, the Employer shall issue a clarification to request for</p>

	further information from the Bidder. The Bidder must submit the requested information within <b>5</b> working days of receiving such a request. Failure to provide a satisfactory response to the request for further information within the prescribed period of receiving such a request shall cause the rejection of the Bid."
<b>ITB 18.1</b>	The bid validity period shall be <b>120 [one hundred and twenty]</b> days.
<b>ITB 19.1</b>	<p>The Bidder shall furnish a bid security for the amount of <b>INR 5,72,00,000.00</b>, using the instruments specified in ITB 19.3 and submit it online, as detailed below;</p> <p>A/c Holder Name: Programme Director UUSDIP  A/c no: 3968000100215502  IFSC code: PUNB0396800  SWIFT Code: PUNBINBBISB</p> <p>Bank Address: Punjab National Bank, Yamuna Colony, Chakrata Road, Dehradun-248001</p> <p><b>The Bid-Securing Declaration shall not be permitted.</b></p>
<b>ITB 19.2</b>	The ineligibility period <b>will not be applicable</b>
<b>ITB 19.4</b>	<p>Subject to the succeeding sentences, any bid not accompanied by an irrevocable and callable bid security shall be rejected by the Employer as nonresponsive. If a Bidder submits a bid security that:</p> <p>(i) deviates in form, amount, and/or period of validity, or  (ii) does not provide sufficient identification of the Bidder (including, without limitation, failure to indicate the name of the Joint Venture or, where the Joint Venture has not yet been constituted, the names of all future Joint Venture Partners),</p> <p>The Employer shall request the Bidder to submit a compliant bid security within <b>seven (7) days</b> of receiving such a request. Failure to provide a compliant bid security within the prescribed period of receiving such a request shall cause the rejection of the Bid.</p>
<b>ITB 20.1</b>	In addition to the original Bid, the number of copies is: <b>Not applicable</b>
<b>ITB 20.2</b>	<p>The contents of clause 20.2 and 20.3 of ITB shall be replaced as below:</p> <p>The Bidders have to submit their Bids online, encrypt their Bid. The submission of Bid has to be done by submission of Bid Seals (Hashes) of all the envelopes and documents related to the Bid and is required to be uploaded as per time schedule mentioned in the key dates of the Invitation for Bid after signing of the same by the Digital signatures of appropriate authorised representative.</p> <p>The written confirmation of authorization to sign on behalf of the Bidder shall consist of an organizational document, board resolution or its equivalent, or power of attorney specifying the representative's authority to sign the Bid on behalf of, and to legally bind the Bidder. If the Bidder is an intended or an existing Joint Venture, the power of attorney should be signed by all partners and specify the authority of the named representative of the Joint Venture to sign on behalf of, and legally bind the intended or existing Joint Venture. If the Joint Venture has not yet been formed, also include evidence from all proposed Joint Venture partners of their intent to enter into a Joint Venture in the event of a contract award in accordance with ITB 11.4.</p> <p>The Bidder shall submit an acceptable authorization within <b>Seven (7) days</b>.</p>

### D. Submission and Opening of Bids

<b>ITB 21.1</b>	<p>Replace the sub-clause as:</p> <p>Bidders shall submit their Bids, only, electronically through Uttarakhand Government e-Procurement website <a href="https://uktenders.gov.in">https://uktenders.gov.in</a>,</p> <p>Bids shall be digitally signed. Submission by any other mode shall render the bidder non-responsive.</p>
<b>ITB 21.1 (b)</b>	<p>The electronic bidding submission procedures shall be:</p> <p>E-Tendering” means submission of a digitally signed bid (by a valid digital certificate which has been issued by a licensed Certifying Agency, as approved by Controller of Certifying Agency) which is stored in Time Stamped electronic sealed tender box.</p> <p><b>Special Instructions to the Contractors/Bidders for the e-submission of the bids online through this eProcurement Portal - <a href="https://uktenders.gov.in">https://uktenders.gov.in</a>,</b></p> <ol style="list-style-type: none"> <li>1. Bidder should do Online Enrolment in this Portal using the option Click Here to Enroll available in the Home Page. Then the Digital Signature enrollment has to be done with the e-token, after logging into the portal. The e-token may be obtained from one of the authorized Certifying Authorities such as eMudhraCA/ GNFC/ IDBRT/ MtnTrustline/ SafeScrip/ TCS.</li> <li>2. Bidder then logs into the portal giving user id / password chosen during enrollment.</li> <li>3. The e-token that is registered should be used by the bidder and should not be misused by others.</li> <li>4. DSC once mapped to an account cannot be remapped to any other account. It can only be Deactivated.</li> <li>5. The Bidders can update well in advance, the documents such as certificates, purchase order details etc., under <b>My Documents</b> option and these can be selected as per tender requirements and then attached along with bid documents during bid submission. This will ensure lesser upload of bid documents.</li> <li>6. After downloading / getting the tender schedules, the Bidder should go through them carefully and then submit the documents as per the tender document, otherwise, the bid will be rejected.</li> <li>7. The BOQ template must not be modified/replaced by the bidder and the same should be uploaded after filling the relevant columns, else the bidder is liable to be rejected for that tender. Bidders are allowed to enter the Bidder Name and Values only.</li> <li>8. If there are any clarifications, this may be obtained online through the eProcurement Portal, or through the contact details given in the tender document. Bidder should take into account of the corrigendum published before submitting the bids online.</li> <li>9. Bidder, in advance, should prepare the bid documents to be submitted as indicated in the tender schedule and they should be in</li> </ol>

	<p>PDF/XLS/RAR/DWF formats. If there is more than one document, they can be clubbed together.</p> <p>10. Bidder should arrange for the Bid Security in the amount as specified in the bid using the instruments specified in ITB 19.3 and submit it online</p> <p>11. The bidder reads the terms and conditions and accepts the same to proceed further to submit the bids</p> <p>12. The bidder has to submit the tender document(s) online well in advance before the prescribed time to avoid any delay or problem during the bid submission process.</p> <p>13. There is no limit on the size of the file uploaded at the server end. However, the upload is decided on the Memory available at the Client System as well as the Network bandwidth available at the client side at that point of time. In order to reduce the file size, bidders are suggested to scan the documents in 75-100 DPI so that the clarity is maintained and also the size of file also gets reduced. This will help in quick uploading even at very low bandwidth speeds.</p> <p>14. It is important to note that, <b>the bidder has to Click on the Freeze Bid Button, to ensure that he/she completes the Bid Submission Process. Bids Which are not Frozen are considered as Incomplete/Invalid bids and are not considered for evaluation purposes.</b></p> <p>15. The <b>Employer</b> will not be held responsible for any sort of delay or the difficulties faced during the submission of bids online by the bidders due to local issues.</p> <p>16. The bidder will submit the bid documents online mode only.</p> <p>17. At the time of freezing the bid, the eProcurement system will give a successful bid updation message after uploading all the bid documents submitted and then a bid summary will be shown with the bid no, date &amp; time of submission of the bid with all other relevant details. The documents submitted by the bidders will be digitally signed using the e-token of the bidder and then submitted.</p> <p>18. After the bid submission, the bid summary has to be printed and kept as an acknowledgement as a token of the submission of the bid. The bid summary will act as a proof of bid submission for a tender floated and will also act as an entry point to participate in the bid opening event.</p> <p>19. Successful bid submission from the system means, the bids as uploaded by the bidder is received and stored in the system. System does not certify for its correctness.</p> <p>20. The bidder should see that the bid documents submitted should be free from virus and if the documents could not be opened, due to virus, during tender opening, the bid is liable to be rejected</p>
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	<p>21. The time that is displayed from the server clock at the top of the tender Portal, will be valid for all actions of requesting bid submission, bid opening etc., in the e-Procurement portal. The Time followed in this portal is as per Indian Standard Time (IST) which is GMT+5:30. The bidders should adhere to this time during bid submission.</p> <p>22. All the data being entered by the bidders would be encrypted at the client end, and the software uses PKI encryption techniques to ensure the secrecy of the data. The data entered will not be viewable by unauthorized persons during bid submission and not viewable by any one until the time of bid opening. Overall, the submitted bid documents become readable only after the tender opening by the authorized individual.</p> <p>23. During transmission of bid document, the confidentiality of the bids is maintained since the data is transferred over secured Socket Layer (SSL) with 256 bit encryption technology. Data encryption of sensitive fields is also done.</p> <p>24. The bidders are requested to submit the bids through online eProcurement system well before the bid submission end date and time <b>(as per Server System Clock)</b>.</p> <p>25. Key Dates: The bidders are strictly advised to follow the time schedule (Key dates) of the bid on 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 of the bid as set by the Department.</p> <p>26. Purchase of Bid Document For purchasing of the bid document bidders have to pay the charges as mentioned in the detailed IFB. 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 Debit/Credit card, Net banking or NEFT receipt through the payment gateway provided on the portal.</p> <p>27. Withdrawal, Substitution and Modification of Bids Bidder can withdraw and modify the bid before submission end date.</p>
<b>ITB 22.1</b>	<p>Bids shall be submitted electronically on e-Procurement site <a href="https://uktenders.gov.in">https://uktenders.gov.in</a> and not later than;</p> <p><b>The deadline for bid submission is:</b>  <b>Date: 11<sup>th</sup> February 2021</b>  <b>Time: 3:00 PM [15.00 hrs]</b>          Bid submission and bid opening timelines will be defined as per the e-Procurement server clock only.</p>
<b>ITB 23.1</b>	<p>The contents of clause 23.1 shall be replaced by,          The e-procurement system would not allow any late submission of Bids after due date and time as per server system. After electronic online proposal submission,</p>

	the system will generate a unique Identification number which is time stamped. This shall be treated as acknowledgement of the Bid submission.
<b>ITB 25.1</b>	Electronic bid opening procedure shall be as follows. <ol style="list-style-type: none"> <li>1. The Employer shall open the technical bids online in public in the presence of Bidders or designated representative of the Bidders, who chose to attend on the date, time and place as provided in ITB 22.1 Bid Data Sheet.</li> <li>2. The Bidders' name and any other details will be announced by the Bid opening authority in presence of the Bidders who may choose to attend the opening of technical Bids.</li> <li>3. The Technical Bids recorded and opened at the time of opening shall be considered for evaluation.</li> <li>4. The Price Bid will remain unopened in its encrypted form until the specified time of its opening.</li> </ol>
<b>ITB 25.5</b>	Add the following at the end of the clause; The Letter of Technical Bid shall be initialed by <b>Three (3)</b> representatives of the Employer attending Bid opening.
<b>ITB 25.10</b>	ITB 25.10 - The Letter of Price Bid and Bill of Quantities shall be initialled by <b>Three (3)</b> representatives of the Employer attending Bid opening.

### E. Evaluation and Comparison of Bids

<b>ITB 27.1</b>	Add the following at the end of ITB 27.1 Communication during bid evaluation for the purpose of clarification will be done electronically with the normal restrictions against modification of the substance and price of the bid. There is a separate heading of Clarifications in the portal and mode will be only through the e-procurement site. The Provision is available in the software and can be enabled, if required. If enabled, the clarifications can be obtained online and all logs of such online communications through the application are stored in the system
<b>ITB 32.2</b>	The qualifications of other firms such as the Bidder's subsidiaries, parent entities, affiliates, Subcontractors <b>shall not</b> be permitted.
<b>ITB 33.1</b>	The Employer has <b>not</b> identified for the contractor to execute any specific component of the Works through nominated subcontractors.
<b>ITB 35.1</b>	The currency that shall be used for bid evaluation and comparison purposes to convert all Bid Prices expressed in various currencies into a single currency is: <b>Indian Rupees.</b> The source of selling exchange rate shall be: <b>Reserve Bank of India.</b> The date for the selling exchange rate shall be: <b>28 days prior to the deadline for submission of bids.</b>
<b>ITB 36.1</b>	The domestic preference <b>shall not</b> apply.
<b>ITB 41.1</b>	Standstill provisions <b>shall not</b> apply.



## F. Award of Contracts

<b>ITB 42.2</b>	<p><u>Insert new sub clause 42.2 as under:</u></p> <p>“if a bidder has participated in more than one of the bids invited concurrently or in parallel under the project, subject to ITB 42.1 bidder shall meet the aggregate requirements as defined in Clause 1.7.2 of Section 3 (Evaluation and Qualification Criteria). Determination of the contracts for award shall also be based on comparison of a contract, or a combination of contracts, or as a total of contracts in order to arrive at the least-cost combination for the Employer.”.</p>
<b>ITB 46.1</b>	<p>The procedures for bidding – related complaints are referenced in the “Procurement regulation for ADB Borrowers (Appendix-7)”. The bidder should submit its complaints following these procedures, in writing, to:</p> <p><b>For the attention:</b> Program Director, UUSDA,  <i>Street address: 777, Saatvik Tower, Kaulagarh Road, Rajendra Nagar,</i>  <i>Floor/Room number: 2<sup>nd</sup> Floor</i>  <i>City:</i> Dehradun  <i>ZIP code:</i> 248001,  <i>Country:</i> <b>India</b>  <i>Telephone:</i> +91-135-2753894  <i>Fax:</i> +91-135-2754895  <i>E-mail:</i> <u>uusdip@gmail.com</u></p>

# **Section 3:**

## **Evaluation and Qualification Criteria**

## Section 3: Evaluation and Qualification Criteria

### - Without Prequalification -

This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders. In accordance with ITB 32 and ITB 36, no other methods, criteria and factors shall be used. The Bidder shall provide all the information requested in the forms included in Section 4 (Bidding Forms).

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## 1. Evaluation

In addition to the criteria listed in ITB 37.2 (a)–(f), other relevant factors are as follows:

### 1.1 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section 6 (Employer's Requirements).

Non-compliance with equipment and personnel requirements described in Section 6 (Employer's Requirements) shall not normally be a ground for bid rejection and such non-compliance will be subject to clarification during bid evaluation and rectification prior to contract award.

### 1.2 Completion Time

An alternative Completion Time, if permitted under ITB 13.2, will be evaluated as follows: **Not applicable**

### 1.3 Technical Alternatives

Technical alternatives, if permitted under ITB 13.4, will be evaluated as follows: **Not applicable**

### 1.4 Specialist Subcontractors

Only the specific experience of Specialist Subcontractors for key activities specified in criterion 2.4.2 Construction Experience in Key Activities will be considered. The experience of Specialist Subcontractors in contracts of similar size and nature, and their financial resources shall not be added to those of the Bidder for purposes of qualification of the Bidder.

### 1.5 Quantifiable Nonconformities and Omissions

Subject to ITB 14.2 and ITB 37.2, the evaluated cost of quantifiable nonconformities including omissions, is determined as follows:

Pursuant to ITB 31.3, the cost of all quantifiable nonmaterial nonconformities shall be evaluated, including omissions in Daywork where competitively priced but excluding omission of prices in the Bill of Quantities. The Employer will make its own assessment of the cost of any nonmaterial nonconformities and omissions for the purpose of ensuring fair comparison of Bids.

### 1.6 Domestic Preference

If domestic preference is provided for under ITB 36.1, the following procedure shall apply: **Not Applicable**

### 1.7 Other Criteria

Add any other relevant criteria to consider in bid evaluation. Specify the evaluation methodologies:

#### 1.7.1 Operating and Maintenance Costs:

The bidder will quote Operation and Maintenance service cost as per the BOQ, which will not include Electricity

charges, as the Employer will pay the Electricity charges during the O&M phase of Five (5) years. To ensure transparency and uniformity of evaluation, bidders will have to give an undertaking for “Guaranteed Power” consumption for the electricity to be consumed by the electro-Mechanical components, proposed by the bidders, as per Tech 1 form given in Section 4.

The evaluation of the O&M cost quoted by the bidder will be done as detailed below;

- a) The bidder's quoted price for Operation service cost, will be converted to Net Present Value (NPV), using the formula given below, only for the purpose of evaluation;

**Discount Factor Formula:**

$$D = 1 / (1 + Df/100)^n$$

Where

D = Discount Factor

Df = an discount rate of 9% per annum

n = Number of years

- b) As the cost of Electricity consumption charges will be paid by the Employer, the bidders will give maximum “**Guaranteed Power Consumption** (in KWh)” for operation and maintenance of the Sewage Treatment Plant (STP) & all the Sewage Pumping Station (SPS) in formats provided in section 4 of this bid document considering 24 hours of working per day.
- c) If the maximum **Guaranteed Power Consumption**, as provided by a bidder, does not cover the all the items of plant/equipment, requiring electricity for its' operation, for the working hours and duration specified in the bid document, the Employer will correct the same, as per his estimate, for the purpose of Evaluation only, which will be binding on the bidders.
- d) The bidder will quote the Guaranteed Power Consumption in Form Tech – I of Section IV, for different flow rates, but for the purpose of evaluation the Power consumption for the highest flow(Design capacity) rate will be considered only.
- e) To ascertain the **Lowest evaluated bid**, the cost of energy consumption will be worked out for each year, assuming the electricity tariff @ Rs. 8.00 per KWh, for the total KWh, given in the **Guaranteed Power Consumption**, proposed by the bidder and/or as corrected by the Employer d) above, considering 24 hours of working for design capacity per day for 1825 days (5 years) of O&M period, which will also be reduced to NPV, using formula given.

**Table: 1**

FORMAT FOR CALCULATION of NPV OF O&M COST					
Bidder 1 Name:.....				Values in INR	
Years (O&M Period), n	Annual O&M Cost Quoted by Bidder (Excluding Energy cost)	Annual Energy cost (based on Guaranteed Power Consumption by Bidder)	Base Cost	Discounting Factor (9%)	NPV of O&M Cost Including Energy cost
I	II	III=(axbx(c/24) xd)x365)	IV=II +III	V=1/((1+(Df/100))^n)	VI=IV x V
1				0.92	

2				0.84	
3				0.77	
4				0.71	
5				0.65	
<b>Total</b>					<b>0.00</b>

**Legend: For Table 1**

<b>a</b>	<b>STP Capacity</b>	<b>18.00</b>	<b>MLD</b>	<b>as per Tender</b>
<b>b</b>	<b>Electricity Tariff</b>	<b>8.00</b>	<b>INR/KWH</b>	<b>as per Tender</b>
<b>c</b>	<b>Operation hours of STP in a day</b>	<b>24.00</b>	<b>hours per day</b>	<b>as per Tender</b>
<b>d</b>	<b>Guaranteed Power Consumption for Design capacity (Design Capacity – 18 MLD)</b>		<b>KWH/ML/Day</b>	<b>as per bidder technical proposal</b>

The NPV of the Operation and maintenance service cost including energy consumption cost, worked out as detailed above will be added to the Design and build cost quoted by the bidder for the purpose of Evaluation only, to ascertain the **Lowest evaluated Bid**.

**Lowest Evaluated bid** = Design build cost + NPV of O & M cost including energy cost for five years (as per the table given above)

### 1.7.2 Aggregate Financial Resource

“The employer is inviting bids for the following works: (i) Package **WW – DDN – 01**, (ii) Package **WW – DDN – 02**, (iii) Package **WW – NTL – 01**, (iv) Package **WS&S-DDN-01**, (v) Package **WS&S-DDN-02**, (vi) Package **WS&S-DDN-02**, works concurrently or in parallel under the project. Bidders may choose to participate in one or more of these bids. Pursuant to ITB 42 if a bidder is found to be the lowest evaluated substantially responsive bidder in more than one bid, Employer shall assess the bidder’s capacity to meet the aggregate requirements on the following qualification criteria:

#### Available Financial resources

The aggregate requirements shall be total of the individual requirements defined in the respective bidding documents. The assessment of aggregate requirements shall be made based on information submitted in the bids. Subject to meeting the aggregate requirements as stated above, determination of number of contracts for award shall be based on comparison of a contract, or a combination of contracts, or as a total of contracts in order to arrive at the least-cost combination for the Employer.”

### 1.8 Multiple Contracts – Not Applicable

## 2. Qualification

### 2.1 Eligibility

Criteria	Compliance Requirements			Documents
Requirement	Single Entity	Joint Venture		Submission Requirements
		All Partners Combined	Each Partner	

#### 2.1.1 Nationality

Nationality in accordance with ITB 4.2.	Must meet requirement	Must meet requirement	Must meet requirement	Not applicable	Forms ELI - 1; ELI - 2 with attachments
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#### 2.1.2 Conflict of Interest

No conflicts of interest in accordance with ITB 4.3.	Must meet requirement	Must meet requirement	Must meet requirement	Not applicable	Letter of Technical Bid
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#### 2.1.3 ADB Eligibility

Not having been declared ineligible by ADB, as described in ITB 4.4.	Must meet requirement	Must meet requirement	Must meet requirement	Not applicable	Letter of Technical Bid
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#### 2.1.4 Government-Owned Entity

Bidder required to meet conditions of ITB 4.5.	Must meet requirement	Must meet requirement	Must meet requirement	Not applicable	Forms ELI - 1; ELI - 2 with attachments
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#### 2.1.5 United Nations Eligibility

Not having been excluded by an act of compliance with a United Nations Security Council resolution in accordance with ITB 4.8.	Must meet requirement	Must meet requirement	Must meet requirement	Not applicable	Letter of Technical Bid
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## 2.2 Historical Contract Nonperformance

### 2.2.1 History of Nonperforming Contracts

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Nonperformance of a contract <sup>a</sup> did not occur as a result of contractor default since 1 <sup>st</sup> January 2016	Must meet requirement	Must meet requirement	Must meet requirement <sup>b</sup>	N/A	Form CON-1

<sup>a</sup> Nonperformance, as decided by the Employer, shall include all contracts where (i) nonperformance was not challenged by the contractor, including through referral to the dispute resolution mechanism under the respective contract; and (ii) contracts that were so challenged but fully settled against the contractor. Nonperformance shall not include contracts where the Employer's decision was overruled by the dispute resolution mechanism. Nonperformance must be based on all information on fully settled disputes or litigation, i.e. dispute or litigation that has been resolved in accordance with the dispute resolution mechanism under the respective contract and where all appeal instances available to the Bidder have been exhausted.

<sup>b</sup> This requirement also applies to contracts executed by the Bidder as Joint Venture member.

### 2.2.2 Suspension Based on Execution of Bid-Securing Declaration

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Not under suspension based on execution of a Bid-Securing Declaration pursuant to ITB 4.6.	Must meet requirement	Must meet requirement	Must meet requirement	Not applicable	Letter of Technical Bid

### 2.2.3 Pending Litigation and Arbitration

Pending litigation and arbitration criterion shall not apply.



## 2.3 Financial Situation

### 2.3.1 Historical Financial Performance

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Submission of audited financial statements or, if not required by the law of the Bidder's country, other financial statements acceptable to the Employer, for the last <b>three [3] years [FYs 2017-18, 2018-19, 2019-20]</b> . to demonstrate the current soundness of the Bidder's financial position. As a minimum, the Bidder's <b>net worth</b> for the last year calculated as the difference between total assets and total liabilities should be <b>positive</b> .	Must meet requirement	Not applicable	Must meet requirement	Not applicable	Form FIN - 1 with attachments

### 2.3.2 Average Annual Construction Turnover

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
Minimum average annual construction turnover of <b>INR 163,31,00,000.00</b> , calculated as total certified payments received for contracts in progress or completed, within the last <b>three [3] years [FYs 2017-18, 2018-19, 2019-20]</b> .	Must meet requirement	Must meet requirement	Must meet 25% of the requirement	Must meet 40% of the requirement	Form FIN - 2

### 2.3.3 Financial Resources<sup>1</sup>

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
<b>For Single Entities</b>  The Bidder must demonstrate that its financial resources defined in FIN - 3, less its financial obligations for its current contract commitments defined in FIN - 4, meet or exceed the total requirement for the Subject Contract of <b>INR 20,41,00,000.00</b>	Must meet requirement	Not applicable	Not applicable	Not applicable	Form FIN – 3 and Form FIN – 4
<b>For Joint Ventures</b>  (1) One partner must demonstrate that its financial resources defined in FIN - 3, less its financial obligations for its own current contract commitments defined in FIN - 4, meet or exceed its required share of Forty Percent [40%] ( <b>INR 8,17,00,000.00</b> ) from the total requirement for the Subject Contract.  <b>AND</b>	Not applicable	Not applicable	Not applicable	Must meet requirement	Form FIN – 3 and Form FIN – 4
(2) Each partner must demonstrate that its financial resources defined in FIN - 3, less its financial obligations for its own current contract commitments defined in FIN - 4, meet or exceed its required share of Twenty-Five [25%] ( <b>INR 5,10,00,000.00</b> ) from the total requirement for the Subject Contract.  <b>AND</b>	Not applicable	Not applicable	Must meet requirement	Not applicable	Form FIN – 3 and Form FIN – 4
(3) The Joint Venture must demonstrate that the combined financial resources of all partners defined in FIN - 3, less all the partners' total financial obligations for the current contract commitments defined in FIN - 4, meet or exceed the total requirement for the Subject Contract of <b>INR 20,41,00,000.00</b>	Not applicable	Must meet requirement	Not applicable	Not applicable	Form FIN – 3 and Form FIN – 4

<sup>1</sup> Financial Resources of the bidder may be aggregated, if applicable, as per Clause 42.1 – Section 2 and 1.7.2 of Section 3 above.

## 2.4 Construction Experience

### 2.4.1 Contracts of Similar Size and Nature

Criteria	Compliance Requirements				Documents
Requirement	Single Entity	Joint Venture			Submission Requirements
		All Partners Combined	Each Partner	One Partner	
<p>Participation in at least one contract that has been successfully or substantially completed<sup>1</sup> within the last <b>Seven [7] years</b> and that is similar to the proposed works, where the value of the bidder's participation exceeds <b>INR 185,77,00,000.00</b>.</p> <p>The similarity of the bidder's participation shall be based on the physical size, nature of works, complexity, methods, technology or other characteristics as described in section 6 (Employer's Requirements)</p> <p>The similarity of the Bidder's participation shall be based on:</p> <ol style="list-style-type: none"> <li><b>Construction of Sewage Treatment Plant and Providing, laying, jointing testing and commissioning of gravity sewers of any material and type</b> <b>OR</b></li> <li><b>Providing, laying, jointing testing and commissioning of gravity sewers of any material and type</b></li> </ol>	must meet requirement	not applicable	not applicable	must meet requirement	Form EXP – 1 1. Copy of Work Order 2. Copy of Contract Completion Certificate

<sup>1</sup> Any Contract which is 80% (Physically) complete will be considered Substantially Complete and in that case the value of the completed part of the contract (80%), shall be equal or exceed the minimum value defined in the criteria.

## 2.4.2 Construction Experience in Key Activities

May be complied with by the Bidder or by Specialist Subcontractor. If Specialist Subcontractors are proposed by the Bidder for key activities, each Specialist Subcontract must have experience in related key activity as a single entity.

If the key activity is to be undertaken by a Specialist Subcontractor, the Employer shall require evidence of the subcontracting agreement from the Bidder.

Criteria	Compliance Requirements		Documents
Requirement	Single Entity or Its Specialist Subcontractors	Joint Venture or Its Specialist Subcontractors	Submission Requirements
For the above or other contracts executed during the period stipulated in 2.4.1, a minimum construction experience is required in the following key activities <sup>1</sup> :	Must meet requirement	Must meet requirement <sup>2</sup>	Form EXP – 2
1. Design and construction, of at least one sewerage system, comprising of gravity sewers, appurtenant works, including Road cutting/ Restoration works for at least Fifty-Eight [58] Km, in the last 7 years, in a single contract.			Form EXP – 1 1. Copy of Work Order 2. Copy of Contract Completion Certificate
2. Design and construction, testing, commissioning of STP of minimum Nine [9] MLD in the last 7 years, in a single contract.			
3. Provision of at least Four Thousand and Five Hundred [4500] house service connections or in the last 7 years, in a single contract.			
4. Providing, laying, jointing, testing, commissioning of gravity sewer pipeline of minimum Fifty-Eight [58.00] Km length in the last 7 years, in a single contract. . Out of 58 kms length, 2.0 kms of length shall have minimum diameter of 700 mm of any material			
5. Operating, maintaining and managing a sewerage scheme with at least a minimum Twenty-Nine [29.00] Km length for a minimum period of 1 year over the last 7 years, in a single contract.			
6. Installation, Testing commissioning of PLC based centralized SCADA system for 9 MLD STP in the last 7 years, in a single			

<sup>1</sup> All the Key Experiences mentioned in table 2.4.2, may be met through different contractual experience

<sup>2</sup> Documented experience of all the JV partners combined together must meet the key experiences mentioned in 2.4.2 above.

<sup>3</sup> The bidder's experience of the "Design, construction, testing, and commissioning of STP" will be of the same technology, [out of the five (5) technology options mandated in Section 6], as adopted by the bidder, in the Technical proposal.

contract.			
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# **Section 4:**

## **Bidding Forms**

## Section 4: Bidding Forms

### - Without Prequalification -

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## Letter of Technical Bid

The Bidder must accomplish the Letter of Technical Bid on its letterhead clearly showing the Bidder's complete name and address.

Date: .....

OCB No.: .....

Invitation for Bid No.: .....

To: [insert complete name of the Employer]

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) 8.
- (b) We offer to execute in conformity with the Bidding Documents the following Works:  
**“Development of Sewerage System involving STP, Trunk Sewer and Allied Works including 5 Years Operation and Maintenance, at Raipur, Dehradun, in Uttarakhand”**
- (c) Our Bid consisting of the Technical Bid and the Price Bid shall be valid for a period of [insert bid validity period as specified in ITB 18.1 of the BDS] days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- (d) Our firm, including any Subcontractors or Suppliers for any part of the Contract, have nationalities from eligible countries in accordance with ITB 4.2.
- (e) We, including any Subcontractors or Suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 4.3.
- (f) We are not participating, as a Bidder, either individually or as partner in a Joint Venture, in more than one Bid in this bidding process in accordance with ITB 4.3(e), other than alternative offers submitted in accordance with ITB 13.
- (g) Our firm, Joint Venture partners, associates, parent company, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, are not subject to, or not controlled by any entity or individual that is subject to, a temporary suspension or a debarment imposed by the Asian Development Bank or a debarment imposed by the Asian Development Bank in accordance with the Agreement for Mutual Enforcement of Debarment Decisions between the Asian Development Bank and other development banks.<sup>1</sup>
- (h) Our firm, Joint Venture partners, associates, parent company, affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the Contract, are not, or have never been, temporarily suspended, debarred, declared ineligible, or blacklisted by the Employer's country, any international organization, and other donor agency.  
 If so debarred, declared ineligible, temporarily suspended, or blacklisted, please state details (as applicable to each Joint Venture partner, associate, parent company, affiliate, subsidiaries, Subcontractors, and/or Suppliers):

<sup>1</sup> These institutions include African Development Bank, European Bank for Reconstruction and Development (EBRD), Inter-American Development Bank (IADB), and the World Bank Group. According to paragraph 9 of the Agreement, other international financial institutions may join upon the consent of all Participating Institutions and signature of a Letter of Adherence by the international financial institution substantially in the form provided (Annex B to the Agreement). Upon adherence, such international financial institution shall become a Participating Institution for purposes of the Agreement. Bidders are advised to check [www.adb.org/integrity](http://www.adb.org/integrity) for updates.

- (i) Name of Institution: \_\_\_\_\_
- (ii) Period of debarment, ineligibility, or blacklisting [*start and end date*]: \_\_\_\_\_
- (iii) Reason for the debarment, ineligibility, or blacklisting: \_\_\_\_\_
- (i) Our firm's, Joint Venture partners, associates, parent company's affiliates or subsidiaries, including any Subcontractors or Suppliers key officers and directors have not been [*charged or convicted*] of any criminal offense (including felonies and misdemeanors) or infractions/violations of ordinance which carry the penalty of imprisonment.
- If so charged or convicted, please state details:
- (i) Nature of the offense/violation: \_\_\_\_\_
- (ii) Court and/or area of jurisdiction: \_\_\_\_\_
- (iii) Resolution [*i.e. dismissed; settled; convicted/duration of penalty*]: \_\_\_\_\_
- (iv) Other relevant details [*please specify*]: \_\_\_\_\_
- (j) We understand that it is our obligation to notify ADB should our firm, Joint Venture partners, associates, parent company, affiliates or subsidiaries, including any Subcontractors or Suppliers, be temporarily suspended, debarred or become ineligible to work with ADB or any other MDBs, the Employer's country, international organizations, and other donor agencies, or any of our key officers and directors be charged or convicted of any criminal offense or infractions/violations of ordinance which carry the penalty of imprisonment.
- (k) Our firm, Joint Venture partners, associates, parent company, affiliates or subsidiaries, including any Subcontractors or Suppliers, are not from a country which is prohibited to export goods to or receive any payments from the Employer's country by an act of compliance with a decision of the United Nations Security Council taken under Chapter VII of the Charter of the United Nations.
- (l) [We are not a government-owned enterprise] / [We are a government-owned enterprise but meet the requirements of ITB 4.5].<sup>2</sup>
- (m) We have not been suspended nor declared ineligible by the Employer based on execution of a Bid-Securing Declaration in accordance with ITB 4.6.
- (n) We agree to permit ADB or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by ADB.
- (o) If our Bid is accepted, we commit to mobilizing key equipment and personnel in accordance with the requirements set forth in Section 6 (Employer's Requirements) and our technical proposal, or as otherwise agreed with the Employer.
- (p) We understand that any misrepresentation that knowingly or recklessly misleads, or attempts to mislead may lead to the automatic rejection of the Bid or cancellation of the contract, if awarded; and may result in remedial actions, in accordance with ADB's Anticorruption Policy (1998, as amended to date) and Integrity Principles and Guidelines (2015, as amended from time to time).

Name .....

In the capacity of .....

Signed .....

<sup>2</sup> Use one of the two options as appropriate.

Duly authorized to sign the Bid for and on behalf of .....

Date .....

UIUDP Phase 1

## Letter of Price Bid

[To be submitted as part of Price Bid only]

*The Bidder must accomplish the Letter of Price Bid on its letterhead clearly showing the Bidder's complete name and address.*

Date: .....

OCB No.: .....

Invitation for Bid No.: .....

To: *[insert complete name of the Employer]*

We, the undersigned, declare that:

- (a) We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB) 8.
- (b) We offer to execute in conformity with the Bidding Documents and the Technical Bid submitted for the following Works. *[insert narrative]*
- (c) The total price of our Bid, excluding any discounts offered in item (d) below is:

- (d) The discounts offered and the methodology for their application are: *[insert discounts and methodology for their application if any]*
- (e) Our Bid shall be valid for a period of *[insert bid validity period as specified in ITB 18.1 of the BDS]* days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period.
- (f) If our Bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents.
- (g) We have paid, or will pay the following commissions, gratuities, or fees with respect to the bidding process or execution of the Contract.<sup>3</sup>

Name of Recipient	Address	Reason	Amount
.....	.....	.....	.....
.....	.....	.....	.....

<sup>3</sup> If none has been paid or is to be paid, indicate "None".

- (h) We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed.
- (i) We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.
- (j) We agree to permit ADB or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by ADB.

Name .....

In the capacity of .....

Signed .....

Duly authorized to sign the Bid for and on behalf of .....

Date .....

## Bid Security Bank Guarantee

[Bank's name, and address of issuing branch or office]<sup>4</sup>

**Beneficiary:** [Name and address of the Employer]

**Date:** .....

**Bid Security No.:** .....

We have been informed that [name of the Bidder] (hereinafter called "the Bidder") has submitted to you its bid dated [please specify] (hereinafter called "the Bid") for the execution of [name of contract] under Invitation for Bids No. [please specify] ("the IFB").

Furthermore, we understand that, according to your conditions, bids must be supported by a bid guarantee.

At the request of the Bidder, we [name of bank] hereby irrevocably undertake to pay you any sum or sums not exceeding in total an amount of [amount in words] [amount in figures] upon receipt by us of your first demand in writing accompanied by a written statement stating that the Bidder is in breach of its obligation(s) under the bid conditions, because the Bidder

- (a) has withdrawn its Bid during the period of bid validity specified by the Bidder in the Letters of Technical and Price Bid; or
- (b) does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB"); or
- (c) having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the performance security, in accordance with the ITB, or (iii) fails or refuses to furnish a domestic preference security, if required.

This guarantee will expire (a) if the Bidder is the successful Bidder, upon our receipt of copies of the Contract Agreement signed by the Bidder and the Performance Security issued to you upon the instruction of the Bidder; or (b) if the Bidder is not the successful Bidder, upon the earlier of (i) our receipt of a copy of your notification to the Bidder of the name of the successful Bidder, or (ii) 28 days after the expiration of the Bidder's bid.

Consequently, any demand for payment under this guarantee must be received by us at the office on or before that date.

This guarantee is subject to the Uniform Rules for Demand Guarantees, ICC Publication No. 458.<sup>5</sup>

[Authorized signature(s) and bank's seal (where appropriate)]

<sup>4</sup> All italicized text is for use in preparing this form and shall be deleted from the final document.

<sup>5</sup> Or 758 as applicable.

## Affidavit

(On Non Judicial Stamp of Rs. 1000)

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 \_\_\_\_\_ (name of the ULB).

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. Bank Guarantee deposited as bid security, demand draft for cost of bid document and other relevant documents provided by the Bank are authentic.
  - 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)**

# Technical Proposal

**Personnel**

**Equipment**

**Site Organization**

**Method Statement**

**Mobilization Schedule**

**Construction Schedule**

**Safeguards Activities, including COVID-19 specific site Health and Safety Management Plan**

**Operation and Maintenance Plan**



## Personnel

### Form PER – 1: Proposed Personnel

Bidder should provide the details of the proposed personnel and their experience record in the relevant Information Forms below for each candidate:

1.	Title of position
	Name
2.	Title of position
	Name
3.	Title of position
	Name
4.	Title of position
	Name
5.	Title of position
	Name
6.	Title of position
	Name
etc.	Title of position
	Name

**-- Note --**

All titles of positions will be as listed in Section 6 (Employer's Requirements).

## Form PER – 2: Résumé of Proposed Personnel

The Bidder shall provide all the information requested below. Use one form for each position.

<b>Position</b>		
<b>Personnel information</b>	<b>Name</b>	<b>Date of birth</b>
	<b>Professional qualifications</b>	
<b>Present employment</b>	<b>Name of employer</b>	
	<b>Address of employer</b>	
	<b>Telephone</b>	<b>Contact (manager / personnel officer)</b>
	<b>Fax</b>	<b>E-mail</b>
	<b>Job title</b>	<b>Years with present employer</b>

Summarize professional experience in reverse chronological order. Indicate particular technical and managerial experience relevant to the project.

[illegible]

## Equipment

### Form EQU: Equipment

The Bidder shall provide adequate information and details to demonstrate clearly that it has the capability to meet the equipment requirements indicated in Section 6 (Employer's Requirements), using the Forms below. A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

<b>Item of Equipment</b>		
<b>Equipment Information</b>	<b>Name of manufacturer</b>	<b>Model and power rating</b>
	<b>Capacity</b>	<b>Year of manufacture</b>
<b>Current Status</b>	<b>Current location</b>	
	<b>Details of current commitments</b>	
<b>Source</b>	Indicate source of the equipment <input type="checkbox"/> Owned <input type="checkbox"/> Rented <input type="checkbox"/> Leased <input type="checkbox"/> Specially manufactured	

Omit the following information for equipment owned by the Bidder.

<b>Owner</b>	<b>Name of owner</b>	
	<b>Address of owner</b>	
	<b>Telephone</b>	<b>Contact name and title</b>
	<b>Fax</b>	<b>Telex</b>
<b>Agreements</b>	<b>Details of rental / lease / manufacture agreements specific to the project</b>	

## Site Organization

1. The Bidder shall supply a table of personnel and a chart showing the proposed organization to be established for (i) carrying out the construction works during all phases of works like mobilization; preparation of Service Improvement Plan; Execution and operation and maintenance period separately.

## Method Statement

2. The Bidder will submit along with the bid a comprehensive statement of the methods that he proposes to adopt for completing the works under the contract package. It will include descriptions regarding operations on site proposed work systems and safety and protection method to be applied throughout the execution of works.

The activities for methodology shall also include following:

- (i) Confirmatory surveys (as applicable) including topographic, geotechnical, underground utility surveys etc
- (ii) Property and consumer surveys and GIS mapping of all properties showing consumers
- (iii) Review, verifications and up-dation of designs;
- (iv) Preparation of Completion Plan including phasing of works, cost effective value Engineering and drawings
- (v) Approval of Completion Plan
- (vi) Implementation schedule along with methodology as per scope of works:
- (vii) Operation Services:
- (viii) Customer services;
- (ix) Safeguard activities;

## Safeguards Activities, including COVID-19 specific site Health and Safety Management Plan;

1. The Contractor shall (a) establish an operational system for managing environmental impacts, specific to the intervention of the subject contract, on the specific site under consideration, (b) carry out all of the monitoring and mitigation measures set forth in the Initial Environmental Examination ("IEE") and Environmental Management Plan ("EMP"), (c) allocate the budget required to ensure that such measures are carried out, and (d) comply with any corrective or preventative actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the initial environmental examination and the environmental management plan. The Contractor shall submit quarterly reports on the carrying out of such measures to the Employer.
2. The Contractor shall comply with (i) the measures and requirements set forth in the Resettlement Plan ("RP") to the extent it concerns impacts on affected people during construction; and (ii) any corrective or preventive actions set out in safeguards monitoring reports that the Employer will prepare from time to time to monitor implementation of the resettlement plan.
3. The contract shall submit a "COVID-19 specific Site Health and Safety Management Plan" in compliance with the SOP and Direction of the Ministry of Health, Government of India, a copy of which is given in Section 8 – PCC of this bid document. The bidder should demonstrate in the Plan the health and safety measures they will put in place on site in relation to COVID-19 prevention and controls, including but not limited to, PPE requirements, site set up, training, induction and mobilization of new personnel, equipment and plants cleaning and other hazard management measures while undertaking site work activities, site visitors health and safety protocols, as well as the approach to the monitoring and reporting of the Plan. The Plan should be fit for purpose for the particular construction works of this contract and be aligned with any relevant government regulations

and guidelines on COVID-19 prevention and controls, as well as workplace safety requirements, as issued by the Ministry of Health, Government of India.

## Concept – Design and Drawings

### **Documents/ Drawings to be provided by Bidders during technical bid submission**

#### **a) Concept design and drawing**

Concept design and drawings are those furnished by a Bidder with his Bid for the purpose of illustrating and clarifying his proposals.

The following drawings, details and specific information pertaining to proposed system shall be furnished by the Bidder in the technical envelope in addition to other information mentioned elsewhere in the tender. The bidder shall be responsible for providing the following technical details. Drawing shall be submitted in standard A1/A3 size. The scale for each drawing shall be selected such that the information is presented without any clutter or ambiguity and is clearly and easily legible without the use of magnifying aids other than a reader's normal eye-glasses.

#### **b) Process**

- i. Narrative Description of the Works
- ii. Sizing and process design covering all Major Unit Processes and components of the Works
- iii. List of all structures including dimensions and freeboards
- iv. Plant Layout including plans, elevations of all the proposed treatment units and buildings
- v. Hydraulic Profile
- vi. Process Flow Diagram.

#### **c) Mechanical**

Major Equipment List

#### **d) Electrical**

Electrical Single Line Diagram of STP and SPS

#### **e) Instrumentation & Controls, Automation (for STP and SPS):**

- i. Process and Instrumentation Diagrams (P&IDs)
- ii. System Architecture Diagram

## Mobilization Schedule

The Bidder shall submit mobilization and de-mobilization schedule of personnel and equipment in detail for all phases of works. The mobilization schedule should include mobilization of skilled and unskilled manpower, different machineries and equipment, materials, as required in each Phase.

## Construction Schedule

The Bidder shall prepare and submit overall construction schedule. The construction schedule shall be designed and documented in a series of tasks and task assignments complete with projected completion target dates with the aid of computer operated management software like Microsoft project office, Primavera or latest by using Gantt charts and PERT diagrams to allow all actors to know their contribution towards fulfilling the Employer's Requirement.

### Operation and Maintenance Plan including:

- (i) Comprehensive operation and maintenance during the Three and Half years of Execution Period and for 5 years of Operation and Maintenance period after execution.
- (ii) Supply and stocking of all spare parts needed for the Three and Half years of Execution and 5 years O&M period, shall be the responsibility of the selected contractor.
- (iii) Disposal of waste from STP \ sludge and material scraps from the Sewerage System to a site suitably identified by the selected contractor and as approved by the **Employer's Representative**. The bidder shall consider disposal distance of 5 km. In case, the dumping ground is not available within 5 km distance, contractor will go beyond as instructed by the **Employer's Representative** and the contractor shall be paid for extra haulage, beyond 5 Km, additionally.

## **Bidders Qualification**

To establish its qualifications to perform the contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the following information requested in the corresponding Information Sheets.

**Form ELI - 1: Bidder's Information Sheet**

<b>Bidder's Information</b>	
<b>Bidder's legal name</b>	
<b>In case of a Joint Venture, legal name of each partner</b>	
<b>Bidder's country of constitution</b>	
<b>Bidder's year of constitution</b>	
<b>Bidder's legal address in country of constitution</b>	
<b>Bidder's authorized representative</b> (name, address, telephone number(s), fax number(s), e- mail address)	
<b>Attached are copies of the following documents:</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> 1. In case of a single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and ITB 4.2.</li> <li><input type="checkbox"/> 2. Authorization to represent the firm or Joint Venture named above, in accordance with ITB 20.2.</li> <li><input type="checkbox"/> 3. In case of a Joint Venture, a letter of intent to form a Joint Venture or Joint Venture agreement, in accordance with ITB 4.1.</li> <li><input type="checkbox"/> 4. In case of a government-owned enterprise, any additional documents not covered under 1 above required to comply with ITB 4.5.</li> </ul>	



**Form ELI - 2: Joint Venture Information Sheet**

Each member of the Joint Venture and Specialist Subcontractor must fill out this form separately.

<b>Joint Venture / Specialist Subcontractor Information</b>	
<b>Bidder's legal name</b>	
<b>Joint Venture Partner's or Specialist Subcontractor's legal name</b>	
<b>Joint Venture Partner's or Specialist Subcontractor's country of constitution</b>	
<b>Joint Venture Partner's or Specialist Subcontractor's year of constitution</b>	
<b>Joint Venture Partner's or Specialist Subcontractor's legal address in country of constitution</b>	
<b>Joint Venture Partner's or Specialist Subcontractor's authorized representative information</b>  (name, address, telephone number(s), fax number(s), e-mail address)	
<b>Attached are copies of the following documents.</b> <ul style="list-style-type: none"> <li><input type="checkbox"/> 1. Articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and ITB 4.2.</li> <li><input type="checkbox"/> 2. Authorization to represent the firm named above, in accordance with ITB 20.2.</li> <li><input type="checkbox"/> 3. In the case of a government-owned enterprise, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB 4.5.</li> </ul>	

**Form CON - 1: Historical Contract Nonperformance**

Each Bidder must fill out this form in accordance with Criteria 2.2.1 and 2.2.3 of Section 3 (Evaluation and Qualification Criteria) to describe any history of nonperforming contracts and pending litigation or arbitration formally commenced against it.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

Table 1: History of Nonperforming Contracts			
<b>Choose one of the following:</b> <input type="checkbox"/> No nonperforming contracts. <input type="checkbox"/> Below is a description of nonperforming contracts involving the Bidder (or each Joint Venture member if Bidder is a Joint Venture).			
Year	Description	Amount of Nonperformed Portion of Contract (INR equivalent)	Total Contract Amount (INR equivalent)
[insert year]	Contract Identification: [indicate complete contract name/ number, and any other identification] Name of Employer: [insert full name] Address of Employer: [insert street/city/country] Reason(s) for nonperformance: [indicate main reason(s)]	[insert amount]	[insert amount]
Table 2: Pending Litigation and Arbitration			
NOT APPLICABLE.			

**Form FIN - 1: Historical Financial Performance**

Each Bidder must fill out this form.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

Financial Data for Previous Three (3) Years [INR Equivalent]		
Year 1:2017-18	Year 2:2018-19	Year 3:2019-20

**Information from Balance Sheet**

Total Assets (TA)			
Total Liabilities (TL)			
Net Worth = TA – TL			
Current Assets (CA)			
Current Liabilities (CL)			
Working Capital = CA - CL			
Most Recent Working Capital		To be obtained for most recent year and carried forward to FIN - 3 Line 1; in case of Joint Ventures, to the corresponding Joint Venture Partner's FIN – 3.	

**Information from Income Statement**

Total Revenues			
Profits Before Taxes			
Profits After Taxes			

☐ Attached are copies of financial statements (balance sheets including all related notes and income statements) for the last Three (3) years, as indicated above, complying with the following conditions:

- Unless otherwise required by Section 3 of the Bidding Document, all such documents reflect the financial situation of the legal entity or entities comprising the Bidder and not the Bidder's parent companies, subsidiaries, or affiliates.
- Historical financial statements must be audited by a certified accountant.
- Historical financial statements must be complete, including all notes to the financial statements.
- Historical financial statements must correspond to accounting periods already completed and audited (no statements for partial periods shall be requested or accepted).

**Note: FIN 1** must be certified by the same Auditor, who has/have audited the Trial Balance Sheet/Financial Statements of the bidder (each JV partners, if applicable); clearly mentioning the name and membership number of the CA.

**Form FIN - 2: Average Annual Construction Turnover**

***Each Bidder must fill out this form.***

***The information supplied should be the Annual Turnover of the Bidder or each member of a Joint Venture in terms of the amounts billed to clients for each year for work in progress or completed, converted to US dollars at the rate of exchange at the end of the period reported.***

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

<b>Annual Turnover Data for the Last Three (3) Years (Construction only)</b>			
<b>Year</b>	<b>Amount Currency</b>	<b>Exchange Rate</b>	<b>INR Equivalent</b>
<b>Average Annual Construction Turnover</b>			

**Note: FIN 2** must be certified by the same Auditor, who has/have audited the Trial Balance Sheet/Financial Statements of the bidder (each JV partners, if applicable); clearly mentioning the name and membership number of the CA.

**Form FIN – 3: Availability of Financial Resources**

Bidders must demonstrate sufficient financial resources, usually comprising of Working Capital supplemented by credit line statements or overdraft facilities and others to meet the Bidder's financial requirements for

- (a) its current contract commitments, and
- (b) the subject contract.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

Financial Resources		
No.	Source of financing	Amount (INR equivalent)
1	Working Capital (to be taken from FIN - 1)	
2	Credit Line <sup>a</sup>	
3	Other Financial Resources	
Total Available Financial Resources		

<sup>a</sup> To be substantiated by a letter from the bank issuing the line of credit.

**Note: FIN 3** the line of credit shall be dedicated to this package and shall be in the format of FIN 3A on Banks Letter head.

**Form FIN – 3A: Evidence of Availability of Credit Line Financial Resources**

*[Each Bidder must fill out this form to demonstrate financial resources comprising credit line statements or overdraft facilities, as stated in form FIN-3.]*

Project Name:

Bidding Package Name and Identification Number: ..... (to be filled in as indicated in ITB 1.1) ...

**BANK CERTIFICATE**

This is to certify that M/s ..... is a reputed company with a good financial standing.

If the contract for the work, namely..... is awarded to the above firm, we shall be able to provide overdraft / credit facilities to the extent of Rs ..... to meet their working capital requirements for executing the above contract.

\_\_\_Sd. \_\_\_

Name of Bank: \_\_\_\_\_

Senior Bank Manager \_\_\_\_\_

Address of the Bank \_\_\_\_\_

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*[In case of Joint Venture, change the text as follows:]*

This is to certify that M/s ..... who has formed a Joint Venture with M/s ..... and M/s ..... for participating in this bid, is a reputed company with a good financial standing.

If the contract for the work, namely..... is awarded to the above joint venture, we shall be able to provide overdraft / credit facilities to the extent of Rs..... to M/s ..... to meet their working capital requirements for executing the above contract.

**Form FIN- 4: Financial Requirements for Current Contract Commitments**

Bidders (or each Joint Venture partner) should provide information on their current commitments on all contracts that have been awarded, or for which a letter of intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

In case of a Joint Venture, each Joint Venture Partner must fill out this form separately and provide the Joint Venture Partner's name:

Joint Venture Partner: \_\_\_\_\_

Current Contract Commitments						
	Name of Co ntr act	Employer 's Contact (Address, Tel, Fax)	Contract Completion Date	Outstanding Contract Value (X) <sup>a</sup>	Remaining Contract Period in months (Y) <sup>b</sup>	Monthly Financial Resources Requirement (X / Y)
1						
2						
3						
4						
Total Monthly Financial Requirement for Current Contract Commitments						\$ .....

<sup>a</sup> Remaining outstanding contract values to be calculated from 28 days prior to the bid submission deadline (\$ equivalent based on the foreign exchange rate as of the same date).

<sup>b</sup> Remaining contract period to be calculated from 28 days prior to bid submission deadline.

**Note: FIN 4** must be certified by the same Auditor, who has/have audited the Trial Balance Sheet/Financial Statements of the bidder (each JV partners, if applicable); clearly mentioning the name and membership number of the CA.

**Form FIN - 5: Self-Assessment Tool for Bidder's Compliance to Financial Resources (Criterion 2.3.3 of Section 3)**

This form requires the same information submitted in Forms FIN - 3 and FIN - 4. All conditions of "Available Financial Resources Net of CCC  $\geq$  Requirement for the Subject Contract" must be satisfied to qualify.

**Form FIN - 5A: For Single Entities**

For Single Entities: (A)	Total Available Financial Resources from FIN – 3 (B)	Total Monthly Financial Requirement for Current Contract Commitments (CCC) from FIN – 4 (C)	Available Financial Resources Net of CCC $D = (B - C)$	Requirement for the Subject Contract (E)	Results: Yes or No [D must be greater than or equal to E] (F)
_____ (Name of Bidder)				<b>INR 20,41,00,000.00</b>	

**Form FIN - 5B: For Joint Ventures**

For Joint Ventures: (A)	Total Available Financial Resources from FIN – 3 (B)	Total Monthly Financial Requirement for Current Contract Commitments (CCC) from FIN – 4 (C)	Available Financial Resources Net of CCC $D = (B - C)$	Requirement for the Subject Contract (E)	Results: Yes or No [D must be greater than or equal to E] (F)
One Partner:					
_____ (Name of Partner)				<b>INR 8,17,00,000.00</b>	
Each Partner:					
_____ (Name of Partner 1)				<b>INR 5,10,00,000.00)</b>	
All partners combined	$\Sigma D$ = Sum of available financial resources net of current contract commitments for all partners		$\Sigma D =$ _____	<b>INR 20,41,00,000.00</b>	

Form FIN – 5 is made available for use by the bidder as a self-assessment tool, and by the Employer as an evaluation work sheet, to determine compliance with the financial resources requirement as stated in 2.3.3. Failure to submit Form FIN - 5 by the Bidder shall not lead to bid rejection.



**TECH 1: Maximum Guaranteed Power Consumption**

Guaranteed Gross Power requirement for Sewage Treatment Plant (STP) & Sewage Pumping Station (SPS), as applicable (excluding power consumption for yard lighting), during O & M period of 5 years (after design build completion):

<b>Maximum Guaranteed Power Consumption – Form Tech -1</b>							
S. no	Electrical Power Consumption Unit	Flow (MLD)	Year 1	Year 2	Year 3	Year 4	Year 5
			Kwh	Kwh	Kwh	Kwh	Kwh
	<b>STP (Capacity – 18 MLD)</b>						
		<b>5.00</b>					
		<b>7.00</b>					
		<b>9.00</b>					
		<b>12.00</b>					
		<b>15.00</b>					
		<b>18.00</b>					
	<b>Total</b>						
	<b>SPS (Capacity – 18 MLD)</b>						
		<b>5.00</b>					
		<b>7.00</b>					
		<b>9.00</b>					
		<b>12.00</b>					
		<b>15.00</b>					
		<b>18.00</b>					
	<b>Total</b>						

Notes:

1. The above components will include all the equipment, which needs electricity for operation, in the commissioned system
2. The above components excludes requirement for auxiliary power like internal/external lighting/MOV valves/EOT etc.
3. Bidder needs to fill all the information for 5 years.
4. For intermediate raw sewage flows, guaranteed power consumption will be interpolated. We confirm that the power consumption stated in the above table is the guaranteed maximum consumption. In case of more consumption, Employer will recover the costs of excess monthly power consumed with two times the prevailing power tariff.
5. The flow in MLD as mentioned in the table above, will be calculated as the Average Monthly Flow.

**Table Tech 2: Chemical Usage per Unit Volume of Treated Sewage**

The Bidder guarantees that the usage of various chemicals will not exceed the values listed in the table below, as demonstrated by the Tests after Completion and throughout the Operation and Maintenance Period.

Plant / Equipment	Chemical consumption guaranteed not to exceed (Kg / MLD)	
	Chlorine	Sludge Dewatering Polymer
<b>STP @ average treated sewage flow under design average influent sewage flow and BOD conditions.</b>		

**Signature of the bidder**  
Seal

**Form EXP – 1: Contracts of Similar Size and Nature**

Fill out one (1) form per contract.

The exchange rate to be used to calculate the value of the contract for conversion to a specific currency shall be the selling rate of the Borrower's national bank on the date of the contract.

Contract of Similar Size and Nature		
Contract No . . . . . of . . . . .		Contract Identification
Award Date		Completion Date
Total Contract Amount		INR
If partner in a Joint Venture or Subcontractor, specify participation of total contract amount	Percent of Total	Amount
Employer's name Address Telephone number Fax number E-mail		
Description of the Similarity in Accordance with Criterion 2.4.1 of Section 3 (Evaluation and Qualification Criteria)		
<p>Participation as a contractor, Joint Venture partner, or Subcontractor, in at least a minimum number of similar contracts specified below that have been satisfactorily and substantially completed<sup>6</sup> as a prime contractor, joint venture member, management contractor or sub-contractor within the last <b>Seven [7] years</b> and that is similar to the proposed works.</p> <p>The contractor will have to comply with the following construction experiences:</p> <p><b>One contract, of min. value INR 185,77,00,000.00;</b></p> <p>The similarity of the Bidder's participation shall be based on:</p> <ol style="list-style-type: none"> <li><b>1. Construction of Sewage Treatment Plant and Providing, laying, jointing testing and commissioning of gravity sewers of any material and type</b></li> <li><b>OR</b></li> <li><b>2. Providing, laying, jointing testing and commissioning of gravity sewers of any material and type</b></li> </ol>		

The Experience of the Bidder must be substantiated by the submission of at least the following document:

- The copy of Work Order issued by the employer
- The copy of Contract Completion Certificate issued by the competent authority

<sup>6</sup> Any Contract which is 80% (Physically) complete will be considered Substantially Complete and in that case the value of the completed part of the contract (80%), shall be equal or exceed the minimum value defined in the criteria.

**Form EXP - 2: Construction Experience in Key Activities**

Fill out one (1) form per contract.

Each Bidder must fill out this form.

If complied by Specialist Subcontractor, each Specialist Subcontractor must fill out this form and provide the Specialist Subcontractor's name:

Specialist Subcontractor: \_\_\_\_\_

Contract with Similar Key Activities		
Contract No . . . . . of . . . . .	Contract Identification	
Award Date	Completion Date	
Total Contract Amount	INR	
If partner in a Joint Venture or Subcontractor, specify participation of total contract amount	Percent of Total	Amount
Employer's name Address Telephone number Fax number E-mail		
<b>Description of the Key Activities in Accordance with Criterion 2.4.2 of Section 3 (Evaluation and Qualification Criteria)</b>		
For the above or other contracts executed during the period stipulated in 2.4.1, a minimum construction experience is required in the following key activities:		
1. <i>Design and construction, of at least one sewerage system, comprising of gravity sewers, appurtenant works, including Road cutting/ Restoration works for at least Fifty-Eight [58] Km, in the last 7 years, in a single contract.</i>		
2. <i>Design and construction, testing, commissioning of STP of minimum Nine [9] MLD in the last 7 years, in a single contract.</i>		
3. <i>Provision of at least Four Thousand and Five Hundred [4500] house service connections or in the last 7 years, in a single contract.</i>		
4. <i>Providing, laying, jointing, testing, commissioning of gravity sewer pipeline of minimum Fifty-Eight [58.00] Km length in the last 7 years, in a single contract. . Out of 58 kms length, 2.0 kms of length shall have minimum diameter of 700 mm of any material</i>		
5. <i>Operating, maintaining and managing a sewerage scheme with at least a minimum Twenty-Nine [29.00] Km length for a minimum period of 1 year over the last 7 years, in a single contract.</i>		
6. <i>Installation, Testing commissioning of PLC based centralized SCADA system for 9 MLD STP in the last 7 years, in a single contract.</i>		

<sup>7</sup> The bidder's experience of the "Design, construction, testing, and commissioning of STP" will be of the same technology, [out of the five (5) technology options mandated in Section 6], as adopted by the bidder, in the Technical proposal.

The Experience of the Bidder must be substantiated by the submission of at least the following document:

- The copy of Work Order issued by the employer
- The copy of Contract Completion Certificate issued by the competent authority.

## Schedules

### Schedule of Payment Currencies

For .....insert name of Section of the Works.....

Separate tables may be required if the various sections of the Works (or of the Bill of Quantities) will have substantially different foreign and local currency requirements. In such a case, the Employer should prepare separate tables for each Section of the Works.

	A	B	C	D
Name of Payment Currency	Amount of Currency	Rate of Exchange to Local Currency	Local Currency Equivalent $C = A \times B$	Percentage of Net Bid Price (NBP) $\frac{100 \times C}{NBP}$
Local Currency		1.00		100%
Foreign Currency #1				
Foreign Currency #2				
Foreign Currency #				
Net Bid Price				100.00
Provisional Expressed in Sums Currency Local		1.00		
BID PRICE				

#### - Note -

The rates of exchange shall be the selling rates 28 days prior to the deadline for submission of bids published by the source specified in BDS 15.

## Tables of Adjustment Data

### Price Adjustment for Design-Build Works

Price Adjustment for payment for Design-Build works: All Contractor payments for Design-Build works under this Contract shall be governed in accordance to the adjustments for change in costs as provided in GCC Sub-Clause 13.8

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from following formula:

$$P_n = A + B (L_n/L_o) + C (C_n/C_o) + D (F_n/F_o) + E(P_n/P_o)$$

Where-

“ $P_n$ ” is the adjustment multiplier to be applied to the assessed contract value of the work carried out in period “n”, this period shall be in month;

“ $A$ ” is a fixed coefficient stated in the table of adjustment data, representing a non-adjustable contractual payment;

“ $B$ ”, “ $C$ ”, “ $D$ ”, and “ $E$ ” are the fixed coefficients, stated in the table of adjustment data, representing the estimated proportion of various components;

“ $L_n$ ”, “ $C_n$ ”, “ $F_n$ ”, and “ $P_n$ ” are the current cost indices or reference price for period “n” expressed in the currency of payment, each of which is applicable to the tabulated cost element on **49 days** prior to the last day of the period (to which the particular Payment Certificate relates); and

“ $L_o$ ”, “ $C_o$ ”, “ $F_o$ ”, and “ $P_o$ ” are the base cost indices or reference price, expressed in the currency of payment, each of which is applicable to the tabulated cost element on the Base Date.

- The cost indices or reference prices stated in Table A.1, table of adjustment data, provided in Section 4, shall be used. If their source is in doubt, it shall be determined by the Employer’s Representative. For this purpose, reference shall be made to the values of the indices at stated dates for the purposes of clarification of the source; although these dates (and thus these values) may not correspond to the base cost indices.
- Until such time as each current cost index is available, the Employer’s Representative shall determine a provisional index for the issue of Interim Payment Certificates. When a current cost index is available, the adjustment shall be recalculated accordingly.
- If the Contractor fails to complete the Design-Build works within the Time for Completion, adjustment of prices thereafter shall be made using either (i) each index or price applicable on the date 49 days prior to the expiry of the Time for Completion of the Design-Build works, or (ii) the current index or price, whichever is more favorable to the Employer.
- The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations
- The weightings (coefficients) for each of the factors of cost stated in the table(s) of adjustment data shall only be adjusted if they have been rendered unreasonable, unbalanced or inapplicable, as a result of Variations

### Price Adjustment for Payments during Operation Service

All Contractor payments for Operation Service including the Asset Replacement under this Contract shall be governed in accordance to the adjustments for change in costs as provided in GCC Sub-Clause 13.8

The adjustment to be applied to the amount otherwise payable to the Contractor, as valued in accordance with the appropriate Schedule and certified in Payment Certificates, shall be determined from following formula:

$$OM_n = a + b (CPI_n / CPI_o)$$

Where-

“**OM<sub>n</sub>**” is the adjustment multiplier to be applied to the assessed contract value of the eligible payment for Operation Services or Asset Replacement carried out in period “n”, this period shall be in month;

“**CPI<sub>n</sub>**” is the current consumer price index for period “n” expressed in the currency of payment, each of which is applicable to the tabulated cost element on **49 days prior** to the last day of the period (to which the particular Payment Certificate relates); and

“**CPI<sub>o</sub>**” is the base consumer price index, expressed in the currency of payment, each of which is applicable to the tabulated cost element on the Base Date

The sources of the indices are to be as follows:

- (i) Labour Bureau of India; and
- (ii) Consumer Price Index for Industrial Workers for Uttarakhand.

Table A.1–Payment for Design-Build Works

Index Code	Index Description	Source of Index	Base Value and Date	Bidder's Local Currency Amount	Proposed range of Weightings	*Bidder's Proposed Weighting
<b>A.</b>	Nonadjustable	—	—	—	A.:	0.15
<b>B.</b>	Labor Component (L):  Source: Labour Bureau of India	Labour Bureau of India	Indices applicable on 28 days prior to deadline for bid submission	As per cost of Works done	B.: 0.20-0.30	
<b>C.</b>	Cement (C):  Wholesale price index for  Cement and Lime	Labour Bureau of India	Indices applicable on 28 days prior to deadline for bid submission	As per cost of Works	C.: 0.15-0.20	
<b>D.</b>	Ferrous Metals (F):  Wholesale price index for Iron & Steel (Sub-Group Basic Metals Alloys & Metals Products)	Labour Bureau of India	Indices applicable on 28 days prior to deadline for bid submission	As per cost of Works	D: 0.10-0.0.15	
<b>E.</b>	Plastic Products (P):  Wholesale Price Index for Plastic & Polyethylene Products	Labour Bureau of India	Indices applicable on 28 days prior to deadline for bid submission	As per cost of Works	E: 0.25-0.30	
<b>F</b>	Bitumen (B)	Wholesale Price Index for Bitumen issued by Economic Advisor, Gol	Indices applicable on 28 days prior to deadline for bid submission	As per cost of work	F: 0.05 – 0.01	
			Total		-	1.00

\*Note- Bidder to specify the appropriate weighting considering the range prescribed by the Employer in the last column of above table A1 and submit the same along with the Bid.

Table A.2 – Payment for Operation Service

Index Code	Index Description	Source of Index	Base Value and Date	Local Currency Amount	Weighting
a	Nonadjustable	—	—	—	a: 0.15
b	Consumer Price Index for Industrial Workers for respective Zone of Uttarakhand in which the package is falling.	Labour Bureau of India	Indices applicable on 28 days prior to deadline for bid submission	As per cost of Works	b: 0.85
Total					1.00

Table B - Foreign Currency- Not applicable



# Bill of Quantities

## Preamble to Bill of Quantities

### 1. INTRODUCTION

The Bill of Quantities is for “**Development of Sewerage System involving STP, Trunk Sewer and Allied Works including 5 Years Operation and Maintenance, at Raipur, Dehradun, in Uttarakhand**”.

#### **Part A- Sewer Network**

- a. The quantities set out in the Bills of Quantities are the estimated quantities of the Works and are not to be taken as the actual and correct quantities of the works to be executed by the Contractor in fulfilment of his obligations under the Contract.
- b. For the purpose of pricing the Bill of Quantities shall be read in conjunction with the Instructions to Bidders, Conditions of Contract, Technical Specifications, Drawings and other sections of this Tender Document.
- c. The items set forth in the Bill of Quantities and the Contract Rates therefore shall, except in so far as may be otherwise provided in the Contract, be deemed to cover all the Contractor's liabilities and obligations set forth or implied in the Contract and all costs and expenses which may be required in and for the proper construction, completion of the works described together with all general risks.
- d. The bidder shall interpret the data furnished and carry out any additional survey work, or investigation work required at his own cost.
- e. The prices quoted shall also include the cost of materials utilized for testing.
- f. The bidder should acquaint himself with the site conditions including the access to Work site. The successful bidder shall have to make suitable access to work sites at his own cost.
- g. **The prices shall be quoted inclusive of all taxes (GST), royalties and duties prevailing at the time of submission of the bids..**
- h. Except where an item in the Bill of Quantities clearly indicates to the contrary all quantities are measured net in accordance with the drawings with no allowance of waste, shrinkage etc.
- i. All works shall be carried out as per BIS (with latest revision) and Technical Specifications and with good Engineering practice.
- j. Unless otherwise specified, the method of measurement of completed works for payment shall generally be in accordance with IS 1200 (Part 1 to 28) (latest edition) and other relevant Indian Standards.
- k. Unless stated otherwise, all rates and prices entered in the Bills of Quantities shall be deemed to include the following:
  - Labour and all costs in connection with the execution and maintenance of the work.
  - The supply of materials, goods, storage and all costs in connection therewith including wastage, shrinkage and delivery to Site.
  - Plant, equipment and all costs in connection therewith.
  - Sampling and testing materials and goods, testing workmanship, providing, storing, packing and transporting samples to and from the place of testing.

- Fixing, erecting, installing or placing of materials and goods in position.
- Disposing of surplus and unsuitable materials and goods and excavated materials, including stacking, storing, loading, transporting and unloading.
- l. Bidders shall pay for the electricity cost during Design & Build phase of the work and will include the cost in their quoted Price.
- m. In the O&M phase the electricity cost will be paid by the Employer. Thus, the contractor will not include electricity cost in their O&M price.

All Temporary Works:

- Construction and maintenance of temporary access roads within the Site and of any roads required for access to any part of the Site for the purpose of carrying out the Works, taking into account that the access roads under the Contractor's maintenance control will also be used by the Employer and his staff's vehicles.
- Construction, maintenance and removal, if required, of temporary Site drainage on the Site, and for ensuring that all drains are kept clear of debris and blockages at all times.
- All general obligations, liabilities and risks involved in the execution, operation and maintenance of the Works set forth or reasonably implied in the documents on which the Tender is based.
- Establishment charges, overheads and profits.
- Co-operating with other Contractors.
- n. The prices for transportation included in any of the items in the Bills of Quantities are to include for all labours and equipment required for unpacking, loading, conveying, unloading, storing and multiple handling of all and every item to be transported.
- o. The bidder shall enter rates and prices against all items of the Works described in the Bill of Quantities. Where no rate or price is entered against an item by the bidder no payment will be made and the cost shall be deemed to be covered by the rates for other items and prices in the Bill of Quantities.
- p. The bidder shall make note that the opening of Execution front for any catchment at any point of time should not be more than 3 km.
- q. Further works can be opened only after backfilling compaction and completion of works for the executed work of previous 3 Km in respective catchment.
- r. The design and construction of Sewage Pumping Station, Sewage Treatment Plant, major crossings and Statutory approvals should be taken up on priority with all related design approval for timely completion of the project.
- s. The construction of sewer manhole should be completed simultaneously for the pipe line stretch taken up for execution along with pipe laying from manhole to manhole.
- t. Measurement of the pipeline shall be carried out after completion of sewer manhole for the respective stretch.
- u. Road resurfacing should be taken up after proper compaction of the backfilled trench with 95% proctor density.

- v. For any road settlement occurred/observed till Defect Liability Period in project area where sewer lines are laid, the Contractor shall be responsible for making the good the backfilling and road restoration at his own expenses.
- w. O&M shall be started on the completion of 100% commissioning of all works as per scope of work in all respect.
- x. Abbreviations used in Bill of Quantities and Rates have the meanings shown below.

m	Metre / Meter
km	Kilometre
Sq.m	Square metre
m <sup>2</sup>	Square metre
Cu.m	Cubic metre
m <sup>3</sup>	Cubic metre
BOQ	Bill of Quantities
MT	Metric Tonne
RM	Running Metre
No.	Numbers
CI	Cast Iron
CM	Cement Mortar
CC	Cement Concrete
Dia	Diameter
DI	Ductile Iron
IRC	Indian Road Congress
Kg	Kilogram
L.S	Lump sum
RCC	Reinforced Cement Concrete
Wt	Weight
SWG	Standard Wire Gauge
SFRC	Steel Fibre Reinforced Concrete
WBM	Water Bound Macadam road

## 2. GENERAL

General Basis for Pricing are

- 2.1 The Contractor shall be deemed to have read and examined the Tender Documents before completing the Bill of Quantities and the Schedule of Rates. The Drawings, Specifications, Schedules etc. are to be considered as explanatory of each other and no advantage shall be taken of any omission in tender documents.

- 2.2 The Contractor shall be deemed to be fully conversant with and to have made full allowance in his Tender for the site conditions, the nature and complexity of the work to be undertaken, the other extensive development and construction work currently being or which may be executed on and around the Site and all changes in the nature and condition of the Site from that existing at the time of Tender.
- 2.3 General directions and descriptions of work and materials given in the Specification or shown on the Drawings are not necessarily repeated in the Bill of Quantities and reference is to be made to the Specification and the Drawings for this information.
- 2.4 The Bill of Quantities is an estimate of the quantities of work involved and is to be used as a basis for pricing of the Tender and for valuation of the work executed, in conjunction with instructions to bidders, terms and conditions of Contract, general, special and technical specifications and drawings.
- 2.5 Due to the nature of the work, all quantities shown in the Bill of Quantities are approximate only and may be subject to variation. The quantities shown should not be considered as limiting or extending the amount of work to be done and material to be supplied by the Contractor. The Contractor shall ascertain the actual quantities of materials required before placing orders.
- 2.6 The rates quoted in the schedule shall be the all inclusive value for the work described and be deemed to include for all the Contractor's liabilities and obligations and all risks set forth or implied in the document and all matters and things necessary for the proper construction, of the Works including surveying, setting out, plant, labour, supervisor, materials, erection, maintenance, insurance, profit, taxes and duties together with all general risks liabilities and obligations set out or implied in the Contract. The Charge for any obligation of the Contractor for which apparently no corresponding item is given in the Bills of Quantities shall be deemed to be included in the Contract Rates and Prices entered against the billed items.
- 2.7 Quantities given in the annexed Bill of Quantities for the various items are approximate only and are given to provide a common basis for tendering. The basis of payment will be the actual quantities of work ordered and carried out, as measured by the Employer's Representative and valued at the rates or prices quoted in the Bills of Quantities where applicable, and otherwise at such rates for prices as may be fixed within the terms of the Contract. Variations in the quantities of work in the Schedule shall be executed as per condition of contract.
- 2.8 Extra items of work shall not vitiate the Contract. The Contractor shall be bound to execute extra items of work as directed by the Employer's Representative.
- 2.9 The quantities given here are those upon which the tender cost of the work is based, but they are subject to alterations, omissions, deductions or additions as provided for in the Conditions of Contract and do not necessarily show the actual quantities of work to be done. The unit rates are those governing payment for extras or deductions or omissions according to the conditions of the Contract as per rate analysis to be carried out by Contractor with supporting document to be submitted for approval of Employer's Representative.
- 2.10 It is to be expressly understood that the measured work is to be taken net (not withstanding any system or practice to the contrary) according to the actual quantities wherein finished according to the Drawings or as may be ordered from time to time by the Employer's Representative and the cost calculated at the respective prices, without any additional charges for any necessary or contingent works connected therewith. The rates quoted are for works in situ and complete in every respect. Unless the Bill of Quantities specially indicates to the Contrary, the constructional plant and temporary works will not be measured.

- 2.11 Unless otherwise stated, all items are measured net and no allowance will be made for wastage, working space, bulking or shrinkage, overlaps and the like.
- 2.12 The unit rate should be entered against each item in the Bill of Quantities and shall be written in ink in figures and words. Any item left unpriced will be deemed to be included for elsewhere in the Bill of Quantities, hence the rate for that item will be taken as NIL.
- 2.13 The rate column should be filled in figures and words legibly while the amount column should be filled in figures legibly. If there is any discrepancy in Tendered rates/amount, it shall be resolved in accordance with conditions of contracts.

### **3. GENERAL WORK**

#### **3.1 EARTHWORKS**

- 3.1.1 The item of earthwork in excavation etc., is excluded in the execution of pipe laying, jointing, testing, etc. and will be measured and paid separately as per relevant item for excavation.
- 3.1.2 The rates of works for excavation etc., shall include for all plant, equipments, materials and labour required for excavation in any material and in any location and shall also include for all temporary diversions, support and protection of any existing services and utilities, temporary support and maintenance of the excavation, any additional excavation necessary to provide working space, refilling trenches with materials as required by the Specification or shown on the Drawings, compaction as per drawings and specifications.
- 3.1.3 The separate item for multiple handling and stack piling excavated materials required for filling anywhere on the Site, where space is constraint in narrow lanes, is provided in BOQ.
- 3.1.4 All work in connection with excavation as specified shall be valued by measurement only of such items as are set forth in the Bills of Quantities for excavation. All such measurements shall be in cubic meters as shown in drawings and specifications. No payment shall be made for excess excavation in respect of or the backfilling thereof.
- 3.1.5 For calculation of quantities of earthwork at different depths, (like 1.5 to 3.0m, 3.0-4.5m etc.) the payment will be made as per approved typical trench section for various depths; payments shall not be made for the excess quantity executed upto that depth.
- 3.1.6 Timbering and MS Shuttering for shoring and strutting for excavation is considered as separate item. The measurement shall be in square meters. For calculation of quantities of timbering at different depths, (like 1.5-3.0m, 3.0-4.5m etc.) actual quantities of Timbering within that layer will be measured length x depth of trench. Up to 1.5 m trench depth timbering is not required, for trench depth more than 1.5m appropriate shoring & strutting shall be provided. The rate shall also include necessary danger lighting etc in quoted price as per Bill of Quantities.
- 3.1.7 In case soak pits come across the sewer trench section, the Contractor shall remove the loose soil at least 0.5m below the trench bottom level. The filling shall be done with granular material up to trench bottom level with proper compaction as specified so that it achieves the same strength as the existing ground. There will be no separate payment for refilling of trench. In case the defunct septic tank/soakage pit exists on the road and interferes with the laying of the sewer, the same shall be dismantled and sludge disposed for which no payment will be made separately.

#### **3.2 DEWATERING**

The dewatering item shall only be executed when water is encountered during excavation work. The rate shall include hire charges of equipment, labour, fuel charges, T&P, disposal of water, etc. complete. The payment will be made on hourly basis.

### **3.3 UTILITY SHIFTING AND REINSTATEMENT**

The payment for shifting and reinstatement of utilities e.g. electric & telephone cable/poles, waterlines, drains etc. during excavation and laying of sewers will be paid in meter. Contractor shall take all precautions to avoid damage to underground utilities. This item will not include any costs for major damages and replacement cost which shall be borne by Contractor, if any.

### **3.4 TRAFFIC DIVERSION DURING CONSTRUCTION**

No separate item is provided for traffic diversion during construction of sewers on road. It will be deemed to be considered in quoted price.

### **3.5 SITE CLEARANCE AFTER CONSTRUCTION**

No separate item is provided for traffic diversion during construction of sewers on road. It will be deemed to be considered in quoted price.

### **3.6 CONCRETE**

- 3.6.1 The unit of measurement for concrete where measured separately shall be in cubic meters.
- 3.6.2 Concrete bedding to pipe trenches, bed and surrounds to pipelines shall be measured in cubic meters for all depths as mentioned in bill of quantities and as per drawing.
- 3.6.3 The quantity of concrete shall be computed on the basis of the dimensions shown on the Drawings or as otherwise instructed as specified in bill of quantities. No deduction in the quantity of concrete shall be made for holes each less than 0.15 cubic meters in volume or chamfers and the like each less than 0.005 square meters in cross sectional area.
- 3.6.4 The rates for concrete shall include for all plant, materials and labour required to achieve the finished concrete shown on the Drawings or as otherwise instructed in full compliance with the Specification, including testing, concrete of any class, screeds that are not included for elsewhere, formwork, finishes, compaction and all other works necessary for the satisfactory completion of the work.

### **3.7 RCC WORK**

- 3.7.1 The unit of measurement for RCC work where measured separately shall be in cubic meters.
- 3.7.2 The quantity of RCC work shall be computed on the basis of the dimensions shown on the Drawings or as otherwise instructed as specified in bill of quantities. No deduction in the quantity of concrete shall be made for holes each less than 0.15 cubic meter in volume or chamfers and the like each less than 0.005 square metres in cross sectional area.
- 3.7.3 The rates shall include for all plant, materials and labour required to achieve the finished concrete shown on the Drawings or as otherwise instructed in full compliance with the Specification, including reinforcement, formwork, binding wires, testing, concrete of any class, screeds that are not included for elsewhere, formwork, finishes, compaction and all other works necessary for the satisfactory completion of the work.

### **3.8 GRAVITY SEWERS AND HOUSE SEWER CONNECTIONS**

#### **3.8.1 Pipelines (HDPE & DI pipes)**

- a) The unit of measurement for street sewer pipeline shall be linear meters. The length of pipelines shall be measured between outside faces of manholes.

- b) The measurement shall be taken along the centerline of the sewers and fittings or specials. All fittings or specials shall not be enumerated separately but shall be considered inclusive with the sewers, including their cutting and jointing. The taxes, duties, transit insurance, transportation cost shall be included in pipeline cost including hydro test and leakage test.
- c) Separate items are provided for pipelines of each diameter and of each material.
- d) For sewer between roadside chambers, plot boundary and the street manhole, the unit of measurement shall be in linear meters which includes all costs of road cutting, excavation, refilling, disposal of earth, providing, lowering in trenches, laying and jointing, bedding etc. as specified in bill of quantities.
- e) Excavation inclusive of backfilling for pipe trenches shall be measured and paid separately. Pipe laying item is separate item which includes pipe laying, jointing, testing and commissioning and including the excavation below invert level of pipes. The payment will be made on dia. and depth of pipe below ground level.
- f) Barricading the trenches, warning signs, night lamps, etc., shall be paid separately under separate item. For payment purpose, it will be measured in running meter of trench.
- g) The rates for pipelines shall include all plant materials and labour required to lay the pipeline in position at the depth shown on the Drawings or as otherwise instructed and in accordance with the specifications including all short lengths of pipe, make up pieces, adapters, couplings. Laying, jointing and testing of pipes shall include supplying, conveyance of water for testing etc., multiple handling and stockpiling of materials as required.
- h) Granular bedding for bed and surround to pipe lines shall be measured in cubic meter for payment purpose. The rates shall include for all plant, material and labour required as per drawings and specifications.
- i) Plain cement concrete bedding, reinforced cement concrete bedding, reinforced concrete encasement bedding to pipeline shall be measured in Cubic Meters. Payment will be made for different depths. Separate items are provided for each type of concrete work. The rates shall include for all additional plant, materials and labour required to achieve the finished concrete shown on the Drawings or as otherwise instructed including concrete of any class, finishes, compaction, working to the actual width of excavation, the specified support width for base, and all other works necessary for the satisfactory completion of the work all in accordance with the Specification. The Reinforcement & formwork for concrete cradle and RCC cradle and RCC encasement bedding will be paid separately.

#### 3.8.2 Brick Masonry

- a) The unit of measurement for manholes shall be Cubic meters. Separate items are provided for various type of Brickwork to be used under separate items.
- b) The rates shall include for all plant, materials and labour required to complete brickwork as shown in the Drawings or as otherwise instructed and in accordance with the Specification.

#### 3.8.3 Single and Multiple Property Connections and Drop Manholes

- a) The unit of measurement for roadside chambers for multiple property connection shall be in numbers complete. Roadside chambers shall be constructed outside the property boundary but preferably close to boundaries of the two properties as directed by the Employer's Representative. Provision shall be made for pipe connections to receive the flow from the inspection chamber from the

properties. The location of road side chambers shall be discussed and decided as per site conditions with Employer.

- b) The rate for roadside chambers shall include for all plant, materials and labour required to construct the roadside chambers at all depths not exceeding the maximum depth shown on the Drawings including, concrete, shuttering, Brick masonry work, cover & frame, fixing 160 OD uPVC pipes, including maintaining existing sewage flows and all other works required to make roadside chambers complete in accordance with the Drawings and Specification.
- c) The unit of measurement for uPVC pipes (160mm dia. OD) for property connection shall be in meter.
- d) The laying of house service connection pipe inside the property along with the chamber shall be constructed as per the site conditions and payment will be made as per actual pipe laid and the chamber constructed in each connection.
- e) In case of drop manhole arrangement measurement shall be taken as number basis for all depths as mentioned in Bill of Quantities as per drawing.

#### 3.8.4 RCC Manholes

- a) The unit of measurement for manholes shall be numbers complete. Separate items are provided for various diameters upto specified depths. The depth of the manhole shall be defined as the distance between the top of the manhole cover and the invert of the lowest sewer in manhole.
- b) The rates for manholes shall include for all plant, materials and labour required to provide and construct the manhole in position and at the depth shown in the Drawings or as otherwise instructed and in accordance with the Specification including trial holes carried out to locate services crossing or adjacent to the manhole, excavation, RCC work, reinforcement, concrete, shuttering, manhole cover (including the cost of SFRC manhole frame and cover), M.S. steps (PVC encapsulated) and all other works required to make the manholes complete in accordance with the Drawings and Specification.

#### 3.8.5 Precast RCC Manholes

Location of precast RCC manholes will be decided by the employer. The contractor will setup casting yard near to the project area and to ensure no damage to the precast units during loading unloading and transportation.

#### 3.8.6 Vent Shafts

Vent Shafts connecting to manholes and chambers shall be measured in number. The rates shall include for all plant, materials, labour required to construct the vent pipe including , pipe-work both above and below ground of any material, concrete surround, connection to the manhole or chamber, and all other works required to make the vent pipe complete in accordance with the Drawings and Specification.

#### 3.8.7 Road Reinstatement Works

- a) Reinstatement of road works has to be carried out as per specifications, contained in the 'Specifications for Road and Bridge Works' (Latest Revision) published by the Indian Road Congress, on behalf of the Government of India, MoRTH. Mode of measurements for bituminous road, CC roads and tiles road shall be as per provisions contained in the relevant clauses of the specifications unless otherwise specified. The rates include all the elements of cost and hire charges of all types of plants, machinery and equipment required to complete the work as mentioned in accordance with bill of quantities, Drawings and Specifications. For purpose of Granular course (Like GSB, WBM, WMM etc),



width of road shall be considered as top trench width plus 15cm on both sides of trench. Bituminous & concrete course shall be done on full width of road.

- b) The Contractor shall be responsible to restore all working services to their original conditions and all cost thereof shall be deemed to be included in the quoted rates.
- c) The item for road cutting is separate and will be measured in cubic meter (road length x top trench width plus 30 cm x thickness).

### 3.9 KERB CHANNEL DRAINS

3.9.1 The unit of measurement for KC drains shall be as per BOQ.

3.9.2 The unit of measurement for Precast Kerb will be in Nos and whereas for Cast in Situ will be on cum.

### 3.10 TRENCHLESS WORKS

Pipe line shall be laid through trenchless technology in those stretches in the project area where sufficient road width is not available and the depth of sewer pipe line is going deeper (more than 4 to 4.5 meter) or directed by Engineer-in-charge and also for Road crossing, Railway crossing, River crossing, Nallah crossing etc. Contractor shall be responsible for all necessary equipment, barricading, Timbering & Shoring, dewatering, tools & tackles, safety precautions required for trenchless work. Work shall be done in accordance to latest technical specification of INDSTT (Indian Society of Trenchless Technology). Contractor has to submit best suitable method of trenchless work. Contractor shall submit the methodology of selected trenchless technology and the permission and approval of client before the start of any activity related to trenchless work.

### 3.11 ARRANGEMENTS FOR WATER AND ELECTRICITY

The Contractor shall be responsible to make all the necessary arrangements for water and electricity for carrying out the works (during execution of works) and the cost thereof shall be deemed to be included in the quoted rates.

## Part B – Sewage Treatment Plant

The Schedule of bills is divided into separate bills as follows :

Bill No -1	Survey, soil investigation, Design, Drawing & Documentation work for Sewer network and STP works
Bill No -2	Sewer Network Pipe line and its ancillary works
Bill No -3	STP and Its ancillary works
Bill No -4	Plant and Equipment, Supplied from Outside Employer's Country for Proposed STP
Bill No -5	Plant and Equipment, Supplied from Within Employer's Country for Proposed STP
Bill No -6	Laboratory Equipment for Proposed STP
Bill No -7	Dayworks
Bill No -8	Operation & Maintenance work

- The Bills do not generally give a full description of the Construction Documents, Plant and Materials to be supplied and the services to be performed under each item. The entered rates and prices shall be deemed to include all items necessary for full compliance with all provisions of the Contract.
- Items left blank are deemed to have been included in other items. The TOTAL for each Bill and the TOTAL of the Grand Summary shall be deemed to be the total price for executing the Works in complete accordance with the Contract, whether or not each individual item has been priced.

3. Bill No. 3 includes civil works, building works and other construction works, installation, erection, testing and commissioning of the plant and equipment.
4. Items in Bill 4 and 5 shall be filled in respect of Equipment supplied from outside and from within the Employer's Country respectively as applicable & delivered to the site and the remaining column will be kept blank.
5. Items for Plant included in Bill No.4 and 5 exclude associated civil, building and other construction works, all such items and materials are to be included under Bill No. 3.
6. Bill No. 7 (Day works) are provisional and will be used when making payments as instructed by the Employer from the Provisional Sum as per the Conditions of Contract.
7. The terms FOB, CIF, etc. shall be governed by the rules prescribed in the current edition of Incoterms, published by the International Chamber of Commerce.
8. **The GST shall be governed by State and Central Government rules, as amended till date.**

[The Bill of Quantities is enclosed separately and the bidder shall submit the same separately as part of Price Bid and shall not be included in the Technical Bid]

# **Section 4:**

## **Tender BOQ**

<b><u>COST SUMMARY</u></b>				
<b><u>Development of Sewerage System involving STP, Trunk Sewer and Allied Works including 5 Years Operation and Maintenance, at Raipur, Dehradun, in Uttarakhand</u></b>				
<b>S.No.</b>	<b>Bill No</b>	<b>Item Description</b>	<b>Amount in INR (In figure)</b>	<b>Amount in INR (In Words)</b>
1	Bill No -1	Survey, soil investigation, Design, Drawing & Documentation work	0.0	
2	Bill No -2	Sewer Network Pipe line and its ancillary works	0.0	
3	Bill No -3	STP and Its ancillary works	0.0	
4	Bill No -4	Plant and Equipment, Supplied from Outside Employer's Country for Proposed STP		
5	Bill No -5	Plant and Equipment, Supplied from Within Employer's Country for Proposed STP		
6	Bill No -6	Operation & Maintenance work for 5 years	0.0	
7	Bill No -7	Dayworks		
8		Provisional sum for utility shifting, deposits as levied by other govt agencies, DAB, RP,EMP (Training Cost) etc. as deemed required by Employer's representative	130167235.0	
		<b>Grand Total</b>	<b>130167235</b>	

Bill No 1:Survey, soil investigation, Design, Drawing & Documentation work						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
1	<b>Survey, soil investigation, Design, Drawing &amp; Documentation work for Pipe line and its ancillary works:</b> Work Shall IncludeDesign, Engineering, Preparation of Good for Construction drawing and vetting the same from reputed institute (IIT/NIT or approved by Engineer-In-Charge) including GPR survey , Pipe line route survey (confirmatory survey), block level survey, geo-tagging,geotechnical investigations, Trial pits etc. as per Technical specification and as directed by Employers Representative.	Lot	1			0
2	<b>Survey, soil investigation, Design, Drawing &amp; Documentation work for STP and its ancillary works:</b> Work Shall Include Survey & soil investigation work, Preparation & submission of Hydraulic/Architectural Design & Drawing, Civil/Structural Design & Drawings, Electricl, Mechanical & Instrumentation Design & Drawings, As Built drawings, Preparing training Programme and Manuals etc complete all as per scope of work and as directed by Employers Representative.	Lot	1			0
	<b>Total</b>					<b>0</b>

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
<b>A</b>	<b>Sewerage system Work</b>					
1	Excavation of earth below G.L. by manually or by mechanical means for laying of Sewers, Man-Holes, Gully Pits, Chambers etc. in soil including extra excavation below inverts, trimming & dressing of sides, levelling and back filling of trenches by excavated earth in 20 cm layers, watering and ramming the same including removal of surplus earth or other dismantled material up to a distance of 50 meters from the center of trenches and cleaning of site properly after completion of the work as per the technical specification and as per the direction of Employers Representative.					
1.1	<b>Ordinary soil</b>					
1.1.1	0 to 1.5 m below G.L	Cum	100094			0.00
1.1.2	1.5 to 3.0 m below G.L	Cum	36507			0.00
1.1.3	3 to 4.5 m below G.L	Cum	9570			0.00
1.1.4	4.5 to 6.0 m below G.L	Cum	1185			0.00
1.1.5	6.0 to 7.5 m below G.L	Cum	65			0.00
1.2	Same as item no. 1 but excavation in <b>Soil mixed with morum, shingle &amp; kankar etc.</b> using of any specials T&P, if required.					
1.2.1	0 to 1.5 m below G.L	Cum	57201			0.00
1.2.2	1.5 to 3.0 m below G.L	Cum	20909			0.00
1.2.3	3 to 4.5 m below G.L	Cum	5481			0.00
1.2.4	4.5 to 6.0 m below G.L	Cum	679			0.00
1.2.5	6.0 to 7.5 m below G.L	Cum	37			0.00
1.3	Same as item no. 1 but <b>excavation in Weatherd, Decomposed or Soft Rock</b> by chiselling or by using of any specials T&P, if required including stacking of usefull materials within 50m.					
1.3.1	0 to 1.5 m below G.L	Cum	24515			0.00
1.3.2	1.5 to 3.0 m below G.L	Cum	8961			0.00
1.3.3	3 to 4.5 m below G.L	Cum	2349			0.00
1.3.4	4.5 to 6.0 m below G.L	Cum	291			0.00
1.3.5	6.0 to 7.5 m below G.L	Cum	16			0.00
1.4	Same as item no. 1 but excavation in <b>Hard Rock</b> by chiselling or by using of any specials T&P, if required including stacking of usefull materials within 50m.					
1.4.1	0 to 1.5 m below G.L	Cum	100			0.00
1.4.2	1.5 to 3.0 m below G.L	Cum	100			0.00
1.4.3	3 to 4.5 m below G.L	Cum	100			0.00
1.4.4	4.5 to 6.0 m below G.L	Cum	100			0.00
1.4.5	6.0 to 7.5 m below G.L	Cum	100			0.00
1.5	Extra rates for quantities of works, executed In or <b>under water</b> and/or liquid mud, including cost of dewatering as required.					
1.5.1	<b>Ordinary soil</b>					
1.5.1.1	upto 1.5 m depth	Cum	21791			0.00
1.5.1.2	1.5 m to 3 m depth	Cum	7965			0.00
1.5.1.3	3 m to 4.5 m depth	Cum	2088			0.00
1.5.1.4	4.5 m to 6.0 m depth	Cum	20			0.00
1.5.1.5	6.0 to 7.5 m below G.L	Cum	20			0.00
1.5.2	<b>Soil mixed with morum, shingle &amp; kankar etc</b>					
1.5.2.1	upto 1.5 m depth	Cum	2723			0.00
1.5.2.2	1.5 m to 3 m depth	Cum	995			0.00
1.5.2.3	3 m to 4.5 m depth	Cum	20			0.00
1.5.2.4	4.5 m to 6.0 m depth	Cum	20			0.00
1.5.2.5	6.0 to 7.5 m below G.L	Cum	20			0.00
1.5.3	<b>Weatherd, Decomposed or Soft Rock</b>					
1.5.3.1	upto 1.5 m depth	Cum	2723			0.00
1.5.3.2	1.5 m to 3 m depth	Cum	995			0.00
1.5.3.3	3 m to 4.5 m depth	Cum	20			0.00
1.5.3.4	4.5 m to 6.0 m depth	Cum	20			0.00
1.5.3.5	6.0 to 7.5 m below G.L	Cum	20			0.00
1.5.3	<b>Hard Rock</b>					
1.5.3.1	upto 1.5 m depth	Cum	20			0.00
1.5.3.2	1.5 m to 3 m depth	Cum	20			0.00
1.5.3.3	3 m to 4.5 m depth	Cum	20			0.00
1.5.3.4	4.5 m to 6.0 m depth	Cum	20			0.00
1.5.3.5	6.0 to 7.5 m below G.L	Cum	20			0.00
1.6	Extra rates for quantities of works, executed In or <b>under foul position</b> , including cost of dewatering as required					
1.6.1	<b>Ordinary soil</b>					
1.6.1.1	upto 1.5 m depth	Cum	14528			0.00
1.6.1.2	1.5 m to 3 m depth	Cum	5310			0.00
1.6.1.3	3 m to 4.5 m depth	Cum	20			0.00
1.6.1.4	4.5 m to 6.0 m depth	Cum	20			0.00
1.6.1.5	6.0 to 7.5 m below G.L	Cum	20			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
1.6.2	<b>Soil mixed with morum,shingle &amp; kankar etc</b>					
1.6.2.1	upto 1.5 m depth	Cum	1816			0.00
1.6.2.2	1.5 m to 3 m depth	Cum	664			0.00
1.6.2.3	3 m to 4.5 m depth	Cum	174			0.00
1.6.2.4	4.5 m to 6.0 m depth	Cum	20			0.00
1.6.2.5	6.0 to 7.5 m below G.L	Cum	20			0.00
1.6.3	<b>Weatherd, Decomposed or Soft Rock</b>					
1.6.3.1	upto 1.5 m depth	Cum	1816			0.00
1.6.3.2	1.5 m to 3 m depth	Cum	664			0.00
1.6.3.3	3 m to 4.5 m depth	Cum	174			0.00
1.6.3.4	4.5 m to 6.0 m depth	Cum	20			0.00
1.6.3.5	6.0 to 7.5 m below G.L	Cum	20			0.00
1.6.4	<b>Hard Rock</b>					
1.6.4.1	upto 1.5 m depth	Cum	20			0.00
1.6.4.2	1.5 m to 3 m depth	Cum	20			0.00
1.6.4.3	3 m to 4.5 m depth	Cum	20			0.00
1.6.4.4	4.5 m to 6.0 m depth	Cum	20			0.00
1.6.4.5	6.0 to 7.5 m below G.L	Cum	20			0.00
2	Filling of earth in trenches or in embankment by available earth within a distance of 50m in the layers not exceeding 20 cm in thickness with consolidation of each layer by ramming with mechanical compector under optimum moisture content (OMC) to give atleast 95% of maximum dry density (proctor density). Boulders or broken rock pieces are not allowed in filling of earth etc complete as per technical specification & as per the direction of Employers Representative	Cum	6824			0.00
3	Cartage of excavated earth from site to other place due to narrow lanes including proper staking, to reduce the earth load on trenches and making arrangement of path for local residents as per direction of Employers Representative by Manual/Mechanical means on an average distance 300M	Cum	6824			0.00
4	Re-cartage of excavated earth from staking place to site of work for refilling of trenches, by Manual/Mechanical means on an average distance 300 M.	Cum	6824			0.00
5	Disposal of surplus excavated material by Mechanical/Manual means including loading, unloading, levelling at dumping site, including all lead & lift etc complete all as directed by Employers Representative					
5.1	Excavated Earth	Cum	108274			0.00
5.2	Excavated Rock	Cum	4163			0.00
6.0	Provide & fixing of Open Timbering (covering 1/3rd of surface area by planks), in trenches for the following depths below ground level consisting of 40mm thick approved country wood planks for poling board, 125mm x 75mm Indian Salwood walers and 100 mm dia Sal wood ballies for struts at 1.50m interval including removal after laying of sewer(both sides of trenches will be taken as one side for the purpose of payments & measurements i.e. area equals to length x depth of trenches. Dismantled timbering materials will be the property of the contractor.					
6.1	Depth upto 3 m below G.L	Sqm	36257			0.00
6.2	3 m to 6 m below G.L	Sqm	3103			0.00
7.00	Provide & fixing of Close Timbering in trenches for the following depths below ground level consisting of 40mm thick approved country wood planks for poling board, 125mm x 75mm Indian Salwood walers and 100 mm dia Sal wood ballies for struts at 1.50m interval including removal after laying of sewer(both sides of trenches will be taken as one side for the purpose of payments & measurements i.e. area equals to length x depth of trenches. Dismantled timbering materials will be the property of the contractor.					
7.10	Depth upto 3 m below G.L	Sqm	54386			0.00
7.20	3 m to 6 m below G.L	Sqm	4655			0.00
8.00	<b>Close timbering in case of shafts, wells, cesspits, manholes and the like including strutting, shoring and packing cavities (wherever required) etc. complete. (Measurements to be taken of the face area timbered).</b>					
8.10	Depth upto 1.5 m	Sqm	37734			0.00
8.20	Depth exceeding 1.5m but not exceeding 3.0m	Sqm	25146			0.00
8.30	Depth exceeding 3 m but not exceeding 4.5 m	Sqm	6408			0.00
9.00	Steel shoring in trenches including strutting , shoring and packing cavities where required complete including all material, labour, tools etc. with all lead and lift complete in all working conditions like subsoil, water etc. and as directed by the Employers Representative -in-charge. (Measurement to be taken of the face area provided with shoring)					

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
9.10	Depth upto 1.5 m	Sqm	1600			0.00
9.20	Depth exceeding 1.5m but not exceeding 3.0m	Sqm	1600			0.00
9.30	Depth exceeding 3 m but not exceeding 4.5 m	Sqm	1600			0.00
9.40	Depth exceeding 4.5 m but not exceeding 6.0 m	Sqm	120			0.00
9.50	Depth exceeding 6.0 m but not exceeding 7.5 m	Sqm	10			0.00
10.00	Steel shoring in Manhole,shafts, wells, cesspits including strutting , shoring and packing cavities where required complete including all material, labour, tools etc. with all lead and lift complete in all working conditions like subsoil, water etc. and as directed by the Employers Representative -in-charge. (Measurement to be taken of the face area provided with shoring)					
10.10	Depth upto 1.5 m	Sqm	5605			0.00
10.20	Depth exceeding 1.5m but not exceeding 3.0m	Sqm	5177			0.00
10.30	Depth exceeding 3 m but not exceeding 4.5 m	Sqm	4958			0.00
10.40	Depth exceeding 4.5 m but not exceeding 6.0 m	Sqm	2125			0.00
10.50	Depth exceeding 6.0 m but not exceeding 7.5 m	Sqm	107			0.00
11.00	Provide & fixing of Close Timbering in trenches/Manhole <b>to be left in trenches</b> (used timbering)					
11.10	Depth upto 3 m below G.L	Sqm	100			0.00
11.20	3 m to 6 m below G.L	Sqm	100			0.00
11.30	6 m to 9 m below G.L	Sqm	100			0.00
12.00	Dewatering of water in trenches under sub soil water condition including supply of all machine, operator, khalashi, POL, T&P, accessories required for proper completion of the work as directed by Employers Representative	Hr	200			0.00
13.00	Providing and fixing Barricading at site of work for restricting the general public using 40 mm dia M.S. pipe ("B" class) as vertical post with average spacing of 1.80 meter between two vertical posts, having height at least 1.5 m above road/ ground level and at least 30-45 cm below road/ ground level by making suitable size hole in road/ ground, providing and fixing suitably two rows of 100mm wide PVC Tape preferably of red colour. The M.S. pipe shall be painted in red and white colour strips as per approved pattern as and when it becomes shabby but at least after every alternate shifting at new location. After shifting/ removal of barricading the hole shall be filled up properly and site is to be cleared in all respect. (Note: measurement is to be done in linear basis)	Rm	24676			0.00
14.00	Providing and fixing Barricading at site of work for restricting the general public using 40 mm dia M.S. pipe ("B" class) as vertical post with average spacing of 1.80 meter between two vertical posts, having height at least 1.5 m above road/ ground level and at least 30-45 cm below road/ ground level by making suitable size hole in road/ ground, providing and fixing two rows of 40 mm dia M.S. pipe ("B" class) as horizontal members with nuts & bolts. Both vertical and horizontal members shall be painted in red and white colour strips as per approved pattern as when it becomes shabby but at least after every alternate shifting at new location. After shifting/ removal of barricading holes shall be filled up properly and site is to be cleared in all respect. (Note: measurement is to be done in linear basis)	Rm	98704			0.00



Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
15.00	Providing and erecting 2.00 metre high temporary barricading at site; each panel of size 2.50mx2.00m made of 40x40x6mm angle iron or 50x50x3mm hollow MS tube posts/horizontal members/ bracings covered with 1.63mm thick MS sheet. The sheet shall be fixed with 30x5mm MS flat by suitable welding/riveting. The panels shall be made so that gap of 50cm above the ground is available making overall height as 2.5m. MS channel ISLC 75 @ 5.70 kg/m, 50cm long shall be provided at the bottom having oval shaped holes of size 50x25mm at both ends with 50cm long MS angle 40x40x6mm bracing. Suitable arrangement shall be made to fix the barricading to avoid from overturning by providing 250mm long expansion fasteners at both ends. The work shall be executed as per drawing/direction of Employers Representative-in-Charge which includes writing and painting, arrangement for traffic diversion such as traffic signals during construction at site for day and night, glow lamps, reflective signs, marking, flags, caution tape as directed by the Employers Representative The barricading provided shall be retained in position at site continuously i/c shifting of barricading from one location to another location as many times as required during the execution of the entire work till its completion. Rate include its maintenance for damages, painting, all incidentals, labour materials, equipments and works required to execute the job. The barricading shall not be removed without prior approval of Employers Representative(Note :- One time payment shall be made for providing barricading from start of work till completion of work i/c shifting. The barricading provided shall remain to be the property of the contractor on completion of the work).	Rm	2000			0.00
16.00	Providing, Laying, jointing, testing, commissioning of HDPE Pipes for sewer lines conforming to IS:14333-1996 and laying and jointing as per IS:7634 (Part-II) as amended up to date using PE 100 grade raw material. The type of jointing shall be electrofusion welding to connect HDPE pipes and for metal pipes/specials flanged joints shall be used. Pipe joints shall be water tight. Rate shall include all taxes, duties, freight charges etc. complete as per specifications and as directed by the Employers Representative incharge. HDPE Pipe - (PE 100) - PN6 class for following diameter of pipe etc complete in all respect as per the direction of Employers Representative					
16.1	225mm dia	RM	92260			0.00
16.2	250 mm dia	RM	1704			0.00
16.3	280 mm dia	RM	2123			0.00
16.4	315 mm dia	RM	1334			0.00
16.5	355 mm dia	RM	827			0.00
17	Supply,Laying,Jointing, testing & commissioning of following dia. D.I. K-7 S&S pipes with rubber gaskets to the site of work, lowering the same into trenches below ground level true to alignment, making the joints with approved EPDM quality of rubber gaskets including cost of all jointing materials and testing etc. complete but excluding excavation and backfilling of trenches upto ground level.D.I. Pipe S&S K-7 (CONFORMING TO IS : 8329/2000).with internal cement mortar lining using sulphate resisting cement (SRC) etc. complete in all respect as per the direction of Employers Representative					
17.1	350 mm dia					
17.1.1	0 - 1.5 m depth	RM	174			0.00
17.1.2	1.5 - 3 m depth	RM	229			0.00
17.1.3	3 - 4.5 m depth	RM	119			0.00
17.1.4	4.5-6.0 m depth	RM	65			0.00
17.2	400 mm dia					
17.2.1	0 - 1.5 m depth	RM	199			0.00
17.2.2	1.5 - 3 m depth	RM	262			0.00
17.2.3	3 - 4.5 m depth	RM	136			0.00
17.2.4	4.5-6.0 m depth	RM	73			0.00
17.3	450 mm dia					
17.3.1	0 - 1.5 m depth	RM	225			0.00
17.3.2	1.5 - 3 m depth	RM	300			0.00
17.3.3	3 - 4.5 m depth	RM	150			0.00
17.3.4	4.5-6.0 m depth	RM	75			0.00
17.4	500 mm dia					
17.4.1	0 - 1.5 m depth	RM	20			0.00
17.4.2	1.5 - 3 m depth	RM	406			0.00
17.4.3	3 - 4.5 m depth	RM	538			0.00
17.4.4	4.5-6.0 m depth	RM	274			0.00
17.4.5	6.0-7.5 m depth	RM	142			0.00
17.5	600 mm dia					

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
17.5.1	0 - 1.5 m depth	RM	20			0.00
17.5.2	1.5 - 3 m depth	RM	388			0.00
17.5.3	3 - 4.5 m depth	RM	518			0.00
17.5.4	4.5-6.0 m depth	RM	260			0.00
17.5.5	6.0-7.5 m depth	RM	130			0.00
17.6	700 mm dia					
17.6.1	0 - 1.5 m depth	RM	20			0.00
17.6.2	1.5 - 3 m depth	RM	1261			0.00
17.6.3	3 - 4.5 m depth	RM	1682			0.00
17.6.4	4.5-6.0 m depth	RM	840			0.00
17.6.5	6.0-7.5 m depth	RM	421			0.00
17.7	800 mm dia					
17.7.1	0 - 1.5 m depth	RM	10			0.00
17.7.2	1.5 - 3 m depth	RM	220			0.00
17.7.3	3 - 4.5 m depth	RM	293			0.00
17.7.4	4.5-6.0 m depth	RM	146			0.00
17.7.5	6.0-7.5 m depth	RM	73			0.00
17.8	900 mm dia					
17.8.1	0 - 1.5 m depth	RM	10			0.00
17.8.2	1.5 - 3 m depth	RM	82			0.00
17.8.3	3 - 4.5 m depth	RM	110			0.00
17.8.4	4.5-6.0 m depth	RM	55			0.00
17.8.5	6.0-7.5 m depth	RM	27			0.00
17.9	1000 mm dia					
17.9.1	0 - 1.5 m depth	RM	10			0.00
17.9.2	1.5 - 3 m depth	RM	383			0.00
17.9.3	3 - 4.5 m depth	RM	510			0.00
17.9.4	4.5-6.0 m depth	RM	255			0.00
17.9.5	6.0-7.5 m depth	RM	128			0.00
18	Installation of HDPE product pipe by HDD method for on gravity sewer including preparing and setting up the plant & equipment, preparing new pipe work, making of entry & exit pit upto 1.5 meter depth, installing new pipe work and commissioning system or making the system ready for commissioning by HDD operation including all related civil and mechanical work like excavation, shoring/strutting etc, drilling, stringing, reaming and pulling back the new pipe work on the designed bore path alignment, proper disposal drilling fluid, and backfill of site after completion etc complete in all respect as per the direction of Employers Representative					
18.1	Pipe dia between 110 mm & 225mm dia in Soft soil/Mixed/Rocky strata	RM	2619			0.00
18.2	Pipe dia between 250 mm & 315mm dia in Soft soil/Mixed/Rocky strata	RM	1370			0.00
18.3	Pipe dia between 355 mm & 450 mm dia in Soft soil/Mixed/Rocky strata	RM	172			0.00
19	Installation of product pipe by Auger Boring method including making of entry and exit pits, all related civil works like excavation, shoring/strutting, etc., manual shielded excavation, lowering of pipe segments in the jacking pit, laying and jointing of product pipeline through jacking process from the jacking pit after project completion as per the intructions of the Employers Representative-in-Charge all complete except the cost of the pipe. upto 900 mm dia in all type of Soil					
19.1	Above 300 and upto 450 mm dia in all type of Soil	RM	655			0.00
19.2	Above 450 and upto 600 mm dia in all type of Soil	RM	315			0.00
19.3	Above 600 and upto 900 mm dia in all type of Soil	RM	1655			0.00
20	Installation of product pipe by Micro Tunneling method including making of entry and exit pits, all related civil works like excavation, shoring/strutting, etc. And Ground Penetrating Radar survey, to protect any existing utilities at pipe installation location and restoration of site after completion. ( Upto 100 meter installation length )					
20.1	Above 300 mm dia upto 450 mm dia in Soft soil/Mixed/Rocky strata	RM	40			0.00
20.2	Above 450 mm & Upto 600 mm dia in Soft soil/Mixed/Rocky strata	RM	40			0.00
20.3	Above 600 mm & Upto 900 mm dia in Soft soil/Mixed/Rocky strata	RM	40			0.00
21	Installation of product pipe by Manual Jacking method including making of entry and exit pits, all related civil works like excavation, shoring/strutting, etc., manual shielded excavation, lowering of pipe segments in the jacking pit, laying and jointing of product pipeline through jacking process from the jacking pit after project completion as per the intructions of the Employers Representative-in-Charge all complete except the cost of the pipe.					

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
21.1	From 900 mm & upto 1000 mm dia in Mixed strata	RM	20			0.00
21.2	Above 1000 mm & upto 1200 mm dia in Mixed strata	RM	20			0.00
22	Providing & Supplying of 900 mm dia with 15 mm wall thickness MS ERW Pipes grade Yst 210 product pipe, Jointing by electric welding process with proper grade of electrodes (Ador, L&T or equivalent electrodes) suitable for Railway crossing complete in all respect and direction of Employers Representative	RM	100			0.00
23	Supply & Laying - Jointing of following dia. R.C.C. S&S pipes Class - NP4 with rubber gaskets to the site of work, lowering the same into trenches below ground level true to alignment, making the joints with rubber gaskets and with necessary spun yarn soaked in bitumen jointing with 1:2 cement mortar in coarse sand including cost of all jointing materials and testing etc. complete as per the direction of Employers Representative-In-Charge but excluding excavation and backfilling of trenches upto ground level.					
23.1	400 mm dia	RM	200			0.00
23.2	450 mm dia	RM	200			0.00
23.3	500 mm dia	RM	200			0.00
23.4	600 mm dia	RM	200			0.00
24	Rectification of Existing utility lines (Water Sewer, electrical, telephone etc.) irrespective of diameter, damaged during execution including all civil work, all type of pipe work, all type of specials & fittings, T&P etc. all complete require to restore in original condition as per the technical specification and as directed by Employers Representative. Only one time measurement for same location shall be paid to the contractor for rectification.	Each	2069			0.00
25	Providing of all materials, Carting from site store to site of work, Laying & Jointing of G.I screwed pipes (including supply of all jointing materials like specials, white lead, hemp and oil etc) in trenches with its cutting, threading and testing of pipe line etc complete in all respect as per the direction of Employers Representative.G.I. PIPE CONFORMING TO IS : 1239(PART-1)					
25.1	15 mm dia	RM	1000			0.00
25.2	20 mm dia	RM	1000			0.00
25.3	25 mm dia	RM	1000			0.00
25.4	32 mm dia	RM	1000			0.00
25.5	40 mm dia	RM	200			0.00
25.6	50 mm dia	RM	200			0.00
25.7	65 mm dia	RM	200			0.00
26	Providing of all materials, Carting from site store to site of work, Lowering into trenches with true to alignment, Laying & Jointing of full length S&S Centrifugally Cast (Spun) Ductile Iron Pipes including supply of 'EPDM' rubber gaskets conforming to IS: 5382-1985 with testing of pipe line complete.D.I. PIPE CONFORMING TO IS : 8329/2000 ,D.I. Pipe S&S K-7 etc. complete in all respect as per the direction of Employers Representative					
26.1	100 mm dia	RM	200			0.00
26.2	125 mm dia	RM	200			0.00
26.3	150 mm dia	RM	200			0.00
26.4	200 mm dia	RM	200			0.00
26.5	250 mm dia	RM	200			0.00
27	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement: 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size),400 G polythene sheet below PCC, and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finishedwith a floating coat of neat cement, all complete as per standard design :0.91 m deep with SFRC cover and frame (heavy duty, HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete as per drawing, technical specification & as directed by Employers Representative (Excavation, foot rests, road cutting & restoration and cement plaster at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	1862			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
27.1	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.67 m. With Sewer bricks conforming IS : 4885	Meter	651			0.00
28	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), 400 G polythene sheet below PCC and making necessary channel 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, all complete as per standard design : 1.611 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete as per drawing, technical specification & as directed by Employers Representative. (Excavation, foot rests, road cutting & restoration and cement plaster at the external surface shall be paid for separately) : With Sewer bricks conforming IS : 4885	Nos	764			0.00
28.1	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.68 m to 2.29 m : With Sewer bricks conforming IS : 4885	Meter	203			0.00
29	Constructing brick masonry circular manhole 1.52 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), 400 G polythene sheet below PCC and making necessary channel 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, all complete as per standard design : 2.211 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete as per drawing, technical specification & as directed by Employers Representative. (Excavation, foot rests, road cutting & restoration and cement plaster at the external surface shall be paid for separately) : With Sewer bricks conforming IS : 4885	Nos	1135			0.00
29.1	Extra depth for circular type manhole 1.52 m internal dia (at bottom) beyond 2.30 m : With Sewer bricks conforming IS : 4885	Meter	1151			0.00
30	Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia 1.0 m and up to specified depth having pre-cast RCC M-40 grade circular manhole cover frame (ID 0.56m, OD 0.86m, height 0.20m), conical piece (top ID 0.56m, bottom ID 1.0m, vertical height 0.600m, wall thickness 125mm), and circular rings of required heights (ID 1.0m, height 150 / 300 mm, wall thickness 125mm which ) below conical piece as per required depth of manhole and having steel reinforcement in all pieces of manhole @ not less than 80 kg per cum of concrete, including cast-in-situ 150 mm thick PCC of grade M-10 (1:3:6) in foundation, PCC M15 grade in circular wall at bottom, 400 G polythene sheet below PCC, wall thickness 200mm, height equal to OD of sewer pipe + 50 mm, PCC M15 grade benching and channel portion and up to top level of sewer pipe etc complete with curing compaction and form work, supplying and fixing heavy duty SFRC manhole cover as per IS 12592, supplying and fixing plastic encapsulated MS footsteps, including cost of shuttering, steel reinforcement, testing for water tightness etc complete in all respect as per drawing, technical specification and the direction of the Employers Representative Total depth upto 1.0 m Note: - Excavation of earth work, road cutting & restoration will be measured and paid separately.	Nos	116			0.00
30.1	Providing and fixing pre-cast RCC M-40 grade circular ring of ID 1.0 m, wall thickness 125mm, height 150 / 300 mm for constructing extra depth of manhole for depth beyond 1.055m as per drawing.	Rm	41			0.00

**Bill No 2: Sewer Network Pipe line and its ancillary works**

Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
31	Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia 1.2 m and up to specified depth having pre-cast RCC M-40 grade circular manhole cover frame (ID 0.56m, OD 0.86m, height 0.20m), conical piece (top ID 0.56m, bottom ID 1.2m, vertical height 0.800 m, wall thickness 125mm), and circular rings of required heights (ID 1.2m, height 150/ 300/ 600/ 900mm, wall thickness 125mm) below conical piece as per required depth of manhole and having steel reinforcement in all pieces of manhole @ not less than 80 kg per cum of concrete, , including cast-in-situ 150 mm thick PCC of grade M-10 (1:3:6) in foundation,400 G polythene sheet below PCC, PCC M15 grade in circular wall at bottom, wall thickness 200mm, height equal to OD of sewer pipe + 50 mm, PCC M15 grade benching and channel portion and up to top level of sewer pipe etc complete with curing compaction and form work, supplying and fixing heavy duty SFRC manhole cover as per IS 12592, supplying and fixing plastic encapsulated MS foot steps, including cost of shuttering, steel reinforcement, testing for water tightness etc complete in all respect as per drawing,technical specification and the direction of the Employers Representative Total depth upto 1.25 m Note: - Excavation of earth work, road cutting & restoration and circular ring will be measured and paid separately.	Nos	48			0.00
31.1	Providing and fixing pre-cast RCC M-40 grade circular ring of ID 1.2m, wall thickness 125mm, height 150 /300/600/900mm for constructing extra depth of manhole for depth beyond 1.255m as per drawing.	Rm	13			0.00
32	Providing, fixing and constructing of pre-cast RCC M-40 grade circular manholes with internal dia 1.5m and up to specified depth having pre-cast RCC M-40 grade circular manhole cover frame (ID 0.56m, OD 0.86m, height 0.20m), conical piece (top ID 0.56m, bottom ID 1.5m, vertical height 1.10 m, wall thickness 125mm), and circular rings of required heights (ID 1.5m, height 150/300/600/900/1200 mm, wall thickness 125mm) below conical piece as per required depth of manhole and having steel reinforcement in all pieces of manhole @ not less than 80 kg per cum of concrete, including cast-in-situ 150 mm thick PCC of grade M-10 (1:3:6) in foundation,400 G polythene sheet below PCC, PCC M15 grade in circular wall at bottom, wall thickness 200mm, height equal to OD of sewer pipe + 50 mm , PCC M15 grade benching and channel portion and up to top level of sewer pipe etc complete with curing compaction and form work, supplying and fixing heavy duty SFRC manhole cover as per IS 12592, supplying and fixing plastic encapsulated MS foot steps, including cost of shuttering,steel reinforcement, testing for water tightness etc complete in all respect as per drawing, technical specification and the direction of the Employers Representative.Total depth upto 1.55 m Note: Excavation of earth work, road cutting & restoration and circular ring will be measured and paid separately.	Nos	73			0.00
32.1	Providing and fixing pre-cast RCC M-40 grade circular ring of ID 1.5m, wall thickness 125mm, height 150/300/600/900/1200mm for constructing extra depth of manhole for depth beyond 1.5m as per drawing.	Rm	72			0.00
33	Providing and constructing RCC circular manhole of various diameters and depths with RCC M 30 Grade concrete as per drawing & Specification including RCC M-30 base over PCC M15 (1:2:4) bed,400 G polythene sheet below PCC and RCC M-30 wall, preparation of channel with PCC M15 (1:2:4) benching, fixing of manhole frame & its cover (SFRC Extra heavy duty (EHD-35) frame and cover of 56cm. dia. clear opening),centering and shuttering, providing and fixing PVC encapsulated footsteps, suitable connection of inlet and outlet pipes, curing ,testing of manholes etc.complete as per specification and drawing or as directed by the Employers Representative. Note:- Excavation of earth work and road cutting & restoration for manhole will be measured and paid separately.					
33.1	900 mm internal diameter Concrete Manhole Type-A of Depth start from 910 mm	Nos	349			0.00
33.2	Extra depth for concret manhole Type A depth beyond 910 mm upto 1610 mm	Meter	122			0.00
33.3	1200 mm internal diameter Concrete Manhole Type-B of Depth start below 1610 mm	Nos	146			0.00
33.4	Extra depth for concret manhole Type B depth beyond 1610 mm upto 2110 mm	Meter	39			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
33.5	1500 mm internal diameter Concrete Manhole Type-C of Depth start below 2210 mm	Nos	213			0.00
33.6	Extra depth for concret manhole Type C depth beyond 2210 mm upto 5000 mm	Meter	215			0.00
33.7	1500 mm internal diameter Concrete Manhole Type-D of Depth start below 5000 mm	Nos	153			0.00
33.8	Extra depth for concret manhole Type D depth beyond 5000 mm upto 7500 mm	Meter	87			0.00
34	Providing and constructing RCC circular manhole of various diameters and depths with RCC M 30 Grade concrete as per drawing & Specification including RCC M-30 base over PCC M15 (1:2:4) bed, 400 G polythene sheet below PCC and RCC M-30 wall, preparation of channel with PCC M15 (1:2:4) benching, fixing of manhole frame & its cover (SFRC Extra heavy duty (EHD-35) frame and cover of 56cm. dia. clear opening), centering and shuttering (Shuttering shall be considered left out in position permanently), providing and fixing PVC encapsulated footsteps, suitable connection of inlet and outlet pipes, curing, testing of manholes etc. complete as per specification and drawing or as directed by the Employers Representative. Note:- Excavation of earth work and road cutting & restoration for manhole will be measured and paid separately.					
34.1	900 mm internal diameter Concrete Manhole Type-A of Depth start from 910 mm	Nos	3			0.00
34.2	Extra depth for concret manhole Type A depth beyond 910 mm upto 1610 mm	Meter	1			0.00
34.3	1200 mm internal diameter Concrete Manhole Type-B of Depth start below 1610 mm	Nos	2			0.00
34.4	Extra depth for concret manhole Type B depth beyond 1610 mm upto 2110 mm	Meter	1			0.00
34.5	1500 mm internal diameter Concrete Manhole Type-C of Depth start below 2210 mm	Nos	3			0.00
34.6	Extra depth for concret manhole Type C depth beyond 2210 mm upto 5000 mm	Meter	1			0.00
34.7	1500 mm internal diameter Concrete Manhole Type-D of Depth start below 5000 mm	Nos	3			0.00
34.8	Extra depth for concret manhole Type D depth beyond 5000 mm upto 7500 mm	Meter	1			0.00
35	Providing HDPE pipes as per IS 14333 for drop connection externally for drop depth 0.60 m drop from branch sewer line to main sewer manhole or vice versa including inspection and cleaning eye, HDPE drop pipe and bend encased around with cement concrete M15 with all form work, cutting holes in walls and making good the wall, making required channels, 400 G polythene sheet below PCC etc complete all as per drawings, specifications and as directed by Employers Representative-in charge.					
35.1	110 mm dia	Each	100			0.00
35.2	160 mm dia	Each	100			0.00
35.3	225 mm dia	Each	344			0.00
35.4	250mm dia	Each	172			0.00
35.5	280 mm dia	Each	102			0.00
35.6	315 mm dia	Each	34			0.00
35.7	355 mm dia	Each	34			0.00
36	Extra for additional drop depth of HDPE pipes as per IS 14333 drop connection beyond 0.6 m complete as per standard specification and the direction of the Employers Representative -in charge..					
36.1	110 mm dia	RM	60			0.00
36.2	160 mm dia	RM	60			0.00
36.3	225mm dia	RM	310			0.00
36.4	250mm dia	RM	154			0.00
36.5	280 mm dia	RM	92			0.00
36.6	315 mm dia	RM	30			0.00
36.7	355 mm dia	RM	30			0.00
37	Supplying and filling sand in pipe bedding, including watering, ramming, consolidating and dressing etc complete all as per specification or as per direction of the Employers Representative	Cum	33635			0.00
38	Providing & laying Granular bedding with graded hard crusher broken stone of 100% passing through 20mm sieve, 20 to 50 % passing through 10mm sieve and 100 % retain on 6.3mm sieve, laying in layers of thickness 10/15cm including ramming, consolidation etc complete for all type of pipes of following sizes as per drawing and or as directed by Employers Representative	Cum	1000			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
39	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering complete as per the direction of Employers Representative-In-Charge- All work up to plinth level :1:2:4 (1 cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size) including 400 G polythene sheet below PCC.	Cum	24			0.00
40	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Employers Representative(RCC arch bedding for encasing the pipe for river & Nallah crossing)	Cum	114			0.00
41	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.Thermo-Mechanically Treated bars of grade Fe-500D or more.	KG	11400			0.00
42	Providing, fixing and erecting precast RCC (M20) Vent shaft with cowl, 125mm and 225mm internal and external dia respectively at top, 300mm and 450mm internal and external dia at bottom and 9.0m over all length, bottom 1.175m below ground level fixed in the pit of size 900mmx900mmx1550mm with PCC M15, 250mm thick in bed,400 G polythene sheet below PCC and minimum 225 mm thick in wall , junction of vent shaft and concrete grouted with cement mortar 1:1 including making connection with sewer manhole with 150mm dia NP4 RCC pipe (IS 458-ammended upto date) as required including granular bedding complete as per standard design and finished with water proofing cement of approved brand as per drawings and/or as directed by Employers Representative.	Nos	110			0.00
43	Providing & applying 20 mm cement plaster finished with a floating coat of neat cement of mix (1 cement: 4 fine sand) including all labour & material, etc complete. :For External surface of Brick manhole or directed by Employers Representative	Sqm	32759			0.00
44	Providing orange colour safety foot rest of minimum 6 mm thick plastic encapsulated as per IS : 10910, on 12 mm dia steel bar conforming to IS: 1786, having minimum cross section as 23 mmx25 mm and over all minimum length 263 mm and width as 165 mm with minimum 112 mm space between protruded legs having 2 mm tread on top surface by ribbing or chequering besides necessary and adequate anchoring projections on tail length on 138 mm as per standard drawing and suitable to with stand the bend test and chemical resistance test as per specifications and having manufacture's permanent identification mark to be visible even after fixing, including fixing in manholes with 30x20x15 cm cement concrete block 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 20 mm nominal size) etc complete as per design and as per the direction of Employers Representative	Each	42579			0.00
45	Supply & Fixing 0.56 m Internal dia D.I. air-tight manhole cover with frame (Heavy duty minimum weight 80 kg.) with locking arrangement of material grade SG-500/7 as per IS 1865-1991 with grade designation c-250 as per EN-124 Ductile Iron, including testing and inspection as per guidelines of IS specifications , painting with sulphate resisting paint/ Bituminous paint etc complete.( Payment shall be made to the contractor on actual executed quantity basis and proportionately amount of SFRC manhole cover (with frame) shall be deducted from respective manhole item). All as per technical specification, drawing and as directed by Employers Representative	Nos	971			0.00
46	Supply & Fixing 0.56 m Internal dia D.I. air-tight manhole cover with frame (Extra heavy duty minimum weight 95 kg.) with locking arrangement of material grade SG-500/7 as per IS 1865-1991 with grade designation d-400 as per EN-124 Ductile Iron, including testing and inspection as per guidelines of IS specifications , painting with sulphate resisting paint/ Bituminous paint etc complete.( Payment shall be made to the contractor on actual executed quantity basis and proportionately amount of SFRC manhole cover (with frame) shall be deducted from respective manhole). All as per technical specification, drawing and as directed by Employers Representative	Nos	10			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
47	Providing and fixing in position SFRC manhole cover and frame of required shape and approved quality.EHD - 35.Circular shape 560 mm internal diameter etc complete as per the drawing,technical specification & as per the direction of Employers Representative	Nos	2			0.00
48	Providing and fixing in position SFRC manhole cover and frame of required shape and approved quality.H D - 20.Circular shape 560 mm internal diameter etc complete as per the drawing,technical specification & as per the direction of Employers Representative	Nos	2			0.00
<b>B</b>	<b>House service connection &amp; Septage works</b>					
49	Providing ,laying & jointing of sewer house service connection pipe to individual housess from chamber inside the property to either road side chamber or street manhole .Works includes supply and delivery of plain ended with integral sockets plasticised polyvinylchloride (uPVC) Pipes with ISI mark intended for underground (buried)_ non pressure gravity sewer applications conforming to IS:15328:2003 with latest amendments for different sizes and stiffness classes as per specifications including identification of location of existing chamber / sleeve.The pipes may be joined using elastomeric sealing rings.The elastomeric sealing rings required for jointing of ring tight uPVC Pipes and shall in accordance with one of the types (Type 1 to Type 6) of IS 5382. Including excavation (in water mud or under foul condition, dismantling of all type of roads like BT, CC, Stone, Paver blocks (all thickness and sizes), and floors likes kota stone, tile, manhole etc. Or any other type of flooring as per site condition, dewated MS foot steps, including cost of shuttering,steel reinforcement, testing for water tightness etc complete in all respect as per drawing, technical specification and the direction of the Employers Representative.Total depth upto 1.55 m Note: Excavation of earth work, road cutting & restoration and circular ring will be measured and paid separately.					
49.1	110 mm dia (Outer diameter)	RM	75768			0.00
49.2	160 mm dia (Outer diameter)	RM	16280			0.00
50	Construction of chamber inside the premises of individual houses with clear inside opening of 300*300 mm having depth as per site condition with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and bed concrete ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 coarse aggregate ) for bed of 150 mm thick & benching of as per drawing,400 G polythene sheet below PCC with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative	Nos	10			0.00
51	Construction of chamber in side the premises of individual houses with clear inside opening of 400*400 mm having depth as per site condition with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished smooth with a floating coat of neat cement on walls , 20 mm cement plaster with cement mortar 1:4 (1 cement : 4 coarse sand) on external surface of walls, and bed concrete ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 coarse aggregate ) for bed of 150 mm thick & benching, 400 G polythene sheet below PCC as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative	Nos	9471			0.00



Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
52	Construction of chamber out side the premises of individual houses with clear inside opening of 450*450 mm having depth as per site condition with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished smooth with a floating coat of neat cement on walls, 20 mm cement plaster with cement mortar 1:4 (1 cement : 4 coarse sand) on external surface of walls, and bed concrete ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 coarse aggregate ) for bed of 150 mm thick & benching , 400 G polythene sheet below PCC as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative	Nos	4736			0.00
53	Extra for over depth beyond 750 mm upto 1000 mm for property chamber	RM	452			0.00
54	Supply & Fixing 450 mm square shape chamber cover with frame (Light duty minimum weight 20 kg.) with locking arrangement of material grade SG-500/7 as per IS 1865-1991 with grade designation c-250 as per EN-124 Ductile Iron, including testing and inspection as per guidelines of IS specifications , painting with sulphate resisting paint/ Bituminous paint.( Payment shall be made to the contractor on actual executed quantity basis and proportionately amount of pre-cast rcc cover (with frame) shall be deducted from respective chamber ). All as per technical specification, drawing and as directed by Employers Representative	Nos	906			0.00
55	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality.M D - 10.Square shape 450 mm internal dimension as per direction of Employers Representative	Nos	2			0.00
56	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement: 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size),400 G polythene sheet below PCC, and making necessary channel in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) finishedwith a floating coat of neat cement, all complete as per standard design :0.91 m deep with SFRC cover and frame (heavy duty, HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete as per drawing, technical specifiacion & as directed by Employers Representative (Excavation, foot rests, road cutting & restoration and cement plaster at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	27			0.00
56.1	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.67 m.With Sewer bricks conforming IS : 4885	Meter	3			0.00
57	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement :4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size),400 G polythene sheet below PCC and making necessary channel 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, all complete as per standard design :1.611 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in cement concrete 1:2:4 (1 cement : 2 coarse sand : 4 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete as per drawing, technical specifiacion & as directed by Employers Representative. (Excavation, foot rests,road cutting & restoration and cement plaster at the external surface shall be paid for separately) :With Sewer bricks conforming IS : 4885	Nos	18			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
57.1	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.68 m to 2.29 m :With Sewer bricks conforming IS : 4885	Meter	2			0.00
58	Construction of Septic Tank including earth work, PCC work(M-15), Brick work (cement mortar 1:4), plastering(1:3), RCC work(M-30), steel reinforcement, plumbing etc all as per drawing , technical specification and as per the direction of Employers Representative of the following sizes					
58.1	2.5 m x 1.0 mx 1.0 m	Nos	1			0.00
58.2	3.2 m x 1.3 mx 1.0 m	Nos	1			0.00
58.3	5.0 m x 2.0 mx 1.0 m	Nos	52			0.00
58.4	7.5 m x 3.0 mx 1.8 m	Nos	15			0.00
58.5	10 m x 4.0 mx 1.8 m	Nos	3			0.00
59	Construction of Soak pit including earth work, PCC work(M-15) , Brick work (Cement Mortar 1:4), plastering(1:4), RCC work(M-20), steel reinforcement, plumbing, filled with brick bat/ stone aggregate etc all as per drawing ,technical specification and as per the direction of Employers Representative of the following Sizes					
59.1	1.0 m ID and 2.0 m depth	Nos	1			0.00
59.2	1.5 m ID and 3.0 m depth	Nos	1			0.00
59.3	2.5 m ID and 3.5 m depth	Nos	52			0.00
59.4	4.0 m ID and 4.8 m depth	Nos	15			0.00
59.5	5.0 m ID and 8.0 m depth	Nos	3			0.00
<b>C</b>	<b>Dismantling and Restoration works</b>					
60	Dismantling of cement concrete pavements by mechanical means using pneumatic tools breaking to pieces not exceeding 0.02 Cum in volume and stock piling at designated locations and disposal of dismantled materials with all leads & lifts, stacking serviceable and unserviceable materials separately etc complete as directed by Employers Representative	Cum	17848			0.00
61	Dismantling of flexible pavements and disposal of dismantled materials with all lead and lifts, stacking serviceable and unserviceable materials separately as per Technical Specification etc complete as directed by Employers Representative	Cum	11864			0.00
62	Taking out existing CC interlocking paver blocks from footpath/ central verge, including removal of rubbish etc., disposal of unserviceable material to the dumping ground, for which payment shall be made separately and stacking of serviceable material with all leads and lifts as per direction of Employers Representative	Sqm	10421			0.00
63	Disposal of surplus dismantled/ unserviceable material obtained from road cutting by mehanical/Manual means including loading, unloading with all leads & lifts, to the dumping site as per the directions of the Employers Representative -in-charge	Cum	12651			0.00
64	Construction of granular sub-base by providing well graded material, spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at OMC, and compacting with smooth wheel roller to achieve the desired density, etc complete as per Technical Specification, drawings and as directed by Employers Representative	Cum	18834			0.00
65	Granular sub-base/base/surface course with local materials by mix in place method normal Construction of granular sub-base by providing local material spreading in uniform layers with motor grader on prepared surface, mixing by mix in place method with rotavator at once and compacting with smooth wheel roller to achieve the desired density complete as per Technical Specification drawings and as per the direction of Employers Representative .Using Gravel mix soil	Cum	6750			0.00
66	Providing, laying, spreading and compacting graded stone aggregate to wet mix macadam specification including premixing the material with water at OMC in mechanical mixer (Pug Mill), carriage of mixed material by tipper to site, laying in uniform layers in sub-base/base course on a well prepared sub-base and compacting with smooth wheel roller of 80 to 100kN weight to achieve the desired density including lighting, barricading and maintenance of diversion, etc as per Technical Specification,drawings & as per the direction of Employers Representative	Cum	3833			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
67	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with three wheel 80-100 kN static roller in stages to proper grade and camber, applying and brooming, stone screening/binding materials to fill-up the interstices of coarse aggregate, watering and compacting to the required density Grading 2 as per Technical Specification ,drawings & as per the direction of Employers Representative					
67.1	By Manual Means	Cum	383			0.00
67.2	By Mechanical means	Cum	3447			0.00
68	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming, stone screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density Grading 3 as per Technical Specification ,drawings & as per the direction of Employers Representative					
68.1	By Manual Means	Cum	297			0.00
68.2	By Mechanical means	Cum	2739			0.00
69	Providing and applying tack coat with Bitumen emulsion (RS-1) using emulsion distributor at the rate of 0.20 to 0.25 kg per sqm on the prepared bituminous surface cleaned with Hydraulic broom etc complete as per Technical Specification , drawings & as per the direction of Employers Representative	Sqm	121760			0.00
70	Providing and applying primer coat with bitumen emulsion (SS-1) on prepared surface of granular base including cleaning of road surface and spraying primer at the rate of 0.70-1.0 kg/sqm using mechanical means etc complete as per Technical Specification, drawings & as per the direction of Employers Representative	Sqm	121760			0.00
71	Providing and laying bituminous macadam using Bitumen VG-10 with hot mix plant using crushed aggregates of grading as per technical specification premixed with bituminous binder, transported to site upto a lead of 1000 m laid over a previously prepared surface with paver finisher to the required grade, level and alignment and rolled to achieve the desired compaction etc complete as per Technical Specification, drawings & as per the direction of Employers Representative	Cum	1217			0.00
72	Providing and laying Dense Bituminous Macadam with 100-120 TPH.Grading I - 37.5mm nominal size batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.25% by weight of total mix of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification etc complete in all respects & as directed by Employers Representative	Cum	522			0.00
73	Providing and laying Semi Dense Bituminous Concrete with 100-120TPH batch type HMP producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 4.5% of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MoRTH specification etc complete in all respects & as directed by Employers Representative Grading I - 13mm using Bitumen VG - 10	Cum	1030			0.00
74	Providing and laying bituminous concrete with 100-120 TPH batch type hot mix plant producing an average output of 75 tonnes per hour using crushed aggregates of specified grading, premixed with bituminous binder @ 5.4 to 5.6 % of mix and filler, transporting the hot mix to work site, laying with a hydrostatic paver finisher with sensor control to the required grade, level and alignment, rolling with smooth wheeled, vibratory and tandem rollers to achieve the desired compaction as per MORTH specification complete in all respects & as directed by Employers Representative	Cum	686			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
75	Providing, laying and rolling of open-graded premix carpet of 20 mm thickness composed of 13.2 mm to 5.6 mm aggregates either using penetration grade bitumen or emulsion to required line, grade and level to serve as wearing course on a previously prepared base, including mixing in a suitable plant, laying and rolling with a three wheel 80-100 kN static roller capacity, finished to required level and grades to be followed by seal coat etc complete as per Technical Specification, drawings & as directed by Employers Representative	Sqm	53160			0.00
76	Providing and laying seal coat sealing the voids in a bituminous surface laid to the specified levels, grade and cross fall etc complete as per Technical Specification ,drawings & as directed by Employers Representative	Sqm	53160			0.00
77	Providing & laying Cement Concrete with coarse sand and 40 mm gauge stone ballast over a prepared sub-base in proportion 1:3:6 including supply of all material,labour,400 G polythene sheet below PCC and T&P etc complete as per drawings and technical specifications & as directed by Employers Representative	Cum	29219			0.00
78	Construction of Un-reinforced, Cement concrete pavement, thickness as per design, over a prepeared sub base with 43 grade cement or any other type PCC Grade M-30, coarse and fine aggregates conforming to IS: 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less then 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (Steel channel, laying and fixing of wedges, steel plates including levelling the formwork and laying and fixing of 125 micron thick polythene film, as per drawing), spreading the concrete with shovels,rakes, compacted using needle, and plate vibrators, finished in continuous operation and curing of concrete slabs for 14 days, using curing compound where specified and water finishing to lines and grade as per drawings, technical specifications & as directed by Employers Representative	Cum	34323			0.00
79	Providing and filling joint sealing compound as per technical specifications with coarse sand and 6 per cent bitumen by weight etc complete .	RM	40000			0.00
80	Providing and Laying of Interlocking Concrete Block Pavements having thickness 80 mm including 30 mm thick compacted bed of coarse sand, filling the joints with fine sand etc. etc complete as per drawings and Technical Specification	Sqm	5211			0.00
81	Providing and Laying of Interlocking Concrete Block Pavements having thickness 60 mm including 30 mm thick compacted bed of coarse sand, filling the joints with fine sand etc.complete as per drawing,Technical Specification & as per the direction of Employers Representative	Sqm	3126			0.00
82	Laying serviceable cement concrete interlocking paver blocks of any design/shape/thickness laid in required line, level, curvature,colour and pattern over and including 30 mm thick compacted bed of coarse sand , filling the joints with fine sand etc. all complete as directed by the Employers Representative-in-Charge .	Sqm	2084			0.00
83	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :1:2:4 (1 cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size)	Cum	3395			0.00
84	Supply and fixing of MS delineators 1000 mm long , having a diameter of 75 mm and thickness 4mm and having atleast 3 different colour strips of 75 mm wide Type IV retroreflective tape around the black painted pole attached with 150 mm x 25 mm x 6 mm MS flats welded at bottom to be fixed in M15 concrete base as directed by the Employers Representative in Charge as per IRC: 79 (Recommended Practice for Road Delineators) and Clause no. 806 of MORTH specifications & & as directed by Employers Representative	Nos	6666			0.00
85	Providing and fixing Bi-directional Road Studs (Cat Eye) / Reflective Pavement Marker (RPM) with single body twin shank and plastic body moulded from ASA (Acrylic Styrene Acrylonitrile) or HIPS (Hi-impact Polystyrene) or ABS (Acrylonitrile Butadiene Styrene) or any other suitable material approved by Employers Representative in charge (Marker must support a load of 13635 kg tested in accordance with ASTM D 4280 and Reflective lenses conforming to ASTM D 788 or equivalent) bonded or anchored within the road surface for lane marking and delineation for night time visibility as per MORTH specifications & as directed by Employers Representative	Nos	10000			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
86	Providing and fixing of corrosion resistant 2mm thick Type IV retroreflective cautionary, mandatory, informatory sign board with 7 year warranty as per IRC:67, made of high intensity sheeting fixed over ACP (Aluminium Composite Panel) 3 mm thick (including framing and bracing with fabrication, plotting, pasting, riveting, taping and nut, bolts, washers and rivets etc for fixing), supported on a mild steel angle iron post 75 mm x 75 mm x 6 mm firmly fixed to the ground by means of properly designed foundation with M15 grade cement concrete 45 cm x 45 cm x 60 cm, 60 cm below ground level etc complete as per technical specification, approved drawing & as directed by Employers Representative					
86.1	800 x 600 mm Rectangle	Nos	20			0.00
86.2	600 x 450 mm Rectangle	Nos	20			0.00
86.3	900mm high Octagon	Nos	20			0.00
87	Providing and laying of hot applied thermoplastic compound 2.5 mm thick including reflectorising glass beads @ 250 gms per sqm area, thickness of 2.5 mm is exclusive of surface applied glass beads as per IRC:35 .The finished surface to be level, uniform and free from streaks and holes.) & as directed by Employers Representative	Sqm	1200			0.00
88	Providing & fixing of rumble strips of premix bituminous carpet, 25 mm high at centre, 300 mm wide placed at 1 m centre-to-centre at approved locations to control speed, marked with white strips of road marking paint etc complete & as directed by Employers Representative	Rmt	200			0.00
89	Providing & fixing Plastic speed breaker (rumble strip) in Yellow and black colour of size 250 mm X350 mm x75 mm including all fixing material like nut,bolt etc complete & as directed by Employers Representative	RMT	200			0.00
90	Making plinth protection 50mm thick of cement concrete 1:3:6 (1 cement : 3 coarse sand (zone - III) : 6 graded stone aggregate 20 mm nominal size) over 75mm thick bed of dry brick ballast 40 mm nominal size, well rammed and consolidated and grouted with fine sand, including necessary excavation, levelling & dressing & finishing the top smooth complete as per direction of Employers Representative	Sqm	1000			0.00
<b>D</b>	<b>Miscellaneous works-Kerb channel,recharge pit, Rain water harvesting structure etc.</b>					
91	Earth work in excavation by mechanical means (Hydraulic excavator) / manual means in foundation trenches or drains (not exceeding 1.5 m in width or 10 sqm on plan), including dressing of sides and ramming of bottoms, lift upto 1.5 m, including getting out the excavated soil and disposal of surplus excavated soil as directed with all leads and lifts.All kinds of soil.	Cum	2797			0.00
92	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :1:2:4 (1 Cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 40 mm nominal size) as per the direction of Employers Representative.	Cum	388			0.00
93	Providing & Constructing Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:Cement mortar 1:4 (1 cement : 4 coarse sand) complete as per direction of Employers Representative.	Cum	382			0.00
94	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :1:1½:3 (1 Cement: 1½ coarse sand (zone-III) : 3 graded stone aggregate 20 mm nominal size)	Cum	247			0.00
95	Providing & applying 15 mm cement plaster on rough side of single or half brick wall of mix:1:4 (1 cement: 4 coarse sand)	Sqm	2836			0.00
96	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 as per the direction of Employers Representative.	Kg	10333			0.00
97	Providing & fixing M-30 grade pre-cast drain cover of thickness 150 mm	Sqm	1044			0.00
98	Providing and laying in position machine batched and machine mixed design mix M-25 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per Technical specification, drawing & as per direction of Employers Representative					

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
98.1	All works upto plinth level	cum	50			0.00
98.2	All works above plinth level upto floor V level	cum	50			0.00
99	Providing and laying in position machine batched and machine mixed design mix M-30 grade cement concrete for reinforced cement concrete work, using cement content as per approved design mix, including pumping of concrete to site of laying but excluding the cost of centering, shuttering, finishing and reinforcement, including admixtures in recommended proportions as per IS: 9103 to accelerate, retard setting of concrete, improve workability without impairing strength and durability as per direction of Employers Representative"(Note :- Cement content considered in this item is @ 330 kg/cum."Excess/ less cement used as per design mix is payable/recoverable separately).					
99.1	All works upto plinth level	cum	435			0.00
99.2	All works above plinth level upto floor V level	cum	30			0.00
100	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.Thermo-Mechanically Treated bars of grade Fe-500D or more.	Kg	36377			0.00
101	Centering and shuttering including strutting, propping etc. and removal of form work for :Foundations, footings, bases for columns	Sqm	284			0.00
102	Centering and shuttering including strutting, propping etc. and removal of form work for :Retaining walls, return walls, walls (any thickness) including attached pilasters, buttresses, plinth and string courses fillets, kerbs and steps etc	Sqm	3735			0.00
103	Boring/drilling bore well of required dia for casing/ strainer pipe, by suitable method prescribed in IS: 2800 (part I), including collecting samples from different strata, preparing and submitting strata chart/ bore log, including hire & running charges of all equipments, tools, plants & machineries required for the job, all complete as per direction of Employers Representative-in-charge, upto 90 metre depth below ground level.300 mm dia in all type of soil	RM	750			0.00
104	Supplying, assembling, lowering and fixing in vertical position in bore well unplasticized PVC medium well screen (RMS) pipes with ribs, conforming to IS: 12818, including hire & labour charges, fittings & accessories etc. all complete, for all depths, as per direction of Employers Representative150 mm nominal size dia	RM	825			0.00
105	Supplying, filling, spreading & leveling stone boulders of size range 5 cm to 20 cm, in recharge pit, in the required thickness, for all leads & lifts, all complete as per direction of Employers Representative	Cum	23			0.00
106	Supplying, filling, spreading & leveling gravels of size range 5 mm to 10 mm, in the recharge pit, over the existing layer of boulders, in required thickness, for all leads & lifts, all complete as per direction of Employers Representative	Cum	23			0.00
107	Supplying, filling, spreading & leveling coarse sand of size range 1.5 mm to 2 mm in recharge pit, in required thickness over gravel layer, for all leads & lifts, all complete as per direction of Employers Representative.	Cum	23			0.00
108	Gravel packing in tubewell construction in accordance with IS: 4097, including providing gravel fine/ medium/ coarse, in required grading & sizes as per actual requirement, all complete as per direction of Employers Representative	Cum	2			0.00
109	(Construction of cement concrete kerb with channel with top and bottom width 115 and 165 mm respectively, 250 mm high in M 20 grade PCC on M10 grade foundation 150 mm thick, kerb channel 300 mm wide, 50 mm thick in PCC M20 grade, sloped towards the kerb, kerb stone with channel laid with kerb laying machine, foundation concrete laid manually, all complete as per clause 408)	RM	19050			0.00
110	Constructing brick masonry road gully chamber 50x45x60 cm with bricks in cement mortar 1:4 (1 cement : 4 coarse sand) including 500x450 mm pre-cast R.C.C. horizontal grating with frame complete as per standard design :With common burnt clay F.P.S. (non modular) bricks of class designation 7.5	Each	76			0.00
111	Demolishing cement concrete manually/ by mechanical means including disposal of material within 50 metres lead as per direction of Employers Representative.	Cum	10			0.00
112	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material within 50 metres lead as per direction of Employers Representative.	Cum	15			0.00

Bill No 2: Sewer Network Pipe line and its ancillary works						
Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount in INR
113	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material within 50 metres lead as per direction of Employers Representative In cement mortar	Cum	9			0.00
114	De-silting of existing drain/nallah/sewer trunk including taking out silt, sludge and other unwanted materials including disposal of the same including all lead & lift , spreading disinfectant on heap of de-silted material all as directed by Employers Representative.	Cum	300			0.00
115	<b>Dewatering of water</b> caused due to seepage of ground water and surface water due to rain etc. excluding excavation of foundation but during execution of civil works including supply of all machine operator, khalashi, POL, T&P, accessories required for proper completion of the work.	Hour	200			0.00
116	Battery back up & wireless type level transmitters- providing, installation, testing and commissioning of level transmitter with : transmitter output : gsm + data logger sensor material :pp instrument range : 8m process connection :4" integral flange material of construction of flange :pp power supply :internal installed battery cable entry :two pin circular pg11connector no data logger	Nos	40			0.00
117	Air quality monitoring:	per sample	60			0.00
118	Noise levels monitoring	Per sample	60			0.00
119	Ground Water Quality	Per sample	50			0.00
120	Surface Water Quality	Per sample	60			0.00
121	Soil Quality	Per sample	60			0.00
	Total					0

**Bill No 3:STP and Its ancillary works**

Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount In INR
<b>1</b>	<b>Civil and Building Works (Including Foundation)</b>					
	<b>PROCESS UNITS</b>					
<b>1.1</b>	<b>For TSPS</b>					
1.1.1	Coarse Screens including inlet and outlet channels					
1.1.2	Wetwell, valve room, panel room					
<b>1.2</b>	<b>FOR STP</b>					
1.2.1	Inlet chamber, Fine Screens and Grit chambers including inlet and outlet channels					
1.2.2	Aeration Basins including Anoxic basins, inlet and outlet chambers					
1.2.3	Disc Filtration system (if applicable)					
1.2.4	Chlorine Contact Tank including mixing tank, inlet and outlet chambers					
1.2.5	Sludge collection tank					
1.2.6	Gravity sludge thickener					
1.2.7	Thickened sludge collection tank					
1.2.8	Septage co-treatment					
<b>1.3</b>	<b>BUILDINGS</b>					
1.3.1	Process Air Blower building					
1.3.2	Chlorine building					
1.3.3	Thickener feed pumping station					
1.3.4	Thickened sludge pumping station					
1.3.5	Centrifuge Building					
1.3.6	Plant Water Pump Station					
1.3.7	Building details for TSPS					
<b>1.4</b>	<b>SUBSTATION FOR STP &amp; SPS</b>					
1.4.1	Sub Station					
1.4.2	Switch gear room					
1.4.3	Transformer yard					
<b>1.5</b>	<b>UTILITY BUILDING</b>					
1.5.1	Administration Cum Laboratory Building & SCADA building					
1.5.2	D.G Room including Outdoor diesel tank					
1.5.3	Interconnecting channels and pipes, overflow, bypass arrangement					
<b>1.6</b>	<b>OTHER UTILITIES</b>					
1.6.1	Roads & Drains					
1.6.2	Landscaping					
1.6.3	Tree Plantation					
1.6.4	Furniture & Lab Equipment					
	<b>Sub Total 1.0</b>	Lot	1			0
	<b>Mechanical, Electrical Works and Instrumentation &amp; Control Works</b>					
<b>2</b>	<b>Mechanical Systems</b>					
<b>2.1</b>	<b>Installation, testing and commissioning of Mechanical equipments at STP and SPS with following equipments as per scope, specification and drawings.</b>					
<b>2.1.1</b>	<b>For TSPS</b>					
2.1.1.1	<b>Inlet chamber</b>					
2.1.1.2	Sluice Gates					
<b>2.1.2</b>	<b>Coarse Screen Channel</b>					
2.1.2.1	Inlet & Outlet sluice gates, Mechanical Coarse Screens, Belt Conveyor, Handling Equipment					
<b>2.1.3</b>	<b>Wet well</b>					
2.1.3.1	Pumps, valves, piping, Crane					
<b>2.1.4</b>	<b>For STP</b>					
2.1.4.1	<b>Inlet chamber</b>					
2.1.4.2	Sluice Gates					
<b>2.1.5</b>	<b>Fine Screen Channel</b>					
2.1.5.1	Inlet & Outlet sluice gates, Mechanical Fine Screens, Belt Conveyor, Handling Equipment					
<b>2.1.6</b>	<b>Degritting Chamber</b>					



**Bill No 3:STP and Its ancillary works**

Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount In INR
2.1.6.1	Detritor with complete scraping mechanism, Rake Classifier, Organic return pump and accessories					
<b>2.1.7</b>	<b>Anoxic and Aeration Basin and Secondary/Tertiary treatment</b>					
2.1.7.1	Inlet & Outlet sluice gates					
2.1.7.2	Submersible Mixer for Anoxic Basin and complete accessories					
2.1.7.3	Fine Bubble Diffuser Aeration system complete with Pipe Grid and accessories					
2.1.7.4	Secondary Clarifier/SBR Decanter with all accessories					
2.1.7.5	Disc filters					
2.1.7.6	Process Air Blowers with suction & Discharge Silencers, Filters, Acoustic Hood, Piping with Valves and accessories					
2.1.7.7	RAS pumps, Valves and Piping etc.					
2.6.1.8	EOT Cranes and Hoists, Jib Cranes					
<b>2.1.8</b>	<b>Chlorination System</b>					
2.1.8.1	Chlorine storage equipment					
2.1.8.2	Chlorinators, chlorine pipework, dosing system, leak detection, scrubber, ventilation and accessories					
2.1.8.3	Safety Equipment					
2.1.8.4	EOT Cranes, Lifting Beam and Accessories					
2.1.8.5	Motive water Pumps and Piping					
<b>2.1.9</b>	<b>Sludge Storage, Thickening, Treatment &amp; Disposal</b>					
2.1.9.1	Polyelectrolyte dosing systems, storage tanks and pipework					
2.1.9.2	Continuous thickeners, bridge, picket fence, scraper, thickener feed pumps and pipework, protection devices					
2.1.9.3	Thickener Supernatant return system					
2.1.9.4	Thickened sludge pump, stirrer					
2.1.9.5	Dewatering centrifuge and solid waste handling system, Filtrate Discharge Pumping system					
2.1.9.6	Ventilation system, EOT Crane & Hoists and Accessories					
2.1.9.7	Septage co-treatment					
<b>2.1.10</b>	<b>Service Water System</b>					
<b>2.1.11</b>	<b>Wastewater and Sludge Sampling</b>					
	<b>Sub Total 2.0</b>	Lot	1			0
<b>3</b>	<b>Electrical Systems</b>					
<b>3.1</b>	<b>Installation, testing and commissioning of Electrical equipments at Substation building at STP with following equipment as per scope, specification and drawings.</b>					
3.1.1	11kV RMU for STP & SPS					
3.1.2	0.415kV Diesel Generator Sets complete with AMF Control Panel & Acoustic Enclosure at Substation for STP, SPS & TSPS					
3.1.3	11kV / 0.433kV Transformers for STP & SPS					
3.1.4	415V Capacitor banks with Automatic Power Factor Correction Relay for STP & SPS					
<b>3.2</b>	<b>Installation, testing and commissioning of Motor Control Centres, Distribution boards etc at various locations in STP, SPS &amp; TSPS with following equipment, items as per scope, specification and drawings.</b>					
3.2.1	415V metal enclosed switchboard PMCC for STP, SPS & TSPS					
3.2.2	Mixer MCC for STP & SPS					

**Bill No 3:STP and Its ancillary works**

Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount In INR
3.2.3	Sludge Handling System MCC STP & SPS					
3.2.4	Centrifuge Building MCC STP & SPS					
3.2.5	Raw Sewage Pump House MCC STP & SPS					
3.2.6	Electrical Hoist Panel STP & SPS					
3.2.7	Main Lighting DB STP & SPS					
3.2.8	Local Push Button Stations STP & SPS					
3.2.9	Variable Frequency Drives STP & SPS					
<b>3.3</b>	<b>Installation, testing and commissioning of Lighting System at STP &amp; TSPS with following equipment, items as per scope, specification and drawings.</b>					
3.3.1	Lighting Fixtures					
3.3.2	Lighting panels					
3.3.3	Switchboards , Receptacles, Power Plug & Sockets, Switches, Ceiling fans with regulators etc					
3.3.4	Point wiring with conduits ,wires, supports etc for Lighting fixtures, Receptacles, Switches , Ceiling fans etc					
3.3.5	Street Lighting and Area Lighting poles with Junction boxes and Over hang					
<b>3.4</b>	<b>Installation, testing and commissioning of L.T Cabling System , HT/LT Cable Carrier System at STP &amp; TSPS with following components as per scope, specification and drawings.</b>					
3.4.1	L.T cables for STP & SPS					
3.4.2	L.T Cable termination with glands and lugs for STP & SPS					
3.4.3	Cable trays on supports for both LT and HT Cables for STP & SPS					
3.4.4	Hume Pipe/RCC Pipe					
<b>3.5</b>	<b>Installation, testing and commissioning of Earthing &amp; Lightning Protection System at STP &amp; TSPS with following components as per scope, specification and drawings.</b>					
3.5.1	Earthing Conductor for outdoor main grid					
3.5.2	Earthing conductor for indoor main grid					
3.5.3	Earthing conductors for outdoor equipments					
3.5.4	Lightning Arrestors and Down Conductors					
3.5.5	Earthing conductor for indoor equipments					
3.5.6	Treated Earth pits					
3.5.7	General earth pits					
<b>3.6</b>	<b>Installation, testing and commissioning of safety procedures for Electrical Equipments at STP &amp; TSPS as per scope, specification and drawings.</b>					
	<b>Sub Total 3.0</b>	Lot	1			0
<b>4</b>	<b>Instrumentation &amp; Automation works</b>					
<b>4.1</b>	<b>Installation, testing and commissioning of Instrumentation &amp; Control equipments at STP and TSPS as per scope, specification and drawings.</b>					
<b>4.1.1</b>	<b>Instrumentation System To provide the following system for</b>					
4.1.1.1	Flow Measurement+ Accessories +fittings					
4.1.1.2	Air flow measurement+ Accesories+fittings					
4.1.1.3	Level Measurement+ Accesories+fittings					
4.1.1.4	Pressure Indicating transmitters+ Accesories+fittings					

**Bill No 3:STP and Its ancillary works**

Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount In INR
4.1.1.5	Pressure indicators/guages+ Accesories+fittings					
4.1.1.6	Limit Switches+ Accesories+fittings					
4.1.1.7	Control Air Pressure Switch+ Accesories+fittings					
4.1.1.8	Temperature Transmitter+ Accesories+fittings					
4.1.1.9	Junction Boxes+Enclosures					
4.1.1.10	Instrumentation Earthing					
4.1.1.11	Two & Three Position Selector Switches+fittings					
4.1.1.12	Flow Integrator Totalizer+fittings					
4.1.1.13	Panel mounted Digital Indicators+fittings					
4.1.1.14	Temperature Scanner Indicators+fittings					
4.1.1.15	Multi Function Energy Meters+fittings					
4.1.1.16	Surge Protection devices+fittings					
4.1.1.17	Level Switches+ Accesories+fittings					
4.1.1.18	Alarm Annunciators+ hooters+fittings					
4.1.1.19	Weight Indicator Transmitter+ Accesories+fittings					
<b>4.1.3</b>	<b>Instrumentation system to provide the following for Analytical Instruments (Installation, testing &amp; commissioning)</b>					
4.1.3.1	Dissolved Oxygen Analyzer+ Accesories+fittings					
4.1.3.2	ORP Analyzer+ Accesories+ fittings					
4.1.3.3	Residual chlorine analyzer+ Accesories+fittings					
4.1.3.4	pH Analyzer+ Accesories+fittings					
4.1.3.5	H2S Analyzer+ Accesories+fittings					
<b>4.1.4</b>	<b>Instrumentation Cables/cable trays</b>					
4.1.4.1	Instruments/Control Cables, OFC, Trays, Glands & Lugs,cable conduits					
4.1.4.2	cable trays					
<b>4.1.5</b>	<b>Control System To provide the following system (Installation, testing &amp; commissioning)</b>					
4.1.5.1	Liquid processes					
4.1.5.2	Solid processes/sludge treatment					
4.1.5.3	Disc filtration system					
4.1.5.4	Chlorination					
4.1.5.5	Chemical System					
4.1.5.6	Substation/D.G.					
<b>4.1.6</b>	<b>Automation system(PLC based SCADA system) for 18.0 MLD STP (Installation, testing &amp; commissioning)</b>					
4.1.6.1	Master (Redundant Hot Stand by) & Slaves PLC Configuration Plant floor terminal					
4.1.6.2	PLC CPU power supply module					
4.1.6.3	Communication Module					
4.1.6.4	RIO Modules along with Panels					
4.1.6.5	PLC Programming software					
4.1.6.6	SCADA software(dual redundant configuration)					
4.1.6.7	Historian software					
4.1.6.8	PLC wired enclosures					
4.1.6.9	Surge Protection devices					
4.1.6.10	SMPS for Automation System					
4.1.6.11	Industrial Type Ethernet Switch					
4.1.6.12	commercial grade server PC					
4.1.6.13	52" LCD Screen with accessories and Commercial Grade PC					
4.1.6.14	Redundant RTU+GPRS modem in redundant configuration for integration with SCADA center					
4.1.6.15	Redundant FOC equipment +cabling					
4.1.6.16	Computer					
4.1.6.17	system console/SCADA furniture					
4.1.6.18	Engineering work stations PC					

**Bill No 3:STP and Its ancillary works**

Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount In INR
4.1.6.19	UPS					
4.1.6.20	Printers					
4.1.6.21	Printer server					
4.1.6.22	Interposing Relays with base terminal					
	<b>Sub Total 4.0</b>	Lot	1			0
<b>5</b>	<b>Testing Requirements</b>					
5.1.1	Factory acceptance tests(FAT)					
5.1.2	Site acceptance tests(SAT)					
5.1.3	<b>Testing and Commissioning of the Entire System</b>					
	<b>Sub Total 5.0</b>	Lot	1			0
<b>7</b>	<b>Site ancillary works</b>					
8	Cutting of Trees including Cutting of Trunks, Branches and Removal of Stumps Cutting of trees, including cutting of trunks, branches and removal of stumps & roots, refilling, compaction of backfilling and stacking of serviceable material by manual means with all lifts etc complete as per Technical Specification & as per the direction of Employers Representative.Girth upto to 600 mm	Sqm	200.00			0.00
9	Demolishing cement concrete manually/ by mechanical means including disposal of material with all lead & lifts as per direction of Employers Representative					
9.1	Nominal concrete 1:3:6 or richer mix (i/c equivalent design mix)	Cum	20.00			0.00
9.2	Nominal concrete 1:4:8 or leaner mix (i/c equivalent design mix)	Cum	20.00			0.00
10	Demolishing R.C.C. work manually/ by mechanical means including stacking of steel bars and disposal of unserviceable material with all lead & lifts as per direction of Employers Representative	Cum	20.00			0.00
11	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 Employers Representative	Sqm	20.00			0.00
12	Extra for scrapping, cleaning and straightening reinforcement from R.C.C. or R.B. work.	KG	20.00			0.00
13	Demolishing brick work manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable materialwith all lead & lifts as per direction of Employers Representative					
13.1	In cement mortar	Cum	20.00			0.00
14	Demolishing stone rubble masonry manually/ by mechanical means including stacking of serviceable material and disposal of unserviceable material with all lead & lifts as per direction of Employers Representative					
14.1	In cement mortar	Cum	110.00			0.00
15	Filling of earth in trenches or in embankment by available earth within a distance of 50m in the layers not exceeding 20 cm in thickness with consolidation of each layer by ramming with mechanical compactor under optimum moisture content (OMC) to give atleast 95% of maximum dry density (proctor density). Boulders or broken rock pieces are not allowed in filling of earth etc complete as per technical specification & as per the direction of Employers Representative	Cum	100.00			0.00

**Bill No 3:STP and Its ancillary works**

Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount In INR
16	Providing and laying in position cement concrete of specified grade excluding the cost of centering and shuttering - All work up to plinth level :					
16.1	1:2:4 (1 cement : 2 coarse sand (zone-III) : 4 graded stone aggregate 20 mm nominal size)	Cum	50.00			0.00
16.2	1:3:6 (1 Cement : 3 coarse sand (zone-III): 6 graded stone aggregate 40 mm nominal size)	cum	20.00			0.00
17	Earth work in excavation of foundation of structures as per drawing and technical specification, including setting out, construction of shoring and bracing, removal of stumps and other deleterious matter, dressing of sides and bottom and backfilling with approved material as per the direction of Employers Representative for retaining wall and nallah diversion.	Cum	16450.00			0.00
18	Providing and laying 230 mm thick dry stone soling complete as per technical specification, drawing & as per the direction of Employers Representative	Cum	828.00			0.00
19	Providing & Laying Plain/Reinforced cement concrete in open foundation complete as per drawing , technical specifications & as directed by Employers Representative.PCC Grade M15 for retaining wall and nallah diversion.	Cum	530.00			0.00
20	Providing & Laying Plain/Reinforced cement concrete in open foundation complete as per drawing , technical specifications & as per the direction of Employers Representative. RCC Grade M30.Including form work Using Concrete Mixer for retaining wall and nallah diversion.	Cum	529.00			0.00
21	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.Thermo-Mechanically Treated bars of grade Fe-500D or more. in foundation & Substructure .	Kg	120000.00			0.00
22	Plain/Reinforced cement concrete in sub-structure complete as per drawing , technical specifications & as per the direction of Employers Representative.Height upto 5m Using concrete Mixer including form work .RCC Grade M30	Cum	490.00			0.00
23	Furnishing and Placing Reinforced/Prestressed cement concrete in super-structure as per drawing and Technical Specification RCC Grade M 30 Using Concrete Mixer Including form work Height upto 5m	Cum	160.00			0.00
24	Steel reinforcement for R.C.C. work including straightening, cutting, bending, placing in position and binding all complete upto plinth level.Thermo-Mechanically Treated bars of grade Fe-500D or more. in super-structure.	Kg	19000.00			0.00
25	Providing and laying boulders apron on river bed for protection against scour with stone boulders weighing not less than 40 kg each complete as per drawing, Technical specification & as per the direction of Employers Representative	Cum	7.00			0.00

**Bill No 3:STP and Its ancillary works**

Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount In INR
26	Providing and laying Pitching on slopes laid over prepared filter media including boulder apron laid dry in front of toe of embankment complete as per drawing, Technical specifications & as per the direction of Employers Representative.Stone/Boulder	Cum	9.00			0.00
27	Providing weep holes in Brick masonry/Plain/Reinforced concrete abutment, wing wall/return wall with 110 mm dia PVC pipe, extending through the full width of the structure with slope of 1V :20H towards drawing face. Complete as per drawing ,Technical specifications & as per the direction of Employers Representative	Rmt	70.00			0.00
28	Excavating, supplying and filling of local earth (including royalty) by mechanical transport with all lead & lift also including ramming and watering of the earth in layers not exceeding 20 cm in trenches, plinth, sides of foundation etc. complete as per direction of Employers Representative	Cum	20000.00			0.00
29	Supply & fixing Centering and shuttering including strutting, propping etc. and removal of form for etc complete & as per the direction of Employers Representative for :					
29.1	Foundations, footings, bases of columns, etc. for mass concrete	Sqm	50.00			0.00
29.2	Walls (any thickness) including attached pilasters, buttresses, plinth and string courses etc	Sqm	50.00			0.00
29.3	Suspended floors, roofs, landings, balconies and access platform	Sqm	50.00			0.00
29.4	Lintels, beams, plinth beams, girders, bressumers and cantilevers	Sqm	50.00			0.00
29.5	Columns, Pillars, Piers, Abutments, Posts and Struts	Sqm	50.00			0.00
30	Providing & Constructing Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in foundation and plinth in:Cement mortar 1:6 (1 cement : 6 coarse sand) complete as per direction of Employers Representative	cum	20.00			0.00
31	Providing & Constructing Brick work with common burnt clay F.P.S. (non modular) bricks of class designation 7.5 in superstructure above plinth level up to floor V level in all shapes and sizes in :Cement mortar 1:6 (1 cement : 6 coarse sand) complete as per direction of Employers Representative	cum	20.00			0.00
32	Providing & applying 12 mm cement plaster of mix :1:6 (1 cement: 6 fine sand) including all labour, material, T & P etc complete as per direction of Employers Representative	Sqm	100.00			0.00
33	Providing & Constructing Random rubble masonry with hard stone in foundation and plinth including levelling up with cement concrete 1:6:12 (1 cement : 6 coarse sand : 12 graded stone aggregate 20 mm nominal size) upto plinth level with :Cement mortar 1:6 (1 cement : 6 coarse sand) complete as per direction of Employers Representative	Cum	100.00			0.00

**Bill No 3:STP and Its ancillary works**

Item No.	Description of Item	Unit	Quantity	Rate in INR (In Figure)	Rate in INR (In Words)	Amount In INR
34	Supplying & Febricating 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 as per direction of Employers Representative	Kg	100.00			0.00
35	Construction of 6.0 meter wide cement concrete approach road with road side drainage site as per drawing, Technical Specification and Direction of Employers Representative	RM	250.00			0.00
36	Providing, constructing coffer dam in river basin / dam storages as per type design including excavation, filling the middle portion with B.C. soil (in gunny bags if required). Providing impervious / semipervious materials on both sides of B.C. soil (in gunny bags if required) including ramming, compacting to the satisfaction ofEmployers Representative till the completion of work including dismantling coffer dam after completion of works complete as per direction of Employers Representative	Cum	100.00			0.00
	<b>Total</b>					<b>0</b>

**Bill No-4: Plant and Equipment, Supplied from Outside Employer's Country for Proposed STP**

Item No.	Description of Item	Country of Origin	Price in Local currency	GST and Local Transport Payable in India in Local Currency (INR)		Local Currency (INR)
			CIF	GST	Local Transport	
(1)	(2)	(3)	(4)	(5)	(6)	(7) = (4)+(5)+(6)
<b>Supply and Delivery of Plant and Equipment to Site for the following works including mandatory spare parts:</b>						
<b>Mechanical, Electrical Works and Instrumentation &amp; Control Works</b>						
<b>1</b>	<b>Mechanical Systems (Except Electrical, Control and Instrumentation systems) To provide the following systems for installation, testing &amp; commissioning :</b>					
<b>1.1</b>	<b>For TSPS</b>					
<b>1.1.1</b>	<b>Inlet chamber</b>					
1.1.2	Sluice Gates					
<b>1.2</b>	<b>Coarse Screen Channel</b>					
1.2.1	Inlet & Outlet sluice gates, Mechanical Coarse Screens, Belt Conveyor, Handling Equipment					
<b>1.3</b>	<b>Wet well</b>					
1.3.1	Pumps, valves, piping					
<b>1.4</b>	<b>For STP</b>					
<b>1.4.1</b>	<b>Inlet chamber</b>					
1.4.2	Sluice Gates					
<b>1.5</b>	<b>Fine Screen Channel</b>					
1.5.1	Inlet & Outlet sluice gates, Mechanical Fine Screens, Belt Conveyor, Handling Equipment					
<b>1.6</b>	<b>Degritting Chamber</b>					
1.6.1	Detritor with complete scraping mechanism, Rake Classifier, Organic return pump and accessories					
<b>1.7</b>	<b>Anoxic and Aeration Basin and Secondary/Tertiary treatment</b>					
1.7.1	Inlet & Outlet sluice gates					
1.7.2	Submersible Mixer for Anoxic Basin and complete accessories					
1.7.3	Fine Bubble Diffuser Aeration system complete with Pipe Grid and accessories					
1.7.4	Secondary Clarifier/SBR Decanter with all accessories					
1.7.5	Disc Filtration system					
1.7.6	Process Air Blowers with suction & Discharge Silencers, Filters, Acoustic Hood, Piping with Valves and accessories					
1.7.7	RAS pumps, Valves and Piping etc.					
1.7.8	EOT Cranes and Hoists, Jib Cranes					
<b>1.8</b>	<b>Chlorination System</b>					
1.8.1	Chlorine storage equipment					
1.8.2	Chlorinators, chlorine pipework, dosing system, leak detection, scrubber, ventilation and accessories					
1.8.3	Safety Equipment					
1.8.4	EOT Cranes, Lifting Beam and Accessories					
1.8.5	Motive water Pumps and Piping					
<b>1.9</b>	<b>Sludge Storage, Thickening, Treatment &amp; Disposal</b>					
1.9.1	Polyelectrolyte dosing systems, storage tanks and pipework					
1.9.2	Continuous thickeners, bridge, picket fence, scraper, thickener feed pumps and pipework, protection devices					
1.9.3	Thickener Supernatant return system					
1.9.4	Thickened sludge pump sump, stirrer					
1.9.5	Dewatering Machines and solid waste handling system, Filtrate Discharge Pumping system					
1.9.6	Ventilation system, EOT Crane & Hoists and Accessories					
<b>1.10</b>	<b>Septage co-treatment unit</b>					
<b>1.11</b>	<b>Service Water System</b>					
<b>1.12</b>	<b>Waste Water and Sludge Sampling</b>					
	<b>Sub Total 1.0</b>					
<b>2</b>	<b>Electrical Systems Equipments</b>					
2.1.1	11kV RMU					
2.1.2	0.415kV Diesel Generator Sets complete with AMF Control Panel & Acoustic Enclosure at Substation					
2.1.3	11kV / 0.433kV Transformers					
2.1.4	415V Capacitor banks with Automatic Power Factor Correction Relay					
2.1.5	415V metal enclosed switchboard PMCC					
2.1.6	Aeration Basin MCC					
2.1.7	Sludge Handling System MCC					
2.1.8	Centrifuge Building MCC					



**Bill No-4: Plant and Equipment, Supplied from Outside Employer's Country for Proposed STP**

Item No.	Description of Item	Country of Origin	Price in Local currency	GST and Local Transport Payable in India in Local Currency (INR)		Local Currency (INR)
			CIF	GST	Local Transport	
(1)	(2)	(3)	(4)	(5)	(6)	(7) = (4)+(5)+(6)
2.1.9	Raw Sewage Pump House MCC					
2.1.10	Electrical Hoist Panel					
2.1.11	Main Lighting DB					
2.1.12	Local Push Button Stations					
2.1.13	Variable Frequency Drives					
2.1.14	<b>For TSPS</b>					
2.1.15	0.415kV Diesel Generator Sets complete with AMF Control Panel & Acoustic Enclosure at Substation					
2.1.16	415V metal enclosed switchboard PMCC					
2.1.17	Control Panel With Star Delta Starter					
	<b>Sub Total 2.0</b>					
<b>3</b>	<b>Instrumentation &amp; Automation System</b>					
<b>3.1</b>	<b>Instrumentation System To provide the following system for</b>					
3.1.1	Flow Measurement+ Accessories +fittings					
3.1.2	Air flow measurement+ Accesories+fittings					
3.1.3	Level Measurement+ Accesories+fittings					
3.1.4	Pressure Indicating transmitters+ Accesories+fittings					
3.1.5	Pressure indicators/gauges+ Accesories+fittings					
3.1.6	Pressure switches+ Accesories+fittings					
3.1.7	Limit Switches+ Accesories+fittings					
3.1.8	Control Air Pressure Switch+ Accesories+fittings					
3.1.9	Temperature Transmitter+ Accesories+fittings					
3.1.10	Junction Boxes+Enclosures					
3.1.11	Instrumentation Earthing					
3.1.12	Two & Three Position Selector Switches+fittings					
3.1.13	Flow Integrator Totalizer+fittings					
3.1.14	Panel mounted Digital Indicators+fittings					
3.1.15	Temperature Scanner Indicators+fittings					
3.1.16	Multi Function Energy Meters+fittings					
3.1.17	Surge Protection devices+fittings					
3.1.18	Level Switches+ Accessories+fittings					
3.1.19	Alarm Annunciators+ hooters+fittings					
3.1.20	Weight Indicator Transmitter+ Accesories+fittings					
<b>3.2</b>	<b>Instrumentation system to provide the following for Analytical Instruments</b>					
3.2.1	Dissolved Oxygen Analyzer+ Accesories+fittings					
3.2.2	ORP Analyzer+ Accessories+ fittings					
3.2.3	Residual chlorine analyzer+ Accesories+fittings					
3.2.4	pH Analyzer+ Accesories+fittings					
3.2.5	H2S Analyzer+ Accesories+fittings					
3.2.6	Laboratory Instruments & Equipments					
<b>3.3</b>	<b>Instrumentation Cables/cable trays</b>					
3.3.1	Instrumentation(Analog) & Control Cables and Power Cables, OFC, Trays, Glands & Lugs, cable conduits					
3.3.2	cable trays					
<b>3.4</b>	<b>Control System To provide the following system for</b>					
3.4.1	Liquid processes					
3.4.2	Sludge treatment					
3.4.3	Chlorination					
3.4.4	Chemical System					
3.4.5	Substation/D.G.					
<b>3.5</b>	<b>Automation system (PLC based SCADA system)</b>					
3.5.1	Master (Redundant Hot Stand by) & Slaves PLC Configuration Plant floor terminal					
3.5.2	PLC CPU power supply module					
3.5.3	Communication Module					
3.5.4	RIO Modules along with Panels					
3.5.5	PLC Programming software					
3.5.6	SCADA software(dual redundant configuration)					
3.5.7	Historian software					
3.5.8	PLC wired enclosures					
3.5.9	Surge Protection devices					
3.5.10	SMPS for Automation System					
3.5.11	Industrial Type Ethernet Switch					
3.5.12	commercial grade server PC					

**Bill No-4: Plant and Equipment, Supplied from Outside Employer's Country for Proposed STP**

Item No.	Description of Item	Country of Origin	Price in Local currency	GST and Local Transport Payable in India in Local Currency (INR)		Local Currency (INR)
			CIF	GST	Local Transport	
(1)	(2)	(3)	(4)	(5)	(6)	(7) = (4)+(5)+(6)
3.5.13	52" LCD Screen with accessories and Commercial Grade PC					
3.5.14	Redundant RTU+GPRS modem in redundant configuration for integration with SCADA center					
3.5.15	Redundant FOC equipment +cabling					
3.5.16	Computer					
3.5.17	system console/SCADA furniture					
3.5.18	Engineering work stations PC					
3.5.19	UPS					
3.5.20	Printers					
3.5.21	Printer server					
3.5.22	Interposing Relays with base terminal					
	<b>Sub Total 3.0</b>					
	<b>Total of Bill No 4 Carried to Summary</b>					

**Bill No-5: Plant and Equipment, Supplied from Within Employer's Country for Proposed STP**

Item No.	Description of Item	GST	Local Transport	Total Price in Local Currency
		(INR)	(INR)	(INR)
(1)	(2)	(3)	(4)	(5)=(3)+(4)
<b>Supply and Delivery of Plant and Equipment to Site for the following works including mandatory spare parts:</b>				
<b>Mechanical, Electrical Works and Instrumentation &amp; Control Works</b>				
<b>1</b>	<b>Mechanical Systems (Except Electrical, Control and Instrumentation systems) To provide the following systems for installation, testing &amp; commissioning :</b>			
<b>1.1</b>	<b>For TSPS</b>			
<b>1.1.1</b>	<b>Inlet chamber</b>			
1.1.2	Sluice Gates			
<b>1.2</b>	<b>Coarse Screen Channel</b>			
1.2.1	Inlet & Outlet sluice gates, Mechanical Coarse Screens, Belt Conveyor, Handling Equipment			
<b>1.3</b>	<b>Wet well</b>			
1.3.1	Pumps, valves, piping			
<b>1.4</b>	<b>For STP</b>			
<b>1.4.1</b>	<b>Inlet chamber</b>			
1.4.2	Sluice Gates			
<b>1.5</b>	<b>Fine Screen Channel</b>			
1.5.1	Inlet & Outlet sluice gates, Mechanical Fine Screens, Belt Conveyor, Handling Equipment			
<b>1.6</b>	<b>Degritting Chamber</b>			
1.6.1	Detritor with complete scraping mechanism, Rake Classifier, Organic return pump and accessories			
<b>1.7</b>	<b>Anoxic and Aeration Basin and Secondary/Tertiary treatment</b>			
1.7.1	Inlet & Outlet sluice gates			
1.7.2	Submersible Mixer for Anoxic Basin and complete accessories			
1.7.3	Fine Bubble Diffuser Aeration system complete with Pipe Grid and accessories			
1.7.4	Secondary Clarifier/SBR Decanter with all accessories			
1.7.5	Disc Filtration system			
1.7.6	Process Air Blowers with suction & Discharge Silencers, Filters, Acoustic Hood, Piping with Valves and accessories			
1.7.7	RAS pumps, Valves and Piping etc.			
1.7.8	EOT Cranes and Hoists, Jib Cranes			
<b>1.8</b>	<b>Chlorination System</b>			
1.8.1	Chlorine storage equipment			
1.8.2	Chlorinators, chlorine pipework, dosing system, leak detection, scrubber, ventilation and accessories			
1.8.3	Safety Equipment			
1.8.4	EOT Cranes, Lifting Beam and Accessories			
1.8.5	Motive water Pumps and Piping			
<b>1.9</b>	<b>Sludge Storage, Thickening, Treatment &amp; Disposal</b>			
1.9.1	Polyelectrolyte dosing systems, storage tanks and pipework			
1.9.2	Continuous thickeners, bridge, picket fence, scraper, thickener feed pumps and pipework, protection devices			
1.9.3	Thickener Supernatant return system			
1.9.4	Thickened sludge pump sump, stirrer			
1.9.5	Dewatering Machines and solid waste handling system, Filtrate Discharge Pumping system			
1.9.6	Ventilation system, EOT Crane & Hoists and Accessories			
<b>1.10</b>	<b>Septage co-treatment unit</b>			
<b>1.11</b>	<b>Service Water System</b>			
<b>1.12</b>	<b>Waste Water and Sludge Sampling</b>			
	<b>Sub Total 1.0</b>			
<b>2</b>	<b>Electrical Systems Equipments</b>			
2.1.1	11kV RMU			
2.1.2	0.415kV Diesel Generator Sets complete with AMF Control Panel & Acoustic Enclosure at Substation			
2.1.3	11kV / 0.433kV Transformers			
2.1.4	415V Capacitor banks with Automatic Power Factor Correction Relay			
2.1.5	415V metal enclosed switchboard PMCC			
2.1.6	SBR Mixer MCC			
2.1.7	Sludge Handling System MCC			
2.1.8	Centrifuge Building MCC			
2.1.9	Raw Sewage Pump House MCC			
2.1.10	Electrical Hoist Panel			
2.1.11	Main Lighting DB			
2.1.12	Local Push Button Stations			
2.1.13	Variable Frequency Drives			

**Bill No-5: Plant and Equipment, Supplied from Within Employer's Country for Proposed STP**

Item No.	Description of Item	GST	Local Transport	Total Price in Local Currency
		(INR)	(INR)	(INR)
(1)	(2)	(3)	(4)	(5)=(3)+(4)
2.1.14	<b>For TSPS</b>			
2.1.15	0.415kV Diesel Generator Sets complete with AMF Control Panel & Acoustic Enclosure at Substation			
2.1.16	415V metal enclosed switchboard PMCC			
2.1.17	Control Panel With Star Delta Starter			
	<b>Sub Total 2.0</b>			
<b>3</b>	<b>Instrumentation &amp; Automation System</b>			
<b>3.1</b>	<b>Instrumentation System To provide the following system for</b>			
3.1.1	Flow Measurement+ Accessories +fittings			
3.1.2	Air flow measurement+ Accesories+fittings			
3.1.3	Level Measurement+ Accesories+fittings			
3.1.4	Pressure Indicating transmitters+ Accesories+fittings			
3.1.5	Pressure indicators/gauges+ Accesories+fittings			
3.1.6	Pressure switches+ Accesories+fittings			
3.1.7	Limit Switches+ Accesories+fittings			
3.1.8	Control Air Pressure Switch+ Accesories+fittings			
3.1.9	Temperature Transmitter+ Accesories+fittings			
3.1.10	Junction Boxes+Enclosures			
3.1.11	Instrumentation Earthing			
3.1.12	Two & Three Position Selector Switches+fittings			
3.1.13	Flow Integrator Totalizer+fittings			
3.1.14	Panel mounted Digital Indicators+fittings			
3.1.15	Temperature Scanner Indicators+fittings			
3.1.16	Multi Function Energy Meters+fittings			
3.1.17	Surge Protection devices+fittings			
3.1.18	Level Switches+ Accesories+fittings			
3.1.19	Alarm Annunciators+ hooters+fittings			
3.1.20	Weight Indicator Transmitter+ Accesories+fittings			
<b>3.2</b>	<b>Instrumentation system to provide the following for Analytical Instruments</b>			
3.2.1	Dissolved Oxygen Analyzer+ Accesories+fittings			
3.2.2	ORP Analyzer+ Accesories+ fittings			
3.2.3	Residual chlorine analyzer+ Accesories+fittings			
3.2.4	pH Analyzer+ Accesories+fittings			
3.2.5	H2S Analyzer+ Accesories+fittings			
3.2.6	Laboratory Instruments & Equipments as per Section-6 and CPHEEO Manual			
<b>3.3</b>	<b>Instrumentation Cables/cable trays</b>			
3.3.1	Instrumentation(Analog) & Control Cables and Power Cables, OFC, Trays, Glands & Lugs, cable conduits			
3.3.2	cable trays			
<b>3.4</b>	<b>Control System To provide the following system for</b>			
3.4.1	Liquid processes			
3.4.2	solid processes/sludge treatment			
3.4.3	Chlorination			
3.4.4	Chemical System			
3.4.5	Substation/D.G.			
<b>3.5</b>	<b>Automation system(PLC based SCADA system) for 17.5 MLD STP</b>			
3.5.1	Master (Redundant Hot Stand by) & Slaves PLC Configuration Plant floor terminal (T.S. Page No- 13-65 to 13-68)			
3.5.2	PLC CPU power supply module			
3.5.3	Communication Module			
3.5.4	RIO Modules along with Panels			
3.5.5	PLC Programming software			
3.5.6	SCADA software(dual redundant configuration)			
3.5.7	Historian software			
3.5.8	PLC wired enclosures			
3.5.9	Surge Protection devices			
3.5.10	SMPS for Automation System			
3.5.11	Industrial Type Ethernet Switch			
3.5.12	commercial grade server PC			
3.5.13	52" LCD Screen with accessories and Commercial Grade PC			
3.5.14	Redundant RTU+GPRS modem in redundant configuration for integration with SCADA center			
3.5.15	Redundant FOC equipment + cabling			
3.5.16	Computer			
3.5.17	System console/SCADA furniture			
3.5.18	Engineering work stations PC			
3.5.19	UPS			

**Bill No-5: Plant and Equipment, Supplied from Within Employer's Country for Proposed STP**

Item No.	Description of Item	GST	Local Transport	Total Price in Local Currency
		(INR)	(INR)	(INR)
(1)	(2)	(3)	(4)	(5)=(3)+(4)
3.5.20	Printers			
3.5.21	Printer server			
3.5.22	Interposing Relays with base terminal			
	<b>Sub Total 3.0</b>			
<b>Total of Schedule 5 Carried to Summary</b>				

Bill No.5: Operation & Maintenance work						
Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
1.1	<b>First Year of O&amp;M</b>					
1.1.1	<b>Manpower +</b>	Per month	12			
1.1.2	<b>Chemical Usage ++</b>					
1.1.2.1	Chlorine	KG / year	119837			
1.1.2.2	Poly Electrolyte	KG / year	7391			
1.1.2.3	Alum	KG / year	95528			
1.1.2.4	Laboratory consumables (glass wares etc.)	Per year				
1.1.3	<b>Transportation and Disposal of Sludge, Grit, Screenings</b>	KM/Year	18250			
1.1.4	<b>Repair &amp; Maintenance (1st year DLP Period)</b>	Per year				
1.1.5	<b>O &amp; M Cost (Flushing manholes, Septic Tanks etc)</b>	Per year				
1.1.6	<b>Construction of House service connection (No of connection 350)</b>	Per year				
1.1.6.1	Providing ,laying & jointing of sewer house service connection to individual housess from chamber inside the property to either road side chamber or street manhole .Works includes supply and delivery of plain ended with integral sockets plasticised polyvinylchloride (uPVC) Pipes with ISI mark intended for underground (buried)_ non pressure gravity sewer applications conforming to IS:15328:2003 with latest amendments for different sizes and stiffness classes as per specifications including identification of location of existing chamber / sleeve.The pipes may be joined using elastomeric sealing rings.The elastomeric sealing rings required for jointing of ring tight uPVC Pipes and shall in aacordance with one of the types (Type 1 to Type 6) of IS 5382. Including excavation (in water mud or under foul condition, dismantling of all type of roads like BT, CC, Stone, Paver blocks (all thickness and sizes), and floors likes kota stone, tile, manhole etc. Or any other type of flooring as per site condition, dewatering, refilling, compaction and disposal of surplus earth / unserviceable materials with all lead and lift at suitable disposal site as directed by Employers RepresentativeMaking connction of drain or sewer line with existing manhole including breaking into and making good the walls, floors, with cement concrete. The uPVC specials like bends, tees, couplers,etc.) shall be provided as per site condition .All transportation,loading and unloading ,conveying to site,lowering ,laying and jointing of pipes ,75 mm thick sand/concrete bedding all around the pipe as per drawing and specifications shall be inclusive complete the work in all respect and as per specification and as directed by the Employers Representative.The PVC resin shall be of grade 67 ER 092 for S16.5 series ,SDR 34,SN-8.(CC Floor restoration shall be paid saparately )					
1.1.6.2	110 mm dia (Outer diameter)	RM	2800			
1.1.6.3	160 mm dia (Outer diameter)	RM	525			
1.1.6.4	Construction of chamber in side the premises of individual houses with clear inside opening of 300*300 mm having depth as per site condition with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and bed concrete ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative	Nos	2			
1.1.6.5	Construction of chamber in side the premises of individual houses with clear inside opening of 400*400 mm having depth upto 750 mm 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete , 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	350			
1.1.6.6	Construction of chamber out side the premises of individual houses with clear inside opening of 450*450 mm having inside depth upto 750 mm with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete , 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative	Nos	175			
1.1.6.7	Extra for over depth beyond 750 mm upto 1000 mm for property chamber	RM	18			

Bill No.5: Operation & Maintenance work						
Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
1.1.6.8	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement: 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel 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, all complete as per standard design :0.91 m deep with SFRC cover and frame (heavy duty, HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	7			
1.1.6.9	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.61m. With Sewer bricks conforming IS : 4885	RM	1			
1.1.6.10	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement :4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel 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, all complete as per standard design :1.68 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	5			
1.1.6.11	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.61 m to 2.21 m :With Sewer bricks conforming IS : 4885	RM	1			
1.1.6.12	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming, stone screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density <b>Grading 3</b> as per Technical Specification Clause 405.					
1.1.6.13	By Mechanical means	Cum	63			
1.1.6.14	Construction of Un-reinforced, Cement concrete pavement, thickness as per design, over a prepared sub base with 43 grade cement or any other type PCC Grade M-30, coarse and fine aggregates conforming to IS: 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less than 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (Steel channel, laying and fixing of wedges, steel plates including levelling the formwork and laying and fixing of 125 micron thick polythene film, as per drawing), spreading the concrete with shovels, rakes, compacted using needle, and plate vibrators, finished in continuous operation and curing of concrete slabs for 14 days, using curing compound where specified and water finishing to lines and grade as per drawings and technical specifications	Cum	315			
1.1.6.15	Supply & Fixing 450 mm square shape chamber cover with frame (Light duty minimum weight 20 kg.) with locking arrangement of material grade SG-500/7 as per IS 1865-1991 with grade designation c-250 as per EN-124 Ductile Iron, including testing and inspection as per guidelines of IS specifications , painting with sulphate resisting paint/ Bituminous paint.( Payment shall be made to the contractor on actual executed quantity basis and proportionately amount of pre-cast rcc cover (with frame) shall be deducted from respective chamber ). All as per technical specification, drawing and as directed by Employers Representative.	Nos	35			
1.1.6.16	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality.M D - 10.Square shape 450 mm internal dimension	Nos	1			
1.1.6.17	Concrete with cement, coarse sand and 40 mm gauge stone ballast in proportion 1:3:6 in foundations and floors including supply of all material,labour and T&P etc. required for proper completion of the work. as per drawings and technical specifications Clause 802, 803, 1202 & 1203.	Cum	131			
	<b>Sub Total (1.1)</b>					<b>0.00</b>
1.2	<b>Second Year of O&amp;M</b>					
1.2.1	<b>Manpower +</b>	Per month	12			
1.2.2	<b>Chemical Usage ++</b>					
1.2.2.1	Chlorine	KG / year	119837			
1.2.2.2	Poly Electrolyte	KG / year	7391			
1.2.2.3	Alum	KG / year	95528			
1.2.2.4	Laboratory consumables (glass wares etc.)	Per year				
1.2.3	<b>Transportation and Disposal of Sludge, Grit, Screenings</b>	KM/Year	18250			
1.2.4	<b>Repair &amp; Maintenance</b>	Per year				
1.2.5	<b>O &amp; M Cost (Flushing manholes, Septic Tanks etc)</b>	Per year				
1.2.6	<b>Construction of House service connection (No of connection 350)</b>	Per year				

**Bill No.5: Operation & Maintenance work**

Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
1.2.6.1	Providing ,laying & jointing of sewer house service connection to individual houseess from chamber inside the property to either road side chamber or street manhole .Works includes supply and delivery of plain ended with integral sockets plasticised polyvinylchloride (uPVC) Pipes with ISI mark intended for underground (buried). non pressure gravity sewer applications conforming to IS:15328:2003 with latest amendments for different sizes and stiffness classes as per specifications including identification of location of existing chamber / sleeve.The pipes may be joined using elastomeric sealing rings.The elastomeric sealing rings required for jointing of ring tight uPVC Pipes and shall in accordance with one of the types (Type 1 to Type 6) of IS 5382. Including excavation (in water mud or under foul condition, dismantling of all type of roads like BT, CC, Stone, Paver blocks (all thickness and sizes), and floors likes kota stone, tile, manhole etc. Or any other type of flooring as per site condition, dewatering, refilling, compaction and disposal of surplus earth / unserviceable materials with all lead and lift at suitable disposal site as directed by Employers Representative.Making connction of drain or sewer line with existing manhole including breaking into and making good the walls, floors, with cement concrete. The uPVC specials like bends, tees, couplers,etc.) shall be provided as per site condition .All transportation,loading and unloading ,conveying to site,lowering ,laying and jointing of pipes ,75 mm thick sand/concrete bedding all around the pipe as per drawing and specifications shall be inclusive complete the work in all respect and as per specification and as directed by the Employers Representative.The PVC resin shall be of grade 67 ER 092 for S16.5 series ,SDR 34,SN-8.(CC Floor restoration shall be paid separately )					
1.2.6.2	110 mm dia (Outer diameter)	RM	2800			
1.2.6.3	160 mm dia (Outer diameter)	RM	525			
1.2.6.4	Construction of chamber in side the premises of individual houses with clear inside opening of 300*300 mm having depth as per site condition with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and bed concrete ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	2			
1.2.6.5	Construction of chamber in side the premises of individual houses with clear inside opening of 400*400 mm having depth upto 750 mm 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete , 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	350			
1.2.6.6	Construction of chamber out side the premises of individual houses with clear inside opening of 450*450 mm having inside depth upto 750 mm with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	175			
1.2.6.7	Extra for over depth beyond 750 mm upto 1000 mm for property chamber	RM	18			



Bill No.5: Operation & Maintenance work						
Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
1.2.6.8	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement: 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel 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, all complete as per standard design :0.91 m deep with SFRC cover and frame (heavy duty, HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	7			
1.2.6.9	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.61m.With Sewer bricks conforming IS : 4885	RM	1			
1.2.6.10	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel 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, all complete as per standard design :1.68 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	5			
1.2.6.11	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.61 m to 2.21 m :With Sewer bricks conforming IS : 4885	RM	1			
1.2.6.12	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming, stone screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density <b>Grading 3</b> as per Technical Specification Clause 405.					
1.2.6.13	By Mechanical means	Cum	63			
1.2.6.14	Construction of Un-reinforced, Cement concrete pavement, thickness as per design, over a prepared sub base with 43 grade cement or any other type PCC Grade M-30, coarse and fine aggregates conforming to IS: 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less than 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (Steel channel, laying and fixing of wedges, steel plates including levelling the formwork and laying and fixing of 125 micron thick polythene film, as per drawing), spreading the concrete with shovels,rakes, compacted using needle, and plate vibrators, finished in continuous operation and curing of concrete slabs for 14 days, using curing compound where specified and water finishing to lines and grade as per drawings and technical specifications	Cum	315			
1.2.6.15	Supply & Fixing 450 mm square shape chamber cover with frame (Light duty minimum weight 20 kg.) with locking arrangement of material grade SG-500/7 as per IS 1865-1991 with grade designation c-250 as per EN-124 Ductile Iron, including testing and inspection as per guidelines of IS specifications , painting with sulphate resisting paint/ Bituminous paint.( Payment shall be made to the contractor on actual executed quantity basis and proportionately amount of pre-cast rcc cover (with frame) shall be deducted from respective chamber ). All as per technical specification, drawing and as directed by Employers Representative.	Nos	35			
1.2.6.16	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality.M D - 10.Square shape 450 mm internal dimension	Nos	1			
1.2.6.17	Concrete with cement, coarse sand and 40 mm gauge stone ballast in proportion 1:3:6 in foundations and floors including supply of all material,labour and T&P etc. required for proper completion of the work. as per drawings and technical specifications Clause 802, 803, 1202 & 1203.	Cum	131			
	<b>Sub Total (1.2)</b>					<b>0.00</b>
1.3	<b>Third Year of O&amp;M</b>					
1.3.1	<b>Manpower +</b>	Per month	12			
1.3.2	<b>Chemical Usage ++</b>					
1.3.2.1	Chlorine	KG / year	119837			
1.3.2.2	Poly Electrolyte	KG / year	7391			
1.3.2.3	Alum	KG / year	95528			
1.3.2.4	Laboratory consumables (glass wares etc.)	Per year				
1.3.3	<b>Transportation and Disposal of Sludge, Grit, Screenings</b>	KM/Year	18250			
1.3.4	<b>Repair &amp; Maintenance</b>	Per year				

Bill No.5: Operation & Maintenance work						
Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
1.3.5	O & M Cost (Flushing manholes, Septic Tanks etc)	Per year				
1.3.6	Construction of House service connection (No of connection 350)	Per year				
1.3.6.1	Providing ,laying & jointing of sewer house service connection to individual housess from chamber inside the property to either road side chamber or street manhole .Works includes supply and delivery of plain ended with integral sockets plasticised polyvinylchloride (uPVC) Pipes with ISI mark intended for underground (buried)_ non pressure gravity sewer applications conforming to IS:15328:2003 with latest amendments for different sizes and stiffness classes as per specifications including identification of location of existing chamber / sleeve.The pipes may be joined using elastomeric sealing rings.The elastomeric sealing rings required for jointing of ring tight uPVC Pipes and shall in accordance with one of the types (Type 1 to Type 6) of IS 5382. Including excavation (in water mud or under foul condition, dismantling of all type of roads like BT, CC, Stone, Paver blocks (all thickness and sizes), and floors likes kota stone, tile, manhole etc. Or any other type of flooring as per site condition, dewatering, refilling, compaction and disposal of surplus earth / unserviceable materials with all lead and lift at suitable disposal site as directed by Employers Representative.Making connction of drain or sewer line with existing manhole including breaking into and making good the walls, floors, with cement concrete. The uPVC specials like bends, tees, couplers,etc.) shall be provided as per site condition .All transportation,loading and unloading ,conveying to site,lowering ,laying and jointing of pipes ,75 mm thick sand/concrete bedding all around the pipe as per drawing and specifications shall be inclusive complete the work in all respect and as per specification and as directed by the Employers Representative.The PVC resin shall be of grade 67 ER 092 for S16.5 series ,SDR 34,SN-8.(CC Floor restoration shall be paid separately )					
1.3.6.2	110 mm dia (Outer diameter)	RM	2800			
1.3.6.3	160 mm dia (Outer diameter)	RM	525			
1.3.6.4	Construction of chamber in side the premises of individual houses with clear inside opening of 300*300 mm having depth as per site condition with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and bed concrete ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	2			
1.3.6.5	Construction of chamber in side the premises of individual houses with clear inside opening of 400*400 mm having depth upto 750 mm 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete , 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	350			
1.3.6.6	Construction of chamber out side the premises of individual houses with clear inside opening of 450*450 mm having inside depth upto 750 mm with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	175			
1.3.6.7	Extra for over depth beyond 750 mm upto 1000 mm for property chamber	RM	18			

Bill No.5: Operation & Maintenance work						
Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
1.3.6.8	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel 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, all complete as per standard design :0.91 m deep with SFRC cover and frame (heavy duty, HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	7			
1.3.6.9	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.61m.With Sewer bricks conforming IS : 4885	RM	1			
1.3.6.10	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel 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, all complete as per standard design :1.68 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	5			
1.3.6.11	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.61 m to 2.21 m :With Sewer bricks conforming IS : 4885	RM	1			
1.3.6.12	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming, stone screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density <b>Grading 3</b> as per Technical Specification Clause 405.					
1.3.6.13	By Mechanical means	Cum	63			
1.3.6.14	Construction of Un-reinforced, Cement concrete pavement, thickness as per design, over a prepared sub base with 43 grade cement or any other type PCC Grade M-30, coarse and fine aggregates conforming to IS: 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less than 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (Steel channel, laying and fixing of wedges, steel plates including levelling the formwork and laying and fixing of 125 micron thick polythene film, as per drawing), spreading the concrete with shovels,rakes, compacted using needle, and plate vibrators, finished in continuous operation and curing of concrete slabs for 14 days, using curing compound where specified and water finishing to lines and grade as per drawings and technical specifications	Cum	315			
1.3.6.15	Supply & Fixing 450 mm square shape chamber cover with frame (Light duty minimum weight 20 kg.) with locking arrangement of material grade SG-500/7 as per IS 1865-1991 with grade designation c-250 as per EN-124 Ductile Iron, including testing and inspection as per guidelines of IS specifications , painting with sulphate resisting paint/ Bituminous paint.( Payment shall be made to the contractor on actual executed quantity basis and proportionately amount of pre-cast rcc cover (with frame) shall be deducted from respective chamber ). All as per technical specification, drawing and as directed by Employers Representative.	Nos	35			
1.3.6.16	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality.M D - 10.Square shape 450 mm internal dimension	Nos	1			
1.3.6.17	Concrete with cement, coarse sand and 40 mm gauge stone ballast in proportion 1:3:6 in foundations and floors including supply of all material,labour and T&P etc. required for proper completion of the work. as per drawings and technical specifications Clause 802, 803, 1202 & 1203.	Cum	131			
	<b>Sub Total (1.3)</b>					<b>0.00</b>
1.4	<b>Fourth Year of O&amp;M</b>					
1.4.1	<b>Manpower +</b>	Per month	12			
1.4.2	<b>Chemical Usage ++</b>					
1.4.2.1	Chlorine	KG / year	119837			
1.4.2.2	Poly Electrolyte	KG / year	7391			
1.4.2.3	Alum	KG / year	95528			
1.4.2.4	Laboratory consumables (glass wares etc.)	Per year				
1.4.3	<b>Transportation and Disposal of Sludge, Grit, Screenings</b>	KM/Year	18250			
1.4.4	<b>Repair &amp; Maintenance</b>	Per year				
1.4.5	<b>O &amp; M Cost (Flushing manholes, Septic Tanks etc)</b>	Per year				

**Bill No.5: Operation & Maintenance work**

Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
<b>1.4.6</b>	<b>Construction of House service connection (No of connection 350)</b>	Per year				
<b>1.4.6.1</b>	Providing ,laying & jointing of sewer house service connection to individual houseess from chamber inside the property to either road side chamber or street manhole .Works includes supply and delivery of plain ended with integral sockets plasticised polyvinylchloride (uPVC) Pipes with ISI mark intended for underground (buried)_ non pressure gravity sewer applications conforming to IS:15328:2003 with latest amendments for different sizes and stiffness classes as per specifications including identification of location of existing chamber / sleeve.The pipes may be joined using elastomeric sealing rings.The elastomeric sealing rings required for jointing of ring tight uPVC Pipes and shall in aacordance with one of the types (Type 1 to Type 6) of IS 5382. Including excavation (in water mud or under foul condition, dismantling of all type of roads like BT, CC, Stone, Paver blocks (all thickness and sizes), and floors likes kota stone, tile, manhole etc. Or any other type of flooring as per site condition, dewatering, refilling, compaction and disposal of surplus earth / unserviceable materials with all lead and lift at suitable disposal site as directed by Employers Representative.Making connction of drain or sewer line with existing manhole including breaking into and making good the walls, floors, with cement concrete. The uPVC specials like bends, tees, couplers,etc.) shall be provided as per site condition .All transportation,loading and unloading ,conveying to site,lowering ,laying and jointing of pipes ,75 mm thick sand/concrete bedding all around the pipe as per drawing and specifications shall be inclusive complete the work in all respect and as per specification and as directed by the Employers Representative.The PVC resin shall be of grade 67 ER 092 for S16.5 series ,SDR 34,SN-8.(CC Floor restoration shall be paid saparately )					
<b>1.4.6.2</b>	110 mm dia (Outer diameter)	RM	2800			
<b>1.4.6.3</b>	160 mm dia (Outer diameter)	RM	525			
<b>1.4.6.4</b>	Construction of chamber in side the premises of individual houses with clear inside opening of 300*300 mm having depth as per site condition with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and bed concrete ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	2			
<b>1.4.6.5</b>	Construction of chamber in side the premises of individual houses with clear inside opening of 400*400 mm having depth upto 750 mm 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete , 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	350			
<b>1.4.6.6</b>	Construction of chamber out side the premises of individual houses with clear inside opening of 450*450 mm having inside depth upto 750 mm with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	175			
<b>1.4.6.7</b>	Extra for over depth beyond 750 mm upto 1000 mm for property chamber	RM	18			

Bill No.5: Operation & Maintenance work						
Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
1.4.6.8	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement: 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel 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, all complete as per standard design :0.91 m deep with SFRC cover and frame (heavy duty, HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	7			
1.4.6.9	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.61m. With Sewer bricks conforming IS : 4885	RM	1			
1.4.6.10	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement :4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel 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, all complete as per standard design :1.68 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	5			
1.4.6.11	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.61 m to 2.21 m :With Sewer bricks conforming IS : 4885	RM	1			
1.4.6.12	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming, stone screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density <b>Grading 3</b> as per Technical Specification Clause 405.					
1.4.6.13	By Mechanical means	Cum	63			
1.4.6.14	Construction of Un-reinforced, Cement concrete pavement, thickness as per design, over a prepared sub base with 43 grade cement or any other type PCC Grade M-30, coarse and fine aggregates conforming to IS: 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less than 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (Steel channel, laying and fixing of wedges, steel plates including levelling the formwork and laying and fixing of 125 micron thick polythene film, as per drawing), spreading the concrete with shovels, rakes, compacted using needle, and plate vibrators, finished in continuous operation and curing of concrete slabs for 14 days, using curing compound where specified and water finishing to lines and grade as per drawings and technical specifications	Cum	315			
1.4.6.15	Supply & Fixing 450 mm square shape chamber cover with frame (Light duty minimum weight 20 kg.) with locking arrangement of material grade SG-500/7 as per IS 1865-1991 with grade designation c-250 as per EN-124 Ductile Iron, including testing and inspection as per guidelines of IS specifications, painting with sulphate resisting paint/ Bituminous paint. ( Payment shall be made to the contractor on actual executed quantity basis and proportionately amount of pre-cast rcc cover (with frame) shall be deducted from respective chamber ). All as per technical specification, drawing and as directed by Employers Representative.	Nos	35			
1.4.6.16	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality.M D - 10.Square shape 450 mm internal dimension	Nos	1			
1.4.6.17	Concrete with cement, coarse sand and 40 mm gauge stone ballast in proportion 1:3:6 in foundations and floors including supply of all material,labour and T&P etc. required for proper completion of the work. as per drawings and technical specifications Clause 802, 803, 1202 & 1203.	Cum	131			
	<b>Sub Total (1.4)</b>					<b>0.00</b>
1.5	<b>Fifth Year of O&amp;M</b>					
1.5.1	<b>Manpower ++</b>	Per month	12			
1.5.2	<b>Chemical Usage ++</b>					
1.5.2.1	Chlorine	KG / year	119837			
1.5.2.2	Poly Electrolyte	KG / year	7391			
1.5.2.3	Alum	KG / year	95528			
1.5.2.4	Laboratory consumables (glass wares etc.)	Per year				
1.5.3	<b>Transportation and Disposal of Sludge, Grit, Screenings</b>	KM/year	18250			
1.5.4	<b>Repair &amp; Maintenance</b>	Per year				
1.5.6	<b>O &amp; M Cost (Flushing manholes, Septic Tanks etc)</b>	Per year				

Bill No.5: Operation & Maintenance work						
Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
1.5.6	<b>Construction of House service connection (No of connection 350)</b>	Per year				
1.5.6.1	Providing ,laying & jointing of sewer house service connection to individual houseess from chamber inside the property to either road side chamber or street manhole .Works includes supply and delivery of plain ended with integral sockets plasticised polyvinylchloride (uPVC) Pipes with ISI mark intended for underground (buried)_ non pressure gravity sewer applications conforming to IS:15328:2003 with latest amendments for different sizes and stiffness classes as per specifications including identification of location of existing chamber / sleeve.The pipes may be joined using elastomeric sealing rings.The elastomeric sealing rings required for jointing of ring tight uPVC Pipes and shall in aacordance with one of the types (Type 1 to Type 6) of IS 5382. Including excavation (in water mud or under foul condition, dismantling of all type of roads like BT, CC, Stone, Paver blocks (all thickness and sizes), and floors likes kota stone, tile, manhole etc. Or any other type of flooring as per site condition, dewatering, refilling, compaction and disposal of surplus earth / unserviceable materials with all lead and lift at suitable disposal site as directed by Employers Representative.Making connction of drain or sewer line with existing manhole including breaking into and making good the walls, floors, with cement concrete. The uPVC specials like bends, tees, couplers,etc.) shall be provided as per site condition .All transportation,loading and unloading ,conveying to site,lowering ,laying and jointing of pipes ,75 mm thick sand/concrete bedding all around the pipe as per drawing and specifications shall be inclusive complete the work in all respect and as per specification and as directed by the Employers Representative.The PVC resin shall be of grade 67 ER 092 for S16.5 series ,SDR 34,SN-8.(CC Floor restoration shall be paid saparately )					
1.5.6.2	110 mm dia (Outer diameter)	RM	2800			
1.5.6.3	160 mm dia (Outer diameter)	RM	525			
1.5.6.4	Construction of chamber in side the premises of individual houses with clear inside opening of 300*300 mm having depth as per site condition with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and bed concrete ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	2			
1.5.6.5	Construction of chamber in side the premises of individual houses with clear inside opening of 400*400 mm having depth upto 750 mm 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete , 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) and PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	350			
1.5.6.6	Construction of chamber out side the premises of individual houses with clear inside opening of 450*450 mm having inside depth upto 750 mm with 230 mm thick Brick (FPS bricks of class designation 7.5) Masonary in CM 1:4 (1 cement : 4 coarse sand ), including inside plastering 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand), finished smooth with a floating coat of neat cement on walls and bed concrete, 20 mm thick plaster on external surface with cement mortar 1:4 (1 cement : 4 coarse sand ) ,PCC M-15(1:2:4) (1 cement :2 fine aggregate : 4 course aggregate ) for bed of 150 mm thick & benching of as per drawing with precast (L D) cover slab .The work includes Coping in M-20 for fixing of frame,excavation ,refilling of excavated material with compaction ,fixing of uPVC Pipe of 110 mm dia as required .Work should be completed in all repect as per specifications ,drawing and as per directions of Employers Representative.	Nos	175			
1.5.6.7	Extra for over depth beyond 750 mm upto 1000 mm for property chamber	RM	18			

Bill No.5: Operation & Maintenance work						
Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
1.5.6.8	Constructing brick masonry circular type manhole 0.91 m internal dia at bottom and 0.56m dia at top in cement mortar 1:4 (1 cement: 4 coarse sand), inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement, foundation concrete 1:3:6 mix (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size), and making necessary channel 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, all complete as per standard design :0.91 m deep with SFRC cover and frame (heavy duty, HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg., fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	7			
1.5.6.9	Extra depth for circular type manhole 0.91m internal dia (at bottom) beyond 0.91 m to 1.61m.With Sewer bricks conforming IS : 4885	RM	1			
1.5.6.10	Constructing brick masonry circular manhole 1.22 m internal dia at bottom and 0.56 m dia at top in cement mortar 1:4 (1 cement : 4 coarse sand) inside cement plaster 12 mm thick with cement mortar 1:3 (1 cement : 3 coarse sand) finished with a floating coat of neat cement foundation concrete 1:3:6 (1 cement : 3 coarse sand : 6 graded stone aggregate 40 mm nominal size) and making necessary channel 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, all complete as per standard design :1.68 m deep with SFRC Cover and frame (heavy duty HD- 20 grade designation) 560 mm internal diameter conforming to I.S. 12592, total weight of cover and frame to be not less than 182 kg. fixed in reinforced cement concrete 1:1/2:3 (1 cement : 1/2 coarse sand : 3 graded stone aggregate 20 mm nominal size) including centering, shuttering all complete. (Excavation, foot rests and 20mm thick cement plaster in CM (1:4) at the external surface shall be paid for separately) :With Sewer bricks conforming to IS : 4885	Nos	5			
1.5.6.11	Extra depth for circular type manhole 1.22 m internal dia (at bottom) beyond 1.61 m to 2.21 m :With Sewer bricks conforming IS : 4885	RM	1			
1.5.6.12	Providing, laying, spreading and compacting stone aggregates of specific sizes to water bound macadam specification including spreading in uniform thickness, hand packing, rolling with smooth wheel roller 80-100 kN in stages to proper grade and camber, applying and brooming, stone screening to fill-up the interstices of coarse aggregate, watering and compacting to the required density <b>Grading 3</b> as per Technical Specification Clause 405.					
1.5.6.13	By Mechanical means	Cum	63			
1.5.6.14	Construction of Un-reinforced, Cement concrete pavement, thickness as per design, over a prepared sub base with 43 grade cement or any other type PCC Grade M-30, coarse and fine aggregates conforming to IS: 383, maximum size of coarse aggregate not exceeding 25 mm, mixed in a concrete mixer of not less than 0.2 cum capacity and appropriate weigh batcher using approved mix design, laid in approved fixed side formwork (Steel channel, laying and fixing of wedges, steel plates including levelling the formwork and laying and fixing of 125 micron thick polythene film, as per drawing), spreading the concrete with shovels,rakes, compacted using needle, and plate vibrators, finished in continuous operation and curing of concrete slabs for 14 days, using curing compound where specified and water finishing to lines and grade as per drawings and technical specifications	Cum	315			
1.5.6.15	Supply & Fixing 450 mm square shape chamber cover with frame (Light duty minimum weight 20 kg.) with locking arrangement of material grade SG-500/7 as per IS 1865-1991 with grade designation c-250 as per EN-124 Ductile Iron, including testing and inspection as per guidelines of IS specifications , painting with sulphate resisting paint/ Bituminous paint.( Payment shall be made to the contractor on actual executed quantity basis and proportionately amount of pre-cast rcc cover (with frame) shall be deducted from respective chamber ). All as per technical specification, drawing and as directed by Employers Representative.	Nos	35			
1.5.6.16	Providing and fixing in position pre-cast R.C.C. manhole cover and frame of required shape and approved quality.M D - 10.Square shape 450 mm internal dimension	Nos	1			
1.5.6.17	Concrete with cement, coarse sand and 40 mm gauge stone ballast in proportion 1:3:6 in foundations and floors including supply of all material,labour and T&P etc. required for proper completion of the work. as per drawings and technical specifications Clause 802, 803, 1202 & 1203.	Cum	131			
	<b>Sub Total (1.5)</b>					<b>0.00</b>
	<b>Total of (Sub Total 1.1+Sub Total 1.2+Sub Total 1.3+Sub Total 1.4+Sub Total 1.5)</b>					<b>0.00</b>
Note for Energy Consumption:	The energy charges for SPS and STP during O&M period will be paid directly by Employer (within guaranteed energy consumption quoted by contractor as per contract)					
Note for Manpower:	Contractor shall provide all the manpower during O&M period as stipulated in Employers Requirement and the record shall be maintained at site by Register and Biometric system. In case of absence of manpower, the Employer will deduct the portion of Manpower payment on proportionate from monthly O&M payment.					

**Bill No.5: Operation & Maintenance work**

Item No.	Description of Item	Unit	Qty	Rate in INR (In Figure)	Rate in INR (In Words)	Total Amount in INR
Note for Chemical Consump tion:	The payment for chemical consumption shall be made as per actual consumption.					



Bill No.7: Dayworks						
Item	Description of Item	Unit	Quantity	Rate in Local currency (In Figure)	Rate in Local currency (In Words)	Amount in Local currency
(1)	(2)	(3)	(4)	(5)		(6) = (4) x (5)
<b>A</b>	<b>All Labour</b>					
1	Gang supervisor	hour	300			
2	Labourer	hour	600			
3	Joiner & Carpenter	hour	300			
4	Welder	hour	100			
5	Steel Fixer	hour	300			
6	Steel Erector	hour	300			
7	Bricklayer	hour	200			
8	Pipelayer	hour	500			
9	Concreter	hour	200			
10	Motor Driver	hour	200			
11	Plant Operator	hour	300			
12	Electrician	hour	200			
13	Cable Joiner	hour	100			
14	Fitter	hour	200			
15	Painter	hour	200			
16	Plumber	hour	200			
17	Watchman	hour	200			
<b>B</b>	<b>Design Staff</b>					
1	Civil Engineer	hour	100			
2	Structural Engineer	hour	200			
3	Mechanical Engineer	hour	100			
4	Electrical Engineer	hour	100			
5	Instrumentation & Control Engineer	hour	100			
6	Sewage Treatment Process Engineer	hour	100			
7	CAD Operator	hour	200			
8	Design Assistant	hour	200			
<b>C</b>	<b>All Equipment</b>					
1	Backhoe excavator	hour	100			
2	8t/10t Road roller	hour	100			
3	Dumper truck (10 t)	hour	100			
4	Mobile crane (10 t)	hour	100			
5	Concrete pump	hour	100			
6	Compressor (including all tools)	hour	100			
7	Welding set (including consumables)	hour	100			
8	Gas cutting set (including	hour	100			
9	Diesel generator (5 kVA)	hour	100			
10	Pump (100 mm)	hour	200			
11	Pump (150 mm)	hour	100			
12	Concrete mixer (0.25 cu.m)	hour	100			
13	Concrete Vibrator	hour	100			
14	Total of Working Equipment					
	<b>Total of Bill No.7</b>					

# **Section 5 :**

## **Eligible Countries**

## Section 5 - Eligible Countries

This Section contains the list of eligible countries.

1.	AFG	Afghanistan	35.	FSM	Micronesia, Federated States of
2.	ARM	Armenia	36.	MON	Mongolia
3.	AUS	Australia	37.	MYA	Myanmar
4.	AUT	Austria	38.	NAU	Nauru
5.	AZE	Azerbaijan	39.	NEP	Nepal
6.	BAN	Bangladesh	40.	NET	The Netherlands
7.	BEL	Belgium	41.	NIU	Niue
8.	BHU	Bhutan	42.	NZL	New Zealand
9.	BRU	Brunei Darussalam	43.	NOR	Norway
10.	CAM	Cambodia	44.	PAK	Pakistan
11.	CAN	Canada	45.	PAL	Palau
12.	PRC	China, People's Republic of	46.	PNG	Papua New Guinea
13.	COO	Cook Islands	47.	PHI	Philippines
14.	DEN	Denmark	48.	POR	Portugal
15.	FIJ	Fiji	49.	SAM	Samoa
16.	FIN	Finland	50.	SIN	Singapore
17.	FRA	France	51.	SOL	Solomon Islands
18.	GEO	Georgia	52.	SPA	Spain
19.	GER	Germany	53.	SRI	Sri Lanka
20.	HKG	Hong Kong, China	54.	SWE	Sweden
21.	IND	India	55.	SWI	Switzerland
22.	INO	Indonesia	56.	TAJ	Tajikistan
23.	IRE	Ireland	57.	TAP	Taipei, China
24.	ITA	Italy	58.	THA	Thailand
25.	JPN	Japan	59.	TIM	Timor-Leste
26.	KAZ	Kazakhstan	60.	TON	Tonga
27.	KIR	Kiribati	61.	TUR	Turkey
28.	KOR	Korea, Republic of	62.	TKM	Turkmenistan
29.	KGZ	Kyrgyz Republic	63.	TUV	Tuvalu
30.	LAO	Lao People's Democratic Republic	64.	UKG	United Kingdom
31.	LUX	Luxembourg	65.	USA	United States
32.	MAL	Malaysia	66.	UZB	Uzbekistan
33.	MLD	Maldives	67.	VAN	Vanuatu
34.	RMI	Marshall Islands	68.	VIE	Viet Nam