REQUEST FOR PROPOSAL (RT-1)

FOR

PROVIDING WATER SUPPLY HSCs, SMART METERING & STRENGHTENING / AUGMENTATION OF WATER SUPPLY NETWORK IN ABD AREA (INCLUDING COMPREHENSIVE ANNUAL MAINTENANCE CONTRACT OF 5 YEARS)

ISSUED BY THE

KANPUR SMART CITY LIMITED

Kanpur Nagar Nigam, Motijheel

Kanpur – 208002

Phone: 0512-2541258,
2531215

Fax: 0512-2531662, Website: https://kanpursmartcity.in/

E-mail: ksclkanpur@gmail.com

KANPUR SMART CITY LIMITED

KEY DATES

Kanpur Smart City Limited invites Percentage Rate Bids through E-Tendering from the Bidders fulfilling the Eligibility Criteria specified hereunder for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SMART METERING SYSTEM INCLUDING PROVIDING NEW WATER SUPPLY HSCS, PHE RELATED WORKS, ASSOCIATED CIVIL, E&M WORKS, FOR STRENGTHENING/ AUGMENTATION OF WATER SUPPLY NETWORK IN ABD AREA of KANPUR CITY including Comprehensive Annual Maintenance Contract of 5 Years (for Smart metering system only).

Bid Information

Sl. No.	Events	Duration
1	RfP publishing Date	From 20th August 2019
2	Cost of Bidding Document	The bidder shall have to submit **Rs.20,000/- (Rupees Twenty Thousands only)** (Non Refundable) through a Demand Draft in favour of 'Chief Executive Officer, Kanpur Smart City Limited' payable at Kanpur.
3	Nature of Contract	Percentage Rate
4	Method of Selection	**Quality and Cost Based Selection (QCBS) Method** • Technical Weightage : 70% • Financial Weightage : 30%
5	Pre-Bid Meeting Date, Time & Venue	2nd September 2019 at 04:00 PM at Conference Hall, Nagar Nigam Mukhyalay, 1st Floor, Moti Jheel, Kanpur.
6	Last Date for submission of Bid (Online)	16th September 2019 at 03:30 PM
7	Last Date for submission of Bid (Hardcopy)	16th September 2019 at 4:00 PM at Kanpur Smart City Limited, 3rd Floor, Kanpur Nagar Nigam Mukhyalaya, Motijheel, Kanpur
8	Date & time for opening of Technical Bid	16th September 2019 at 4:30 PM
9	Validity of Bid	180 days from the last date of online submission of bid.
10	Bid Security (EMD)	**Rs. 60,00,000/- (INR Sixty Lakh only)** in the form of BG / FDR / TDR from any Scheduled /Nationalized Bank.
11	Date time and place of opening of Financial Bid	To be informed later.
12	Address for communication	Chief Executive Officer, KSCL, Nagar Nigam Mukhyalay, Motijheel, Kanpur – 208002

DISCLAIMER

The information contained in this Request for Proposal (RFP) document or subsequently provided to Bidders, whether verbally or in documentary form by or on behalf of Kanpur Smart City Limited or any of its employees, is provided to Bidders on the terms and conditions set out in this RFP document and any other terms and conditions subject to which such information is provided.

This RFP document is not an Agreement and is not an offer or invitation to any other party. The purpose of this RFP document is to provide the Bidders with information to assist the formulation of their Proposal submission. This RFP document does not purport to contain all the information each Bidder may require. This RFP document may not be appropriate for all persons and it is not possible for KSCL and their employees to consider the investment objectives, financial situation and particular needs of each Bidder. Certain Bidders may have a better knowledge of the proposed Project than others. Each recipient must conduct its own analysis of the information contained in this RFP document or to correct any inaccuracies therein that may appear in this RFP document and is advised to carry out its own investigation into the proposed Project, the legislative and regulatory regimes which applies thereto and by and all matters pertinent to the proposed Project and to seek its own professional advice on the legal, financial, regulatory and taxation consequences of entering into any agreement or arrangement relating to the proposed Project.

KSCL and their employees make no representation or warranty and shall incur no liability under the Law of Contract, Tort, the Principles of Restitution or unjust enrichment or otherwise for any loss, expense or damage, accuracy, reliability or completeness of the RFP document, which may arise from or be incurred or suffered in connection with anything contained in this RFP, any matter deemed to form part of this RFP document, the award of the Project, the information and any other information supplied by or on behalf KSCL or their employees, any consultants or otherwise arising in any way from the selection process for the Project.

KSCL may in its absolute discretion, but without being under any obligation to do so, can amend or supplement the information/clauses/articles in this RFP document. The information that KSCL is in a position to furnish is limited to this RFP and the information available at the contact addresses mentioned herein along with any amendments/ clarifications thereon. This RFP and the information contained herein are confidential and for use only by the person to whom it is issued. It may not be copied or distributed by the recipient to third parties (other than in confidence to the recipient's professional advisor). In the event that the recipient does not continue with the involvement in the project in accordance with RFP the information contained in the RFP shall not be divulged to any other party. The information contained in the RFP must be kept confidential. Mere submission of a responsive Bid/ Proposal does not ensure selection of the bidder as Concessionaire.

Instructions for Online Bid Submission

i. Instructions to the Bidders to submit the bids online through the Central Public Procurement Portal for e Procurement at www.etender.up.nic.in

ii. Possession of valid Digital Signature Certificate (DSC) and enrolment/registration of the contractors/bidders on the e-Procurement/e-tender portal are prerequisite for e-tendering.

iii. Bidder should register for the enrolment in the e-Procurement site using the "Online Bidder Enrolment" option available on the home page. Portal enrolment is generally free of charge. During enrolment/registration, the bidders should provide only valid and true information including valid email id. All the correspondence shall be made directly with the contractors/bidders through email id as registered.

iv. Bidder need to login to the site through their user ID/ password chosen during enrolment/registration.

v. Then the Digital Signature Certificate (Class II or Class III Certificates with signing key usage) issued by SIFY/TCS/ nCode/ eMudra or any other Certifying Authority recognized by Controller of Certifying Authorities (CCA) India on eToken/Smart Card, should be registered.

vi. The registered DSC only should be used by the bidder in the transactions and should ensure safety of the same.

vii. Contractor/Bidder may go through the tenders published on the site and Download the tender documents/schedules for the tenders.

viii. After Downloading/getting the tender document/schedules, the Bidder should go through them carefully and then submit the documents as required, otherwise bid will be rejected.

ix. Any clarifications may be sought online through the tender site, through the contact details or during pre-bid meeting, if any. Bidder should take into account the corrigendum, if any published before submitting the bids online.

x. Bidder may log in to the site through the secured login by the user id/password chosen during enrolment/registration and then by submitting the password of the e-Token/Smartcard to access DSC.

xi. Bidder may select the tender in which he/she is interested in by using the search option and then move it to the 'my tenders' folder.

xii. From my tender folder, he may select the tender to view all the details uploaded there.

xiii. It shall be deemed that the bidder has read and understood all the terms and conditions before submitting the offer. Bidder should go through the tender schedules carefully and upload the documents as asked; otherwise, the incomplete bid shall stand rejected.

xiv. Bidder should get ready the bid documents to be submitted as indicated in the tender document/schedule in advance and ordinarily it shall be in PDF/xls/rar/jpg/dwf formats. If there is more than one document, all may be clubbed together and provided in the requested format. Bid documents may be scanned with 100 dpi with black and white option. It is advisable that each document to be uploaded through online for the tenders should be less than 2 MB. If any document is more than 2MB, it can be reduced through zip/rar and the same, if permitted may be uploaded. The file size being less than 1 MB the transaction uploading time will be very fast.

xv. The Bidders can update well in advance, the documents such as certificates, annual report details etc., under "My Space option" and these can be selected as per tender requirements and then send along with bid documents during bid submission. This will facilitate the bid submission process faster by reducing upload time of bids.

xvi. Bidder should submit the Tender Fee/ EMD as specified in the tender. The hard copy should be posted/couriered/given in person to the Tender Inviting Authority, within bid submission due date and time as indicated in the tender. Scanned copy of the instrument should be uploaded as part of the offer.

xvii. While submitting the bids online, the bidder shall read the terms and conditions and may accept the same to proceed further to submit the bid packets.

xviii. The bidder has to select the payment option as online to pay the Tender FEE/ EMD as applicable and enter details of the instruments.

xix. The details of the DD/any other accepted instrument, physically delivered, should tally with the details available in the scanned copy and the data entered during bid submission time, otherwise submitted bid shall not be acceptable or liable for rejection.

xx. The bidder has to digitally sign and upload the required bid documents one by one as indicated. The very act of using DSC for Downloading the bids and uploading their offers shall be deemed to be a confirmation that they have duly read, understood and agreed with all clauses of the bid document including General Conditions of Contract (GCC) without any exception.

xxi. The bidder has to upload the relevant files required as indicated in the cover content.

xxii. In case of any irrelevant files, the bid may be rejected.

xxiii. The bidders are advised to submit the bids through online e-tendering system to the Tender Inviting Authority well before the bid submission due date and time (as per Server System Clock). The Authority shall not be held responsible for any delay or the difficulties faced during the submission of bids online by the bidders.

xxiv. After the bid submission (i.e. after Clicking "Freeze Bid Submission" in the portal), the acknowledgement number indicated by the system should be printed by the bidder and kept as a record of evidence for online submission of bid for the particular tender and also be used as entry pass to participate in the bid opening.

xxv. The time settings fixed in the server side and displayed at the top of the tender site, shall remain valid for all actions of requesting, bid submission, bid opening etc., in the e-Tender system. The bidders should follow such time during bid submission.

xxvi. All the data being entered by the bidders would be encrypted using Public Key Infrastructure (PKI) encryption techniques to ensure the secrecy of the data. The data entered is not retrievable by unauthorized persons during the bid submission and until the time of bid opening by any person.

xxvii. Any bid document that is uploaded to the server is subjected to symmetric encryption using a system generated symmetric key. Further this key is subjected to asymmetric encryption using buyers/bid openers' public keys. Overall, the uploaded tender documents become readable only after the tender opening by the authorized bid openers.

xxviii. The confidentiality of the bids is maintained with the use of Secured Socket Layer (SSL) 128 bit encryption technology. Data storage encryption of sensitive fields is done.

xxix. The bidder should logout of the tendering system using the normal logout option available at the top right hand corner and not by selecting the (X) exit option in the browser.

xxx. For any queries regarding e-Tendering process, the bidders may contact at address as provided in the tender document. Also, for any further queries, the bidders are advised to send a mail to – ***ksclkanpur@gmail.com*** **and Mob no. +91-7081802663 (Nodal Officer, Kanpur Smart City Ltd. Ms. Pooja Tripathi)**

xxxi. In the Percentage Rate BOQ sheet, enter the following details,

- Enter your Name in the field of Bidder Name
- Click the 'Select' option in the bottom of the E column and set the percentage rate as either excess/less over the estimated rate According to your wish.
- Enter the rate in percentage at the F column
- Check the total and click validate.
- Once the validations are successful save the BOQ file in the same
- Name as given and upload the BOQ.
- Otherwise correct the error found and then validate and upload.

DETAILED INVITATION FOR BIDS (IFB)

NATIONAL COMPETITIVE BIDDING

1. The Chief Executive Officer, Kanpur Smart City Limited, Kanpur invites fresh bids from Smart Metering system and Technology providers as sole bidders or a consortium of bidders with all bidders being Class-I/II contractors registered with UP Jal Nigam/ PWD / CPWD / National or State level Government Departments for the works as detailed below.
2. Prices quoted should be net inclusive of all taxes, duties, levies etc. but excluding of GST, must be in Indian Rupees and shall remain valid for 180 (one hundred and eighty) days from the closing date of bid.
3. Details may be downloaded from the e-procurement website www.etender.up.nic.in and the official website of KSCL, www.kanpursmartcity.in
4. Bid must be accompanied by a security of the amount as specified in the Bid Document payable at Kanpur and drawn in favour of the Employer. Bid security will have to be in any of the form as specified in the bidding document and shall have to be valid for at least 45 days beyond the validity of bids. Bid must also accompany a non-refundable bid document fee as specified in the bidding documents in the form of Demand Draft/Banker's Cheque on any nationalized/schedule bank payable at Kanpur in favor of the Employer. Bids received without non-refundable document fee will be rejected.
5. Any Contractor whose work under KNN/KSCL has been rescinded due to any reason or having litigation with KNN/KSCL is also not eligible for this bidding process.
6. Other details can be seen in the detailed bid document.

Sl. No.	Name of the Work	Bid Security (Rs in Lakhs)	Period of Completion
1	SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SMART METERING SYSTEM INCLUDING PROVIDING NEW WATER SUPPLY HSCS, PHE RELATED WORKS, ASSOCIATED CIVIL, E&M WORKS, FOR STRENGTHENING/ AUGMENTATION OF WATER SUPPLY NETWORK IN ABD AREA of KANPUR CITY including Comprehensive Annual Maintenance Contract of 5 Years (for Smart metering system only).	**60.00**	**270 Days**

Contents

SECTION 1: INSTRUCTIONS TO BIDDERS (ITB)

A. General

1. Scope of Bid

The Chief Executive Officer, Kanpur Smart City Limited, Kanpur, (referred to as Employer in these documents) invites bids for the Supply, Installation, Testing and Commissioning of SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SMART METERING SYSTEM INCLUDING PROVIDING NEW WATER SUPPLY HSCS, PHE RELATED WORKS, ASSOCIATED CIVIL, E&M WORKS, FOR STRENGTHENING/ AUGMENTATION OF WATER SUPPLY NETWORK IN ABD AREA of KANPUR CITY including Comprehensive Annual Maintenance Contract of 5 Years (for Smart metering system only) (as defined in these documents and referred to as "the works") detailed in the table given in IFB. The bidders shall submit bids for all of the works detailed in the table given in IFB.

1.1 The successful bidder will be expected to complete the works by the intended completion date specified in the Contract data.

2. Source of Funds

2.1 The project is executed under Smart City Mission Fund.

3. Eligible Bidders

3.1 The Bidder for participation in the Selection Process, should be a Domestic water supply Metering System provider & Technology provider for Water Billing who may be either a single entity or a group of entities (maximum three called the “Consortium”), coming together to execute the project. All the entities of the Consortium should be Class-I/II contractors registered with UP Jal Nigam / PWD / CPWD / National or State level Government Departments. At least one entity or the single entity should be experienced in Civil Works. At least one entity or the single entity should be experienced in E&M works.

3.2 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a statement that the Bidder is not associated, nor has been associated in the past, directly or indirectly, with the Consultant or any other entity that has prepared the design, specifications, and other documents for the Project or being proposed as Project Manager for the Contract. A firm that has been engaged by the Employer to provide consulting services for the preparation or supervision of the works, and any of its affiliates, shall not be eligible to bid.

3.3 Government-owned enterprises in the Employer’s country may only participate if they are legally and financially autonomous, operate under commercial law and are not a dependent agency of the Employer.

3.4 Bidders shall not be under a declaration of ineligibility for corrupt and fraudulent practices issued by any Government Departments / PSU in accordance with sub-clause 35.1.

3.5Any bidder who is an Advocate and Registered with any State Bar Council Shall not be allowed to participate in the bidding. If it is established that the contractor is registered with the state bar council, his bid shall be automatically cancelled.

4. Qualification of the Bidder

4.1 All bidders shall provide in Section 2, Forms of Bid and Qualification Information, a preliminary description of the proposed work method and schedule, including drawings and charts, as necessary.

4.2 In the event that Pre-qualification of potential bidders has been undertaken, only bids from prequalified bidders will be considered for award for Contract. These qualified bidders should submit with their bids any information updating their original prequalification applications or, alternatively, confirm in their bids that the originally submitted prequalification information remains essentially correct as of date of bid submission. The update or confirmation should be provided in Section 2.

4.3 If the Employer has not undertaken prequalification of potential bidders, all bidders shall include the following information and documents with their bids in Section 2:

a) Copies of original documents defining the constitution or legal status, place of registration, and principal place of business; written power of attorney of the signatory of the Bid to commit the Bidder;

b) Proof of registration with UP Jal Nigam / Class-I PWD / CPWD / National or State level Government Departments with copy of photo ID proof (photocopy of driving license / PAN Card / bank passbook with photograph etc.

c) Total monetary value of Smart Metering system works performed during each of the last **five years** for the works (***To be certified by a Chartered Accountant***).

d) Experience in works of a **similar nature** and size for each of the last five years, and details of works under way or contractually committed; and clients who may be contacted for further information on those contracts.

e) Major items of construction equipment proposed to carry out the Contract;

f) Qualifications and experience of key site management and technical personnel proposed for the Contract;

g) Reports on the financial standing of the Bidder, such as **profit and loss statements** and auditor's reports for the past **five years**.

h) Evidence of access to line(s) of credit and availability of other financial Resources facilities (Minimum 15% of Contract value), certified by the Bankers (***Not more than 3 months old***);

i) Undertaking that the bidder will be able to invest a minimum cash of 10% of contract value of work, during implementation of the work.

j) Authority to seek references from the Bidder's bankers;

k) Information regarding any litigation pending in any court of law or arbitration resulting from contracts executed by the Bidder in the last five years or currently under execution. The information shall include the names of the parties concerned, the disputed amount, cause of litigation, and matter in dispute.

l) The proposed methodology and program of construction including Environmental Management Plan backed with equipment, materials and manpower planning and deployment, duly supported with broad calculations and quality control procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated period of completion as per milestones. *(Not mandatory for works up to Rs 10 Lakhs)*

4.4A Financial & Technical Requirements

To qualify for award of the contract, each bidder in its name should have in the last five years *i.e.* *2018-2019, 2017-18, 2016-17, 2015-16 and 2014-15,***:**

a) Average Annual financial turnover (Domestic water supply Metering System provider & Technology provider for Water Billing including PHE related works) during the last 3 years, ending 31st March of the previous financial year, should be at least 30% of the estimated cost.

b) Satisfactorily completed at least **one similar work** of value not less than 70% of the estimated cost or **two similar works** of value not less than

40% of the estimated cost or **three similar works** of value not less than 30% of the estimated cost. The bidder shall provide completion certificate to substantiate the experience from client.

*Similar Work: PHE related works, including Domestic water supply Metering System provider & Technology provider for Water Billing.

4.4B Physical Qualifications:

DELETED

4.4 C Each bidder should further demonstrate:

Availability (either owned or leased or by procurement against mobilization advances) of the following key and critical equipment for this work. (Not applicable for works up to Rs 10.00 Lakhs. However, availability of equipment / machineries would be preferred).

Sl. No.	Equipment Type and Characteristics	Minimum Capacity	Max. Age of Equipment (years)	Minimum Number Required
1	Loader cum excavator type JCB / Proclainer	1 cum bucket size	5	1
2	Water tanker	6 KL	5	1
3	Generator	125 KVA	5	1
4	Leveling Instrument		5	1
5	Water spraying Pumps for curing, cleaning etc.			1
6	Weigh Batching Type Mobile Concrete Mix Batching Plant			1
7	Special Tools and Tackles as required for fixing of various Instruments, Meters, E/M equipment. **(Hilti or Equivalent)**		10	5 SETS

The contractor shall furnish this information on a non-judicial stamp paper of Rs 100/- only.

Based on the studies, carried out by the Engineer the minimum suggested major equipment to attain the completion of works in accordance with the prescribed construction schedule are shown in the above list.

4.4D Technical personnel, Qualifications and Experience:

A. Technical Personnel are:

Sl. No.	Designation of the person / Nos.	Qualification	Whether working in field or office	Experience of execution of similar works
1	Project Manager (1 No)	B.E. Instrument/ECE/EEE	Field (fulltime)	10 Years
2	Project Engineer (1 No.)	B.E. Civil	Field (fulltime)	8 Years
3	Site Engineer (1 No.)	Diploma Electrical / Mechanical	Field (fulltime)	5 Years
4	Site Engineer (1 No.)	Diploma Civil	Field (fulltime)	5 Years
5	Site Supervisor (2 Nos)	ITI or Diploma Electrical / Mechanical/Civil	Field (fulltime)	3 Years

To qualify for a package of contracts made up of this contract for which bids are invited in the IFB, the bidder must demonstrate having experience and resources sufficient to meet the aggregate of the qualifying criteria for all the contracts in question.

4.5 Available Bid Capacity

Bidders who meet the minimum qualification criteria will be qualified only if their available bid capacity (combined bid capacity in case of consortium) is more than the total bid value. The available bid capacity will be calculated as under: *(Not mandatory for works up to Rs 10 Lakhs)*

Assessed Available Bid capacity = (A*N*2 - B)

Where

A = Maximum value of Instrument/Electronics/Information technology related works executed in any one year during the last five years (updated to *2018-19* price level) taking into account the completed as well as works in progress.

N = Number of years prescribed for completion of the works for which bids are invited.

B = Value, at *2018-19* price level, of existing commitments and on-going works to be completed during the period of completion of the works for which bids are invited.

Note:

i) The statements showing the value of existing commitments and on-going works as well as the stipulated period of completion remaining for each of the works listed should be countersigned by the Engineer in charge, not below the rank of an Executive Engineer or equivalent.

ii) Updating factors for updating work value of single similar Project executed during last five years:

Year before	*Multiplying Factor*
One	*1.1*
Two	*1.21*
Three	*1.33*
Four	*1.46*
Five	*1.61*

4.5.1 The Sole Bidder or the prime bidder (in case of consortium) must be registered under any State's/UT's Commercial Tax Act / GST or Central Tax Act which must be quoted in the bid. The bidder must have paid all applicable State's/UT's Commercial Tax Act / GST or Central Tax Act till year 2018-2019. Self-attested documentary proof is to be submitted. If not applicable submit affidavit in Rupees 100/- Non-judicial stamp paper. The bidder should have valid ESIC registration Certificate. A certified copy must be submitted. If not applicable submit affidavit in Rupees 100/- Non-judicial stamp paper.

The bidder should be registered with the Commissioner, Provident Fund and should submit copy of the registration along with the Technical bid. In case the bidder has less than 20 persons in his employment, he shall submit an affidavit to this effect in lieu of such registration.

4.5.2 Bidder should possess **valid ISO** Certification for Quality in Supply / Erection / Construction & Management in IT, Civil, E&M Works.

4.5.3 Technical Compliance Matrix

Sl. No.	Functional Feature /Requirement	Compliance (Y/N)	Remarks	Page No.
1	Consortium: (a) Consortium is allowed upto 3 Partners i.e. Lead bidder + 2 partners (b) The members of the consortium shall enter into a Memorandum of Understanding (MoU) for the purpose of submitting the proposal and designate one of the members as the Prime/ lead bidder. The bid shall be submitted by the lead bidder only, who shall also be the majority stakeholder in the consortium. (c) MoU / Letter of Association amongst Consortium members must be furnished with the Technical bid along with agreement between Consortium member defining their roles and responsibility for this project only (d) Power of Attorney for Lead Member of Consortium (prime bidder) should be signed by consortium partner(s).			
2	Sole Bidder or all the entities of the Consortium should be Class I/II contractors registered with UP Jal Nigam/State PWD / CPWD /National or Other State level Government Departments.) Documentary proof to be attached.			
3	**Financial & Technical Requirements as per Clause 4.4A (a) & (b)**			
4	The sole bidder (or at least one consortium partner, if in consortia) or OEM should have successfully implemented complete Domestic water supply Metering System & Technology for Water Billing including PHE related works as defined in **Clause 4.4B**. MAF from OEM is required.			
5	The sole bidder (including all members of the consortia) shall not be under a declaration of ineligibility for corrupt or fraudulent practices and should not be black listed by any State Government, Central Government or any other Public Sector undertaking on the date of Bid Submission. An undertaking to this effect should be submitted by the sole bidder (Lead bidder, in case of consortia) on its letter head.			
6	The sole Bidder (Prime bidder in case of consortium) should be authorized by OEM for IT and non- IT			

Sl. No.	Functional Feature /Requirement	Compliance (Y/N)	Remarks	Page No.
	equipment (in respect of each product and its services) to quote against this tender. The MAF (Manufacturer's/ OEM Authorization Form) should be submitted by the prime bidder, in case of a consortium			
7	The consortium must be a registered under any State's/UT's Commercial Tax Act / GST or Central Tax Act which must be quoted in the bid. The bidder must have paid all applicable State's/UT's Commercial Tax Act / GST or Central Tax Act till year 2018-2019. Self-attested documentary proof is to be submitted.			
8	The lead bidder should submit valid letter from the OEMs confirming following: (a) Authorization letter from OEM/Technology partner mentioning the support for 5 years including Spares, Software upgrades, after "Go-live" (b) Technology partner letter confirming Products quoted are not end-of-life/ end of sale for a period of 01 Year from the date of submission of the bid			
9	The Lead bidder/ consortium must provide a list of places where such systems have been installed and/or are being maintained by him with their configuration and with the references, Work order or purchase order copies etc. The bidder is required to provide assurance to arrange for a demo at such place in case the tender evaluation committee needs to evaluate the performance of the Installation.			
10	Bidders are advised to study all instructions, forms, terms, requirements and other information in the RFP documents carefully. Submission of bid shall be deemed to be done after careful study and examination of the RFP document with full understanding of its implications.			
11	The response to this RFP should be full and complete in all respects. Failure to furnish all information required by the RFP documents or submission of a proposal not substantially response to the RFP documents in every respect will be at the bidder's risk and may result in rejection of its proposal and forfeiture of the bid EMD. The decision of the CEO, KSCL, and Kanpur in this regard is final and binding on all bidders.			

4.6 Disqualification

Even though the bidders meet the above qualifying criteria, they are subject to be disqualified if they have:

- made misleading or false representations in the forms, statements and attachments submitted in proof of the qualification requirements; and/or
- Record of poor performance such as abandoning the works, not properly completing the contract, inordinate delays in completion, litigation history, or financial failures etc.; and/or
- participated in the previous bidding for the same work and had quoted unreasonably high bid prices and could not furnish rational justification to the employer.
- has not duly filled up the formats given in Qualification Information [1.3.1, 1.3.2, 1.4 A & B]

In case, the qualification information is not duly filled as per the prescribed formats, the bid shall be summarily rejected.

5. One Bid per Bidder

5.1 Each bidder shall submit only one bid for one contract. A bidder who submits or participates in more than one Bid (other than as a subcontractor or in cases of alternatives that have been permitted or requested) will cause all the proposals with the Bidder's participation to be disqualified.

6. Cost of Bidding

6.1 The bidder shall bear all costs associated with the preparation and submission of his Bid and the Employer will in no case be responsible and liable for those costs.

7. Site visit

7.1 The Bidder, at the Bidder's own responsibility and risk is encouraged to visit and examine the Site of Works and its surroundings and obtain 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.

B. Bidding Documents

8. Content of Bidding Documents

8.1 The set of bidding documents comprises the documents listed in the table

below and addenda issued in accordance with Clause 10:

1. Invitation for Bids
2. Bidding Documents comprising:

i. Section 1: Instructions to Bidders
ii. Section 2: Forms of Bid and Qualification Information
iii. Section 3: Conditions of Contract
iv. Section 4: Contract Data
v. Section 5: Technical Specifications
vi Section 6: Forms of Securities

8.2 Deleted

8.3 The bidder is expected to examine carefully all instructions, conditions of contract, contract data, forms, terms and specifications, bill of quantities, forms and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 25 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.

9. Clarification of Bidding Documents

9.1 A prospective bidder requiring any clarification of the bidding documents may notify the Employer in writing at the Employer's address indicated in the invitation to bid. The Employer will respond to any request for clarification which he received earlier than 15 days prior to the deadline for submission of bids. Copies of the Employer's response will be forwarded to all purchasers of the bidding documents, including a description of the enquiry but without identifying its source.

9.2 **Pre-bid meeting:** The purpose of the Pre-Bid Meeting will be to clarify and discuss issues with respect to the Project, the RFP document or any other related issues. The Bidder or his authorized representative is invited to attend a Pre-Bid Meeting, which shall take place at the venue specified in the Factsheet. It is preferable to attend the Pre-Bid Meeting. Subsequent to the date of the Pre- Bid Meeting, KSCL may not respond to questions or inquiries from any Bidder who has not attended the Pre-Bid Meeting. The Bidders designated representatives are invited to attend the Pre-Bid Meeting at their own cost, to be held on the date and time as specified in Factsheet.

10. Amendment of Bidding Documents

10.1 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda.

10.2 Any addendum thus issued shall be part of the bidding documents and shall be communicated in writing to all the purchasers of the bidding documents. Prospective bidders shall acknowledge receipt of each addendum in writing to the Employer.

10.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer shall extend as necessary the deadline for submission of bids, in accordance with Sub-Clause 20.2 below.

C. Preparation of Bids

11. Language of the Bid

11.1 All documents relating to the bid shall be in the English language.

12. Documents comprising the Bid

12.1 The bid to be submitted by the bidder (refer Clause 8) shall be in two separate parts:

Part-I shall be named "Technical Bid" and shall comprise

i. Bid security in the form (refer Clause 16) Specified in section 6 and non-refundable cost of bid document.

ii. Technical Proposal Content (as per format given below).

iii Qualification Information and supporting documents as specified in Section 2.

iv. Certificates, undertakings, affidavits as specified in Section 2.

v. Undertaking that the bid shall remain valid for the period specified in Clause15.1

Part-II shall be named "Financial Bid" and shall be done through – ONLINE SUBMISSION ONLY.

Each part will be separately sealed and marked in accordance with the sealing and Marking Instructions in Clause 19.

The bidder shall prepare **two sets** of the bid, marking them **"Original"** and **"copy"** respectively.

13. Bid Prices

13.1 The contract shall be for the whole works as described in Sub-Clause 1.1 based on the price on the Form of Bid submitted by the Bidder.

13.2 The Bidder must quote his **bid percentage price in Section-2 (Contractor's Bid Form) both in figure and words, which is to be duly signed by the bidder.**

13.3 A Financial Bid without any mention of bid price in the Contractor's Bid Form shall be treated as **Non-Responsive** and shall not be considered for evaluation. If the price bid format is provided in a spread sheet file like BoQ_XXXX.xls, the Percentage rates offered should be entered in the allotted space only and uploaded after filling the relevant columns. The Priced-bid/BOQ template shall not be modified/replaced by the bidder; else the bid submitted is liable to be rejected for the tender.

13.4 All duties, taxes, and other levies payable by the contractor under the contract, or for any other cause shall be included in the rates, prices and total Bid Price submitted by the Bidder. GST will extra at actual.

13.5 The percentage rates and prices quoted by the bidder are subject to adjustment during the performance of the Contract in accordance with the provisions of Clause 43 of the Conditions of Contract.

13.6 ***Abnormally low or high rates shall not be taken into consideration and shall be summarily rejected without assigning any reason thereof. Discounts offered after filling up the rates of the items shall not be taken into consideration and rates inserted against each item shall prevail.***

14. Currencies of Bid and Payment

14.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees.

15. Bid Validity

15.1 Bids shall remain valid for a period not less than **180 days** after the deadline date for bid submission specified in Clause 20. A bid valid for a shorter period **shall be rejected by the Employer as non-responsive.**

15.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by cable. A bidder may refuse the request

without forfeiting his bid security. A bidder agreeing to the request will not be required or permitted to modify his bid except as provided in 15.3 herein-after, but will be required to extend the validity of his bid security for a period of the extension, and incompliance with Clause 16 in all respects.

15.3 In the case of contracts in which the Contract Price is fixed (not subject to price adjustment),in the event that the purchaser requests and the Bidder agrees to an extension of the validity period, the contract price, if the Bidder is selected for award shall be the bid price corrected as follows:

The price shall be increased by the factor 0.12% for each week or part of a week that has elapsed from the expiration of the initial bid validity to the date of issue of letter of acceptance to the successful Bidder.

15.4 Bid evaluation will be based on the bid prices without taking into consideration the above correction.

16. Bid Security

16.1 The Bidder shall furnish, as part of his Bid, a Bid security in the amount as shown in column 4 of the table of IFB for this particular work. This bid security shall be in favour of the Employer, and may be in one of the following forms:

- A bank guarantee issued by a nationalized / scheduled bank located in India; or

- TDR / FDR pledged in favour of the Employer, payable at Kanpur.

16.2 Bank guarantees / TDR / FDR issued as surety for the bid shall be valid for at least 45 days beyond the validity of bids.

16.3 Any bid not accompanied by an acceptable Bid Security and not secured as indicated in Sub-Clauses 16.1 and 16.2 above shall be rejected by the Employer as non- responsive.

16.4 The Bid Security of unsuccessful bidders will be returned smoothly after the agreement is entered with the successful bidder.

16.5 The Bid Security of the successful bidder will be discharged when the bidder has signed the Agreement and furnished the required Performance Security.

16.6 The Bid Security may be forfeited

a) if the Bidder withdraws the Bid after Bid opening during the period of Bid validity;

b) if the Bidder does not accept the correction of the Bid Price, pursuant to Clause 27; or

c) In the case of a successful Bidder, if the Bidder fails within the specified time limit to

d) Sign the Agreement; or (ii) Furnish the required Performance Security.

17. Alternative Proposals by Bidders

17.1 Bidders shall submit offers that comply with the requirements of the bidding documents, including the basic technical design as indicated in the drawing and specifications. **Alternative bid will not** be considered.

18. Format and Signing of Bid

18.1 The Bidder shall prepare one original and one copy of the documents comprising the bid as described below in Clause 12 of these *Instruction to Bidders*, bound with the volume containing the "Technical Bid" and the "Financial Bid" in separate parts and clearly marked "**ORIGINAL**" and "**COPY**" as appropriate. In the event of discrepancy between them, the original shall prevail. ***All documents to be submitted should be in proper format & done by at least spiral binding.***

18.2 The original and copy of the Bid shall be typed or written in indelible ink and shall be signed (in **Blue Ink** only) by a person or persons duly authorized to sign on behalf of the Bidder, pursuant to Sub-Clauses 4.3. All pages of the bid where entries or amendments have been made shall be initialed by the person or persons signing the bid. ***Each and every signature must be dated. Full Name of the bidder shall be mentioned at least in the Contractor's Bid Form.***

18.3 The Bid shall contain no alterations or additions, except those to comply with instructions issued by the Employer, or as necessary to correct errors made by the bidder, in which case such corrections shall be initialed by the person or persons signing the bid.

18.4 The Bidder shall furnish information as described in the Form of Bid on commissions or gratuities, if any, paid or to be paid to agents relating to this Bid, and to contract execution if the Bidder is awarded the contract.

D. Submission of Bids

19. Sealing and Marking of Bids

19.1 The Bidder shall seal the original and copy of the Bid in separate envelopes,

duly marking the envelopes as "**ORIGINAL**" and "**COPY**". These two envelopes (called as inner envelopes) shall then be put inside one outer envelope. Each set of the inner envelopes marked "ORIGINAL" and "COPY" shall contain within separate sealed envelopes marked as "Technical Bid" with additional markings as follows:

Original or Copy, as the case may be

Bid to be opened as per the schedule mentioned in factsheet

The contents of Technical and Financial Bid will be as specified in Clause 12.

19.2 The envelopes containing Technical Bids shall

a) Be addressed to the Employer

b) Bear the identifications as indicated in Appendix.

19.3 In addition to the identification required in Sub-Clause 19.1 and 19.2, each of the envelopes shall indicate the name and address of the bidder to enable the bid to be returned unopened in case if it is declared late, pursuant to Clause 21, or the Evaluation Committee declares the Bid as non-responsive pursuant to Clause 23.

19.4 If the outer envelope is not sealed and marked as above, the Employer will assume no responsibility for the misplacement or premature opening of the bid.

20. Deadline for Submission of the Bids

20.1 Bids must be received by the Employer at the address specified above no later than the date specified in the factsheet. In the event of the specified date for the submission of bids declared a holiday for the Employer, the Bids will be received up to the appointed time on the next working day.

20.2 The Employer may extend the deadline for submission of bids by issuing amendment in accordance with Clause 10, in which case all rights and obligations of the Employer and the bidders previously subject to the original deadline will then be subject to the new deadline.

21. Late Bids

21.1 Any Bid received by the Employer after the deadline prescribed in Clause 20 will be returned unopened to the bidder.

22. Modification and Withdrawal of Bids

22.1 Bidders may withdraw their bids by giving notice in writing before the deadline prescribed in Clause 20.

22.2 Each Bidder's withdrawal notice shall be prepared, sealed, marked, and delivered in accordance with Clause 18 & 19, with the outer and inner envelopes additionally marked "**WITHDRAWAL**", as appropriate.

22.3 **Deleted**

22.4 Withdrawal of a Bid between the deadline for submission of bids and the expiration of the original period of bid validity specified in Clause 15.1 above or as extended pursuant to Clause 15.2 may result in the forfeiture of the Bid security pursuant to Clause 16.

22.5 **Deleted**

E. Bid Opening and Evaluation

23. Bid Opening

23.1 The Employer will open all the Bids received (except those received late), in presence of the Bidders or their representatives who choose to attend at time, date and the place specified in IFB in the manner specified in Clause 20 and 23.3. In the event of specified date of Bid opening being declared a holiday on the date of receipt of the bids as specified the bids will be received and opened on the next working day at the same time and venue.

23.2 Envelopes marked "**WITHDRAWAL**" shall be opened and read out first. Bids for which an acceptable notice of withdrawal has been submitted pursuant to Clause 22 shall not be opened.

23.3 Bid opening shall be carried out in two stages. Firstly, the envelopes containing "Technical Bid" shall be opened. The amount, form, and validity of the Bid security furnished with each bid will be announced. If the bid security furnished does not conform to the amount and validity period as specified in the Invitation for Bid (ref. Column 4 and paragraph 3), and has not been furnished in the form specified in Clause 16, the remaining technical bid and the sealed financial bid will be returned to the bidder.

"Financial Bids" of those bidders whose technical bids have been determined to be responsive and on evaluation fulfills the qualification criteria shall be opened on a subsequent date, which will be notified to such bidders.

23.4 The minutes of the Bid opening, including the information disclosed to those present in accordance with Clause 23.1, shall be prepared.

Evaluation Process

23.5 A Bid Evaluation Committee (BEC) shall evaluate the responses of the bidders. The decision of the BEC in the evaluation of responses to the tender document shall be final.

23.2 No correspondence shall be entertained outside the process of negotiation/discussion with the BEC.

23.3 The BEC may, at its sole discretion, ask for meetings with the Bidders to seek clarifications on their proposals and may visit bidder's site to validate the credentials/citations claimed by the bidder.

23.4 The BEC reserves the right to reject any or all proposals on the basis of any deviations.

23.5 Each of the responses shall be evaluated as per the criteria and requirements specified in this tender document. Inability to submit requisite supporting documents / documentary evidence, may lead to rejection.

Evaluation of Pre-Qualification Proposal

23.6 Procuring entity shall open "tender document fee and Earnest Money Deposit (EMD)". If the contents are as per requirements of the tender document and responsive to all the conditions set out in the RfP document then the bidder shall be deemed to have qualified the pre-qualification stage. Each of the Pre-Qualification condition mentioned in Section 4.5.3 of the tender document is mandatory. In case the bidder does not meet any condition, the bidder will be disqualified.

23.7 Response to the Pre-Qualification Requirements shall be evaluated in accordance with the requirements specified in this tender document and in the manner prescribed in Section 4.5.3 of the tender document.

Evaluation of Technical Proposal

The evaluation of the Technical Proposals will be carried out in the following manner:

23.8 Procuring entity will review the technical bids of the pre-qualified bidders only. Bids that are not substantially responsive are liable to be disqualified at procuring entity's discretion. Conditional Proposals shall be rejected out-rightly.

23.9 Bidder's technical solutions proposed in the bid document will be evaluated

as per the requirements and guidelines specified in the Annexures and technical evaluation criteria as mentioned in the tender document.

23.10 Bidders shall make the technical presentation and showcase proposed products/solutions to procuring entity as per the agenda mentioned in the tender document.

23.11 Each Technical Proposal shall be assigned a technical score out of a maximum of 100 points (Refer Section 23.18 of the tender document). In order to qualify for the consideration of financial proposal, the Bidder must get equal to or more than overall technical score of 70 (Seventy) points.

23.12 The bidders are required to submit all required documents in support of the evaluation criteria specified (e.g. detailed project citations and copy of work order/completion certificate, client contact information for verification, and all other components) as required for technical evaluation.

23.13 At any time during the bid evaluation process, BEC may, at its discretion seek written clarifications from the bidders.

23.14 Procuring entity reserves the right to undertake a reference check of the past experience stated by the bidder. Any feedback received during the reference check shall be taken into account during the technical evaluation process.

23.15 The Financial Proposals of bidders who do not qualify technically shall be kept unopened.

23.16 Procuring entity reserves the right to accept or reject any or all bids without giving any reasons thereof.

23.17 Procuring entity shall inform to the technically shortlisted Bidders about the date and venue of the opening of the financial proposals.

23.18 Technical Evaluation Criteria

Sl. No.	Evaluation Criteria	Max Marks	Supporting Documents
1	**ORGANISATIONAL STRENGTH**	**20**	
1.1	Financial Capability – Annual Turnover – The lead bidder or the sole bidder should have an average annual turnover for the period FY 2014-2015, 2015-2016, 2016-17, 2017-18 and 2018-2019 of at least 30% of the Contract Value.	10	As documentary proof, attested copy of the Audited Balance Sheet is to be submitted. The Bidder also has to provide the CA certificate specifying the same.

Sl. No.	Evaluation Criteria	Max Marks	Supporting Documents
1.2	Certification: ▪ISO 9001:2000 for quality management (or) ISO 9001:2015 Quality Management System (or) Any other quality management Standard Any 1 Certification = 5 Marks "A Class" registration in "Turnkey Projects" (or) "A" Class Electric license = 05 Marks	10	Copies of the valid ISO Certificates and relevant Certificates to be attached
2	**RELEVANT PAST EXPERIENCE**	**50**	
2.1	SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SMART METERING SYSTEM INCLUDING NEW PROVIDING WATER SUPPLY HSCs during last 05 Financial Years (completed works). • 01 Complete System = 5 Marks • 02 Complete Systems = 10 Marks	10	Copies of contract, work order, client certificates, etc.
2.2	Installation / Erection / Construction and Commissioning of PHE RELATED Civil & E/M Works year during last 05 Financial Years. (completed works) • Rs. 5 Cr. (CV) = 10 Marks • Rs. 10 Cr. (CV) = 20 Marks • Rs.15 Cr. (CV) = 30 Marks • Rs.20 Cr. (CV) = 40 Marks	40	Copies of contract, work order, client certificates, etc. These may be supported by a self-declaration stating the trainings provided and a brief outline content thereof.
3	**APPROACH & METHODOLOGY**	**20**	**Understanding of the Solution as per the RFP and Functional architecture of the components proposed.**
3.1	Detailed Approach	5	Proposal submitted
3.2	Work Plan	5	Proposal submitted
3.3	Training Plan	5	Training plan submitted
3.4	Innovative Ideas in project execution	5	Documentation submitted
4	**TECHNICAL PRESENTATION**	**10**	
4.1	Technical Presentation shall cover: Plan for implementation of for SUPPLY, INSTALLATION, TESTING AND COMMISSIONING OF SMART METERING SYSTEM INCLUDING NEW PROVIDING WATER SUPPLY HSCs, PHE RELATED WORKS, ASSOCIATED CIVIL, E&M WORKS FOR STRENGTHENING/ AUGMENTATION OF WATER SUPPLY NETWORK.	10	KSCL appointed panel (BEC) will evaluate the presentations.
	Total	**100**	

Bidder(s) will be called for the demonstration of the proposed system at KSCL.

Marks shall be evaluated both the bidder for each and every criteria except financial capabilities.

70% minimum score to be eligible for financial bid opening.

23.19 Eligible Goods and Services, and OEM Criteria (Applicable for Smart Metering System products and Technological system products only).

I. The Bidder should be authorized by OEM for IT and non- IT equipment (in respect of each product and its services) to quote against this tender. The
II. MAF (Manufacturer's/ OEM Authorization Form) should be submitted by the lead Bidder, in case of a consortium.
III. The bidder shall bear all the statutory levies like customs, insurance, freight, etc. applicable on the goods during their shipment from respective manufacturing/shipment site of the OEM to the port of landing.
IV. All charges including transportation charges that may be applicable till the goods are delivered at the respective site of installation shall also be borne by the bidder.
V. The bidder should take a specific insurance policy from a Third party for the Project providing insurance coverage against loss of or damage to etc.
VI. All goods quoted by the Bidder must be associated with item code and names and with printed literature describing configuration and functionality.
VII. The OEM for each products or technology quoted should be in the business of that product or solution or technology for at least 3 (Three) years as on the date of release of the RFP.
VIII. All the OEMs should have authorized presence in India either directly or through channel partner(s) as on the date of release of RFP.
IX. The OEM for all active components should give a declaration that products or technology quoted are neither end-of-sale nor end-of-life as on the date of installation and commissioning and are not end-of-support till the successful completion of O&M period of the project.
X. The bidder's proposed OEM should not have been blacklisted by any State /Central Government Department or Central /State PSUs as on bid submission date.
XI. Adequate supporting documents pertaining to the above points, along with a summary compliance table, should be submitted in the proposal by the Bidder.

24 Process to Be Confidential

24.1 Information relating to the examination, clarification, evaluation, and comparison of Bids and recommendations for the award of a contract shall not be disclosed to Bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any effort by a Bidder to influence the Employer's processing of Bids or award decisions may result in the rejection of his

Bid.

25 Clarification of Bids

25.1 To assist in the examination, evaluation, and comparison of Bids, the Employer may, at his discretion, ask any Bidder for clarification of his Bid, including breakdowns of the unit rates. The request for clarification and the response shall be in writing or by cable, but no change in the price or substance of the Bid shall be sought, offered, or permitted except as required to confirm the correction of arithmetic errors discovered by the Employer in the evaluation of the Bids in accordance with Clause 28.

25.2 Subject to sub-clause 25.1, no Bidder shall contact the Employer on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. If the Bidder wishes to bring additional information to the notice of the Employer, it should do so in writing.

25.3 Any effort by the Bidder to influence the Employer in the Employer's bid evaluation, bid comparison or contract award decisions may result in the rejection of the Bidders' bid.

26 Examination of Bids and Determination of Responsiveness

26.1 Prior to the detailed evaluation of Bids, the Employer will determine whether each Bid (a) meets the eligibility criteria defined in Clause 3; (b) has been properly signed; (c) is accompanied by the required securities and; (d) is substantially responsive to the requirements of the Bidding documents.

26.2 A substantially responsive Bid is one which conforms to all the terms, conditions, and specifications of the Bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the Bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive Bids.

26.3 If a Bid is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the non- conforming deviation or reservation.

27 Correction of Errors

27.1 "Financial Bids", determined to be substantially responsive will be checked by the Employer as follows:

a) Where there is a discrepancy between the rates in figures and in words, the rate in words will govern; and

b) Where there is a discrepancy between the unit rate and the line item total resulting from multiplying the unit rate by the quantity, the unit rate as quoted will govern.

27.2 The amount stated in the "Financial Bid" will be corrected by the Employer in accordance with the above procedure and the bid amount adjusted with the concurrence of the Bidder in the following manner:

a) If the Bid prices increases as a result of this correction, the amount as stated in the bid will be the 'bid price' and the increase will be treated as rebate;

b) If the Bid price decreases as a result of this correction, the decreased amount as stated in the bid will be the 'bid price'.

27.3 Such adjusted bid price shall be considered as binding upon the Bidder. If the Bidder does not accept the corrected amount the Bid will be rejected, and the Bid security may be forfeited in accordance with Sub-Clause 2.11.3).

28 Evaluation and Comparison of Bids

The cost indicated in the Financial Proposal shall be deemed as final and reflecting the total cost of services and should be stated in INR only. Omissions, if any, in costing of any item shall not entitle the bidder to be compensated and the liability to fulfil its obligations as per the Terms of Reference within the total quoted price shall be that of the Bidder. The Bidder shall bear all taxes, duties, fees, levies and other charges imposed under the Law as applicable. GST will be extra at actual. The lowest Financial Proposal (F_M) will be given a financial score (F_S) of 100 points.

Financial Proposals will be determined using the following formula:

$$\mathbf{F_S = (F_M/F) * 100}$$

F_S: Financial Score

F_M: Lowest Financial Proposal

F: Financial Bid of Bidder under consideration

Proposals will be finally being ranked in accordance with their combined Technical Score (T_S) and Financial Score (F_S):

$$B_S = T_S*0.70 + F_S*0.30$$

B_S: Bid Score

T_S: Technical Score

F_S: Financial Score

F. Award of Contract

29 Award Criteria

33.1 Bidder achieving the highest combined technical and financial score will be declared as the successful bidder and will be issued the Letter of Intent (LoI).

33.2. If there is more than one bidder achieving (combined technical and financial score) the equal score, procuring entity reserves the right to select the Bidder(s) and that will be binding on all bidders.

30 Employer's Right to accept any Bid and to reject any or all Bids

30.1 Notwithstanding Clause 31, the Employer reserves the right to accept or reject any Bid, and to cancel the Bidding process and reject all Bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the grounds for the Employer's action.

31 Notification of Award and Signing of Agreement

31.1 The Bidder whose Bid has been accepted will be notified of the award by the Employer prior to expiration of the Bid validity period by cable, telex or facsimile confirmed by registered letter. This letter (hereinafter and in the *Conditions of Contract* called the "Letter of Acceptance") will state the sum that the Employer will pay the Contractor in consideration of the execution, completion, and maintenance of the Works by the Contractor as prescribed by the Contract (hereinafter and in the Contract called the "Contract Price").

31.2 The notification of award will constitute the formation of the Contract, subject only to the furnishing of a performance security in accordance with

the provisions of Clause 32.

31.3 The Agreement will incorporate all agreements between the Employer and the successful Bidder. It will be kept ready for signature of the successful bidder in the office of employer within 7 days following the notification of award along with the Letter of Acceptance.

31.4 Upon the furnishing by the successful Bidder of the Performance Security, the Employer will promptly notify the other Bidders that their Bids have been unsuccessful.

32 Performance Security

32.1 Within 7 days of receipt of the Letter of Acceptance, the successful Bidder shall deliver to the Employer a Performance Security in any of the forms given below for an amount equivalent to **10%** of the Contract price plus additional security for unbalanced Bids in accordance with Clause 28.5 of ITB and Clause 47 of Conditions of Contract:

- A bank guarantee in the form given in Section 7; or
- TDR / FDR pledged in favour of the Employer payable at Kanpur.

32.2 The additional performance security for unbalanced Bids shall be **20%** of the difference of cost of the unbalanced items rounding off to the nearest thousand.

32.3 If the performance security is provided by the successful Bidder in the form of a Bank Guarantee or fixed deposit Receipts,, it shall be issued at the Bidder's option, by a Nationalized/Scheduled Indian bank located in India and acceptable to the Employer.

32.4 Failure of the successful bidder to comply with the requirements of sub-clause 32.1 shall constitute a breach of contract, cause for annulment of the award, forfeiture of the bid security and any such other remedy the Employer may take under the contract, and the Employer shall resort to awarding the contract to the next ranked bidder.

33 Advance Payments and Security

The mobilization advance can be maximum of 10% of the contract price, subject to a Bank Guarantee of 110% of the amount claimed.

34 Adjudicator

34.1 The Employer may propose to appoint Adjudicator under the Contract, at a daily retainer fee to be announced plus daily allowances and

reimbursable expenses. The Bidder shall bear part or full expenses for the adjudicator in case of a dispute requiring the appointment of the adjudicator.

35 Fraud and Corruption:

35.1 It is the Employer's policy to require that bidders, suppliers, contractors and their agents (whether declared or not), sub-contractors, sub-consultants, service providers or suppliers, and any personnel thereof, observe the highest standard of ethics during the procurement and execution of contracts. In pursuance of this policy, the Employer:

(a) Defines, for the purposes of this provision, the terms set forth below as follows:

(i) "Corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party;

(ii) "Fraudulent practice" is any act or omission, including a mis-representation, that knowingly or recklessly misleads, or attempts to mislead, a party to obtain a financial or other benefit or to avoid an obligation;

(iii) "Collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party;

(iv) "Coercive practice" is 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;

(v) "Obstructive practice" is deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede an investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation,

(vi) The Employer shall reject a proposal for award if it determines that the bidder recommended for award, or any of its personnel, or its agents, or its sub-consultants, sub-contractors, service providers, suppliers and/or their employees, has, directly or indirectly, engaged

in corrupt, fraudulent, collusive, coercive or obstructive practices in competing for the contract in question.

(vii) The Employer shall sanction a firm or individual, at any time, by publicly declaring such firm or individual ineligible, either indefinitely or for a stated period of time: (i) to be awarded contract; and (ii) to be a nominated7 sub-contractor, consultant, supplier or services provider of an otherwise eligible firm being awarded contract;

35.2 Furthermore, Bidders shall be aware of the provision stated in sub-clause 28.2 and sub clause 57 of the Conditions of Contract.

SECTION 2:
FORMS OF BID, QUALIFICATION INFORMATION AND LETTER OF ACCEPTANCE

Table of Forms:

- **CONTRACTOR'S BID**
- **QUALIFICATION INFORMATION**
- **LETTER OF ACCEPTANCE**
- **NOTICE TO PROCEED WITH THE WORK**
- **AGREEMENT FORM**

Contractor's Bid

Description of the Works: _____

_____

To,

The Chief Executive Officer,
Kanpur Smart City Limited,
Kanpur.

Dear Sir,

Having examined the bidding documents including addendum, we offer to execute the Works described above in accordance with the Conditions of Contract, Specifications, and Drawings accompanying this Bid.

This Bid and your written acceptance of it shall constitute a binding contract between us. We understand that you are not bound to accept the lowest or any Bid you receive.

We hereby certify that we have taken steps to ensure that no person acting for us or on our behalf will engage in bribery.

We also undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".We undertake, if our tender is accepted, to commence the Works as soon as is reasonably possible after the receipt of notice to commence, and to complete the whole of the Works comprised in the Contract within the time stated in the Appendix to Conditions of Contract.

We agree to abide by this tender, and it shall remain binding upon us. We hereby confirm that this Bid complies with the Eligibility, Bid Validity and Bid Security required by the Bidding documents.

We understand that you are not bound to accept the lowest or any tender you may receive.

Yours faithfully,

Authorized Signature:

Name & Title of
Signatory:

Full Name of Bidder: (In Capitals only) _____

Address:

Qualification Information

The information to be filled in by the Bidder in the following pages will be used for purposes of post qualification as provided for in Clause 4 of the Instructions to Bidders. This information will not be incorporated in the Contract.

1. For Individual Bidders

1.1 Constitution or legal status of Bidder ***[Attach copy]***

Place of registration: _____

Principal place of business: _____

Power of attorney of signatory of Bid ***[Attach]***

1.2 Total value of SMART Metering, Civil Engineering construction work, E & M works executed in Water supply / Sewerage Sectors and payments received in the last five years****** *(Attach certificates from Engineer-in-charge not below the rank of Executive Engineer)*

2014-2015	
2015-2016	
2016- 2017	
2017- 2018	
2018-2019	

1.3.1 Work performed as prime contractor (in the same name) on works of a similar nature over the last five years i.e. 2014-2015 to 2018-2019

Name of Work	Name of Employer*	Description of Work	Contract No.	Value of Contract (Rs in Lakhs)	Date of Issue of Work Order	Stipulated period of Completion	Actual Date of Completion	Remark

(Use separate sheet using landscape orientation)

1.3.2 Quantities of work executed as prime contractor (in the same name and style) in the last five years: ******

***** *Attach certificate(s) from the Engineer(s)-in-Charge*

@The item of work for which data is requested should tally with that specified in ITB clause 4.4A(c).

****** *Immediately preceding the financial year in which bids are received.*

1.4 Information on Bid Capacity (works for which bids have been submitted and works which are yet to be completed) as on the date of this bid.

(A) Existing commitments and on-going works:

Name of Work	Place	Contract No & Date	Name & Address of Employer	Value of Contract (Rs in L)	Stipulated period of completion	Value of works remaining to be completed	Anticipated Date of completion

***** *Attach certificate(s) from the Engineer(s)-in-Charge*.

(Use separate sheet in landscape orientation)

(B) Works for which bids already submitted:

Name of work	Place	Name & Address of Employer	Estimated Value of Works (Rs in L)	Stipulated period of completion	Date when decision is expected	Remarks, if any

(Use separate sheet in landscape orientation)

1.5 The following items of Contractor's Equipment are essential for carrying

out the Works. The Bidder should list all the information requested below. Refer also to Sub Clause 4.3 (e) of the Instructions to Bidders.

Sl. No.	Equipment Type and Characteristics	Minimum Capacity	Max. Age of Equipment (years)	Minimum Number Required
1	Loader cum excavator type JCB / Proclainer	1 cum bucket size	5	1
2	Water tanker	6 KL	5	1
3	Generator	125 KVA	5	1
4	Leveling Instrument		5	1
5	Water spraying Pumps for curing, cleaning etc.			1
6	Weigh Batching Type Mobile Concrete Mix Batching Plant			1
7	Special Tools and Tackles as required for fixing of various Instruments, analyzers, E/M equipment. **(Hilti or Equivalent)**		10	5 SETS

1.6 Qualifications and experience of key personnel proposed for administration and execution of the Contract. Attach biographical data. Refer also to Sub Clause 4.3 (g) and 4.4 (D) of instructions to Bidders and Sub Clause 9.1 of the Conditions of Contract.

1.7 Financial reports for the last five years: balance sheets, profit and loss statements, auditors' reports (in case of contracts worth more than Rs 50.00 Lakhs), etc. and for contracts worth less than Rs 50.00 Lakhs, Financial reports for last three years. List them below and attach copies. *(Not mandatory for works up to Rs 10 Lakhs)*

1.8 Evidence of access to financial resources to meet the qualification requirements: cash in hand, lines of credit, etc. List them below and attach copies of support documents *[sample format attached]*.

1.9. Name, address, and telephone, telex, and fax numbers of the Bidders' bankers who may provide references if contacted by the Employer.

1.10 Statement of compliance under the requirements of Sub Clause 3.2 of the instructions to Bidders.

_____

_____

1.11 Proposed work method and schedule. The Bidder should attach descriptions, drawings and charts as necessary to comply with the requirements of the Bidding documents. [Refer ITB Clause 4.1 and 4.3 (k)].

SAMPLE FORMAT FOR EVIDENCE OF ACCESS TO OR AVAILABILITY OF CREDIT FACILITIES –* CLAUSE 4.5 [B] [c] OF ITB

BANK CERTIFICATE

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

If the contract for the work 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.

Name of Bank

Senior Bank Manager

Address of the Bank

LETTER OF ACCEPTANCE

(Letterhead of the Employer)

[date]

To:

_____

[name and address of the Contractor]

Dear Sirs,

This is to notify you that your Bid dated _____ for execution of

the_____

[name of the contract and identification number, as given in the Instructions to Bidders] for the Contract Price of Rupees _____ (_) [amount in words and figures], as corrected and modified in accordance with the Instructions to Bidders1 is hereby accepted by our Agency.

You are hereby requested to furnish Performance Security, plus additional security for unbalanced bids in terms of ITB clause 28.5, in the form detailed in Para 32.1 of ITB for an amount of Rs.——————— within 7 days of the receipt of this letter of acceptance valid up to 28 days from the date of expiry of Defects Liability Period i.e. up to .....and sign the contract, failing which action as stated in Para 32.4 of ITB will be taken.

Yours faithfully,

Authorized Signature

Name and Title of Signatory

Name of Agency

ISSUE OF NOTICE TO PROCEED WITH THE WORK

(Letterhead of the Employer)

To

———————————————— (name and address of the Contractor)
————————————————
————————————————
— Dear Sirs:
Pursuant to your furnishing the requisite security as stipulated in ITB clause 32 and signing of the contract agreement for the construction of @ a Bid Price of Rs._____
_, you are hereby instructed to proceed with the execution of the said works in accordance with the contract documents.

Yours faithfully,

(Signature, name and title
of signatory authorized to
sign on behalf of Employer)

Day of 2019,

Agreement Form

This agreement made the _____ day of _____ 2019, between [name and address of Employer] (Hereinafter called "the Employer)" of the one part and [name and address of Contractor] (Hereinafter called "the Contractor") of the other part.

Whereas the Employer is desirous that the Contractor execute the [name and identification number of Contract] (Hereinafter called "the Works") and the Employer has accepted the Bid by the Contractor for the execution and completion of such Works and the remedying of any defects therein, at a contract price of Rs.....

NOW THIS AGREEMENT WITNESSETH as follows:

1. In this Agreement, words and expression shall have the same meanings as are respectively assigned to them in the Conditions of Contract hereinafter referred to, and they shall be deemed to form and be read and construed as part of this Agreement.

2. In consideration of the payments to be made by the Employer to the Contractor as hereinafter mentioned, the Contractor hereby covenants with the Employer to execute and complete the Works and remedy any defects therein in conformity in all aspects with the provisions of the Contract.

3. The Employer hereby covenants to pay the Contractor in consideration of the execution and completion of the Works and the remedying the defects wherein the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and in the manner prescribed by the Contract.

4. The following documents shall be deemed to form and be read and construed as part of this

Agreement, viz.:

i) Letter of acceptance;

ii) Notice to proceed with the works;

iii) Contractor's Bid;

iv) Contract Data;

v) Conditions of contract (including Special Conditions of Contract);

vi) Specifications;

vii) Drawings; and

viii) Any other document listed in the Contract Data as forming part of the contract. In witness whereof the parties thereto have caused this Agreement to be executed the day and year first before written.

The Common Seal of _____

was hereunto affixed in the presence of:

Signed, Sealed and Delivered by the said in the presence of: _____

Binding Signature of Employer _____

Binding Signature of Contractor _____

SECTION 3: CONDITIONS OF CONTRACT

Conditions of Contract

A. General

1. Definitions

1.1 Terms which are defined in the Contract Data are not also defined in the Conditions of Contract but keep their defined meanings. Capital initials are used to identify defined terms.

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

Compensation Events are those defined in Clause 44 hereunder.

The **Completion Date** is the date of completion of the Works as certified by the Engineer in accordance with Sub Clause 55.1.

The **Contract** is the contract between the Employer and the Contractor to execute, complete and maintain the Works. It consists of the documents listed in Clause 2.3 below.

The **Contract Data** defines the documents and other information which comprise the Contract.

The **Contractor** is a person or corporate body whose Bid to carry out the Works has been accepted by the Employer.

The **Contractor's Bid** is the completed Bidding document submitted by the Contractor to the Employer.

The **Contract Price** is the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract.

Days are calendar days; **months** are calendar months.

A **Defect** is any part of the Works not completed in accordance with the Contract.

The **Defects Liability Period** is the period named in the Contract Data and calculated from the Completion Date.

The **Employer** is the party who will employ the Contractor to carry out the Works.

The **KSCL Engineer** is the person named in the Contract Data (or any other competent person appointed and notified to the contractor to act in replacement of the Engineer) who is responsible for supervising the execution of the works and administering the Contract.

Equipment is the Contractor's machinery and vehicles brought temporarily to the Site to construct the Works.

The **Initial Contract Price** is the Contract Price listed in the Employer's Letter of Acceptance.

The **Intended Completion Date** is the date on which it is intended that the Contractor shall complete the Works. The Intended Completion Date is specified in the Contract Data. The Intended Completion Date may be revised only by the KSCL Engineer by issuing an extension of time.

Materials are all supplies, including consumables, used by the contractor for incorporation in the Works.

Plant is any integral part of the Works which is to have a mechanical, electrical, electronic or chemical or biological function.

The **Site** is the area defined as such in the Contract Data.

Site Investigation Reports are those which were included in the Bidding documents and are factual interpretative reports about the surface and sub-surface conditions at the site.

Specification means the Specification of the Works included in the Contract and any modification or addition made or approved by the KSCL Engineer.

The **Start Date** is given in the Contract Data. It is the date when the Contractor shall commence execution of the works. It does not necessarily coincide with any of the Site Possession Dates.

A **Subcontractor** is a person or corporate body who has a Contract with the Contractor to carry out a part of the work in the Contract which includes work on the Site.

Temporary Works are works designed, constructed, installed, and removed by the Contractor which are needed for construction or installation of the Works.

A **Variation** is an instruction given by the KSCL Engineer which varies the Works.

The **Works** are what the Contract requires the Contractor to construct, install, and turn over to the Employer, as defined in the Contract Data.

2. Interpretation

2.1 In interpreting these Conditions of Contract, singular also means plural, male also means female or neuter, and the other way around. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The KSCL Engineer will provide instructions clarifying queries about the Conditions of Contract.

2.2 If sectional completion is specified in the Contract Data, references in the Conditions of Contract to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended

Completion date for the whole of the Works).

2.3 The documents forming the Contract shall be interpreted in the following order of priority:

(1) Agreement
(2) Letter of Acceptance, notice to proceed with the works
(3) Contractor's Bid
(4) Contract Data
(5)Conditions of Contract including Special Conditions of Contract
(6) Specifications
(7) Drawings and
(8) Any other document listed in the Contract Data as forming part of the Contract.

3. Language and Law

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

4. Engineer's Decisions

4.1 Except where otherwise specifically stated, the KSCL Engineer will decide contractual matters between the Employer and the Contractor in the role representing the Employer.

5. Delegation

5.1 The KSCL Engineer may delegate any of his duties and responsibilities to other people except to the Adjudicator after notifying the Contractor and may cancel any delegation after notifying the Contractor.

6. Communications

6.1 Communications between parties which are referred to in the conditions are effective only when in writing. A notice shall be effective only when it is delivered (in terms of Indian Contract Act).

7. Subcontracting

7.1 The Contractor may subcontract with the approval of the KSCL Engineer but may not assign the Contract without the approval of the Employer in writing. Subcontracting does not alter the Contractor's obligations.

8. Other Contractors

8.1 The Contractor shall cooperate and share the Site with other contractors, public authorities, utilities, and the Employer between the dates given in the Schedule of Other Contractors. The Contractor shall as referred to in the Contract Data, also provide facilities and services for them as described in the Schedule. The employer may modify the schedule of other contractors and shall notify the contractor of any such modification.

9. Personnel

9.1 The Contractor shall employ the key personnel named in the Schedule of Key Personnel as referred to in the Contract Data to carry out the functions stated in the Schedule or other personnel approved by the KSCL Engineer. The KSCL Engineer will approve any proposed replacement of key personnel only if their qualifications, abilities, and relevant experience are substantially equal to or better than those of the personnel listed in the Schedule.

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

10. Employer's and Contractor's Risks

10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.

11. Employer's Risks

11.1 The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works in the Employer's country, the risks of war, hostilities, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor's employees), and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Contractor's design.

12. Contractor's Risks

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

13. Insurance

13.1 The Contractor at his cost shall provide, in the joint names of the Employer and the Contractor, insurance cover from the Start Date to the date of completion, in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks:

a) loss of or damage to the Works, Plant and Materials;

b) loss of or damage to Equipment;

c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) in connection with the Contract;

and

d) Personal injury or death.

13.2 Insurance policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the completion date/ Start Date. All such insurance shall provide for compensation to be payable in Indian Rupees to rectify the loss or damage incurred.

13.3 (a) The Contractor at his cost shall also provide, in the joint names of the Employer and the Contractor, insurance cover from the date of completion to the end of defect liability period, in the amounts and deductibles stated in the Contract Data for the following events which are due to the Contractor's risks: (a) Personal injury or death.

13.4 (b) Insurance policies and certificates for insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the completion date/ start date. All such insurance shall provide for compensation to be payable in Indian Rupees.

13.5 Alterations to the terms of insurance shall not be made without the approval of the Engineer.

13.6 Both parties shall comply with any conditions of the insurance policies.

13.7 The bidder shall have a suitable insurance to cover all the risks that are likely to occur from the scope of works and services indicated in this project. The insurance shall cover KSCL, KSCL's Project Management Consultant staff, Users etc. Risks may include but are not limited to a) accidents b) Mal function of equipment/or machines c) casualties d) Safety e) Theft etc.

14. Site Investigation Reports

14.1 The Contractor, in preparing the Bid, shall rely on any site Investigation Reports referred to in the Contract Data, supplemented by any information available to the Bidder.

15. Queries about the Contract Data

15.1 The KSCL Engineer will clarify queries on the Contract Data.

16. Contractor to Construct the Works

16.1 The Contractor shall construct and install the Works in accordance with the Specification and Drawings, and as per instructions of KSCL Engineer.

17. The Works to Be Completed by the Intended Completion Date

17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works in accordance with the program submitted by the Contractor, as updated with the approval of the

KSCL Engineer, and complete them by the Intended Completion Date.

18. Approval by the Engineer

18.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the KSCL Engineer, who is to approve them if they comply with the Specifications and Drawings.

18.2 The Contractor shall be responsible for design of Temporary Works.

18.3 The KSCL Engineer's approval shall not alter the Contractor's responsibility for design of the Temporary Works.

18.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works where required.

18.5 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the KSCL Engineer before their use.

19. Safety

19.1 The Contractor shall be responsible for the safety of all activities on the Site.

20. Discoveries

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

21. Possession of the Site

21.1 The Employer shall give possession of all parts of the Site to the Contractor. If possession of a part is not given by the date stated in the Contract Data the Employer is deemed to have delayed the start of the relevant activities and this will be Compensation Event.

22. Access to the Site

22.1 The Contractor shall allow the KSCL Engineer and any person authorized by the KSCL Engineer access to the Site, to any place where work in connection with the Contract is being carried out or is intended to be carried out and to any place where materials or plant are being manufactured/fabricated/assembled for the works.

23. Instructions

23.1 The Contractor shall carry out all instructions of the KSCL Engineer which comply with the applicable laws where the Site is located.

B. Time Control

24. Program

24.1 Within the time stated in the Contract Data the Contractor shall submit to the KSCL Engineer for approval a Program including Environmental Management Plan showing the general methods, arrangements, order, and timing for all the activities in the Works along with monthly cash flow forecast.

24.2 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work including any changes to the sequence of the activities.

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

24.4 The KSCL Engineer's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the KSCL Engineer again at any time. A revised Program is to show the effect of Variations and Compensation Events.

25. Extension of the Intended Completion Date

25.1 The KSCL Engineer in consultation with the Employer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work and which would cause the Contractor to incur additional cost.

25.2 The KSCL Engineer in consultation with the Employer shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the KSCL Engineer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

26.Delays Ordered by the Engineer

26.1 The KSCL Engineer may instruct the Contractor to delay the start or progress of any activity within the Works.

27. Management Meetings

27.1 Either the KSCL Engineer or the Contractor may require the other to attend a management meeting. The business of a management meeting shall be to review the plans for remaining work and to deal with matters raised in accordance with the early warning procedure.

27.2 The KSCL Engineer shall record the business of management meetings and is to provide copies of his record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken is to be decided by the KSCL Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.

28. Early Warning

28.1 The Contractor is to warn the Engineer at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, increase the Contract Price or delay the

execution of works. The KSCL Engineer may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate is to be provided by the Contractor as soon as reasonably possible.

28.2 The Contractor shall cooperate with the KSCL Engineer in making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone involved in the work and in carrying out any resulting instruction of the KSCL Engineer.

C. Quality Control

29. Identifying Defects

29.1 The KSCL Engineer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The KSCL Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the KSCL Engineer considers may have a Defect.

29.2 The contractor shall permit the Employer's Technical auditor to check the contractor's work and notify the KSCL Engineer and Contractor of any defects that are found. Such a check shall not affect the Contractor's or the KSCL Engineer's responsibility as defined in the Contract Agreement.

30. Tests

30.1 If the KSCL Engineer instructs the Contractor to carry out a test not specified in the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect the test shall be a Compensation Event.

31.Correction of Defects

31.1 The KSCL Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion and is defined in the Contract Data. The Defects Liability

Period shall be extended for as long as Defects remain to be corrected.

31.2 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the KSCL Engineer's notice.

32. Uncorrected Defects

32.1 If the Contractor has not corrected a Defect within the time specified in the KSCL Engineer's notice, the KSCL Engineer will assess the cost of having the Defect corrected, and the Contractor will pay this amount.

Note: Where in certain cases, the technical specifications provide for acceptance of works within specified tolerance limits at reduced rates, KSCL Engineer will certify payments to Contractor accordingly.

33. Bill of Quantities

33.1 Attached in Section – 5 of this Document.

D. Cost Control

34. Changes in the Quantities

34.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1% of Initial Contract Price, the KSCL Engineer in consultation with the Employer shall adjust the rate to allow for the change.

34.2 Unless the Contractor and the Employer along with KSCL Engineer agree to the contrary the total value of all Change of Scope orders shall not exceed 10 (ten) per cent of the Contract Price.

34.3 If requested by the KSCL Engineer, the Contractor shall provide the KSCL Engineer with a detailed cost breakdown of any rate in the Bill of Quantities.

35. Variations

35.1 All Variations shall be included in updated Programs produced by the Contractor.

36. Payments for Variations

36.1 The Contractor shall provide the KSCL Engineer with a quotation (with breakdown of unit rates) for carrying out the Variation when requested to do so by the KSCL Engineer. The KSCL Engineer shall assess the quotation, which shall be given within seven days of the request or within any longer period stated by the KSCL Engineer/Employer and before the Variation is ordered.

36.2 If the work in the Variation corresponds with an item description in the Bill of Quantities and if, in the opinion of the KSCL Engineer/Employer, the quantity of work above the limit stated in Sub Clause 38.1 or the timing of its execution do not cause the cost per unit of quantity to change, the rate in the bill of Quantities shall be used to calculate the value of the Variation. If the cost per unit of quantity changes, or if the nature or timing of the work in the Variation does not correspond with items in the Bill of Quantities, the quotation by the Contractor shall be in form of new rates for the relevant items of work.

36.3 If the Contractor's quotation is unreasonable (or if the contractor fails to provide the KSCL Engineer with a quotation within a reasonable time specified by the KSCL Engineer in accordance with Clause 40.1), the KSCL Engineer may order the Variation and make a change to the Contract Price which shall be based on KSCL Engineer's own forecast in consultation with the Employer of the effects of the Variation on the Contractor's costs.

36.4 If the KSCL Engineer decides that the urgency of varying the work would prevent a quotation being given and considered without delaying the work, no quotation shall be given and the Variation shall be treated as a Compensation Event.

36.5 The Contractor shall not be entitled to additional payment for costs that could have been avoided by giving early warning.

37. Cash flow forecasts

When the Program is updated, the contractor is to provide the KSCL Engineer with an updated cash flow forecast.

38. Milestone Schedule & Payment Certificates

MILESTONE SCHEDULE

Sl. No.	Milestone Works Description	Tenure & Targets
1	a) Providing new HSCs in 2990 / 6990 identified House Holds. b) Providing Capping of connections in existing 2755 / 5755 connections. c) Providing Interconnections and segregations in zones- CW-17,CW-29 d) Starting Construction of ZPS CW-28 including OHSR, CWR, Pump House, Substation e) Extension of Distribution System	**Physical Progress should be equal to Financial Equivalent of 30% of the Contract Value within 90 Days after Start date of Contract.** Measurement Books (MB) for Civil Works and BOQ for Instrument/Electrical/Mech. Works.* Completion certificates must be submitted for all the works mentioned in this milestone (Column 2) or as directed by Engineer-in-Charge so that the required physical progress is achieved as per
2	a) Providing new HSCs in 4000 / 6990 identified House Holds. b) Providing Capping of connections in existing 3000 / 5755 connections. c) Providing Interconnections and segregations in zones- CW-28 d) Construction of ZPS CW-28 including OHSR, CWR, Pump House, Substation continues. e) Laying of 350 Dia Feeder Main	**Physical Progress should be equal to Financial Equivalent of 35% of the Contract Value within 180 Days after Start date of Contract.** Work measurement shall be as per Measurement Books (MB) for Civil Works and BOQ for Instrument/Electrical/Mech. Works.* Completion certificates must be submitted for all the works mentioned in this milestone (Column 2) or as directed by Engineer-in-Charge so that the required physical progress is achieved as per this
3	a) Supply, Installation, Testing and Commissioning of AMR meters in 12745 HHs @ 4250 Nos. per month. b) Completion of Construction of ZPS CW-28 including OHSR, CWR, Pump House, Substation.	**Physical Progress should be equal to Financial Equivalent of 35% of the Contract Value within 270 Days after Start date of Contract.** Measurement Books (MB) for Civil Works and BOQ for Instrument/Electrical/Mech. Works.* Completion certificates must be submitted for all the works mentioned in this milestone (Column 2) or as directed by Engineer-in-Charge so that the required physical progress is achieved as per this
4	Defect liability period (1 Year) after complete Handover. Start Date of Defect Liability Period shall be after completion of all the works Specified in Milestones 1, 2 & 3 above.	**Total Amount Retained in the monthly RA Bill Payments less adjustments, will be paid at the completion of all works.**

*** Contractor shall submit the RA Bill of every month in the first week of succeeding month on actual work done along with certified Measurement Book (MB), Request for Inspection (RFI) and Test Reports, if any. Payments for AMR meters and metering system, Electrical and Mechanical Items will be made as defined in Clause 38.2.**

*** All Works must be prior approved and post approved by Jal Nigam (Kanpur), Jal Kal Vibhag, Nagar Nigam, Kanpur and KSCL Engineer-in-Charge.**

**** Liquidity damages shall be levied for Delays beyond the Time Period Mentioned in Milestones.**

Payment Schedule

38.1 For **Civil Works** Contractor shall submit to the KSCL Engineer monthly statements of the estimated value of the work completed less the cumulative amount certified previously along with details of measurement of the quantity of works executed in Measurement Books as approved by the KSCL Engineer.

38.2 Payments for **AMR meters and metering system, Electrical and Mechanical items** shall be made as per the following:

A) 60% against delivery of material at site on pro-rata basis.

B) 20% against installation of material at site on pro-rata basis.

C) 10% against commissioning of complete system.

D) 10% against successful operation of system at the end of Defect Liability Period.

38.3 The value of work executed shall be determined by the KSCL Engineer after due check measurement of the quantities claimed as executed by the contractor.

38.4 The value of work executed shall comprise the value of the quantities of the items in the Bill of Quantities completed.

38.5 The value of work executed shall include the valuation of Variations and Compensation Events.

38.6 The KSCL Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information.

39.Payments

39.1 Payments shall be adjusted for deductions for advance payments, retention, other recoveries in terms of the contract and taxes, at source, as applicable under the law. The Employer shall pay the Contractor the amounts certified by the KSCL Engineer within 28 days of the date of each certificate.

39.2 Deleted

39.3 Items of the Works for which no rate or price has been entered in will not be paid for by the Employer and shall be deemed covered by other rates and prices in the Contract.

40. Compensation Events

40.1 The following are Compensation Events unless they are caused by the Contractor:

(a) The Employer does not give access to a part of the Site by the Site Possession Date stated in the Contract Data.

(b) The Employer modifies the schedule of other contractors in a way which affects the work of the contractor under the contract.

(c) The KSCL Engineer orders a delay or does not issue drawings, specifications or instructions required for execution of works on time.

(d) The KSCL Engineer instructs the Contractor to uncover or to carry out additional tests upon work which is then found to have no Defects.

(e) The KSCL Engineer unreasonably does not approve for a subcontract to be let.

(f) Ground conditions are substantially more adverse than could reasonably have been assumed before issuance of Letter of Acceptance from the information issued to Bidders (including the Site Investigation Reports), from information available publicly and from a visual inspection of the Site.

(g) The KSCL Engineer gives an instruction for dealing with an unforeseen condition, caused by the Employer, or additional work required for safety or other reasons.

(h) Other contractors, public authorities, utilities or the Employer does not work within the dates and other constraints stated in the Contract, and they cause delay or extra cost to the Contractor.

(i) The advance payment is delayed.

(j) The effect on the Contractor of any of the Employer's Risks.

(k) The KSCL Engineer unreasonably delays issuing a Certificate of Completion.

(l) Other Compensation Events listed in the Contract Data or mentioned in the Contract.

40.2 If a Compensation Event would cause additional cost or would prevent the work being completed before the Intended Completion Date, the Intended Completion Date shall be extended. The KSCL Engineer shall decide whether and by how much the Intended Completion Date shall be extended.

40.3 As soon as information demonstrating the effect of each Compensation Event upon the Contractor's forecast cost has been provided by the Contractor, it is to be assessed by the KSCL Engineer and the Intended Completion Date shall be extended accordingly. If the Contractor's forecast is deemed unreasonable, the KSCL Engineer shall adjust the Intended Completion Date based on KSCL Engineer's own forecast. The KSCL Engineer will assume that the Contractor will react competently and promptly to the event.

40.4 The Contractor shall not be entitled to compensation to the extent that the Employer's interests are adversely affected by the Contractor not having given early warning or not having cooperated with the KSCL Engineer.

41.Tax

41.1 The rates quoted by the Contractor shall be deemed to be inclusive of the sales and other taxes that the Contractor will have to pay for the performance of this Contract . The Employer will perform such duties in regard to the deduction of such taxes at source as per applicable law. GST will be Extra at actual.

42. Currencies

42.1 All payments shall be made in Indian Rupees.

43. Price Adjustment

43.1 Contract price shall not be adjusted for increase or decrease in rates and price of labour, materials, fuels and lubricants during the tenure of the contract.

43.2 To the extent that full compensation for any rise or fall in costs to the contractor, the unit rates and prices included in the contract shall be deemed to include amounts to cover the contingency of such other rise or fall in costs.

44. Retention

44.1 The Employer shall retain from each monthly payment due to the Contractor the proportion stated in the Contract Data until Completion of the whole of the Works.

44.2 On Completion of the whole of the Works half the total amount retained is repaid to the Contractor and half when the Defects Liability Period has passed and the KSCL Engineer has certified that all Defects notified by the KSCL Engineer to the Contractor before the end of this period have been corrected.

44.3 On completion of the whole works, the contractor may substitute retention money *(balance half)* with an "on demand" Bank guarantee.

45. Liquidated Damages

45.1 The Contractor shall pay liquidated damages to the Employer at the rate per day stated in the Contract Data for each day that the Completion Date is later than the Intended Completion Date (for the whole of the works or the milestone as stated in the contract data). The total amount of liquidated damages shall not exceed the amount defined in the Contract Data. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages does not affect the Contractor's liabilities.

45.2 If the Intended Completion Date is extended after liquidated damages have been paid, the KSCL Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate. The Contractor shall be paid interest on the overpayment

calculated from the date of payment to the date of repayment at the rates specified in Sub Clause 43.1.

46. Advance Payment

46.1 The Employer shall make an interest bearing (@ PLR rate) Mobilization advance equal to 10 % of the contract value exclusive for mobilization expenses. The first instalment 5% shall be released 15 days after receiving and subject to receiving the Bank Guarantee of amount110% of the requested amount:

. The second instalment would be released after submission of receipt certificate by the Contractor for the first 5% advance already paid earlier.

46.4 **Secured Advance**: Deleted.

47. Securities

47.1 The Performance Security shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in an amount and form and by a bank or surety acceptable to the Employer, and denominated in Indian Rupees. The Performance Security shall be valid until a date 28 days from the date of expiry of Defects Liability Period and the additional security for unbalanced bids shall be valid until a date 28 days from the date of issue of the certificate of completion. The performance security of a joint venture shall be in the name of the joint venture.

48. Cost of Repairs

48.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at the Contractor's cost if the loss or damage arises from the Contractor's acts or omissions.

E. Finishing the Contract

49. Completion

49.1 The Contractor shall request the KSCL Engineer to issue a Certificate of Completion of the Works and the KSCL Engineer will do so upon deciding that the Work is completed.

50. Taking Over

50.1 The Employer shall take over the Site and the Works within seven days of the KSCL Engineer issuing a certificate of Completion.

51. Final Account

51.1 The Contractor shall supply to the KSCL Engineer a detailed account of the total amount that the Contractor considers payable under the Contract before the end of the Defects Liability Period. The KSCL Engineer shall issue a Defect Liability Certificate and certify any final payment that is due to the Contractor within 56 days of receiving the Contractor's account if it is correct and complete. If it is not, the KSCL Engineer shall issue within 56 days a schedule that states the scope of the corrections or additions that are necessary. If the Final Account is still unsatisfactory after it has been resubmitted, the KSCL Engineer shall decide on the amount payable to the Contractor and issue a payment certificate, within 56 days of receiving the Contractor's revised account.

52. Operating and Maintenance Manuals

52.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the Contract Data.

52.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the Contract Data, or they do not receive the KSCL Engineer's approval, the KSCL Engineer shall with hold the amount stated in the Contract Data from payments due to the Contractor.

53. Termination

53.1 The Employer or the Contractor may terminate the Contract if the other party causes a fundamental breach of the Contract.

53.2 Fundamental breaches of Contract include, but shall not be limited to the following: (a) The Contractor stops work for 28 days when no stoppage of work is shown on the current program and the stoppage has not been authorized by the KSCL Engineer;

(b) The KSCL Engineer instructs the Contractor to delay the progress of the Works and the instruction is not withdrawn within 28 days;

(c) The Employer or the Contractor is made bankrupt or goes into liquidation other than for a reconstruction or amalgamation;

(d) A payment certified by the KSCL Engineer is not paid by the Employer to the Contractor within 56 days of the date of the KSCL Engineer's certificate;

(e) The KSCL Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the KSCL Engineer;

(f) The Contractor does not maintain a security which is required;

(g) The Contractor has delayed the completion of works by the number of days for which the maximum amount of liquidated damages can be paid as defined in the Contract data; and

(h) If the Contractor, in the judgment of the Purchaser has engaged in fraud and corruption, as defined in GCC Clause 57, in competing for or in executing the Contract.

53.3 When either party to the Contract gives notice of a breach of contract to the KSCL Engineer for a cause other than those listed under Sub Clause 53.2 above, the KSCL Engineer shall decide whether the breach is fundamental or not.

53.4 Notwithstanding the above, the Employer may terminate the Contract for convenience.

53.5 If the Contract is terminated the Contractor shall stop work immediately, make the Site safe and secure and leave the Site as soon as reasonably possible.

54. Payment upon Termination

54.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the KSCL Engineer shall issue a certificate for the value of the work done less advance payments received up to

the date of the issue of the certificate, less other recoveries due in terms of the contract, less taxes due to be deducted at source as per applicable law and less the percentage to apply to the work not completed as indicated in the Contract Data. Additional Liquidated Damages shall not apply. If the total amount due to the Employer exceeds any payment due to the Contractor the difference shall be a debt payable to the Employer.

54.2 If the Contract is terminated at the Employer's convenience or because of a fundamental breach of Contract by the Employer, the KSCL Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the contract and less taxes due to be deducted at source as per applicable law.

55. Property

55.1 All materials on the Site, Plant, Equipment, Temporary Works and Works are deemed to be the property of the Employer, if the Contract is terminated because of a Contractor’s default.

56.Release from Performance

56.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of either the Employer or the Contractor the KSCL Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which commitment was made.

57. Fraud & Corruption

57.1 If the Employer determines that the Contractor has engaged in corrupt, fraudulent, collusive coercive or obstructive practices, in competing for or in executing the Contract, then the Employer may, after giving 14 days notice to the Contractor, terminate the Contractor’s

employment under the Contract and expel him from the Site, and the provisions of Clause 53 shall apply. Should any employee of the Contractor be determined to have engaged in corrupt, fraudulent, collusive, coercive, or obstructive practice during the execution of the works, then that employee shall be removed in accordance with Clause 9 (Personnel). For the purposes of this Sub-Clause:

(i) "Corrupt practice" is the offering, giving, receiving or soliciting, directly or indirectly, of anything of value to influence improperly the actions of another party*;

(ii) "Fraudulent practice" is 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) "Collusive practice" is an arrangement between two or more parties designed to achieve an improper purpose, including influencing improperly the actions of another party#;

(iv) "Coercive practice" is 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$;

(v) "Obstructive practice" is

(aa) deliberately destroying, falsifying, altering or concealing of evidence material to the investigation or making false statements to investigators in order to materially impede a investigation into allegations of a corrupt, fraudulent, coercive or collusive practice; and/or threatening, harassing or intimidating any party to prevent it from disclosing its knowledge of matters relevant to the investigation or from pursuing the investigation, or

(bb) acts intended to materially impede the exercise of KSCL's inspection rights.

** For the purpose of this sub-paragraph, "another party" refers to a public official acting in relation to the procurement process or contract execution. In this context, "public official" includes KSCL staff and employees of other organizations taking or reviewing procurement decisions.*

*** For the purpose of this sub-paragraph, "party" refers to a public*

official; the terms "benefit" and "Obligation" relate to the procurement process or contract execution; and the "act or omission" is intended to influence the procurement process or contract execution.

 # For the purpose of this sub-paragraph, "parties" refers to participants in the procurement process (including public officials) attempting either themselves, or through another person or entity not participating in the procurement or selection process, to simulate competition or to establish bid prices at artificial, non-competitive levels, or are privy to each other's bid prices or other conditions.

$ For the purpose of this sub-paragraph, "party" refers to a participant in the procurement process or contract execution.

F. Special Conditions of Contract

1. LABOUR:

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

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

2. COMPLIANCE WITH LABOUR REGULATIONS:

During continuance of the contract, the Contractor and his sub-contractors shall abide at all times by all existing labour enactments and rules made there under, regulations, notifications and bye laws of the State or Central Government or local authority and any other labour law (including rules), regulations, bye laws that may be passed or notification that may be issued under any labour law in future either by the State or the Central Government or the local authority. Salient features of some of the major labour laws that are applicable to construction industry are given below.

The Contractor shall keep the Employer indemnified in case any action is taken against the Employer by the competent authority on account of contravention of any of the provisions of any Act or rules made there under, regulations or notifications including amendments. If the Employer is caused to pay or reimburse, such amounts as may be necessary to cause or observe, or for non-observance of the provisions stipulated in the notifications/bye laws/Acts/Rules/regulations including amendments, if any, on the part of the Contractor, the KSCL Engineer/Employer shall have the right to deduct any money due to the Contractor including his amount of performance security. The Employer/KSCL Engineer shall also have right to recover from the Contractor any sum required or estimated to be required for making good the loss or damage suffered by the Employer.

The employees of the Contractor and the Sub-Contractor in no case shall be treated as the employees of the Employer at any point of time.

SALIENT FEATURES OF SOME MAJOR LABOUR LAWS APPLICABLE TO ESTABLISHMENTS ENGAGED IN BUILDING AND OTHER CONSTRUCTION WORK

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

b) Payment of Gratuity Act 1972: Gratuity is payable to an employee under the Act on satisfaction of certain conditions on separation if an employee has completed 5 years' service or more or on death the rate of 15 days wages for every completed year of service. The Act is applicable to all establishments employing 10 or more employees.

c) Employees P.F. and Miscellaneous Provision Act 1952 *(since amended)*: The Act Provides for monthly contributions by the employer plus workers @ 10% or 8.33%. The benefits payable under the Act are:

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

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

(iii) Payment of P.F. accumulation on retirement/death etc.

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

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

f) Minimum Wages Act 1948: The Employer is supposed to pay not less than the Minimum Wages fixed by appropriate Government as per provisions of the Act if the employment is a scheduled employment. Construction of Buildings, Roads, and Runways are scheduled employments.

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

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

i) Payment of Bonus Act 1965: The Act is applicable to all establishments employing 20 or more employees. The Act provides for payments of annual bonus subject to a minimum of 8.33% of wages and maximum of 20% of wages to employees drawing Rs.3500/-per month or less. The bonus to be paid to employees getting Rs.2500/- per month or above up to Rs.3500/- per month shall be worked out by taking wages as Rs.2500/-per month only. The Act does not apply to certain establishments. The newly set-up establishments are

exempted for five years in certain circumstances. Some of the State Governments have reduced the employment size from 20 to 10 for the purpose of applicability of this Act.

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

k) Industrial Employment (Standing Orders) Act 1946: It is applicable to all establishments employing 100 or more workmen (employment size reduced by some of the States and Central Government to 50). The Act provides for laying down rules governing the conditions of employment by the Employer on matters provided in the Act and gets the same certified by the designated Authority.

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

m) Child Labour (Prohibition & Regulation) Act 1986: The Act prohibits employment of children below 14 years of age in certain occupations and processes and provides for regulation of employment of children in all other occupations and processes. Employment of Child Labour is prohibited in Building and Construction Industry.

n) Inter-State Migrant workmen's (Regulation of Employment & Conditions of Service) Act 1979: The Act is applicable to an establishment which employs 5 or more inter- state migrant workmen through an intermediary (who has recruited workmen in one state for employment in the establishment situated in another state). The Inter-State migrant workmen, in an establishment to which this Act becomes applicable, are required to be provided certain facilities such as housing, medical aid, travelling expenses from home up to the establishment and back, etc.

o) The Building and Other Construction workers (Regulation of Employment and Conditions of Service) Act 1996 and the Cess Act of 1996: All the establishments who carry on any building or other

construction work and employs 10 or more workers are covered under this Act. All such establishments are required to pay cess at the rate not exceeding 2% of the cost of construction as may be modified by the Government. The Employer of the establishment is required to provide safety measures at the Building or construction work and other welfare measures, such as Canteens, First-Aid facilities, Ambulance, Housing accommodations for workers near the work place etc. The Employer to whom the Act applies has to obtain a registration certificate from the Registering Officer appointed by the Government.

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

3. SUB-CONTRACTING (GCC Clause 7)

Please add the following as Clause 7.2:

The contractor shall not be required to obtain any consent from the employer for:

a) The sub-contracting of any part of the Works for which the Sub-contractor is named in the contract;
b) The provision of labour; and
c) The purchase of materials which are in accordance with the standards specified in the Contract.

Beyond this if the contractor proposes sub-contracting any part of the work during execution of works, because of some unforeseen circumstances to enable him to complete the work as per terms of the contract; the KSCL Engineer will consider the following before according approval:

- The contractor shall not sub-contract the whole of the Works. The limit for sub- contracting shall be 25% of the Contract price.

Proposal for sub-contracting shall contain detailed experience, equipment and personnel for sub-contractor along with items and quantities to be sub contracted.

- The contractor shall not sub-contract any part of the Work without prior consent of the KSCL Engineer. Any such consent shall not relieve the contractor from any liability or obligations under the contract and he shall be responsible for the acts, defaults and neglects of any subcontractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the contractor, his agents or workmen.

- The KSCL Engineer should satisfy whether (a) the circumstances warrant such sub- contracting; and (b) the sub-contractors so proposed for the Work possess the experience, qualifications and equipment necessary for the job proposed to be entrusted to them in proportion to the quantum of work to be sub-contracted.

- If payments are proposed to be made directly to that sub-contractor, this should be subject to specific authorization by the prime contractor so that this arrangement does not alter the contractor's liability or obligations under the contract.

Note:

1. All bidders are expected to indicate clearly in the bid, if they proposed sub-contracting elements of the works amounting to more than 20 percent of the Bid Price. For each such proposal the qualification and the experience of the identified sub-contractor in the relevant field should be furnished along with the bid to enable the employer to satisfy himself about their qualifications before agreeing for such subcontracting and include it in the contract. In view of the above, normally no additional sub-contracting should arise during execution of the contract.

2. However, [a] sub-contracting for certain specialized elements of the work is not unusual and acceptable for carrying out the works more effectively; but vertical splitting of the works for subcontracting is not acceptable. [b] In any case, proposal for subcontracting in addition to

what was specified in bid and stated in contract agreement will not be acceptable if the value of such additional sub-contracting exceeds 25% of value of work which was to be executed by Contractor without sub-contracting.

3. Assignment of the contract may be acceptable only under exceptional circumstances such as insolvencies/liquidation or merger of companies etc.

4. ARBITRATION

The procedure for arbitration will be as follows:

a) In case of Dispute or difference arising between the Employer and a domestic contractor relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996.

b) Arbitration proceedings shall be held at Kanpur, India, and the language of the arbitration proceedings and that of all documents and communications between the parties shall be English.

c) The disputes or differences arising shall be referred to a Sole Arbitrator. The Sole Arbitrator should be appointed by agreement between the parties; failing such agreement, by the appointing authority, namely the Indian Council of Arbitration.

d) Performance under the contract shall continue during the arbitration proceedings and payments due to the contractor by the owners shall not be withheld, unless they are the subject matter of the arbitration proceedings.

5. PROTECTION OF ENVIRONMENT:

Add the following as GCC Clause 16.2:

The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation. During continuance of the contract, the contractor and his sub-contractors shall

abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority.

Salient features of some of the major laws that are applicable are given below:

The Water (Prevention and Control of Pollution) Act, 1974, this provides for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water.

'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance into water (whether directly or indirectly) as may, or is likely to, create a nuisance or render such water harmful or injurious to public health or safety, or to domestic, commercial, industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms.

The Air (Prevention and Control of Pollution) Act, 1981, this provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence in the atmosphere of any 'air pollutant', which means any solid, liquid or gaseous substance (including noise) present in the atmosphere in such concentration as may be or tend to be injurious to human beings or other living creatures or plants or property or environment.

The Environment (Protection) Act, 1986. This provides for the protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beings, other living creatures, plants and property. 'Environment' includes water, air and land and the interrelationship which exists among and between water, air and land, and human beings, other living creatures, plants, micro-organism and property.

The Public Liability Insurance Act, 1991, This provides for public liability

insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for matters connected herewith or incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

6. LIQUIDATED DAMAGES:

Sub-clause 44.1: Please substitute the last sentence with the following:
"Time is the essence of the contract and payment or deduction of liquidated damages shall not relieve the contractor from his obligation to complete the work as per agreed construction program and milestones or from any other of the contractor's obligations and liabilities under the contract."

7. PRIORITY OF DOCUMENTS:

Sub-clause 2.3: Please substitute sub paragraphs (a) to (j) with the following:

a. Agreement,
b. the Letter of Acceptance,
c. Contractor's Bid,
d. the addenda (if any)
e. Special Conditions of Contract
f. Contact Data;
g. General Conditions of Contract
h. Specifications
i. Part-II-Supplementary Technical Specifications including additional Technical Specifications.
j. Part-I General Specifications
k. Part-III- Environmental Management Plan
l. Drawings
m. Any other documents forming part of the Contract.

8. Safety & Welfare Provisions for labour to be employed by the Contractor

All necessary personal safety equipment as considered adequate by

the KSCL Engineer shall be available for use of persons employed on the Site and maintained in a condition suitable for immediate use; and the Contractor shall take adequate steps to ensure proper use of such equipment by those concerned.

1. Safety Provisions:

The Contractor shall comply with all the precautions as required for the safety of the workmen.

i. All workmen at site shall be provided with safety helmets and yellow/orange jackets. Workmen required on site during night hours shall be provided with fluorescent yellow jackets with reflective lopes.

ii. Workers employed on mixing asphaltic materials, cement, lime mortars, concrete etc. shall be provided with protective footwear, protective goggles.

iii. Those engaged in handling any material, which is injurious to the eyes, shall be provided with protective goggles protective goggles.

iv. Those engaged in welding works shall be provided with welder's protective eye- shield.

v. Stone breakers shall be provided with protective goggles and protective clothing and seated at sufficiently safe intervals.

vi. Suitable scaffolds shall be provided for workmen for all work that cannot safely be done from the ground, or from solid construction except for such short period work as can be done safely from ladders. When a ladder is used, an extra labourer shall be engaged for holding the ladder and if the ladder is used for carrying materials as well, suitable foot-holds and hand-holds shall be provided on the ladder, which shall be given an inclination not steeper than 1/4 to 1.

vii. Scaffolding or staging more than 3.25 meters above the ground or floor, swung or suspended from an overhead support or erected with stationary support, shall have a guard rail properly attached, bolted, braced and otherwise secured at least 1 metre high above the floor or platform of such scaffolding or staging and extending along the entire length of the outside and ends thereof with only such openings as may be necessary for the delivery of materials. Such scaffolding or staging shall be so fastened as to prevent it from swaying from the support or structure.

viii. Working platforms, gangways, and stairways shall be so constructed that they do not sag unduly or unequally, and if the height of any platform or gangway or stairway is more than 3.25 metres above ground level or floor level, it shall have closely spaced boards, have adequate width and be suitably provided with guard rails as described in (vii) above.

ix. Every opening in the floor of a structure or in a working platform shall be provided with suitable means to prevent fall of persons or materials by providing suitable fencing or railing with a minimum height of one metre.

x. Safe means of access and egress shall be provided to all working platforms and other working places. Every ladder shall be securely fixed. No portable single ladder shall be over 9 metres in length. The width between side rails in a rung ladder shall in no case be less than 30 cm for ladders up to and including 3metres in length. For longer ladders the width shall be increased at least 6 mm for each additional 30 cm of length. Spacing of steps shall be uniform and shall not exceed 30 cm.

xi. Adequate precautions shall be taken to prevent danger from electrical equipment. No materials on any of the sites shall be so stacked or placed as to cause danger or inconvenience to any person or the public. The Contractor shall provide all necessary fencing and lights to protect the public from accidents and shall be bound to bear the expenses of defending every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may be awarded in any such suit, action or proceedings to any such person or which may with the consent of the Contractor be paid to compromise any claim by any such person.

xii. Excavation and Trenching: All trenches, 1.5 metres or more in depth shall at all times be supplied with at least one ladder for each 20 metres in length or fraction thereof. Ladders shall be extended from the bottom of the trench to at least 1 metre above the surface of the ground. The

sides of a trench, which is 1.5metres or more in depth shall be stepped back to provide a suitable slope, or be securely held by timber bracing so as to avoid the danger of side collapse. Excavated material shall not be placed within 1.5 metres of the edge of any trench or half the depth of the trench, whichever is more. Excavation shall be made from the top to the bottom. Under no circumstances shall undermining or undercutting be done.

xiii. When workers are employed in sewers and manholes, which are in use, the Contractor shall ensure that manhole covers are open and manholes are ventilated at least for an hour before workers are allowed to go into them. Manholes so open shall be cordoned off with suitable railing and provide warning signals or boards to prevent accidents to the public.

xiv. Demolition: Before any demolition work is commenced and also during the process of the work:

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

b) No electric cable or apparatus, which is liable to be a source of danger other than a cable or apparatus used by operators, shall remain electrically charged:

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

xv. When work is performed near any place where there is risk of drowning all necessary equipment shall be provided and kept ready for use and all necessary steps taken for prompt first aid treatment of all injuries likely to be sustained during the course of the work.

xvi. Use of hoisting machines and tackle including their attachments, anchorage and supports shall conform to the following:

(a) These shall be of good mechanical construction, sound material and adequate strength and free from patent defects and shall be kept in good working order be regularly inspected and properly maintained.

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

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

xvii. Motors, gearing, transmission, electric wiring and other dangerous parts of hoisting appliances shall be provided with efficient safeguards; hoisting appliances shall be provided with such means as will reduce the risk of accident during descent of load to the minimum. Adequate precautions shall be taken to reduce to the minimum risk of any part of a suspended load becoming accidentally displaced. When workers are employed on electrical installations which are already energised, insulating mats, working apparel such as gloves, sleeves and boots, as may be necessary, shall be provided. Workers shall not wear any rings, watches and carry keys or other material which are good conductors of electricity.

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

xix. These safety provisions shall be brought to the notice of all concerned by displaying on a notice board at a prominent place at the work location. Persons responsible for ensuring compliance with the Safety Code shall be named therein by the Contractor.

xx. To ensure effective enforcement of the rules and regulations relating

to safety precautions, arrangements made by the Contractor shall be open to inspection by the KSCL Engineer or his Representative.

xxi. Notwithstanding anything contained in condition (i) to (xv) above, the Contractor shall remain liable to comply with the provisions of all acts, rules, regulations and bylaws for the time being in force in India and applicable in this matter. The Contractor shall be responsible for observance, by his sub-contractors, of the foregoing provisions.

2. Labour Welfare Provisions:

i. First Aid:

At every workplace, there shall be maintained in readily accessible place first aid appliances including an adequate supply of sterilised dressings and sterilised cotton wool as prescribed in the Factory Rules of the State in which the work is carried on. The appliances shall be kept in good order and, in large work places; they shall be placed under the charge of a responsible person who shall be readily available during working hours.

ii. Accommodation for Labour:

The Contractor shall during the progress of the work provide, erect and maintain necessary temporary living accommodation and ancillary facilities for labour at his own expense to standards and scales approved by the KSCL Engineer.

iii. Drinking Water:

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

Where drinking water is obtained from an intermittent public water supply each workplace shall be provided with storage tanks where drinking water shall be stored.

Every water supply storage shall be at a distance of not less than 15 metres from any latrine, drain or other source of pollution. Where water has to be drawn from an existing well, which is within such proximity of any latrine, drain or any other source of pollution, the

well shall be properly chlorinated before water is drawn from it for drinking. All such wells shall be entirely closed in and be provided with a trap door, which shall be dust proof and waterproof. A reliable pump shall be fitted to each covered well. The trap door shall be kept locked and opened only for cleaning or inspection, which shall be done at least once a month.

iv. Washing and Bathing Places:

Adequate washing and bathing places shall be provided separately for men and women. Such places shall be kept in clean and drained condition.

v. Scale of Accommodation in Latrines and Urinals:

There shall be provided within the precincts of every workplace, latrines and urinals in an accessible place, and the accommodation, separately for each for these, shall not be less than at the following scale:

No. of Seats

(a) Where number of persons does not exceed 50 - 2
(b) Where number of persons exceed 50 but does not exceed 100 - 3
(c) For additional persons per 100 or part thereof - 3

In particular cases, the KSCL Engineer shall have the power to increase the requirement, wherever necessary.

vi. Latrines and Urinals:

Except in work places provided with water-flushed latrines connected with a water borne sewage system, all latrines shall be provided with dry-earth system (receptacles) which shall be cleaned at least four times daily and at least twice during working hours and kept in a strictly sanitary condition. Receptacles shall be tarred inside and outside at least once a year.

If women are employed, separate latrines and urinals, screened from those for men and marked in the vernacular in conspicuous letters "For women only", shall be provided. Those for men shall be similarly marked "For men only". A poster showing the figure of a man and a woman shall also be exhibited at the entrance to latrines

for each sex. There shall be adequate supply of water, close to latrines and urinals.

vii. Construction of Latrines:

Inside walls shall be constructed of masonry or other non-absorbent material and shall be cement- washed inside and outside at least once a year. The dates of cement washing shall be noted in a register maintained for the purpose and kept available for inspection. Latrines shall have at least a thatched roof.

viii. Disposal of Excreta:

Unless otherwise arranged for by the local sanitary authority, arrangement for proper disposal of excreta by incineration at the workplace shall be made by means of a suitable incinerator approved by the local medical health and municipal or cantonment authorities. Alternatively, excreta may be disposed of by putting a layer of night soils at the bottom of a pucca tank prepared for the purpose and covering it with a15 cm layer of waste or refuse and then covering it with a layer of earth for a fortnight (when it will turn into manure).

The Contractor shall, at his own expense, carry out all instructions issued to him by the KSCL Engineer to effect proper disposal of soil and other conservancy work in respect of Contractor's work-purpose or employees on the site. The Contractor shall be responsible for payment of any charges, which may be levied by municipal or cantonment authority for execution of such work on his behalf.

ix. Provisions of shelters during rest:

At every workplace, there shall be provided, free of cost, four suitable sheds, two for meals and two others for rest, separately for use of men and women labour. The height of each shelter shall not be less than 3metres from floor level to lowest part of roof. Sheds shall be kept clean and the space provided shall be on the basis of at least 0.5 sq.m. Per head.

x. Crèches:

At a place where women are ordinarily employed, there shall be

provided at least one hut for use of children under the age of 6 years belonging to such women. Huts shall not be constructed to a standard lower than that of thatched roof, mud floor and wall with wooden planks spread over mud floor and covered with matting.

Huts shall be provided with suitable and sufficient openings, for light and ventilation. There shall be adequate provision of sweepers to keep the places clean. There shall be a maidservant in attendance. Sanitary utensils shall be provided to the satisfaction of local medical, health a municipal or cantonment authorities. Use of huts shall be restricted to children, their attendants and mothers of children.

xi. Canteen:

A cooked food canteen on a moderate scale shall be provided for the benefit of workers wherever it is considered necessary.

xii. Planning, Setting and erection of above mentioned structures:

Planning, setting and erection of the above mentioned structures shall be approved by the KSCL Engineer or his Representative and the whole of such temporary accommodation shall at all times during the progress of the Works be kept tidy and in a clean and sanitary condition to the satisfaction of the KSCL Engineer or his representative and at the Contractor's expense. The Contractor shall conform generally to sanitary requirements of local medical, health and municipal or cantonment authorities and at all times adopt such precautions as may be necessary to prevent soil pollution of the Site.

On completion of the Works, the whole of such temporary structures shall be cleared away, all rubbish burnt, excreta or other disposal pits or trenches filled in and effectively sealed off and the whole of the site left clean and tidy, at the Contractor's expense, to the entire satisfaction of the KSCL Engineer.

xiii. Anti-malarial precautions:

The Contractor shall, at his own expense, conform to all anti-malarial instructions given to him by the KSCL Engineer, including filling up any borrow pits which may have been dug by him.

xiv. Awareness and Education of HIV/AIDS

The contractor shall provide/carryout HIV/AIDS awareness and training Program to its labour and management, at least twice per year during the construction period.

xv. Child Labour Prohibition

The contractor shall not employ Child Labour for any works or in any manner under the Contract at any time. In the event that the Contractor uses child labour, the Employer shall terminate the Contract.

xvi. Amendments:

The Employer may, from time to time, add to, or amend these Rules and issue such directions as it may be considered necessary for the proper implementation of these Rules or for the purpose of removing any difficulty, which may arise in the administration thereof.

SECTION 4: CONTRACT DATA

CONTRACT DATA

Items marked "N/A" do not apply in this Contract.

The following documents are also part of the Contract:

Clause Reference with respect to Section 3

The **Employer** is:

Name: **Chief Executive Officer, Kanpur Smart City Limited** [1.1]

Address: **Nagar Nigam Mukhyalaya, Motijheel, Kanpur - 208002**

The Site is located at **Kanpur** [1.1]

The **Engineer** is [1.1]

Name: Shall be named later

Address: **Nagar Nigam Mukhyalaya, Motijheel, Kanpur - 208002**

Name of Authorized Representative: **The Nodal Officer, KSCL**

The Works consist of; Building Works, Other Items; and other items of works as may be required to be carried out for completing the works in accordance with the drawings and provisions of the Contract to ensure safety. (1.1)

The Start Date shall be the date of issue of notice to proceed with the work. [1.1]

The following documents also form part of the Contract: [2.3]

Document	Description of the document
Construction Methodology	Construction methodology in bid amended as per comments of employer given in letter of acceptance.

The language of the Contract documents is English [3]

The law which applies to the Contract is the laws of Union of India and Govt. of Uttar Pradesh [3.1]

Schedule of other contractors Nil [8.1]

Site investigation reports- As indicated in the drawings [14]

The intended completion date for the whole of the works shall be **270 days** from the date of commencement.

The Site Possession Dates shall be within seven days from the date of issue of Notice to Proceed with Work: [21]
The Employer may require suggesting the contractor to submit revised program in accordance with an agreeable alternate schedule of handing over of site for which no compensation events hold good.

The amount to be withheld for late submission of an updated Program shall be Rs. 5,000.00 [24]

The Defects Liability Period is **365 days** from the date of certification of completion of works. (Where sectional completion certificate is issued this will apply from those dates for those sections). [1.1, 31]

The currency of the Contract is Indian Rupees. [42]

The proportion of payments retained (retention money) shall be 5% from each bill subject to a maximum of 5 % of final contract price [44]

Amount of the liquidated damages per day for non-completion of the section/total work as per the completion date specified in 1.1 are as under: [45]

For: Milestone -I: Rs.1000 per day

For: Milestone -II: Rs.2000 per day

For: Milestone -III: Rs.5000 per day

Milestone Schedule is mentioned in Clause No. 38.

The maximum amount of liquidated damages for the whole of the works is ten percent of final contract price.

The mobilization advance can be maximum of 10% of the contract price, subject to a Bank Guarantee of 110% of the amount claimed. [46]

The Securities shall be for the following minimum amounts:

Performance Security for 5 per cent of contract price plus 20% of the unbalanced bid amount as additional security for unbalanced bids [*in terms of ITB Clause 28.5*].

The standard form of Performance Security acceptable to the Employer shall be an unconditional Bank Guarantee of the type as presented in Section 7 of the Bidding Documents or Call Deposit / Term Deposit in favor of the Employer, payable at Kanpur.

The following events shall also be fundamental breach of contract:

1. The Contractor has contravened Sub-clause 7 of GCC in reference to SCC and Clause 9.0 of GCC

2. The contractor does not adhere to the agreed construction program and agreed environmental management plan (Clause 24 of GCC) and also fails to take satisfactory remedial action as per agreements reached in the management meetings (Clause 27) for a period of 30 days.

3. The contractor fails to carry out of the instructions of KSCL Engineer within a reasonable time determined by the KSCL Engineer in accordance with GCC Clause16.1 and 23.1.

The percentage to apply to the value of the work not completed representing the Employer's additional cost for completing the Works shall be **20** percent.

SECTION 5: SCOPE OF WORK, TECHNICAL SPECIFICATIONS & BOQ

5.1 Scope and objectives of the Project

- **House-Holds & House Service Connections in ABD area**

The total present population in ABD area is estimated to be 117270 out which about 15% are slum dwellers for whom water supply is provided with public stand posts. The total no. of House-Holds is therefore estimated at 19936. However 35% of the population in ABD area are residing in Apartments or Multi-storeyed buildings most of which presently have their own arrangements like Ground Water Pumps for their daily needs. Hence the total no. of individual House-Holds is 12735. Data was obtained from Jal Kal Vibhag, Kanpur Nagar Nigam regarding the details of water supply House Service Connections in ABD area. From the data it is ascertained that presently 5755 House-Holds are having individual HSCs. Hence about 6980 new individual HSCs are to be provided. Additionally about 10 big bore Connections are proposed for Multi-storeyed buildings, Institutional Buildings, Hotels, industries etc. The exact number and details of the beneficiaries will be decided after further survey during the execution phase of the project.

- **Scope for Smart Metering**

Hitherto consumers were charged at calculations based on the diameter of the supply pipes to the House-Holds. Hence for the same dia of pipe connection they were charged at fixed rates irrespective of their actual consumption. To tide over this anomaly we have proposed smart metering so that each House-hold will pay as per its actual consumption. Since this project is confined to ABD area we have proposed 12745 Nos. of Smart meters for an equal number of HHs as per the above discussion.

- **Scope for Shifting Existing HSCs. from Old Distribution Lines to New Distribution Lines**

  Since all the house service connections have to be provided with Smart Water Metres which require a definite amount of pressure for reading of quantity of water consumed, all existing house service connection are proposed to be caped above the ground and making new house connection with the new proposed distribution lines.

- **Scope for providing new House Service Connections**

  At present there are only 5755 Connections in ABD area. Hence to achieve universal coverage of potable water supply within ABD area additionally 6990 Connections are required. Also Smart Metering is possible only with a universal coverage.

- **Scope for other Public Health Engineering Works**

  Present Water Supply Network mainly the Distribution Network and infrastructure in ABD area is inadequate to achieve the above goals. Hence the following works are proposed as a prerequisite to the above.

  i) Interconnection & Segregation Works for Zoning of Water Supply Network in ABD area
  ii) Extension of Distribution System
  iii) Laying of Feeder Main 350mm Dia from Ganga Barrage to ZPS (CW-17) at Mohan Lal Park
  iv) Construction of New ZPS (CW-28) at Parvati Bangla Road including 800KL – OHSR, 500KL- CWR including all related works.

SPECIFICATION (OVER HEAD TANKS)

1. BRIEF DESCRIPTION OF WORK:

The over-head tank will be of RCC with RCC staircase as per design & drawing. The particulars of overhead tank are:-

1 No. of over-head Tank 1 Nos.
2 Site of works CW-28 Parvati Bangla Road
3 Capacity of OHT 800 KL
4 Staging of OHT 22 M
5 Type of staging. R.C.C. Columns & Braces.
6 Staircase R.C.C. Stair case as per design & drawing on separate columns upto top dome.
7 Design of OHT Design & drawing is available.
Accordingly the remaining work
of OHT is to be completed.
8 Bearing capacity of Foundation Bearing capacity of soil has not been investigated by the department.

2. The lump sum tender includes the structural design, supply of all materials, labour T&P etc. and construction of R.C.C. Over-head tank of capacity and staging mentioned above and supply & fixing of inlet. Out let & washout DID/F Pipes, duck foot bends, bell mouths DID/F sluice valve and all other appurtenant works.

The contractor shall provide, supply and include in the prices, cost of all labour, machinery, mixers, vibrators engines, pumps, shuttering templates, screens, straight edge, dredging tools, timer, rails, tackles, staging, scaffolding, planking, centering moulds, profiles, posts, setting out pegs lifting arrangement and water for mixing materials and curing cement work, all fencing lightings, necessary for the safety and convenience of the public during the progress of the work and temporary plant and appliances and permanent, materials if any and every kind what so ever, which may become necessary for full and complete execution of the work to the satisfaction of the engineer. The cost should also include submission of design and drawing, maintenance of

experienced supervision on the work site from arrival of material up to handing over of the works, testing and maintenance of the tank.

The main appurtenant works are:

Water level indicator (Electronic type)

Lightening conductor and Red light indicator at the top.

Ventilator.

M.S. Manhole covers with locking arrangement.

Electric wiring

Railings.

M.S. footsteps coated with polypropylene.

M.S. ladder inside the tank body.

M.S. gate 1 No.

Painting of all C.I./M.S.,G.I. and R.C.C. exposed works.

Flooring & apron as per specification to a height of 15cm from the normal groun

level.

Lighting arrangement.

Testing of water tightness.

Supply & fixing of DID/F pipes for inlet, outlet, washout and over flow, duck bends, bell mouths etc.

Handing over the tank to Jalkal Vibhag Nagar Nigam, Kanpur.

DETAILED SPECIFICATION OF WORKS

Design of tank foundation:

The detailed structural design and drawing are to be submitted by the contractor (within one month of acceptance this tender) based on latest IS Code (including seismic forces).

The tank foundation will be of RCC raft/pile according to soil investigation report.

DESIGN OF STAGING AND CONTAINER OF THE TANK:

The tank shall be of reinforce cement concrete with circular columns, staging. The design shall confirm to latest I.S. codes 450, 3370: 1965 (Part I to IV), 675, 2011 and 1893 or their latest deviation. The free board shall be of 15cm.

3.2 CONSTRUCTION OF THE WORK:

Construction of the tank based upon contractors own structural design, includes supply of all the materials such as cement, steel, DI D/F pipes & special, sluice Valve, NRV and all other materials etc. required for completion of work, construction of RCC stair case with proper landings suitably braced with columns & mumty. M.S. ladder from top dome to the inside the tank up to bottom of conical dome of the tank shall be provided.

One meter wide balcony around the middle beam level of the tank shall be constructed. Water level indicator, lightening conductor, red light indicator ventilator, M.S. manhole cover, passage from staircase to balcony shall be provided with M.S. fabricated railing M.S. fabricated railing is also to be provided on staircase M.S. footsteps shall be provided from mumty to the M.S. manhole cover and ventilator over the top dome as per the direction of engineer in charge 2.2mx 0.9m M.S. angle iron, door frame with door panels and necessary fittings will be provided at around level passage and mumty.

Tank shall be painted as per colour scheme provided by the department with two coats of apex paint of ISI marked of approved quality and shade and vertical pipes clamps, ventilators, M.S. Manhole cover, M.S. gates and railing shall be painted with two coats of paints of approved quality and shade over one coat of approved quality and shade over one coat of approved primer coat.

Apron 40mm thick of 1:2:4 over 80 thick 1:4:8 P.C.C. shall be provided up to 1m outside the ribs of the staging of the tank, suitably spaced with glass strips in one sqm panels at ground level below tank with 15cm dia PCC 1:2:4 semi-circular drain around the apron.

Providing and laying of 50mm thick C.C. 1:2:4 (1cement, 2coarse sand, 4 stone aggregate of 12-20 mm nominal size finished with one layer of neat cement coating over 100mm thick base concrete in 1:4:8(1cement, 4 fine sand, 8 brick ballast of 40mm nominal size) cement concrete will be laid in panels made by 37x5mm thick glass strips.

The floor level should be kept 15cm high from general ground level.

Concealed electrical wiring in the column of stair case with suitable number of junction boxes shall be provided wire of approved gauge and quality shall be used, 7 number light points shall also be provided. Switch board shall be fixed at the entrance gate.

R.C.C. mumty as per architectural drawing shall be provided.

Red light indicator (aviation light) at the top of mumty shall be provided.

Testing for water tightness (minimum three fillings) shall also be done by the contractor. 24 months maintenance from the date of completion is also include in the scope of work.

LEAN CONCRETE

Lean concrete should be provided below the raft foundation which shall consist 15 cm 1:4:8 P.C.C. The depth of foundation mentioned is upto bottom of raft. The cost of excavation for lean concrete should also include in the overall cost. It shall be the responsibility of the contractor to ensure that steel work and concrete work over the lean concrete is done in dry condition.

WATER LEVEL INDICATOR:

Water level indicator shall consist of 8mm brass wire rope passing over four smooth brass pulleys about 8cm dia with guides to prevent slipping of rope. One end of this rope shall be tied with 45cm dia copper float ball, which shall be completely water light and shall be made of 8mm thick copper sheet. Other end shall be connected with a suitable pointer of brass moving up and down along a vertical 25cm wide indicator board of about 3mm thick M.S plate. This indicator board shall be fluorescent enamel painted and fitted in a 45x45x6mm angle iron frame. This indicator board shall be erected and calibrated in meter and centimeters. The whole board shall be fixed by suitable arrangements on the column at suitable height as per direction of the Engineer in charge by means of 45x5mm MS flat clamps. Two 25mm dia G.I pipe shall be embedded on each in roof slab and cantilever balcony to allow flexible brass wire rope to pass smoothly. This will be the contractor's entire responsibility to ensure smooth and perfect working of the indicator such that a slight increase or decrease in water depth inside the tank in corresponding and correctly indicated on the above by the indicator.

LADDERS:

The approach from top dome to the inside of the tank shall be by M.S Ladder with two sides hand railing as mentioned in staircase through inspection manhole. The ladder shall be 60cm wide and shall consist of (50x50x6) mm angle iron on either side and 20mm dia M.S plain bars c/c. Suitable holes shall be made in angles iron and M.S plain bars properly riveted or welded in those holes. The angle iron should be properly placed and fixed in the dome and fixing of GI pipe to provide

support and while entering in the tank. Ladder and its railing shall be given three coats of paint at approved quality.

BALCONY:

One No. R.C.C. balconies shall be provided all around the tank body one at top level of the central ring beam in case of Intze type tank and in level with the top of base slap or bottom ring beam in other type of tanks & second at level of top ring beam. Upper balcony shall be 0.60m wide & lower balcony shall be 1.00m wide. Hand railings shall be provided at both balconies consisting of 65mm x 65mm x 6mm vertical M.S. angle iron posts 90cms high (clear) shall be imbedded in the balcony. The posts shall be spaced 1.00 m C/C horizontally and shall be provided with suitable holes to allow railings to pass through them. The railings shall consist of three rows of 20mm G.I pipe of medium quality with all necessary specials such as sockets and bends etc and shall be given three coats of approved paint. The railings shall be providing for both balconies.

INSPECTION MANHOLES:

The inspection manholes shall be provided on the top dome. It is (75x75) cm square shaped manhole and shall be provided with 75x75cm M.S. manhole cover of 6mm thick M.S plate with locking arrangement. Through this inspection manhole M.S ladder as described shall be provided.

LANTERN:

The size of the ventilator shall be suitably decided. It shall consist of R.C.C posts at every corner or at regular intervals by the side of the opening which should be suitably designed. A R.C.C. slab of minimum 8 cm thickness shall be provided over the posts and the beam. The vertical opening shall have mosquito proof mesh fitted on expanded metal to support it in a frame embedded in the R.C.C post with the arrangement for replacement of mesh and shall be given three coats of approved paint.

WATER LEVEL INDICATOR:

i) Water level indicator shall consist of 8mm brass wire rope passing over four smooth brass pulleys about 8cm dia with guides to prevent slipping of rope. One end of this rope shall be tied with 45cm dia copper float ball, which shall be completely water light and shall be made of 8mm thick copper sheet. Other end shall be connected with a suitable pointer of brass moving up and down along a vertical 25cm wide indicator board of about 3mm thick M.S plate. This indicator

board shall be fluorescent enamel painted and fitted in a 45x45x6mm angle iron frame. This indicator board shall be erected and calibrated in meter and centimeters. The whole board shall be fixed by suitable arrangements on the column at suitable height as per direction of the Engineer in charge by means of 45x5mm MS flat clamps. Two 25mm dia G.I pipe shall be embedded on each in roof slab and cantilever balcony to allow flexible brass wire rope to pass smoothly. This will be the contractor's entire responsibility to ensure smooth and perfect working of the indicator such that a slight increase or decrease in water depth inside the tank in corresponding and correctly indicated on the above by the indicator.

(ii) Separate rate should be quoted for electronic water level indicator with recorder of suitable size.

Following detail shall be painted on the tank in prominent letters of size as per instructions of the Engineer in-charge.

(i) U.P. Jal Nigam, Kanpur Smart CIty Monogram

(ii) Name of Scheme

(iii) Capacity of the tank in kilolitres

(iv) Height of staging in meters

(v) Name of department.

(vi) Date of commissioning

LIGHTENING CONDUCTOR

The lightening conductor shall consist of the followings-

ELEVATION ROD:

It shall consist of 1.2m long 25mm dia solid copper rod having solid cast copper 8cm ball on top with 5 or more final points securely screwed into it. It must be fitted at the top of the Over Head Tank on G.I plate (200x200x6) mm with suitable copper nuts, bolts and washers.

DOWN CONDUCTOR:

It shall consist of 25x3mm aluminum strip and round aluminum wire 9mm dia above the ground level and 8mm dia copper wire below ground level with its upper end attached to the base of the tank by means of fasteners. Conductor shall be accurately attached to the over head tank by fasteners which shall be in c/c and shall be made of galvanized steel. Fasteners as prescribed in IS: 2309-1969

shall only be used. The conductor and aluminum wire shall be laid about 6m away from the tank floor in a trench and then taken down to the earth plate electrode which is to be buried 60cm below summer sub-soil water level as per arrangement laid down in IS: 3043-1966, Clause 7.4.1.

The fasteners (10cm long of 10mm dia) with top 75mm x 6mm aluminum strip with screws. Bolts and nuts etc. shall be grouted in the body of the tank and column in the R.C.C truly vertically and horizontally. The conductor shall be connected by means of above aluminium strip and wire to all metal works such as manhole covers, M.S. Ladder and railings etc. on the top of the over head tank.

EARTH PLATE:

It shall be of aluminum 0.8x0.8x2.5mm and buried vertically at a distance of approximately 6 meter from the tank at a depth of 1.0m below summer sub soil water level surrounded by broken coal and salt etc as per specifications laid by electrical inspector of Govt. U.P.A perforated 50mm G.I.Pipe should be fixed for watering the earth level in cast iron chamber with its cover in level with the ground.

TESTING WIRE:

H.D. bore aluminum testing wire of 8 SRC shall be provided with its upper and soldered and in addition fixed with bolts nuts to the base of the rod. The tower end shall he connected to the earth tape at a height of 1.50m above G.L. by means of 150x25x25mm aluminum linked fixed of one end of the down conductor with bolts and nut. The testing wire shall be laid parallel to the down conductor on separate wooden battens at a distance of 50 to 150mm.

TESTING:

On completion of the installation the resistance of the earth insulation shall be measured and electrically continuity of all conductors‟ bends, points and their mechanical condition is verified and kept on record in quadruplicate duly signed by the contractor. The earth resistance shall not be more than 5 ohms.

PAINTING:

All exposed RCC work will be painted in two coats of approved apex paint over one coat of cement primer as per colour scheme decided by the engineer. The pipes fitting, steel ladders angle iron etc. shall be painted with two coats of approved anticorrosive paint over and above a primer. All railings and expended

metal, jail etc. shall also be painted with two coats of approved quality and shade paint over a primer.

All painting work will have to be carried out after the tank is tested for water tightness to the satisfaction of the engineer. Colour scheme shall be given by the engineer in charge.

TEST FOR WATER TIGHTNESS:

The contractor shall be fully responsible for the perfect water tightness and stability. If possible the water for the tank testing shall be provided by the department at ground level at prevalent municipal rates, otherwise the contractor will have to make his own arrangement for water for testing.

Arrangement to provide red light at top dome shall have to be made so as to avoid any accident of aircraft in night hours. It should be operative at floor level.

VERTICAL PIPES:

D.I.D/F inlet, outlet, washout and overflow ISI marked (IS-8329/2000) pipes 10kg/m working pressure from 100mm to 400mm dia size made of class k-9 barrel and D.I. flange shall be provided and fixed inside and outside the tank body with necessary specials and fittings (as per IS: 1538) by contractor as directed by engineer, maximum up to 2.0 m outside the apron of the tank. They shall be provided in the bottom dome with puddle collars duly casted shall be embedded at the time of casting of concrete.

This shall be preferably accomplished by boring holes through the form work and inserting pipe pieces with puddle collars of suitable size before concrete is laid. Over flow and inlet pipes shall be taken up to the FSL with bell mouth pieces at the top of

pipe. The washout pipe shall be fitted at the lowest point of the tank floor so that it draws out the last drops of water hole in the tank. The tank bottom shall be provided with gentle slope towards the washout pipe.

An outlet pipe shall be provided 25cm above the bottom dome at the lowest convenient points as per direction of the engineer in charge.

The duck foot bend as per IS 1535 of all the pipes shall be provided and fixed below the apron level of the tank as per direction of engineer. It includes making cement concrete foundation in 1:2:4 for supporting the duck foot bends from foundation of the tank as per direction of engineer in charge.

The pipes specials and fittings shall be arranged by the contractor transport to site, hoisting in the place true to alignment, fixing and jointing including supply of all jointing materials, such as nuts & bolts, rubber packing etc shall be done by the contractor at his own cost. At few places. It may be necessary to cut or provide lead or flanged joints also in which case jointing shall be done by the contractor at his own cost including supply of lead and spun yarn or making flange etc the pipe shall be anchored to ribbed shall be 50x5mm M.S. clamps which will be provided by the contractor clamps shall be provided at 1.5m c/c. Two nos. 10mm dia nuts and bolts shall be of GKW make. Rubber packing shall be of quality to be approved by engineer in charge.

SUPPLY & FIXING OF CID/F SLUICE VALVE & TAPPERS

DI D/F sluice valves (body test pressure 1.5MPA and seal test pressure 1.0 MPA) of kirloskar/IVC make shall be arranged by the contractor for washout, inlet & outlet pipes. The item includes supply and fixing of sluice valve, NRV and tapers including all material rubber packing, nuts & bolts etc. labour complete.

SLUICE VALVE CHAMBER:

Brick masonry chambers for washout and over flow will be constructed by the contractor at his own cost as per dept type design & drawing. Sluice valve chamber cover should of CI or RCC cover casted in Angle Iron Frame.

TESTING OF O.H.T.:

The contractor shall make his own arrangements for water and filling up the tank for the purpose of testing and shall bear full expenses on this account. The tank shall be tested for water tightness at full supply level as per IS 3370 in the tank water shall be filled in phases so as to transfer gradual loading on foundation. After fulfilling the level of water surface shall be recorded at subsequent intervals of hours over a period of seven days.

The total drop in level over a period of seven days shall be taken as an indication of water tightness. Which should not exceed 40mm. There should not be any sweating or patches of dampness on the outer surface of the tank in case of unsatisfactory performance observed during testing, the contractor shall carry out all necessary repairs and repeat the procedure of testing until the test is passed by the engineer. No extra claim on this account shall be entertained.

CONSTRUCTION OF CWR

1. BRIEF DESCRIPTION OF WORK:

The CWR will be of R.C.C. as per design & drawing with pump houses & chloronome:-

1 No. of CWR 1 No.

2 Site of works CW-28 Parvati Bangla Road

3 Capacity of CWR 500 KL

4 Design of CWR Detailed structural design and drawing of CWR is available.

Accordingly CWR cum pump house is to be constructed.

The Lump sum tender includes the supply of all materials, labour T&P etc. and construction of R.C.C. Clear water Reservoir cum pump house of capacity mentioned above and supply & fixing of inlet & overflow DI/DF Pipes, duck foot beds, DI D/F sluice valve and all other appurtenant works.

CONSTRUCTION OF CWR SHALL BE AS LIQUID RETAINING STRUCTURE AS PER SPECIFICATION LAID DOWN IN IS:3370-1965 OR ITS LATEST AMMENDMENT.

(A) LADDERS

The approach form the roof (or slab) to the inside of the tank shall be by means of an M.S. ladder through inspection manhole. The ladder shall be 60cm. wide and shall consist of Angle iron port 75x75x6mm on either side and 20mm dia M.S. bars 25cm c/c suitable holes shall be made in angle iron and M.S. bars properly rewetted or welded at these holes. The angle should project above the slab and fixed holding G.I. Pipe to provide support while entering or exit. Ladder and railing shall be given three coats of approved paint.

(B) The inspection manholes shall be provided on the top slab of the tank. It shall be 75x75 cm. square shaped manhole and shall be provided with 75x75cm M.S. manhole covers of 6mm thick M.S. plates with locking arrangement, Through this inspection manholes M.S. ladders as directed above shall be provided.

VENTILATOR

The size of the ventilator shall be suitably decided. It shall consist of R.C.C. posts at every corner of at regular intervals by the side of the opening which should be suitably designed. A R.C.C. slab of suitable thickness shall be provided over the posts and the beam. The vertical opening shall have stainless steel mosquito proof mesh fitted on expanded metal to support it in a frame embedded in the R.C.C. post with arrangement for replacement of mesh and shall be given three coats of approved paint.

WATER LEVEL INDICATOR

Water level indicator shall be electronic and consist of all required equipment, sensor, wire etc. and installation of indicator in pump house. This will be the contractors entire responsibility to ensure smooth and perfect working of the

indicator such that a slight increase or decrease in water depth inside the tank is correspondingly and correctly indicated on the above by the indicator following details shall be painted on the tank in prominent letters.
i. Capacity of the CWR in KL.
ii. Date of construction
iii. Name of scheme with Deptt. Logo.

INLET OUTLET AND OVERFLOW ARRANGEMENT

The capacity of 1000 KL CWR inlet, outlet, overflow D.I.D/F pipes, D.I. Tail piece for overflow shall be fixed and embedded as per instructions of the Engineer. A tail piece with DID/F bend shall be fixed in the inlet pipe, below inlet pipe a P.C.C. platform 1mx1mx0.3m shall also be constructed on the floor/base of tank. Duck foot bends shall be provided at the base of the vertical length of inlet and overflow pipes outside at the depth of 1.00M with proper R.C.C. bed block. These pipes shall be erected vertically from the tank body to the Duck foot bend at the base and laid horizontally from Duck foot bend to minimum 2.00 m beyond the edge of apron and drain. The contractor shall also fix Non Return valve in over flow pipe. This work also includes supply of D.I. Pipes, specials and excavation for laying of pipes and specials etc.

(I) PIPE, SPECIALS AND FITTINGS

D.I. Pipes, specials and sluice valves, N.R.V. etc. for inlet and outlet, overflow shall be arranged by contractor in his own cost according to requirement, the contractor should include in his rates supply, carting of these pipes, specials and sluice valves etc. up to the site of work and its fixing as per clause ”H” of general specification, if there is any damage caused during transit from up to the site of work, the contractor shall make up the loss or replace the pieces at his own cost.

The jointing material as per I.S. specifications, such as rubber insertion, bolts and nuts, pig lead approved M.S. clamps etc. shall be supplied by the contractor at his cost. Only B.M. refined pig lead as approved by the required shall be used. The trench shall be excavated to the required depth for laying D.I. pipes and duck foot bends to secure one metre cover over the pipes.

The contractor shall include in his offer cutting of pipes for making up length that may be necessary, no extra payment shall be made on this account, if any defect or leakage in the pipes etc. is observed during testing or during the period of maintenance, the contractor shall set it right at his own cost.

(J) BASIS FOR DESIGN

The contractor shall submit the detailed calculations and detailed working drawing in triplicate covering whole of the tank slab, pump house, installation and

appurtenant works to be supplied and erected by him within 15days from the date of acceptance of tender. The approval of drawings and design submitted by the contractor shall in no way relieve him of his responsibility for the safety and water tightness of the contractor, the structure shall base his design on the following specifications. The points not covered up by these specifications shall be governed by the relevant I.S. Specifications.

1. A free board of 150 mm above full supply level below the soffit of beam if any or dia of over flow pipe plus its one flange width whichever is greater has to be provided.

2. The tank will be provided with 3 coats of approved cement paint in quality and colour decided by the Engineer over one priming coat.

3. A suitable foundation of the tank will be designed based on soil characteristics at site with proper approval of Engineer whose decision shall be final and binding in regard to the type and shape of foundation load distribution etc. In case of pile foundation borehole compaction pile will be preferred which shall be properly connection for load distribution to safeguard against differential settlement. The decision of Engineer in this regard shall be final and binding on the contractor. In case of pile foundation it shall be tested for loads in accordance to I.S. code 2911: Part-I-1979.

4. The body of the tank along with the bottom ring beam has to be designed on no crack basis and continuity effect.

5. PARTIAL SAFETY FACTORS:

When the design is based on limit state method, the values of partial safety factor or loads and material strength shall be in accordance with para 35.4.1 and 35.4.2 of I.S. 456-200.

6. ALLOWABLE BEARING CAPACITY OF SOIL

The detailed investigation in this respect will be carried out by the contractor in the presence of Engineer-in-charge or his authorized representative.

Accordingly contractor has to submit design and drawing of the tank and rates should be given for the tank on raft foundation on the basis of B.C. assuming as 8t/m2

. If actual B.C. comes below 8t/m2, the design should be submitted on actual bearing capacity, but if actual B.C. is found more than 8t/m2, the design should be restricted for maximum 8t/m2 B.C. In no case, design should be for more than 8t/m2

. However no payment shall be made on account of variation in safe bearing capacity of soil.

7. PERMISSIBLE INCREASE IN BEARING CAPACITY OF SOIL.

(A) Due to wind:

(i) Where the bearing pressure due to wind is less than 25% of that due to dead and live load it may be neglected in design. Where this exceeds 25% Foundn. may be so proportioned that pressure due to combined dead, live and wind loads does not exceed the allowable bearing pressure by more than 25%.

(ii) A further increase in allowable bearing capacity due to wind pressure may be allowed for shape factor as per I.S. Specification.

(b) Due to earthquake forces:

When earthquake forces are considered, the permissible allowable pressure of pertaining soil shall be in accordance to para 3.3.3 and table 1 of I.S. 1893-1975 depending upon the type of foundation of the structure.

8) INLET OUTLET AND OVERFLOW ARRANGEMENT

The capacity of 500 KL CWR inlet, outlet, overflow D.I.D/F pipes, D.I. Tail piece for overflow shall be fixed and embedded as per instructions of the Engineer. A tail piece with DID/F bend shall be fixed in the inlet pipe, below inlet pipe a P.C.C. platform 1mx1mx0.3m shall also be constructed on the floor/base of tank. Duck foot bends shall be provided at the base of the vertical length of inlet and overflow pipes outside at the depth of 1.00M with proper R.C.C. bed block. These pipes shall be erected vertically from the tank body to the Duck foot bend at the base and laid horizontally from Duck foot bend to minimum 2.00 m beyond the edge of apron and drain. The contractor shall also fix Non Return valve in over flow pipe. This work also includes supply of D.I. Pipes, specials and excavation for laying of pipes and specials etc.

PIPE LINE WORK

1. EXTENT OF WORK:

The contract provides for Supply, Laying & Jointing of different type of pipe for Feeder mains, Rising mains & Distribution system, and allied works for ABD area of Kanpur City as mentioned in the scope of work.

2. PURPOSE OF WORKS:

The proposed works are intended for distribution of drinking water to the residents under ABD area of Kanpur City.

3. GENERAL ARRANGEMENT AND SETTING OUT THE WORK:

The engineer through his authority and representative will establish the necessary bench mark and level but the contractor must set out the working levels and he will be held responsible for its correctness. It shall be incumbent on him to

dismantle, remove, rebuild at his own expenses any work not correctly set out. Before ordering any materials, the contractor shall from his own conclusions on the actual quantity of materials required by measurements on site as payment will be made on net measurement of the work actually completed.

4. ERECTION AND CHECKING OF WORK:

As materials are collected and construction of each section of the work is completed. It will be checked over by the engineer and the representative of the contractor shall ascertain form time to time what portion he wishes to check over and pass but such approval shall in no way relieve the contractor of any of his responsibilities which shall not end till the contract has been completed.

5. TESTS:

During the progress of the work, the contractor shall carry out such tests as in the opinion of the engineer of his authorized representatives are necessary to determine that the materials supplied and works constructed comply with the conditions of these specification. Tests to be carried out shall be as per relevant Indian Standard Codes or CPWD specification and as may be required by the engineer. The cost of all such tests shall be deemed to be included in the rates quoted under this tender including conveyance charges.

SPECIFICATION OF PIPE AND SPECIALS

(A) Laying and Jointing of DI Pipes and fittings for Distribution system or Rising main ISI K-9/K-7 DI, D/F (IS- 8329:2000).

1. CLASSIFICATION

1.1 Pipes have been classified as K7, K8, K9, K10, K12,...depending on service conditions and manufacturing process.

1.2 The class designation shall comprise of:

a) a prefix K.

b) a whole number used for thickness class designation, this is the selected coefficient inserted into the equation depending on the service conditions.

1.3 The wall thickness of pipe „e" in mm shall be calculated as a function of the nominal diameter by the following equation with minimum of 5 mm for K=7,6mm for K=8and 7mm for K=12.

$e = K (0.5 + 0.001 DN) \ldots (1)$

where

e = wall thickness in mm,

DN = the nominal diameter, and

K = the whole number coefficient.

Flanges for screwed on or Welded on Double Flanged Pipes should be preferably of Ductile Iron of 420 MPa minimum tensile strength and 5 percent minimum elongation at break and maximum hardness 250 HB.

SUPPLY OF MATERIAL

The general requirements relating to the supply of material shall be as laid down in IS 1387.

JOINTS

The joint design and gasket shape are outside the scope of this standard.

Push-on-Joint

In case of push-on flexible joints, the spigot ends shall be suitably chamfered or rounded off to facilitate smooth entry of pipe in the socket fitted with the rubber gasket.

For high pressure mains where working pressure is greater than 2.4 MPa, suitable flexible joint may be preferred when the joint is restrained against axial movement.

Flanged Joint

The dimensions and tolerances of the flanges of pipes and fittings shall be such, so as to ensure the interconnection between all flanged components (pipes, fittings. valves) of the same DN and PN and adequate joint performance. Although it does not affect interconnection, the manufacturer shall indicate whether his products are normally delivered with fixed flanges or loose flanges.

Flanged joints for working pressure ratings of 1.0, 1.6,2.5 and 4.0 MPa may be of screwed on flanged type or flanges may be welded on plain ended ductile iron pipes.

In case of ductile iron pipes with screwed on flanges or welded flanges, the flanges shall be at right angle to the axis of the pipe and shall be machined on face. The bolt holes shall be either cored or drilled.

The bolt hole circle shall be concentric with the bore and holes of the two flanges of the pipe shall be correctly aligned.

The flange can be of adjustable type where the flange comprises of a ring, in one or several parts assembled together, which bears on an end joint hub and can be freely rotated around the pipe axis before jointing.

The ductile iron pipes having screwed on flanges shall be sealed at the threaded joint between the pipe and the flange by a suitable sealing compound. Unless otherwise specified, the sealing compound~ applied to the threaded joint shall be suitable for use with „raw‟ and~ potable water (up to a temperature of 1 OO‟C), gas and normal domestic sewage. Alternative types of sealing compound, for pipes used for other duties such as carrying industrial effluents, chemicals and town gas, shall be compatible and may be the subject to agreement between the manufacturer and the purchaser.

For screwed on flanged pipes, the method of 1.0, 1.6,2.5 and 4.0 MPa may be of screwed on flanged Discretion of the manufacturer in view of the fact that flanges are never removed after screwing on the barrels of the pipes.

The mechanical acceptance tests shall be carried out on samples of ductile iron pipes which shall be grouped in following batch sizes.

DN (mm)	Maximum Batch Size
80- 250	200 Pipes
300- 600	100 Pipes
700 - 1000	60 Pipes
1100 - 1400	40 Pipes

Brinell Hardness Test

When tested in accordance with IS 1500, the Brinell hardness shall not exceed 230 HB on the external un machined surface.

HYDROSTATIC TEST

All pipes shall be tested hydrostatically at a pressure specified in Table 1. To perform the test, pressure shall be applied internally and shall be steadily maintained for a period of 10 s. The pipes shall withstand the pressure test and

shall not show any sign of leakage, sweating or other defects of any kind.

MATERIALS IN CONTACT WITH POTABLE WATER

When used under the conditions for which they are designed, in permanent or in temporary contact with water intended for human consumption, ductile iron pipes and their joints shall not have detrimental effects on the properties of the water for its intendeduse.

SPECIFICATION OF HDPE PIPE AND SPECIALS

1 SCOPE

Indian Standard 4984: 1995 lays down requirements for high density polyethylene pipes from 16 mm to 1000 mm nominal diameter of pressure rating from 0.25 MPa to 1.6 MPa in material grades of PE 63, PE 80, and PE 100, for use for buried water mains and services and for water supply above ground, both inside and outside buildings.

2 DESIGNATION

Pipes shall be designated according to the grade of material followed by pressure rating and nominal diameter .For example, PE 63 PN 10 DN 200 indicates a pipe pertaining tomaterial grade 63, pressure rating 1.0 MPa and outside nominal diameter 200 mm.

Grade of Material

Pipes shall be classified according to the grade of materials. The maximum allowable hydrostatic design stress of a pipe is obtained by applying the design coefficient of 1.25Min) to the MRS value of the material, taking into consideration the temperature at which the pipe is to be designed for. The material grading shall be given by the raw material supplier and in case of master batch, by the pipe manufacturer.

Pressure Rating

Pipes shall be classified by pressure rating (PN) corresponding to the maximum permissible working pressure at 30ºC, as follows: Pressure Rating of Pipe Table 1 Classification of Pipe Material)

MRS (Minimum Required Strength) of Material in MPa, at 20ºC, 50 Years

Maximum Permissible	Working Pressure
PN 2.5	0.25 MPa
PN 4	0.40 MPa
PN 6	0.60 MPa
PN 10	1.00 MPa
PN 12.5	1.25 MPa
PN 16	1.60 MPa

4 COLOUR

The colour of the pipe shall be black. For the purpose of identification of the pipescovered in this standard, each pipe shall contain minimum three equispaced longitudinal stripes of width 3 mm (Min) in blue colour. These stripes shall be

coextruded during pipe manufacturing and shall not be more than 0.2mm in depth. The material of the stripes shall be of the same type of resin, as used in the base compound for the pipe.

5 MATERIAL

5.1 General The material used for the manufacture of pipes should not constitute toxic hazard, should not support microbial growth and should not give rise to unpleasant taste or odour, cloudiness or discoloration to water. Pipe manufacturers shall obtain a certificate to this effect from the manufacturers of raw material.

5.2 High Density Polyethylene

High density polyethylene (HDPE) used for the manufacture of pipes shall conform to designation PEEWA-45-T-003 or PEEWA-45T-006 or PEEWA-50-T-003 or PEEWA50-T-006 or PEEWA-57-T-003 or PEEWA-57-T-006 of IS 7328. HDPE conforming to designation PEEWA-45-T-012 or PEEWA-50-T-012 or PEEWA-57-T-012 of IS 7328 may also be used with the exception that melt flow rating (MFR) shall be between 0.20 g/10 min to 1.10 g/10 min (both inclusive). In addition the material shall also conform to 5.6.2 of IS 7328 .

5.2.1 The specified base density shall be between 940.0 kg/m3 and 958.4 kg/m3 (both inclusive) when determined at 27 ºC according to procedure prescribed in Annex A of IS 7328 : 1992. The value of the density shall also not differ from the nominal value by more than 3 kg/m as per 5.2.1.1 of IS 7328 : 1992. The MFR of the material shall be between 0.20 g/10 min and 1.10 g/10 min (both inclusive) when tested at 190 ºC with nominal load of 5 kgf as determined by method prescribed in 7 of IS 2530 : 1963. The MFR of the material shall also be within ±20 percent of the value declared by the manufacturer.

5.2.3 The resin shall be compounded with carbon black. The carbon black content in the material shall be within 2.5 ± 0.5% and the dispersion of carbon black shall be satisfactory when tested according to the procedure described in IS 2530 : 1963.

5.3 Anti-oxidant

The percentage of anti-oxidant used shall not be more than 0.3 percent by mass of finished resin. The anti-oxidant used shall be physiologically harmless and shall be selected from the list given in IS 10141 : 1982.

5.4 Reworked Material

The addition of not more than 10 percent of the manufacturer‟s own rework material resulting from the manufacture of pipes is permissible. No other reworked or recycled material shall be used.

Specification for erection, testing and commissioning of electrical equipment and accessories

This specification is intended to cover complete installed testing and commissioning of electrical equipment i.e. motor control centers, power control center, control panel, switch-gears, motor starters, actuators and pushbutton starter etc.

Codes & Standards

1. The installation, testing and commissioning of all electrical equipment shall comply with all currently applicable statues, regulation, fire insurance and safety codes in the locality where the works will be carried out. Nothing in this specification shall be construed to relieve vendor of his responsibility.
2. Unless otherwise specified, the work, materials and accessories shall conform to the latest applicable Indian, British or IEC standards, some of which are listed below:

   IS 3072: installation and maintenance of switch gear.
   . IS 990: installation and maintenance of induction motors.
   . IS 3106: selection, installation and maintenance of fuses.
   IS 4029: guide for testing three phase inducting motors
3. The reference number of some of the IS connected with substation equipment are given here under :

1 Specification for AC circuit breakers IS:2516
2. Insulating oil for transformers and switch-gear IS :335
3. Bushing for AC voltage above 1000 V IS :2099
4. SF-6 gas IEC:376
5. Insulator for O.H lines IS:731
6. Single phase small AC and universal electric motors IS:996
7. HRC cartridge fuses links up to 650 volts IS 220
8. Metal enclosed switch gear and control gear IS 342
9. Marking and arrangement for switch-gear bus bars, main connection uxiliary wiring. IS:375
10. Porcelain post insulators IS:2541

11. Auxiliary current transformers IS:270
12. Auxiliary potential transformer IS:315
13. Degree of protection for low voltage switch gear and control enclosure IS:214
14. Specification for stationary cell and batteries lead acid type IS:165
15. Specification for Electro-light for batteries IS:266
16. Specification for synthetic and separators for lead acid batteries IS:607
17. Specification for rectifiers IS:454
18. Specification for distribution board IS:862
19. Specification for indication instruments IS:124
20. Specification for air break switches IS:404
21. Specification for transformers IS:2025
22. Specification for contractors IS:2950
23. Specification for electrical relays for power system protection IS:3231
24. Specification for energy meters IS:72
25. Specification for control switches IS:687
26. Specification for outdoor air break isolators IS:1818.
27. Recommended short circuit rating of high voltage PVC cables IS:5819
28. Designation of the methods of cooling for rotating electrical machines IS:6362
29. XLPE insulator PVC sheathed cable for voltage from 3.3KV up to and including 33 KV IS:7098
30. 3-phase induction motors IS:35
31. Lighting arrestors for AC system IS:3070
32. Code of practice for installation and maintenance of switch gear IS:3074
33. Code of practice for installation and maintenance of transformers. IS:188

TECHNICAL REQUIREMENTS – WATERMETERS

AMR Domestic Water Meters

The scope incudes Supply, Installation and maintenance of AMR water meters of various sizes including Software, Hand Held Unit for Reading AMR Meters, and Water Meter Box with Operation and Maintenance for five years in the service area.

General Requirements for AMR Water Meter System are as follows, however, these requirements should in no way affect the battery life throughout O&M Period.

1. The water meters shall have the anti – magnetic properties / immunity, as specified in ISO: 4064

– 2014, when tested with385m Tesla to 400m Tesla magnet is mandatory. For AMR system resistivity against application of magnet is not required.

2. The water meters (ISI or EEC marked) shall be supplied complete with brass nuts and nipples as per specifications conforming to IS-779: 1994 or Class -B, ISO-4064: 2014 standard with ISI/EEC/OIML/MID certification mark shall be with protection class of IP68. All meters along with AMR module shall be of protection class ofIP68.

3. The remote reading of AMR water meter needs two way or one way communication. The remote readings of AMR water meter should be obtainable by either 'Walk by' or 'Drive by' methods.

4. The AMR trans-receivers shall be wireless and have IP 68 protection class i.e. no ingress of water after submerging AMR water meter for 48 hours under 3 meters of water column. AMR shall be obtainable even under submerged conditions & lid of the chamber closed.

5. The AMR trans-receivers shall be used (RF End units/ Wireless RF transmitter/Receiver) for communication and remote reading. It shall be either inbuilt or directly fitted on the water meter without wires. If the water meter & AMR trans-receivers are independent units then they must be from the same manufacturer.

6. Remote readings of different water meters shall be obtained with single command. The remote readings of different water meters shall be obtained with single common readings shall have instant reading facility. The remote readings and dial read meters shall match at all the times.

All AMR readings shall show the date and time of the reading recorded.

The AMR system shall have facility to detect the reverse flow in water meters readings on the Hand Held Device (HHU) i.e. AMR reading device and on computer screen. The AMR system shall have the facility to record the abnormalities like application of very high consumptions, water leakages etc. along with necessary alarms in HHU and in software

The battery life of AMR water meter shall not be less than 10 (ten) years from successful installation & commissioning of said AMR water meter along with its AMR system, the battery life shall be calculated by considering the monthly remote reading. During remote reading the battery life and alert for replacement of battery if warranted of AMR water meter shall be displayed / indicated on HHU.

If the AMR communication frequency is using / operating on paid frequency band, then the AMR water meter manufacturer has to produce the valid copy of license issued by Govt. of India / Deptt. of Telecom (DOT), for using the said operating frequency band.

12. The manufacturer shall specify the frequency of the AMR operating system & shall possess the necessary license of said operating frequency, as per norms of Department of telecommunication, Govt. Of India issued by Government of India (GOI) / Department of Telecom (DOT). The cost of the same will be presumed as included in the quoted rates. In case, if bidder claims frequency of the operation in the free band, necessary documents / clearance from GOI /

DOT shall be submitted to the Employer. However, the Employer reserves the right for acceptance of offered frequency & Power subjected to the guidelines issued by DOT / WPC.

The AMR water meter shall not get affected for its AMR functioning due to High Tension or High Voltage line concentration.

All the time electronic index of the water meter shall match with mechanical index.

The pressure loss in the meter shall not be more than 0.63 bar as per ISO4060-2014.

The register must be based on absolute encoder / counter. The system must read the register in 8 points per pulse to have clear reading of the first dial.

Wireless RF transmitter/Receiver must be sealed, have an antenna, battery and must be integral part of the water meter register forming IP 68protection.

All AMR water meter systems to be provide pipework, fittings, valves, fittings, specials another associates auxiliaries as per IS-779: 1994 &ISO 4064standards

All AMR water meters and accessories shall be manufactured from materials of adequate strength and durability. The materials which come in contact with water shall not create a toxic hazard, shall not support microbiological growth and shall not give rise to unpleasant taste or De-chlorination to water.

All AMR water meters shall be supplied with a tubular strainer in the inlet of meter, the total area of holes not less than twice the area of nominal bore of the pipe.

The meters shall have Smart alarms for Leak, Burst, Dry, Reverse, Tamper etc.

The meters shall be supplied complete with brass nuts and brass nipples. Strainer & sealing shall be provided as per relevant IS provision.

2. Applicable Standards

The contractor should follow the required and the latest standards of higher grades as given below:

IS 2373 Indian Standard for bulk water meter Specifications

IS 2401Indian Standard for Code of practice for selection, installation and Maintenance of domestic water meters

3. Technical Specifications:

1 Meter Type Multi-jet, magnetically coupled, inferential type AMR water meter

2 Power Supply Battery operated for the sensor and calculator with a battery life of minimum 10 years to ensure recording at all times.

3 Meter Life time Minimum 10 years

4 Protection Class Must comply to IP68 Standard for indoor and outdoor operation, including fully submerged installations

5 Approvals & certification

The meter should be type approved and verified according to international water meter Standard OIML R49 and or ISO 4064. The meter should be EEC/MID approved.

6 Accuracy +/- 2 % or better over typical operating range and temperatures. The water meter should maintain its accuracy over its life time

7 Calibration 3-Point calibration with calibration certificate available for each unit.

8 Material The water meter body shall be made of corrosion resistant material like brass, bronze, stainless steel or carbon steel.

9 Pressure Rating Pressure Rating of > 10 bars

10 Environmental Temperature: 0 degree C to 50 degree C

11 Lockable Cabinet: Suitable as per Meter size & site conditions.

12 Data Protection and tamper proof

13 The meter should be tamper proof with suitable data protection of calibration and revenue parameters.

14 Self-diagnostics for error detection. The smart meter should have advanced diagnostics with active alarm(s) indicated on display.

15 Access to information: Display with.> 8 digits for main information. Index, menu and status symbols for dedicated information.

16 Measuring Units: The measuring unit should be m3 for volume.

17 Facility for Remote Communication interface: The water meter should be configured with battery operated remote reading capability using point-to-point RF.

18 Installation: The water meter shall be approved for Class B installation in both the horizontal and vertical installation positions.

Material of Construction

1. The manufacturer shall provide specific details of materials used for various parts of the meter which must meet the specifications for the material of construction of the individual parts of the meters as per IS 779:1994 (latest amendments) or ISO 4064:2014.
2. The body of the meter shall be of either Brass or Bronze. Material that come in contact with the water supply shall withstand 2 ppm (parts per million) of chlorine residual in the water supply and shall be resistant to corrosion.
3. The water meter and accessories shall be manufactured from materials of adequate strength and durability. The materials, which come in contact with the potable water, shall not create a toxic hazard, shall not support microbial growth, and shall not give rise to unpleasant taste or discoloration in the water supply.
4. The spindle and bearings inside the hydraulic chamber shall be made of polished stainless steel with hard metal tip/sapphire.
5. An anti-fraud shield of stainless steel is mandatory to avoid magnetic tampering on meter or to protect the magnetic transmission.
6. The internal pressure cup shall be made of Engineering plastic. The lower case of the meter shall be painted with thermal painting externally. The painting materials should be safe for human uses and not affect human health. Painting colour will be decided afterward.
7. Meter will be provided with monolithic seal with copper/SS wire or Rust proof sealing wire
8. Variation in weight of the meter will be permissible to +5% of the weight approved for the sample meters after testing at Dept. specified Lab.
9. Each meter shall be supplied in individual box with its accessories and test certificates and guarantee card. The no. of individual boxes of meters shall not exceed 30 nos in each carton

Requirement for Totalizer and Totalizer Shield

The Totalizer shield/ Register shall be designed in such a way that if the Totalizer shield/Register protective glass is broken for a reason or another the Totalizer shield/ Register cannot be removed from its place. Totalizer shield/ Register protective cover shall be made of sturdy glass and shall have a thickness of not less than 5mm and shall pass specified tests.

Totalizer :-

1. It shall be of straight reading type.
2. The totalizer shall register in cubic meter units
3. The initial totalizer reading should be less than1KL
4. The totalizer shall consist of a row of at least 4 in-line consecutive digits to denote minimum reading of 9999 KL. Another two digits shall register flows in submultiples of Kilo litres and should be of a different colour.
5. The least count / resolution of water meter should be at least1liter.
6. The totalizer should be of closed type.
7. The totalizer must be suitable for test on an electronic test bench.
8. Totalizer shall be metallic (either copper CAN having 5mm thickness or any other suitable

material) fitted with glass to maintain IP 68 protection class

9. Meter shall be provided with monolithic seal with copper wire.

Meter Reading

1. The meters shall be read automatically from the Walky by/ Drive by devices with the help of fixed network.
2. The meter should be provided with remote Data collector / Concentrator with aerial / panel antenna for outdoor installation, 2G/3G/4G modems necessary Cabinet & Extra antenna wire for

Outdoor installation, 4) Android app / Cloud base Meter Reading Software

3. The data concentrator/ collector should be capable of reading a minimum of 1000 households each and suitable number of signal repeaters shall be provided for areas with weak network without any additional cost to the employer.
4. The device shall show exact physical location of water meter on GPS Map as per location (coordinates) entered into the system after meter installation.
5. The Meter Reading software should display clearly active alarms for each meter.

6. The Meter Reading software should have capability to store full customer and meter information for each meter.
7. The Meter Reading software should be able to display the statistics of the reading route, including but not limited to read meters, unread meters,
8. The data transfer from the meter to the-reading software shall be via GSM/GPRS.
9. The software shall alert the meter reader for unread accounts in a specific area.
1. AMR System:
1. The remote readings of AMR water meter should be obtainable by Walky by/ Drive by- devices with the help of fixed network.
2. The AMR trans-receivers shall be wireless and have IP 68 protection category i.e. no ingress of water after submerging AMR water meter
3. All AMR readings shall show the date and time of the reading recorded.

4. The AMR device of the water meter shall be tamperproof.
5. The water meters fitted with AMR shall have the facility to transmit reading in submerged condition & the remote readings should be obtained with water meter in submerged condition
6. The AMR system should retrieve required data from every meter without reduction in battery lifetime and/or reading speed.
7. The AMR meters and all its related ancillary equipment shall be provided by the same manufacturer so that compatibility issues are not encountered.
1. AMR Software:
1. The software shall give output, at least in the CSV (Comma Separated Value)/txt/xls.
2. The Route Management software must be capable of running on a standard PC compatible with minimum Pentium processor. In addition the software must run under Windows95, Windows XP
Professional, Windows Vista, Windows 7, Windows 8 and / or latest version of windows operating system.
3. The software shall allow the PC operator to review and edit any account in Route Manager database. Also, the PC operator shall be able to generate route and activity reports..
4. The software shall alert the meter reader for unread accounts in that route.

5. The software shall enable the user to specify the data to be exported from the database for transferring to billing system.

7. The software shall take routes from an existing database for loading into a reading device.

7. The software shall select the routes to be read, and assignment of routes to a reading device and dynamic updating of routes and sub-routes to been abled.

8. The software shall upload routes from the reading device.

9. The software shall post the reading from the reading device onto appropriate accounts within the database.

10. Software shall be able to set meter status such as, meter not okay, reading not reliable, meter maintenance required etc

11. The GPS coordinates shall be visualized in the PC software itself.

12. Data should be available in hand Held Unit for minimum 90 days in the route as well as the data along with historical data in the output in the XML/CSV format.

13. Different type of indications such as read meter/unread meter, meter to be read, meter read with observation, meter with alarm, unreadable meter, meter not okay, reading not reliable, meter requiring maintenance should appear on HHU.

14. The bidder shall be responsible for taking reading of AMR Meters at a frequency defined in the schedule of supply and shall be responsible for uploading the data in MCL billing unit and its integration with existing MCL's RMS system for generation/printing of consumer bill during the contract.

15. Software should have option of upgrading the system so as to enable sending alerts to the consumers through SMS regarding water meter reading, billing, payment, complaints and redressal etc.

1. Warranty

All the supplied smart water meters, their peripherals and equipment, etc., must have a written warranty from the manufacturer covering not less than 10 years from the date of commissioning.

2. Maintainability

All the installed smart water meters, their peripherals and equipment etc. will be subject to a defect liability period of 10 year beginning from the successful commissioning date.

This means that if there is a malfunction or breakdown within the period the contractor will be responsible for making good the same by repair/ replacement at his cost.

The accuracy of the installed water meters will be tested if desired or if disputed and if the test results not found accurate within the acceptable / permissible limit, the contractor will replace the meter free of cost.

When there is a malfunction the contractor is expected that the problem will be resolved within 48 hours of receiving the information. In case a spare part has to be imported then the repair should similarly take not more than 21 days.

The contractor should do a classification of what malfunction/breakdown to be given 48 hours or 21 days. This should be submitted as part of SIP. The list must be exhaustive and include all elements and how they can be detected.

Spareparts

1. The Contractor/supplier must show proof that spares for all the supplied/installed items are available and that they will continue to be produced for the next 10 years at the least.
2. It will be preferable for the spares to be within the country, and full explanation given of their availability.
3. Marking on the MeterBody:
4. All water meters shall have following markings on dial/ cap.
   1. Class“B”
2. Multijet/ ModelName As per ISO:4064-2014.
3. EEC/ISI/OIML/MID Mark and approval no.
4. Make/Brand
5. Sl. No. / Year of Manufacture.
6. Size
7. Embossing /engraved on meter body
8. Direction of flow of water on both sides of the body of meter

Specific Requirements

1. As a part of the inspection and testing requirements of the products, 1% of the meter supplied in each lot shall be sent for accuracy testing to an independent testing laboratory acceptable to the Employer. Based upon the outcome of the test results the lot will be accepted, otherwise the Employer shall have the

prerogative of rejecting the total lot and the contractor has to provide replacement of the total lot. The cost of the testing of the 1% sample meters need to be borne by the contractor.

2. Lab Testing

The lab testing of water meters shall include following tests as per ISO: 4064:2014 standards. The same will be conducted at an independent testing laboratory acceptable to the Employer.

1. Accuracy testing of water meters at Qn.
2. Accuracy testing of water meter at Qn after clamping the magnet on the water meter.
3. IP 68 testing of water meter & AMR system.
4. Remote reading of water meter in dry i.e. open air condition.
5. Remote reading of water meter in submerged condition i.e. under water, with under variable Water depth conditions.
6. Remote reading with different tamper alarms for back flows, magnet and physical damage, etc.
7. Response time of AMR reading on HHU.
8. Visual inspection of AMR water meter and its AMR system along with its software.
9. Real Index test i.e. all the time electronic index of the water meter shall match with mechanical index.
10. Demonstration of uploading of readings from hand held unit to PC and vice versa.
11. Life cycle and endurance test.

It is responsibility of the contractor to arrange the calibration of all AMR meters and bear all inspection charges and incidental charges. If the manufacturer has an ISO 17025 accredited calibration lab, then the same will be acceptable provided necessary documentation is provided. The necessary test certificates with distinctive meters shall be provided before installation of meters.

Field Testing

After completing the installation of AMR water meters in one complete water supply DMA or 1000 nos whichever in minimum, the contractor shall demonstrate the following before taking up further installation in the service area:

1. Remote reading of individual water meter from a maximum distance of 200metres with clear line of sight under submergence condition with lid of chamber in closed position. This test is to be conducted during field demo as well as installation in main work.

2. Remote reading of individual water meter from a maximum distance of 100metres with obstruction of any structures under submergence condition with lid of chamber in closed position, with walk by mode.

Remote reading of grouped /routed water meter from a maximum distance of 150 meters with clear line of sight under submergence condition with lid of chamber in closed position, with walk by mode during field demo as well as after installation in main work

Remote reading of grouped / routed water meter from a maximum distance of 100metres with obstruction of any structures under submergence condition with lid of chamber in closed position with walk by mode during field demo as well as after installation in main work. On site search facility in the AMR device / HHU and software.

Remote reading for special cases like back flow, magnetic tamper, physical tamper, etc. and their respective tamper alarms in HHU and software.

To check the backflow tampering indication on HHU screen & software along with display of its quantity and period of back flow.

Auto search facility of AMR water meter at site in HHU.

Data acquisition speed of AMR reading on HHU at site for individual read and for group / route read. Unit (HHU)

The hand held device or reading device shall have the sufficient memory (minimum 4000 reading data) for storage of maximum data / reading along with sufficient power backup.

The HHU shall have the onsite search facility, to locate the exact physical location of water meter in particular area and to obtain the corresponding details of it. The PC should be connected via USB to HHU. The readout device and HHU should have USB port to connect with computer device for exchanging the data.

The HHU should be adjustable back light, sun light readable, colour display and touch screen. The HHU shall have minimum 64 MB flash memory and 128 MBRAM.

The battery of HHU device shall give power back up for at least 5 hours continuously.

The unit must be able to withstand three foot drop on concrete.

The handheld must be ergonomically designed to be comfortable for handheld meter reading. There must be audible beep when indicating key has been pressed, there must also be an auto repeat function on keys and a rapid response between keying and seeing results on the screen.

The handheld must come with an integrated intelligent fast charge capability that allows full charge within 5 hours.

The hand-held must have integration with Global Positioning System (GPS) for route monitoring and configuration.

The read-out device should be connected to the Hand held device and needs to be USB powered.

Since HHU integration for route monitoring and configuration is required, bidder should adopt off field method. However field experience should also be utilized to optimize the grouping of meters. HHU should also have the facility to create route, modify route on site and to arrange in desired sequence as per site conditions.

HHU should be a single unit with required storage capacity and capable to receive required data from already defined numbers of installed meters through radio frequency and to download the same to the base computer.

HHU shall have at least 3 different level of security or as directed by Engineer-in charge. In case of AMR reading, if reading is not captured due to some reason, HHU should have capability to record data manually along with route data to be downloaded with notification of cause of manual reading. The issue should be resolved within 15 days and no manual reading will be allowed. Next billing cycle meter will be treated as unread and will be attracted action under relevant clause for that particular meter.

HHU should not have option of editing the meter reading.

Civil Engineering Specifications

The following Specifications, codes and standards, as well as their addenda, updating and reference standards shall be followed.

1. Relevant IRC & BIS Codes and Standard Practices
2. UP-PWD Specifications.
3. CPWD Specifications.
4. Technical Specifications mentioned in any part of this document.

The provisions of general / special conditions of contract, those specified in any portion of this bid document, as well as execution drawings and notes, or other specifications issued in writing by the Employer shall form part of the technical specifications of this work.

BILL OF QUANTITIES
(GENERAL ABSTRACT & UNIT ESTIMATES)

KANPUR SMART CITY LIMITED
PROVIDING SMART METERING SYSTEM, WATER SUPPLY HSCs, &
STRENGHTENING / AUGMENTATION OF WATER SUPPLY NETWORK IN ABD AREA
GENERAL ABSTRACT

Sl. No.	Description of work	Quantity	Unit	Rate	Amount (Rs)
	A. SHIFTING EXISTING HSCs. FROM OLD DISTRIBUTION LINES TO NEW DISTRIBUTION LINES				
1	Shifting of Existing House Service Connections from Old Distribution Lines to Newly laid Distribution Lines as per the Direction of Engineer-in-Charge including dismantling and reinstatement of road.				
	FOR CC ROAD				
A	110mm Distribution Lines	864	Nos	5037	**4351968**
B	125mm to 160mm Distribution Lines	518	Nos	5172	**2679096**
C	180mm to 250mm Distribution Lines	346	Nos	5314	**1838644**
	FOR BITUMEN ROAD				
D	110mm Distribution Lines	1438	Nos	9050	**13013900**
E	125mm to 160mm Distribution Lines	863	Nos	9250	**7982750**
F	180mm to 250mm Distribution Lines	575	Nos	9450	**5433750**
	FOR INTERLOCKING PAVER BLOCKS ROAD				
G	110mm Distribution Lines	575	Nos	4437	**2551275**
H	125mm to 160mm Distribution Lines	346	Nos	4572	**1581912**
I	180mm to 250mm Distribution Lines	230	Nos	4714	**1084220**
	Total	**5755**			
	B. PROVIDING NEW HSCs. FROM NEWLY LAID / EXISTING DISTRIBUTION LINES				
2	Making ferrule Connection in 110mm - 250mm nominal dia Distribution mains newly laid or existing with saddle piece, service connections, fitting and fixing of G.M ferrule of 15mm/ 20mm/ 100mm size including tapping of the main with 15mm/ 20mm/ 100mm size GI pipe , including the cost of excavation and subsequent backfilling after reinstating the Distribution main, including cost of fittings and specials and dismantling and reinstatement of road.	6990	Nos	6714	
	FOR CC ROAD				
A	110mm Distribution Lines	1048	Nos	4273	**4478104**
B	125mm to 160mm Distribution Lines	628	Nos	4408	**2768224**
C	180mm to 250mm Distribution Lines	419	Nos	4551	**1906869**
	FOR BITUMEN ROAD				
D	110mm Distribution Lines	1745	Nos	9050	**15792250**
E	125mm to 160mm Distribution Lines	1047	Nos	9250	**9684750**
F	180mm to 250mm Distribution Lines	708	Nos	9450	**6690600**
	FOR INTERLOCKING PAVER BLOCKS ROAD				
G	110mm Distribution Lines	697	Nos	3923	**2734331**

KANPUR SMART CITY LIMITED PROVIDING SMART METERING SYSTEM, WATER SUPPLY HSCs, & STRENGHTENING / AUGMENTATION OF WATER SUPPLY NETWORK IN ABD AREA GENERAL ABSTRACT					
Sl. No.	**Description of work**	**Quantity**	**Unit**	**Rate**	**Amount (Rs)**
H	125mm to 160mm Distribution Lines	419	Nos	4058	**1700302**
I	180mm to 250mm Distribution Lines	279	Nos	4201	**1172079**
	Total	**6990**			
	C. PROVIDING and FIXING NEW AMR METERS				
3	Supply of Battery Operated AMR (Automated Meter Reading) Class B consumer water meter as per IS 779-1994 or ISO 4064. The water meter shall be inferential type, multi jet, magnetically coupled, having dry dial, Brass / Bronze body, Class 'B' conforming to IS-779: 1994 with up to date amendments or ISO 4064 standard with ISI/MID/CE certification mark, shall be with protection class of IP- 68, complete with all test certificates. AMR Water Meter must have minimum 7 years warranty. RF modules must work at radian frequency on any free bandwidth as per Govt. Of India regulations. The meters shall be supplied with complete GI fittings, brass nuts and brass nipples. Strainers & sealing shall be provided as per relevant IS provision,				
A	Line Size upto DN 20mm	12735	Nos.	5124	**65254140**
	The Bulk Type water meter should be Woltmann type for 80 to 100mm , equipped with RF based AMR technology directly fitted with meter & wireless, with removable mechanism, magnetic drive , dry dial , hermetically sealed register of IP 68 protection class , manufactured in accordance with ISO 4064: 2017 standards & have MID pattern approvals & shall bear MID marking on meter dial for each size and must have register having inbuilt or directly fitted on water meter for bi-directional wireless RF module (RF end units/wireless RF transmitter /Reciever) for communication and remote reading				
B	Line Size from 80mm to 100mm	10	Nos.	26147.50	**261475**
4	Android Based Meter Reading software which can read meters on Drive by/ Walk by mode Per Point/annum	12745	Nos.	60	**764700**

KANPUR SMART CITY LIMITED

PROVIDING SMART METERING SYSTEM, WATER SUPPLY HSCs, &
STRENGHTENING / AUGMENTATION OF WATER SUPPLY NETWORK IN ABD AREA
GENERAL ABSTRACT

Sl. No.	Description of work	Quantity	Unit	Rate	Amount (Rs)
5	Supply of RF Bluetooth Master for AMR Meter Reading	4	Nos.	90000	**360000**
6	Commissioning Charges per AMR meter	12745	Nos.	2000	**25107650**
7	Provision for Consumer Data Hosting facility with consumer interface. (per Point per annum)	12745	Nos.	15	**191175**
D. CONSTRUCTION OF 800KL-OHT, 500KL-CWR ZONAL PUMPING STATION INCLUDING ELECTRICAL WORKS					
7	Detailed estimate given separately	1	1	34000000	**34000000**
E & F. INTERCONNECTION & SEGREGATION WORK FOR ZONING OF WATER SUPPLY NETWORK IN ABD AREA					
8	Detailed estimate given separately	3703895	1	3728739	**7432634**
G. LAYING OF 350mm FEEDERMAIN					
9	Detailed estimate given separately	1	1	11157000	**11157000**
H. EXTENSION OF DISTRIBUTION SYSTEM					
10	Detailed estimate given separately	1	1	21143000	**21143276**
				SUB TOTAL	**253118678**
11	**Operation and Maintenance Costs for a period of 5 Years at the end of Defect Liability Period including Manpower Deployment for the Operation & Maintenance Period**	1	1	21725429	**22329355**
12	**Provision for GST @ 12%**				**33053764**
				TOTAL (Rs)	**308501797**
				TOTAL (Rs. Cr.)	**30.8502**

UNIT ESTIMATES

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

VARIATION OF COST OF R.C.C. O.H.T.

Sl.No.	Description	Qty.	Unit	As per Circular		As per latest rate		Difference in Cost	Over all % of Variation
				Rate (Rs.)	Amount (Rs.)	Rate (Rs.)	Amount (Rs.)		
1	R.C.C. work with cement C.sand and 20 mm guage stone ballast in proportion 1:1.5:3 in T.beams slab, coloumns including supply of reinforcement and its bending, fixing, binding the same with 0.50mm thick binding wire (to be supplied by the contractor) supply of all materials labour T&P etc. required for proper completion of the work.								
	Details of cost for 10 cu.m (m3) R.C.C. 1:1.5:3								
(a)	**Labour:**								
(I)	Mistri	0.50	No	125.00	62.50	650.00	325.00	262.50	
(ii)	Mason	1.50	Nos	125.00	187.50	575.00	862.50	675.00	
(iii)	Mazdoor	14.00	Nos	70.00	980.00	400.00	5600.00	4620.00	
(iv)	Coolie	14.00	Nos	70.00	980.00	400.00	5600.00	4620.00	
(v)	Bhisti	7.00	Nos	85.00	595.00	400.00	2800.00	2205.00	
(vi)	Black Smith	14.00	Nos	100.00	1400.00	525.00	7350.00	5950.00	
					4205.00		**22537.50**	**18332.50**	
(vii)	T&P sundries hire of lubricants fuel etc.	Job	-	-	1050.00	-	5627 68	4577.68	
(viii)	Cost of binding wire and fixing reinforcement centring and shuttering balli support & C.P. etc.	Job	-	-	4200.00	-	22510.70	18310.70	
(ix)	**Materials:**								
(i)	Stone ballast 12-20 mm gauge	9.00	Cu.m	900	8100.00	2143.00	19287.00	11187.00	
(ii)	C. Sand	4.50	Cu.m	600.0	2700.00	2054.00	9243.00	6543.00	
(iii)	Cement	85.75	Bags.	150.0	12862.50	339.00	29069.25	16206.75	
(iv)	M.S.or iron work.	16.00	Qtl.	2600.0	41600.00	4750.00	76000.00	34400.00	
	Total				**74717.50**		**184275.13**	**109557.63**	146.63%

CALCULATION OF PER LTR. RATES OF R.C.C. OVER HEAD TANK 22.0M STAGGING.

Sl. No.	Description of the work	Rates as per Jal Nigam Head Quarter Letter No. 50/073-0009/सिल्पाल की दरें/1 Dt. 3-3-2006 Rs. Per/Ltr.	Present Rates Rs. Per/Ltr. (with 146% increase)
	Construction of following R.C.C. O.H.T's of different capacity including supply of all materials labour T&P shuttering & centering, vertical pipes sluice valves, railing apron, sluice valve chambers all complete as per direction of engineer incharge.		
1	800 Kl x 22 m	4.70	11.59
2	1000 Kl x 22 m	4.53	11.17
3	1200 Kl x 22 m	4.30	10.61
4	1300 Kl x 22 m	4.25	10.48
5	1500 Kl x 22 m	4.15	10.24
6	1700 Kl x 22 m	4.10	10.11
7	1800 Kl x 22 m	4.10	10.11
8	2000 Kl x 22 m	4.05	9.99
9	2100 Kl x 22 m	4.05	9.99
10	2300 Kl x 22 m	4.05	9.99
11	2400 Kl x 22 m	4.05	9.99

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

UNIT ESTIMATE OF C.W.R.

(1000 KL CAPACITY)

Sl.N	Description of work	Qty	Unit	Rate	Amount in Rs.
1	Excavation in foundation in ordinary soil (Loam/clay or sand) including lift upto 1.50 m ramming of excavated earth into the trenches or in to the space between the building and side of foundation trenches and disposal of surplus earth upto distance of 50m from the centre of the foundation trenches below 1.5 m from GL	500.00	Cum	194.00	97000.00
	From 1.5 m to 3.5 m	680.00	Cum	226.00	153680.00
2	P.C.C. work in 1:4:8 mix	49.00	Cum	6610.00	323890.00
3	R.C.C. work in 1:1:5:3 mix with shuttering & centering in raft, valve, coloumns, slab.	264.00	Cum	18145.00	4790280.00
4	Supply & fixing of steel, its bending in the required shape for proper completion of work.	26.41	Mt	106000.00	2799460.00
5	Snowcrem & distempering in three coats	150.00	Sqm	275.00	41250.00
6	Supply & fixing of 20 mm dia G.I. pipe (Medium) railing in three rows over M.S. iron post (50x50x6mm) & its grouting in 1:1:5:3 mix	65.00	M	2310.00	150150.00
7	Supply & fixing of M.S. ledder.	10.00	M	2227.50	22275.00
8	Supply & fixing of C.I. Manhole Cover with seat	2.00	Nos	13365.00	26730.00
9	Supply & fixing of water level indicator	1.00	No	30000.00	30000.00
10	Making Appron 1.0 m wide all around of C.W.R.	70.00	Sqm	799.00	55930.00
11A	Making arragnement for riser pipe				
	Inlet 400mm D.I. D/F	11.00	M	17747.00	195217.00
	Outlet 400mm D.I. D/F	16.50	M	17747.00	292825.50
	Over Flow 40mm D.I. D/F	5.50	M	17747.00	97608.50
11B	Supply & specials for above D.I. D/F pipes 10% of Rs. 432696.00	10%			58565.10
11 C	Carting & Fixing of above C.I. D/F pipes	33.00	M	497.00	16401.00
	Site clearance and unforseen item				19450.00
	Grand Total				**9170712.10**
	Rates per Ltr Rs.	9170712.10/1000000			**9.17**

ESTIMATE OF KANPUR NAGAR WATER SUPPLY REORGANISATION SCHEME THROUGH GANGA BARRAGE FOR WEST SERVICE DISTRICT OF KANPUR CITY

PHASE-III (Part-1)

UNIT ESTIMATE OF PUMP HOUSE SIZE 7.50 M X 10.00 M

Sl.No.	Description of the work	Qty	Unit	Rate	Amount in Rs.
1(a)	Excavation in foundation in ordinary soil (Loam/clay or sand) including lift upto 1.50m and lead upto 50.0m, filling watering and ramming of excavated eart into the trenches or in to the space between the building and side of foundation trenches and disposal of surplus earth upto distance of 50 m from the centre of the foundation trenches.	147.60	Cum	194.00	28634.40
(b)	Same as item no. 1 a but soil mixed with Kanka, brick ballast morum & Bajri etc.	98.40	Cum	226.00	22238.40
2	Concrete with 40 mm gauge Stone ballast, coarse sand and cement in proportion of 8:4:1 in foundation and floors, including supply of all materials, labour and T&P etc. required for proper completion of the work.	8.00	Cum	6104.00	48832.00
3	Supply of all materials and reinforced cement concrete and roofing with 20 mm stone ballast, coarse sand and cement mortar in 1:1:5:3 excluding supply of reinforcement and its bending but including its fixing in position with supply of biding wire, centering and shuttering and necessarycuring and supply of all materials, labour and T&P etc. required for proper completion of the work.	47.77	Cum	10323.00	493129.71
4 (a)	Ist class brick work in 1:6 cement & coarse sand mortar in superstructure including necessary cutting and moulding of bricks as required and also inluding of bricks as required and also including honeycomb brick work thickness of wall not to more than one brick including supply of all materisal labour T&P etc. required for proper completion of the work.	27.30	Cum	6566.00	179251.80
(b)	Same as item no. 6 but in 1:4 cement & coarse sand mortar in super structure.	37.40	Sqm	6700.00	250580.00

5	20mm thick DPC with cement and approved coarse sand in 1:2 including 5% water proofing comund or in the proportion as psecified by manufactures including supply of all materials, labour and T&P etc. requircd for proper completion of the work and includig curing & shutting as necessary.	12.40	Sqm	328.00	4067.20
6	12 mm thick plaster with cement mortar 1:4 consisting of cement and coarse sand over brick works, minimum thickness not to be less than 10mm including supply of all materials labour T&P etc. required for proper completion of the work.	651.50	Sqm	241.00	157011.50
7	Mild steel or iron work in chaukhat Including supply of all material, labour T&P etc. required for proper completion of work.	161.70	Kg	100.00	16170.00
8	Supply & fixing of M.S. Girder I.S.H.B. 200	432.00	Kg	100.00	43200.00
9	Supply & fixing of rolling shutter for main door.	7.50	Sqm	3000.00	22500.00
10	Supply & fixing of door shutters.	4.40	Sqm	2999.00	13195.60
11	Supply & fixing of ventilators fully glazed	5.04	Sqm	6500.00	32760.00
13	Mild steel or iron work in plain work such as RCC work wrought to required shape as necessary including bending for proper completion of the wok and including supply of steel and wastage.	5710.00	Kg	76.00	433960.00
14	Supply & fixing of rain water pipe. (100mm dia)	18.00	Mtr	935.55	16839.90
15	25 mm thick in 1:2:4 plain concrete floor with cement, coarse sand 20 mm guage approved stone ballast land in pannels with 3 mm floating dust in ratio of 1:5 as specified over and including 7.50 cm thick base concrete consisting of cement, coarse sand and Ist class brick ballast 40 mm gauge in proportion of 1:4:8 abd removing any overlapping of mortar at the joints of pannels if any and giving them uniform finish including supply of all materials, labour and T&P etc. required for proper competion of the work.	68.00	Sqm	743.00	50524.00

16	Making plinth protection 50 mm thick of cement concrete 1:2:4 (1 Cement:2 Coarse sand:4 graded stone aggreate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand inlcluding supply of all materials, labour, T&P etc. required for proper completion of work. including floating coat with neat cement & glass stips including	45.00	Sqm	582.00	26190.00
17	Supply of oxidized iron fittings of approved make for doors and windows.	4.00	Sqm	1850.00	7400.00
18	One priming coat and one coat of oil bound distepmer on new work including supply of all labour, material T&P etc. required for proper completion of work.	326.00	Sqm	275.00	89650.00
19	Colour washing (Snowchem) two coats using aproved shade, over & including supply of all materials, labour T&P etc, required for proper completion of the work.	325.00	Sqm	180.00	58500.00
20	Painting new iron work or new wood work with one coat priming and two coats of approved high grade enamel paint including supply of all mateials, labour T&P etc. required for proper completion of the work.	27.50	Sqm	248.00	6820.00
20(a)	Supply & lay complete 40mm thick insulation layers of sand and clay over hack arck of reinforced brick or reinforced cement concrete roof.	90.25	Sqm	82.50	7445.63
(b)	Roof Tarracing	90.25	Sqm	743.00	67055.75
				Total	**2075955.89**
				Rates per Sqm.	**27679.41**
				Say-	**27679.00**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

UNIT ESTIMATE FOR ARTIFICIAL RECHARGING OF GROUND WATER BY ROOF TOP RAIN WATER HARVESTING.

Sl.No.	ITEM	QUANTITY	UNIT	RATE	Amount in Rs.
1	Supply of different type of ISI marked pipes as given below:				
(A)	PVC Pipes 6 Kg/Cm2				
(i)	110mm dia	48	m	175.00	8400.000
(ii)	160 mm dia	36	m	384.00	13824.000
(iii)	200 mm dia	18	m	597.00	10746.000
(B)	PVC Pipes special	5%	of item no.1		1648.500
2	Supply & Fixing in position of precast/plastic Jali 6"x6" at the inlet etc. all complete including its fixing, materials, labour, T&P etc. required for Proper completion of the work.	7	Each	550.00	3850.000
3	Excavation of earth in soil mixed with moorum & kankar etc. for pipe line trenches including lift upto 1.5m and lead upto 50m and also including necessary reffilling watering & ramming of earth into trenches.	32.35	Cum.	210.00	6793.500
4	Laying & jointing of following sizes of PVC pipes into trenches including all Labour, T&P etc. with supply of required jointing materials:				
(i)	110mm dia PVC Pipe	48	m	44.00	2112.000
(ii)	160 mm dia PVC Pipe	36	m	63.00	2268.000
(iii)	200 mm dia PVC Pipe	18	m	70.00	1260.000
5	**Provision for construction of filtration chamber:**				
(A)	Excavation of earth in the foundation of plinth lead upto 50m & lift upto 1.50m for collection & filtration chamber.	34.28	M3	170.00	5827.600
	Lift above 1.50m.	23.53	M3	198.00	4658.940

(B)	Concrete with 40mm gauge stone ballast, local sand and cement in proportion 8:4:1 in foundation and plith, including supply of all materials, labour, T&P etc. required for proper completion of the work.	4.57	M3	6285.00	28722.450
6	Cement concrete with 20mm gauge approved stone ballast, coarse sand and cement in the proportion 1:1.5:3 including supply of all materials, labour, T&P etc. required for proper completion of the work.	1.16	M3	8748.00	10147.680
7	First class brick work in 1:4 cement & coarse sand mortar in foundation and plinth including supply of all materials, labour, T&P etc. required for proper completion of the work.	11.88	M3	7000.00	83160.000
8	Provision for scraping of old & damage plaster of parapet wall & removal of debries from site of work to out side of campus including supply of all material, labour, T&P etc. required for proper completion of	Job	-	L.S.	5500.000
9	12mm thick plaster with cement mortar consisting of 1:4 cement and coarse sand over brick work minimum thickness not to be less than 10mm including supply of all materials, labour, T&P etc. required for proper completion of the work.	91.94	M3	201.00	18479.940
10	Supply and packing of gravel in filtration chamber including supply of all materials, labour, T&P etc. required for proper completion of the	Job	-	L.S.	18750.000
11	Provision wire mash in filtration chamber including supply of all materials, labour, T&P etc. required for proper completion of the work.	1.00	Each	650.00	650.000

12	R.C.C. work with cement coarse sand & 20mm gauge approved stone ballast in proportion of 1:1.5:3 in slab excluding supply of reinforcement and its bending but including binding the same with 0.5mm thick binding wire (into be supplied by the contractor) and including necessary centering & shuttering supply of all materials, labour, T&P etc. required for proper completion of the work.	2.03	M3	14994.00	30437.820
	Provision for reinforcement as per norms.	160.00	Kg.	94.00	15040.000
13	Provision for making haunch at the joints of the wall & all the corners for proper completion of the work including supply of all materials, labour, T&P etc. complete.	Job	-	L.S.	1200.000
14	Making of injection well & construction of water collection chamber. As per Unit Estimate.	1 No.	Each	126500.00	126500.00
15	Supply & fixing of 60x60 cm. size C.I. manhole cover at the opening into the slab of filtration chamber and also supply and fixing of footrests.	2.00	Each	11400.00	22800.000
16	Provision for local cartage of all the materials including loading and unloading etc. complete.	Job		L.S.	5500.000
17	Provision for testing of complete pipe line network and structure, constructed under this scheme.	Job		L.S.	2200.000
18	Provision for causal labour I.e. for watch & ward etc. for proper completion of the work.	Job	-	L.S.	3300.000
19	Construction of water containers and silt collection trap at Juction point of down pipe size 1.00x1.00 1.56 with R.C.C. covers.	3 Nos.	Each	18000.00	54000.000
20	Provision for cutting & reinstate the road/B.O.E. including supply of all material. Labour, T&P etc. required for proper completion of work.	Job	-	L.S.	14300.000

21	Supply & fixing of 100 mm dia AC down pipe instead of damage down pipe.	21 Nos.	Each	254.00	5334.000
22	Provision for repairing of damage roof & giving required proper slope including supply of all necessary material such as cement course sand & labour etc. complete for proper completion of work including removal of debries out side the campus.	1 No.	-	Job	14300.000
23	Provision for unforseen items and site clearance etc.	Job	-	L.S.	1870.000
24	Provision for monitoring & maintenance of the recharge system after execution (Post project observation)	Job	L.S.	L.S.	4400.000
	TOTAL				**527980.430**
		Say Rs in lacs			**5.28**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

NEW HOUSE CONNECTION WITH ROAD REINSTATEMENT (CC Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	356.00	594.52
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 110mm	1	Nos.	2251.00	2251.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	2096.00	3500.32
	Total				**6345.84**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

NEW HOUSE CONNECTION WITH ROAD REINSTATEMENT (Bitumen Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	182.00	303.94
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 110mm	1	Nos.	2251.00	2251.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	3763.00	6284.21
Total					**8839.15**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

NEW HOUSE CONNECTION WITH ROAD REINSTATEMENT (Interlocking Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	155.00	258.85
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 110mm	1	Nos.	2251.00	2251.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	1383.00	2309.61
Total					**4819.46**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

NEW HOUSE CONNECTION WITH ROAD REINSTATEMENT (CC Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	356.00	594.52
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 125mm to 160mm	1	Nos.	2441.00	2441.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	2096.00	3500.32
Total					**6535.84**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

NEW HOUSE CONNECTION WITH ROAD REINSTATEMENT (Bitumen Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	182.00	303.94
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G M ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 125mm to 160mm	1	Nos.	2441.00	2441.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	3763.00	6284.21
Total					**9029.15**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

NEW HOUSE CONNECTION WITH ROAD REINSTATEMENT (Interlocking Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	155.00	258.85
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G M ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 125mm to 160mm	1	Nos.	2441.00	2441.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	1383.00	2309.61
Total					**5009.46**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

NEW HOUSE CONNECTION WITH ROAD REINSTATEMENT (CC Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	356.00	594.52
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 180mm to 250mm	1	Nos.	2641.00	2641.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	2096.00	3500.32
Total					**6735.84**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

NEW HOUSE CONNECTION WITH ROAD REINSTATEMENT (Bitumen Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	182.00	303.94
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 180mm to 250mm	1	Nos.	2641.00	2641.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	3763.00	6284.21
	Total				**9229.15**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

NEW HOUSE CONNECTION WITH ROAD REINSTATEMENT (Interlocking Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	155.00	258.85
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 180mm to 250mm	1	Nos.	2641.00	2641.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	1383.00	2309.61
Total					**5209.46**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

CAPING OF HOUSE CONNECTION WITH NEW HOUSE CONNECTION (CC Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Caping of Old House Connection					
1	Cutting of existing house service connection, fixing of end cap in house service connection bailing or pumping out water, cartage of required material, returning the scrap to the store, etc. complete including the cost of making joints, baring out the existing main as well as subsequent backfill.		Job	L S	100.00
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	356.00	594.52
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 110mm	1	Nos.	2251.00	2251.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	2096.00	3500.32
5	Unfor seen items for completion of Work.		Job	L S	100.00
Total					**6545.84**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

CAPING OF HOUSE CONNECTION WITH NEW HOUSE CONNECTION (Bitumin Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Caping of Old House Connection					
1	Cutting of existing house service connection, fixing of end cap in house service connection bailing or pumping out water, cartage of required material, returning the scrap to the store, etc. complete including the cost of making joints, baring out the existing main as well as subsequent backfill.		Job	L S	100.00
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	182.00	303.94
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 110mm	1	Nos.	2251.00	2251.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	3763.00	6284.21
5	Unfor seen items for completion of Work.		Job	L S	100.00
Total					**9039.15**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

CAPING OF HOUSE CONNECTION WITH NEW HOUSE CONNECTION (Interlocking Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Caping of Old House Connection					
1	Cutting of existing house service connection, fixing of end cap in house service connection bailing or pumping out water, cartage of required material, returning the scrap to the store, etc. complete including the cost of making joints, baring out the existing main as well as subsequent backfill.		Job	L S	100.00
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	155.00	258.85
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 110mm	1	Nos.	2251.00	2251.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	1383.00	2309.61
5	Unfor seen items for completion of Work.		Job	L S	100.00
Total					**5019.46**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

CAPING OF HOUSE CONNECTION WITH NEW HOUSE CONNECTION (CC Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Caping of Old House Connection					
1	Cutting of existing house service connection, fixing of end cap in house service connection bailing or pumping out water, cartage of required material, returning the scrap to the store, etc. complete including the cost of making joints, baring out the existing main as well as subsequent backfill.		Job	L S	100.00
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	356.00	594.52
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 125mm to 160mm	1	Nos.	2441.00	2441.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	2096.00	3500.32
5	Unfor seen items for completion of Work.		Job	L S	100.00
Total					**6735.84**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

CAPING OF HOUSE CONNECTION WITH NEW HOUSE CONNECTION (Bitumin Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Caping of Old House Connection					
1	Cutting of existing house service connection, fixing of end cap in house service connection bailing or pumping out water, cartage of required material, returning the scrap to the store, etc. complete including the cost of making joints, baring out the existing main as well as subsequent backfill.		Job	L S	100.00
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	182.00	303.94
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfiil of water main and cost of fittings and specials.				
	(a) 125mm to 160mm	1	Nos.	2441.00	2441.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	3763.00	6284.21
5	Unfor seen items for completion of Work.		Job	L S	100.00
Total					**9229.15**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

CAPING OF HOUSE CONNECTION WITH NEW HOUSE CONNECTION (Interlocking Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Caping of Old House Connection					
1	Cutting of existing house service connection, fixing of end cap in house service connection bailing or pumping out water, cartage of required material, returning the scrap to the store, etc. complete including the cost of making joints, baring out the existing main as well as subsequent backfill.		Job	L S	100.00
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	155.00	258.85
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 125mm to 160mm	1	Nos.	2441.00	2441.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	1383.00	2309.61
5	Unfor seen items for completion of Work.		Job	L S	100.00
Total					**5209.46**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

CAPING OF HOUSE CONNECTION WITH NEW HOUSE CONNECTION (CC Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Caping of Old House Connection					
1	Cutting of existing house service connection, fixing of end cap in house service connection bailing or pumping out water, cartage of required material, returning the scrap to the store, etc. complete including the cost of making joints, baring out the existing main as well as subsequent backfill.		Job	L S	100.00
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	356.00	594.52
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 180mm to 250mm	1	Nos.	2641.00	2641.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	2096.00	3500.32
5	Unfor seen items for completion of Work.		Job	L S	100.00
Total					**6935.84**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

CAPING OF HOUSE CONNECTION WITH NEW HOUSE CONNECTION (Bitumin Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Caping of Old House Connection					
1	Cutting of existing house service connection, fixing of end cap in house service connection bailing or pumping out water, cartage of required material, returning the scrap to the store, etc. complete including the cost of making joints, baring out the existing main as well as subsequent backfill.		Job	L S	100.00
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	182.00	303.94
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 180mm to 250mm	1	Nos.	2641.00	2641.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	3763.00	6284.21
5	Unfor seen items for completion of Work.		Job	L S	100.00
Total					**9429.15**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

CAPING OF HOUSE CONNECTION WITH NEW HOUSE CONNECTION (Interlocking Road)

S. No.	Items	Quantity	Unit	Rate	Amount in Rs.
C1	C 2	C 3	C 4	C5	C6
Caping of Old House Connection					
1	Cutting of existing house service connection, fixing of end cap in house service connection bailing or pumping out water, cartage of required material, returning the scrap to the store, etc. complete including the cost of making joints, baring out the existing main as well as subsequent backfill.		Job	L S	100.00
Making New House Connection					
2	Dismantling of road surface for shifting of existing house connection from non-functional distribution line to new/working distribution line including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m. =(0.75*0.75)+3.7*0.3 = 1.67 sqm.	1.67	Sqm	155.00	258.85
3	Making ferrule connection in 50 to 110 mm nominal dia, distribution mains (existing) with saddle piece, service connections, fittings, and fixing of G.M. ferrule of 15mm size including tapping the main. Exclude for the cost of balling out and subsequent backfill of water main and cost of fittings and specials.				
	(a) 180mm to 250mm	1	Nos.	2641.00	2641.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	1.67	Sqm	1383.00	2309.61
5	Unfor seen items for completion of Work.		Job	L S	100.00
	Total				**5409.46**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

UNIT ESTIMATE OF A SET OF BUILDING

Sl.No.	Description of the work	QUANTITY	UNIT	RATE	AMOUNT in Rs.
C1	C2	C3	C4	C5	C6
1	Excavation in foundation in ordinary soil (Loam/clay or sand) including lift upto 1.50 m ramming of excavated earth into the trenches or in to the space between the building and side of foundation trenches and disposal of surplus earth upto distance of 50m from the centre of the foundation	18.00	Cum	194.00	3492.00
(b)	Same as item no.1 a but soil mixed with Kankar brick ballast morum & Bajri etc.	10.00	Cum	226.00	2260.00
2	Concrete with 40 mm gauge stone ballast coarse sand and cement in proportion of 8:4:1 in foundation and floors, including supply of all materials, labour and T&P etc. required for proper completion of the work.	12.33	Cum	6104.00	75262.32
3	First class brick work in 1:6 cement and coarse supply mortar in foundation and plinth including supply of all materials, labour and T&P etc. required for proper	23.50	Cum	6566.00	154301.00
4	20 mm thick DPC with cement and approved coarse sand in 1:2 including 5% water proffing compound or in the proportion as specified by manufactures including supply of all materials, labour and T&P etc. required for proper completion of the work and including curing & shuttering as necessary.	25.00	Sqm	328.00	8200.00
5	Mild steel or iron work as in chaukhat including supply of all material, labour T&P etc. required for proper completion of work.	9.50	Qtl	10000.00	95000.00

6	Ist class brick work in 1:4 cement & coarse sand mortar in superstructure including necessary cutting and moulding of brick as required and also including honey comb brick work thickness of wall not to more than one brick including supply of all materials, labour T&P etc. required for proper completion of the work.	39.70	Cum	6684.00	265354.80
7	Same as item no.6 but in 1:4 cement & coarse sand mortar in super structure.	4.50	Sqm	7062.00	31779.00
8	Filling dressing and reamming of local sand or bajri or ballast or Kankar of single etc including cost of filling materials	40.00	Cum	1483.00	59320.00
9	Supply of all materials and reinforced cement concrete and roofing with 20 mm stone ballast, coarse sand and cement mortar in 1:1.5 :3 excluding supply of reinforcement and its bending but including its fixing in position with supply of binding wire, centreing and shuttering and necessary curing and supply of all materials, labour and T&P etc. required for proper completion of the work.	13.40	Cum	16984.00	227585.60
10	Mild steel or iron work in plain work such as RCC work wrought to required shape as necessary including bending for proper completion of the work and including supply of steel and wastage.	520.00	Kg	76.00	39520.00
11	Supply & fix in position fan hooks, fabricated from 16 mm dia M.S. bars complete including painting,	4.00	Nos.	450.00	1800.00
12	Supply and fix in position 40 mm thick precast RCC Jail Over ventilators openings including supply of all materials, labour, T&P etc. equired for proper completion of the work.	4.00	Nos.	1250.00	5000.00
13	12 mm thick plaster with cement mortar 1:4 consisting of cement and coarse sand over brick works, minimum thickness not to be less than 10 mm including supply of all material labour T&P etc. required for proper	410.00	Sqm	241.00	98810.00

14	Same as item no. 13 but with cement mortar 1:4 consisting of cement and coarse sand on	95.00	Sqm	241.00	22895.00
15	Extra for plaster over rough face of one brick thick walls.	95.00	Sqm	241.00	22895.00
16	20 mm thick cement plaster in dado or skirting with cement mortar 1:2 consisting of cement and coarse sand, laid in panels finished with 3 mm floating coat of neat cement of or 1:5 cement and marble dust including supply of all material, labour T&P etc. required for proper completion of the work.	17.70	Sqm	551.00	9752.70
17	25 mm thick in 1:2:4 plain concrete floor with cement, coarse sand 20 mm gauge approved stone ballast land in pannel with 3 m floating coat of neat cement or cement or marble dust in ratio of 1:5 as specified over and including 7.50 cm thick base concree consisting of cement, coarse sand and 1 st class brick 40mm gauge in proportion of 1:4:8 and removing any overtapping of mortar at the joints of pannels if any and giving them uniform finish including supply f all materials, labour and T&P etc. required for proper completion of the work.	66.00	Sqm	743.00	49038.00
18	Same as item 17 but 25 mm thick 1:2:4 plain cement concrete floor, without base concrete.	5.80	Sqm	284.80	1651.84
19	Ist class brick floor laid dry, Joint sand filled and top pointed with 1:2 cement and coarse sand mortar including preparation of base to proper stope and its ramming including supply of all materials labour T&P etc. required for proper completion of the work.	53.00	Sqm	621.00	32913.00
20	Supply & fix 3 mm thick glass strips of 25 mm width in joints at time of laying floor flushed with floor level including all material labour T&P etc. required for proper	140.00	Rm	28.50	3990.00
21	Supply & lay complete 40 mm thick insulation layers of sand and clay over hack arck of reinforced brick or reinforced cement concrete roof.	65.70	Sqm	82.50	5420.25

22	Cement concrete with 40mm gauge approved stone ballast, coarse sand and cement in the proportion 8:4:1in roof terracing including supply of all materials, labour, T&P etc. required for proper completion of the work.	6.60	Cum	6104.00	40286.40
23	Supply and fixing 36 mm thick C.P. Countrywood part parallel and part glazed doors and windows, shutters including supply and fixing of wooden cleats and stops and fixing and adjustment of hinges, bolts, locks, handles, springs, and other fittings supply and fixing the glass panes with putty and bard Glass etc. be 2.50mm thick but excluding painting and supply	16.20	Sqm	3192.00	51710.40
24	Supply of oxidized iron fittings of approved make for doors and window.	16.20	Sqm	1850.00	29970.00
25	Mild steel or iron work in window grills, wrought to required form including cutting. Moulding and welding where necessary & also including of steel bolt nuts screws etc. and their fixing as required for proper completion of work.	110.00	Kg	100.00	11000.00
26	Supply of galvanised mosquito proof heavy quality iron wire gauge, extended metal 1.50 mm mesh or any other size over windows, including supply of shisham wood battens 50x12 mm necessary screws, all materials, labour T&P etc. required for proper	5.40	Sqm	2497.50	13486.50
27	Making Plinth protection with 50 mm thick of cement concrete 1:2:4(1 Cement 2 Coarse sand:4 graded stone aggregate 20 mm nominal size) over 75 mm bed of dry brick ballast 40 mm nominal size well rammed and consolidated and grouted with fine sand including supply of all materials, labour, T&P etc. required for proper completion of work including floating coat with neat cement & glass stips including brick edging	20.00	Sqm	1029.00	20580.00

28	One priming coat and one coat of oil bound distepmer on new work including supply of all labour, material T&P etc. required for proper completion of work.	258.90	Sqm	275.00	71197.50
29	Colour washing two coats using approved shade over & including supply of all materials, labour T&P etc. required for proper completion of the work;	340.52	Sqm	180.00	61293.60
30	Painting new iron work or new wood work with one coat priming and two coats of approved high grade enamel paint including supply of all materials, labour T&P etc. required for proper completion of the work.	66.55	Sqm	248.00	16504.40
31	Construction of 100 mm dia semi-circular drains as per type design.	22.50	M	475.00	10687.50
32	Site clearance and other unforseen items.	Job		LS	810.00
				Sub Total	**1543766.81**
				Plinth area Rate = 1543766.81/68.40	**22569.69**
				Rate per Sqm	**22570.00**
33	Internal Electrification @ 7%				**1579.90**
34	Internal Sanitation and Water Supply Works @ 10%				**2257.00**
				Total Rate per Sqm	**26406.90**
				Say Rate per Sqm	**26407.00**

Note: - Provision for water supply & sanitary works and electrification have been made separately

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

UNIT ESTIMATE OF BOUNDARY WALL 1.2 M HIGH (ESTIMATE OF 10.00 M LENGTH)

Sl. No.	Description of the work	Qty.	Unit.	Rate	Amount in Rs.
1	Excavation in foundation in ordinary soil (Loam/clay or sand) including lift upto 1.50 m and lead upto 5 Cm, filling watering and ramming of excavated earth into the trenches or in to the space between the building and side of foundation trenches and disposal of surplus earth upto distance of 50m from the centre of the foundation trenches.	2.00	cum.	240.00	480.00
2	Concrete with 40mm gauge stone ballast coarse sand and cement in proportion (8:4:1) in foundation and floors including supply of all materials, Labour, T&P etc. required for proper completion of the work.	0.68	cum.	6610.00	4494.80
3	Ist class brick work in 1:4 with cement and coarse sand mortar in foundation and plinth including supply of all materials, labour, T&P etc. required for proper completion of the work.	2.90	cum.	7322.00	21233.80
4	20 mm thick damp proof course with cement and approved course sand 1:2 including 5 percent water proofing material or in the manufactures including supply of all material, labour T&P etc. required for proper completion of the work and including curing and shuttering as necessary.	2.30	Sqm.	345.00	793.50
5	I class brick work in 1.4 cement + local sand mortar in super structure including necessary cutting and moulding of brick work, thickness of wall not to be more than one brick and supply of all materials, labour, T&P etc. required for proper completion of the work.	2.65	cum.	7700.00	20405.00
6	Cement concrete with 20mm gauge approved stone ballast in cement coarse sand in proportion 1:1.5:3 including supply of all materials of the work.	0.14	cum.	12755.00	1785.70
7	12mm thick plaster with cement mortar 1:6 consisting of cement and local sand over brick work, minimum. Thickness not to be less than 10mm inclding supply of all materials, labour, T&P for proportion completion of the work.	29.30	Sqm.	251.00	7354.30
8	Colour washing two coat using colouring materials of approved shade, over and including one coat of white wash and including supply of all materials, labour, T&P and etc. required for proper completion of the work.	27.80	Sqm.	275.00	7645.00

9	Supply of 50x50x6 mm size angle iron post in required length 1.5m in which 0.5 m will be inclined in upper portion including fabrication making required holes @ 0.30 cm C/C to each holes, painting two coats with one coat promer, placing & fixing at site properly etc. required for proper completion of work.	72.00	Kg.	100.00	7200.00
10	Supply of 12 gauge 2 ply barbed wire at site including its fixing fencing into post holes after streching it all labour T&P etc. required for proper completion of the work as per direction of engineer inchrge.	56.00	Kg.	124.00	6944.00
11	Site clearance and other unforseen item etc.	Job		L.S.	152.59
				Total	**78488.69**
	Rate per meter length: Rs. 78488.69/10=7848.87				**7848.87**
		Say			**7849.00**

ESTIMATE FOR WATER SUPPLY STRENGTHENING AND ARGUMENTATION OF NETWORK OF ABD AREA OF KANPUR NAGAR CITY

UNDER

SMART CITY MISSION

UNIT ESTIMATE FOR SLUICE VALVE CHAMBER

Sl.No.	Description of the work	Qty	Unit	Rate	Amount in Rs.
1	Excavation in foundation in ordinary soil (Loam/clay or sand) including lift upto 1.50 m and lead upto 50.0m, filling watering and ramming of excavated eart into the trenches or in to the space between the building and side of foundation trenches and disposal of surplus earth upto distance of 50 m from the centre of the foundation	4.23	Cum	240.00	1014.18
2	40 cm thick Concrete with 40 mm stone ballast local sand and cement in proportion of (8:4:1) in foundation and floors, including supply of all materials, labour and T&P etc. required for proper completion of the work.	0.38	Cum	6104.00	2344.91
3	First class brick work in 1:4 in foundation and plinth including supply of all materials, labour and T&P etc. required for the proper completion of the work.	1.592	Cum	6684.00	10638.25
4	40 mm thick Cement Concrete with 20mm guage approved stone ballast, coarse sand and cement in the proportion 3:1.5:1 including supply of all materials, labours, T&P etc. required for proper completion of the	0.50	Cum	17337.00	8668.50
5	12mm thick plaster in 1:4 cement & coarse sand including supply of all mateials labour, T&P etc. required for proper completion of the work.	7.38	Sqm	207.00	1527.66
6	M.S. or iron work in plan work such as R.C.C. or R.B. work 1% of Quantity of R.C.C.	50.00	Kg	76.00	3800.00
7	Site clearance and other unforseen item etc.	Job	-	L.S.	742.50
				Total	**28736.01**
				say	**28736**

Unit Estimate for Leakage Repair

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 100mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	2.25	182	409.50
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	3.375	240	810.00
3(a)	Cutting the existing 100mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1	2002.00	2002.00
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) PVC Pipe	mt	1	175.00	175.00
	(iii) C.I. D-Joint Class-10 (100mm)	No.	2	410.00	820.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2	38.97	77.95
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	2.25	3763.00	8466.75
5	Unforeseen Item				52.03
				Total	**12813.23**
				Say Rs.	**12813.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 140mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	2.25	182	409.50
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	3.375	240	810.00
3(a)	Cutting the existing 140mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1	2002.00	2002.00
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) PVC Pipe	mt	1	292.00	292.00
	(iii) C.I. D-Joint Class-10 (125mm)	No.	2	557.00	1114.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2	44.88	89.76
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	2.25	3763.00	8466.75
5	Unforeseen Item				56.99
				Total	**13241.00**
				Say Rs.	**13241.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 160mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	2.25	182	409.50
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	3.38	240	810.00
3(a)	Cutting the existing 160mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1.00	2002.00	2002.00
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) PVC Pipe	mt	1.00	384.00	384.00
	(iii) C.I. D-Joint Class-10 (150mm)	No.	2.00	613.00	1226.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2.00	44.80	89.60
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	2.25	3763.00	8466.75
5	Unforeseen Item				83.15
				Total	**13471.00**
				Say Rs.	**13471.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 200mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	4.00	182	728.00
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	7.00	240	1680.00
3(a)	Cutting the existing 200mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1.00	3860.70	3860.70
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) AC Pipe	mt	1.00	727.00	727.00
	(iii) C.I. D-Joint Class-10 (200mm)	No.	2.00	985.00	1970.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2.00	54.92	109.84
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	4.00	3763.00	15052.00
5	Unforeseen Item				102.46
				Total	**24230.00**
				Say Rs.	**24230.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 250mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	4.00	182	728.00
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	7.00	240	1680.00
3(a)	Cutting the existing 250mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1.00	3860.70	3860.70
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) AC Pipe	mt	1.00	954.00	954.00
	(iii) C.I. D-Joint Class-10 (250mm)	No.	2.00	1248.00	2496.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2.00	68.86	137.72
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	4.00	3763.00	15052.00
5	Unforeseen Item				105.58
				Total	**25014.00**
				Say Rs.	**25014.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 300mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	6.25	182	1137.50
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	12.50	240	3000.00
3(a)	Cutting the existing 300mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1.00	3860.70	3860.70
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) AC Pipe	mt	1.00	1347.00	1347.00
	(iii) C.I. D-Joint Class-10 (300mm)	No.	2.00	1460.00	2920.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2.00	93.13	186.26
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	6.25	3763.00	23518.75
5	Unforeseen Item				104.54
				Total	**36074.75**
				Say Rs.	**36075.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 350mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	6.25	182	1137.50
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	12.50	240	3000.00
3(a)	Cutting the existing 350mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1.00	6498.00	6498.00
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) AC Pipe	mt	1.00	1650.00	1650.00
	(iii) C.I. D-Joint Class-10 (350mm)	No.	2.00	2713.00	5426.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2.00	117.70	235.40
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	6.25	3763.00	23518.75
5	Unforeseen Item				104.10
				Total	**41569.75**
				Say Rs.	**41570.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 400mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	6.25	182	1137.50
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	12.50	240	3000.00
3(a)	Cutting the existing 400mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1.00	6498.00	6498.00
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) AC Pipe	mt	1.00	2173.00	2173.00
	(iii) C.I. D-Joint Class-10 (400mm)	No.	2.00	3475.00	6950.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2.00	141.97	283.94
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	6.25	3763.00	23518.75
5	Unforeseen Item				110.56
				Total	**43671.75**
				Say Rs.	**43672.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 450mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	6.25	182	1137.50
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	12.50	240	3000.00
3(a)	Cutting the existing 450mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1.00	6498.00	6498.00
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) AC Pipe	mt	1.00	2626.00	2626.00
	(iii) C.I. D-Joint Class-10 (450mm)	No.	2.00	4075.00	8150.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2.00	168.80	337.60
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	6.25	3763.00	23518.75
5	Unforeseen Item				113.90
				Total	**45381.75**
				Say Rs.	**45382.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 500mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	6.25	182	1137.50
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	12.50	240	3000.00
3(a)	Cutting the existing 500mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1.00	9163.00	9163.00
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) AC Pipe	mt	1.00	3525.00	3525.00
	(iii) C.I. D-Joint Class-10 (500mm)	No.	2.00	5625.00	11250.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2.00	186.64	373.28
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	6.25	3763.00	23518.75
5	Unforeseen Item				119.22
				Total	**52086.75**
				Say Rs.	**52087.00**

Item No.	Item	Unit	Quantity	Rate	Amount
1	2	3	4	5	6
	For 600mm				
1	Dismantling of road surface including sorting out of serviceable materials and disposal of unserviceable material upto a distance of 50 m	Sqm	6.25	182	1137.50
2	Excavation for pipe line in ordinary soil (loam, clay or sand) including lift upto 1.50 m and lead upto 50 m including filling back watering ramming of excavated earth in to the trenches and disposal of surplus earth within 50 m including all, labour T&P	Cum	12.50	240	3000.00
3(a)	Cutting the existing 600mm nominal dia. S&S or flanged C.I. running watermain, inserting specials or fittings, bailing or required materials, returning the scrap to the store, etc. Complete but excluding the cost of insertion pipes and specials, making joints, baring out the existing main benders as well as subsequent backfill.	No.	1.00	9163.00	9163.00
3(b)	Supply of following Materials required for leakage repair cost inclusive of all taxes.				
	(i) AC Pipe	mt	1.00	4994.00	4994.00
	(iii) C.I. D-Joint Class-10 (600mm)	No.	2.00	8463.00	16926.00
3(c)	Making rubber ring flange joints (using C.I. detachable joints) in all classes of AC pressure pipe and C.I. plain ended specials including testing etc. complete.	No.	2.00	203.50	407.00
4	Reinstatement of road surface with old and new material including cost of materials labour T&P etc. all complete	Sqm	6.25	3763.00	23518.75
5	Unforeseen Item				129.50
				Total	**59275.75**
				Say Rs.	**59276.00**

SECTION 6: FORMS OF BID AND SECURITIES

Form of Bid

Notes on Form of Bid: The Bidder shall fill in and submit this Bid form with the Bid.

---------- (Date)

To

The Chief Executive Officer on behalf of GOVERNMENT OF INDIA, KSCL, Kanpur.

Description of the work: ----------

(a) I/We offer to execute the works described above and remedy any defects there in conformity with the conditions of contract, specifications, drawings, bill of quantities and addenda for

(b) For percentage rate **as quoted online in BOQ** percentage below/ percentage above/at par with the rate entered in the Schedule of rate, as referred to in clause 13 of ITB.

1. We undertake to commence the works on receiving the notice to proceed with work in accordance with the contract documents.
2. This Bid your written acceptance of if shall constitute a binding contract between us. We understand that you are bound to accept the lowest or any Bid you receive.

We hereby confirm that this bid complies with the Bid validity and earnest money required by the bidding documents and specified in the Appendix to ITB.

Authorized Signature: -

_____

Name and title of Signatory:-

_____

Name of bidder: -

_____

Authorized Address

of Communication:-

_____

_____

_____

Telephone No(s): (Office):-

_____

Mobile No: -

_____

Facsimile (FAX) No: -

_____

Electronic Mail Identification (E-mail ID):-

_____

Forms of Securities

Acceptable forms of securities are annexed. Bidders should not complete the Performance and Advance Payment Security forms at this time. Only the successful Bidder will be required to provide Performance and Advance Payment Securities in accordance with one of the forms, or in a similar form acceptable to the Employer.

Annex I: Bid Security (Bank Guarantee)

Annex II: Performance Bank Guarantee

BID SECURITY (BANK GUARANTEE) **Annex I**

WHEREAS, *[name of Bidder]* (hereinafter called "the Bidder")

has submitted his Bid dated _____ *[date]* for the

"_____"

Package No. - _____ (Hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that We _____

[name of bank] of_____*[name of country]* having our registered office at _____(Hereinafter called "the Bank") are bound unto Chief Executive Officer, Kanpur Smart City Limited, Motijheel, Kanpur – 208002, Uttar Pradesh (hereinafter called "the Employer") in the sum of_____ for which payment well and truly to be made to the said Employer the Bank binds itself, his successors and assigns by these presents.

SEALED with the Common Seal of the said Bank this day of. THE CONDITIONS of this obligation are:

1) If after Bid opening the Bidder withdraws his bid during the period of Bid validity specified in the Form of Bid; or
2) If the Bidder having been notified of the acceptance of his bid by the Employer during the period of Bid validity:

   (a) Fails or refuses to execute the Form of Agreement in accordance with the Instructions to Bidders, if required; or

   (b) Fails or refuses to furnish the Performance Security, in accordance with the Instruction to Bidders; or

   (c) does not accept the correction of the Bid Price pursuant to Clause 27; we undertake to pay to the Employer up to the above amount upon receipt of his first written demand, without the Employer having to substantiate his demand,

provided that in his demand the Employer will note that the amount claimed by him is due to him owing to the occurrence of one or any of the three conditions, specifying the occurred condition or conditions.

This Guarantee will remain in force up to and including[2] days after the deadline for submission of Bids as such deadline is stated in the Instructions to Bidders or as it may be extended by the Employer, notice of which extension(s) to the Bank is hereby waived. Any demand in respect of this guarantee should reach the Bank not later than the above date.

DATE SIGNATURE OF THE BANK _____

WITNESS SEAL _____

_____

[Signature, name, and address]

[1] The Bidder should insert the amount of the guarantee in words and figures denominated in Indian Rupees. This figure should be the same as shown in Clause 16.1 of the Instructions to Bidders.

[2] 45 days after the end of the validity period of the Bid.

Annex II

PERFORMANCE BANK GUARANTEE

To: *[Name of Employer]*

[Address of Employer]

WHEREAS

_____

[Name and Address of Contractor]

(Hereinafter called "the Contractor") has undertaken, in pursuance of Contract No. _____ Dated_____ to execute

_____

_____*[Name of Contract and brief description of Works]*

(Hereinafter called "the Contract");

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

AND WHEREAS we have agreed to give the Contractor such a Bank Guarantee;

NOW THEREFORE we hereby affirm that we are Guarantor and responsible to you, on behalf of the Contractor, upto a total of _____ *[Amount of Guarantee]*[1]_____*[in words]* such sums being payable in the types and proportions of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand and without cavil or argument, any sums or sums within the limit of

_____*[Amount of Guarantee]*[1] as aforesaid without your needing to prove or to show grounds or reasons for your demand for the sum specified therein.

We hereby waive the necessity of your demanding the said debt from the Contractor before presenting us with the demand.

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

This guarantee shall be valid until …….. (i.e.) 28 days from the date of expiry of the Defects Liability Period.

Signature and seal of the guarantor _____

Name of Bank _____

Address _____

Date _____

[1] An amount shall be inserted by the Guarantor, representing the percentage of the Contract Price specified in the Contract and denominated in Indian Rupees.

SECTION-7: Operation & Maintenance

O & M Costs of Smart Metering Items / Services including Manpower Deployment (Considered at 4% of CV for Smart Metering Items / Services and 8% Inflation per Year)

At the End of	Amount in Rs.
First Year	3806183
Second Year	4110677
Third Year	4439531
Fourth Year	4794694
Fifth Year	5178269
Total in Rs.	22329355

SECTION-8: Drawings & House Hold Details

No. of House Holds with HSCs = 5755

No. of House Holds to be provided with HSCs = 6990

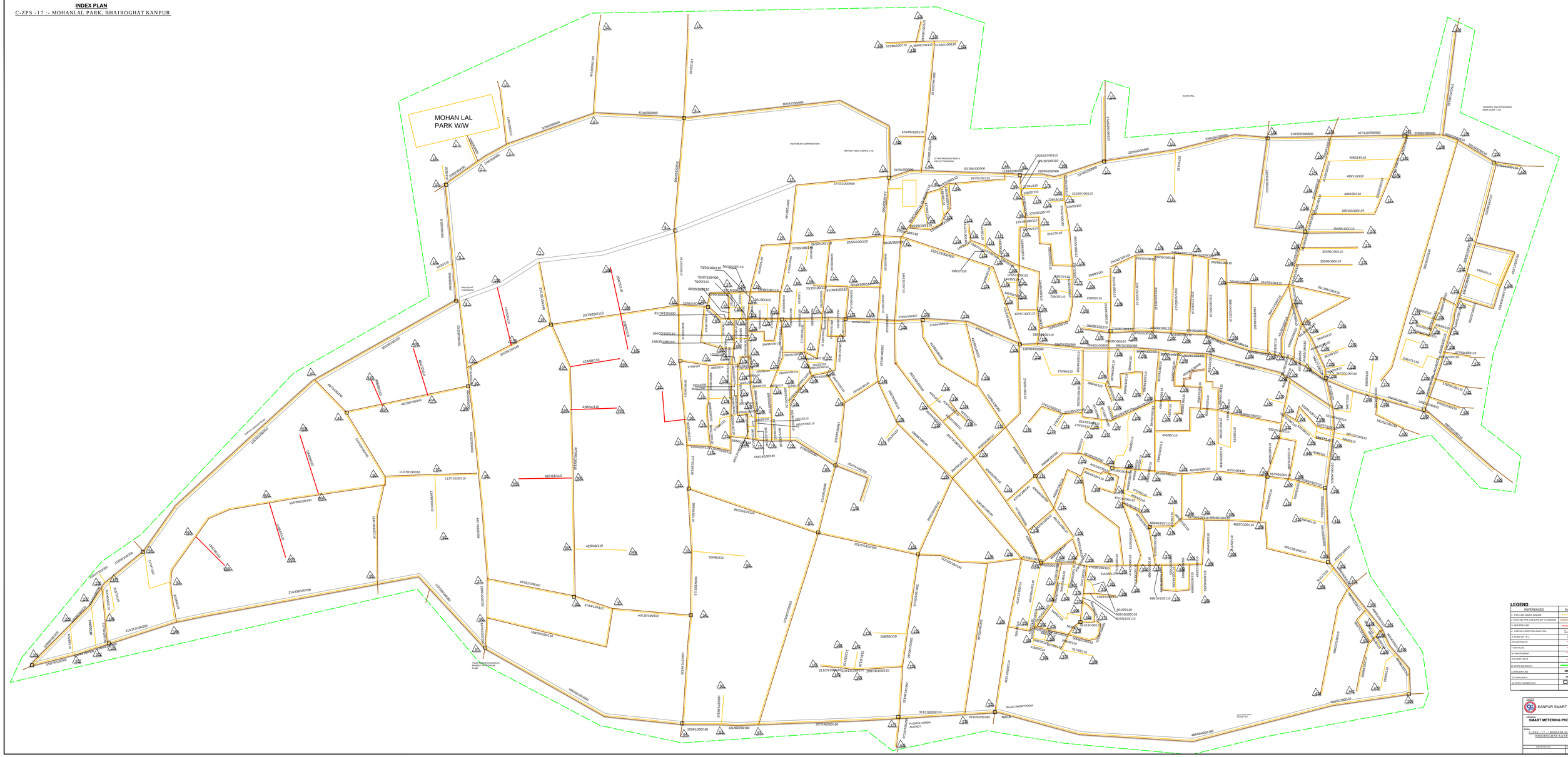
No. of Smart Meters Required = 12745

Details of HHs will be provided to the Successful Bidder upon award of Contract.

DRAWINGS

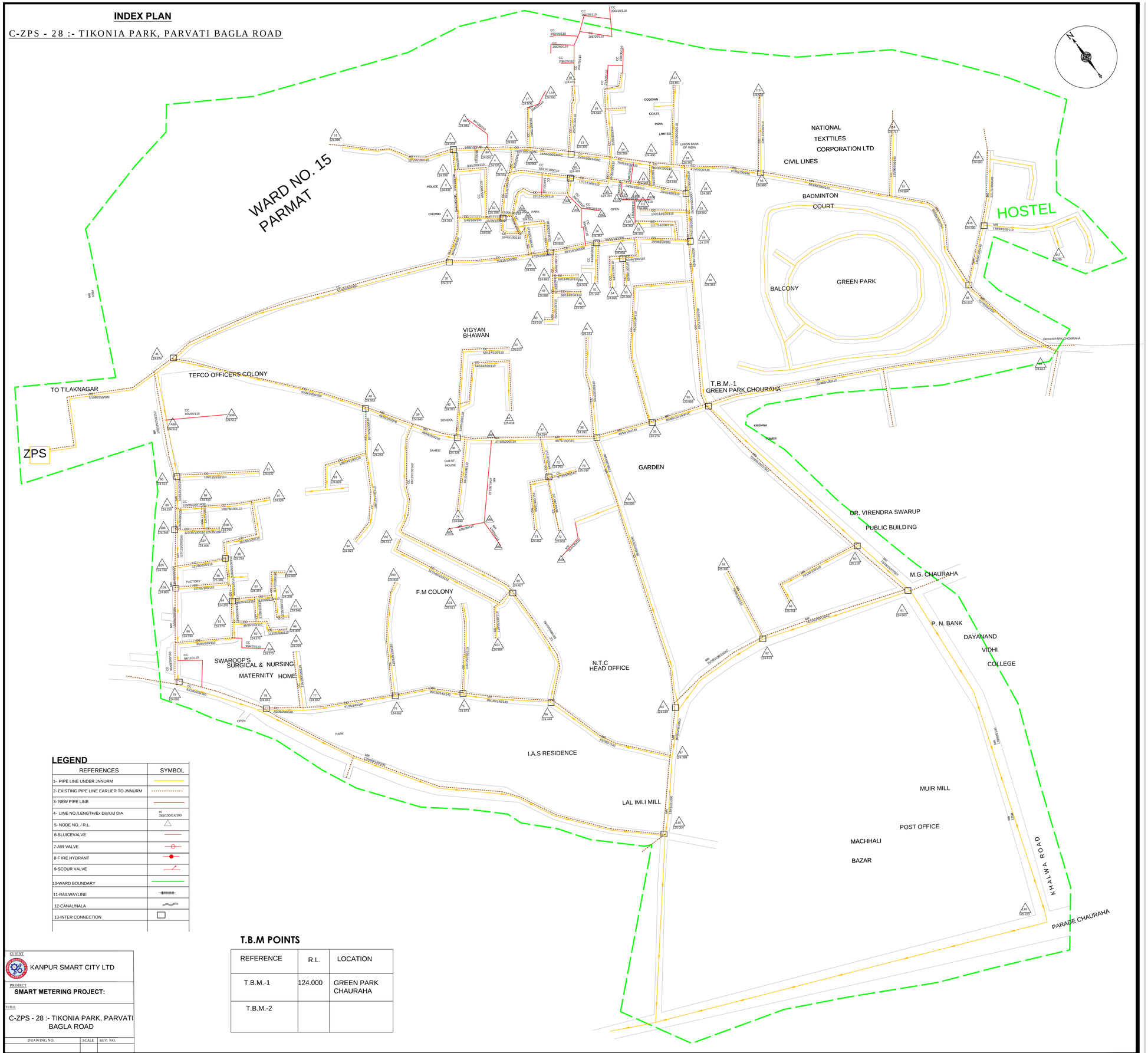
INDEX PLAN

C-ZPS -17 :- MOHANLAL PARK, BHAIROGHAT KANPUR



INDEX PLAN

C-ZPS - 28 :- TIKONIA PARK, PARVATI BAGLA ROAD



LEGEND

REFERENCES	SYMBOL
1- PIPE LINE UNDER JNNURM	
2- EXISTING PIPE LINE EARLIER TO JNNURM	
3- NEW PIPE LINE	
4- LINE NO./LENGTH/Ex Dia/U/J D/A	CC 280/150/EX/100
5- NODE NO. / R.L.	
6-SLUICEVALVE	
7-AIR VALVE	
8-F IRE HYDRANT	
9-SCOUR VALVE	
10-WARD BOUNDARY	
11-RAILWAYLINE	
12-CANAL/NALA	
13-INTER CONNECTION	

T.B.M POINTS

REFERENCE	R.L.	LOCATION
T.B.M.-1	124.000	GREEN PARK CHAURAHA
T.B.M.-2		

CLIENT

KANPUR SMART CITY LTD

PROJECT

SMART METERING PROJECT:

TITLE

C-ZPS - 28 :- TIKONIA PARK, PARVATI BAGLA ROAD

DRAWING NO.	SCALE	REV. NO.

INDEX PLAN
C-ZPS -29 :- KAUSHIK PARK, CIVIL LINES

LEGEND

REFERENCES	SYMBOL
1- PIPE LINE UNDER JNNURM	
2- EXISTING PIPE LINE EARLIER TO JNNURM	
3- NEW PIPE LINE	
4- LINE NO./LENGTH/Exist.DIA/U/J DIA	cc 283/150/--/100
5- NODE NO. / R.L.	
6-SLUICEVALVE	
7-AIR VALVE	
8-F IRE HYDRANT	
9-SCOUR VALVE	
10-WARD BOUNDARY	
11-RAILWAYLINE	
12-CANAL/NALA	
13-INTER CONNECTION	

CLIENT

KANPUR SMART CITY LTD

PROJECT

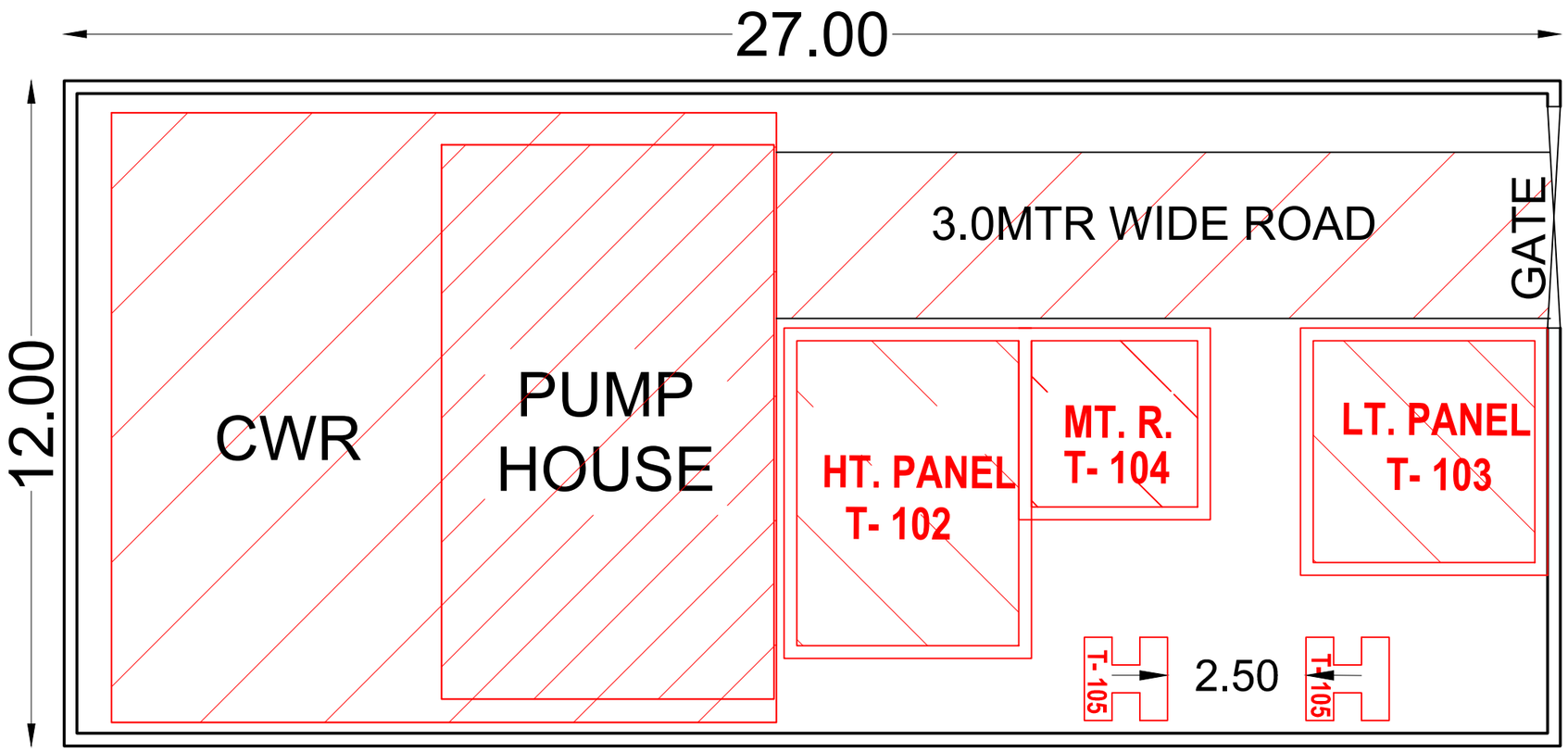
SMART METERING PROJECT:

TITLE

C-ZPS -29 :- KAUSHIK PARK, CIVIL LINES

DRAWING NO.	SCALE	REV. NO.

LAYOUT PLAN OF C-ZPS - 28 :-
TIKONIA PARK, PARVATI BAGLA ROAD



GENERAL NOTES :

1. ALL DIMENSIONS ARE IN METERS AND UNLESS OTHERWISWE SPECIFIED
2. THE DETAIL GIVEN ARE INDICATIVE AND MAY BE REVISED DURING DETAILED ENGINEERING.
3. ALL DIMENSIONS ARE INTERNAL

1.-PROPOSED-

2.-EXISTING

CIVIL LIST:-

SR. No.	UNITS	SIZE	QTY
			1
1	CWR (500 KL.)	12.0M x 11.0M	1
2	PUMP HOUSE	10M x 6M	1
3	H.T. PANEL ROOM	4M x 5.5M	1
4	L.T. PANEL ROOM	4M x 4M	1
5	METER ROOM	3M x 3M	1
6	TRANSFORMER YARD	5.5M x5.M	1

U.P.JAL, NIGAM, KANPUR.

CONSTRUCTION UNIT-III, U.P.JAL, NIGAM, KANPUR.

C-ZPS - 28 :- TIKONIA PARK, PARVATI BAGLA ROAD

DRAWN BY:-

COMPILED BY

DATE:-

SCALE:-

SHEET NO. 1/1

PROJECT ENGINEER

PROJECT MANAGER