



CHANDIGARH SMART CITY LIMITED (CSCL)

INVITES

REQUEST FOR PROPOSAL

FOR

**SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF
LoRaWAN (FIXED SYSTEM) BASED
13700 AMR/AMI SMART WATER METERS
AND OPEARTION & MAINTENANCE
FOR A PERIOD OF 7 YEARS
IN MANIMAJRA (PILOT)
UNDER CHANDIGARH SMART CITY PROJECT**

E-TENDERING

(ESTIMATED COST – INR 14.84 CRORE)

ISSUED BY

Chief Executive Officer (CEO)

Chandigarh Smart City Limited (CSCL)

**Building No. 1, 2nd & 3rd Floor, Adjoining SCO 17-18-19,
Over New Bridge, Sector 17-A, Chandigarh – 160017 (INDIA)**

MAY 2019



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

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DISCLAIMER

- The Chandigarh Smart City Ltd. (CSCL) has prepared this Request for Proposals (RFP) to ***“SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT”***. The RFP is a detailed document with specifies terms and conditions on which the bidder is expected to work. These terms and conditions are designed keeping in view the overall aim and an objective of the Smart Water Metering.
- CSCL has taken due care in preparation of information contained herein which may or may not be exhaustive or accurate.
- The Bidder acknowledges that prior to the execution of this Agreement; the Bidder has after a careful examination, made an independent evaluation of the Request for Proposals, Scope of the Project, Technical Specifications and all information provided by the CSCL.
- The Parties agree that any mistake or error in or relating to any of the matters set forth in above para shall not vitiate this Agreement, or render it voidable.
- In the event that either Party becomes aware of any mistake or error relating to any of the matters set forth in above paras, that Party shall immediately notify the other Party, specifying the mistake or error; provided, however, that a failure on part of the CSCL to give any notice pursuant to this para shall not prejudice the disclaimer of the CSCL contained in above paras and shall not in any manner shift to the CSCL for any risks assumed by the bidder pursuant to this Agreement.
- Except as otherwise provided in this Agreement, all risks relating to the Project shall be borne by the bidder and the CSCL shall not be liable in any manner for such risks or the consequences thereof.



TENDER NOTICE
CHANDIGARH SMART CITY LIMITED
(E-Tender Notice)

Chandigarh Smart City Limited (CSCL) invites e-tender (online tender) from the eligible, reputed and established entities for ***“SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT”***.

The detailed Terms and Conditions of this Tender can be obtained from Govt. website <http://etenders.chd.nic.in>. Prospective Bidders should download the complete Tender Documents only from the website <http://etenders.chd.nic.in> up to the last date of submission. Addendum/Corrigendum if any, to the Tender Documents shall be uploaded on the aforementioned website only. Hence, the Bidders shall visit the same regularly. Bidders are requested to go through the complete bid documents, criteria and scope of work in particular, before submission of online bid.

Chief Executive Officer (CEO)
Chandigarh Smart City Limited (CSCL),
Building No. 1, 2nd & 3rd Floor,
Adjoining SCO 17-18-19, Over New
Bridge, Sector 17-A, Chandigarh –
160017 (INDIA)
Email: smartcity.chd@nic.in



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

**CHANDIGARH SMART CITY LIMITED (CSCL)
U.T. CHANDIGARH
NOTICE INVITING TENDER
(E-TENDER NOTICE)**

Chandigarh Smart City Limited (CSCL) invites Bids from the prospective bidders for **“SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT”**. The key bidding detail of the Tender are:

1	Type of Online Bid	
	Folder-1	<ul style="list-style-type: none"> • Earnest Money and Document Fee • Pre-qualification documents such as completion certificate of similar works, Affidavit in original for blacklisting, downloaded copy of whole tender document, certificate of registration of GST/ Service Tax / Pan and sign on each page of tender document and uploading of the same along with other requisite documents.
	Folder- 2	<ul style="list-style-type: none"> • Financial Bid
2	Date of Pre-bid Conference	07/06/2019 at 11:00 AM
	Date of Submission of Queries	06/06/2019 till 17:00 AM on e-mail smartcity.chd@nic.in only
3	Venue of Pre-bid Conference	Chief Executive Officer (CEO) Chandigarh Smart City Limited (CSCL), Building No. 1, 2nd & 3rd Floor, Adjoining SCO 17-18-19, Over New Bridge, Sector 17-A, Chandigarh – 160017 (INDIA) Email: smartcity.chd@nic.in
4	Bid Closing Date and Time	03/07/2019 at 15:30 PM
5	Bid Security/ Earnest Money Deposit	Rs. 24.84 Lakhs to be paid in the form of Demand Draft drawn by one of the Nationalized / Scheduled Banks in India in favor of Chandigarh Smart City Limited, payable at Chandigarh or by Bank Transfer through RTGS in the A/c of CSCL (A/c No.: 50100047016350; A/c Name: Chandigarh Smart City Limited.; Bank Name & Address: HDFC Bank, SCO 78-79, Sector 8 – C, Chandigarh – 160008; IFSC: HDFC0000107). Scanned Copy of the Demand Draft or proof of bank transfer of requisite amount of Bid Security shall be submitted online.



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		The Original Demand Draft shall be submitted at the office of CSCL, i.e. Building No. 1, 2nd & 3rd Floor, Adjoining SCO 17-18-19, Over New Bridge, Sector 17-A, Chandigarh – 160017 (INDIA) on the date of opening of Pre-Qualification Bid.
6	Cost of Bid Document (Non-Refundable)	Interested Bidders shall pay document fee amounting to Rs. 10,000/- + 18% (Rupees Ten Thousand Only) by Bank Transfer through RTGS in the A/c of CSCL (A/c No.: 50100074016350; A/c Name: Chandigarh Smart City Ltd.; Bank Name & Address: HDFC Bank, SCO 78-79, Sector 8-C, Chandigarh (UT), Chandigarh - 160018; IFSC: HDFC0000107).
7	Technical Bid Opening Date	03/07/2019 at 17:00 PM
8	Financial Bid of bidders approved by Technical Evaluation Committee.	Date will be informed later on.
9	Performance Guarantee	<p>i. WORKS CONTRACT: This Performance Bank Guarantee will be for an amount equivalent to 5% of Works Contract Value (2.5% from Bidder and 2.5% from Smart Water Meter Manufacturer), shall be submitted to Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL), within Twenty-One (21) Days of receipt of Letter of Intent (LOI).</p> <p>ii. O&M CONTRACT: This Performance Bank Guarantee will be for an amount equivalent to 5% of O&M Contract Value (2.5% from Bidder and 2.5% from Smart Water Meter Manufacturer), shall be submitted to Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL), prior to completion of successful Defects Liability Period (DLP).</p>
10	Signing of Contract	Contract is to be signed within 15 days of issuance of LOI.
11	Time schedule of project	Eight Years i.e. One year to complete the construction work. Subsequent Seven Years of period for Operation & Maintenance of the Project.

Other details and Terms & Conditions are given in the Request for Proposal (RFP), which can be downloaded from the website as mentioned in the Tender Notice. Interested eligible applicants may obtain further information from CSCL office. The Project consists of works as mentioned in the RFP document.

A firm/company will be selected under the procedure as described in the detailed RFP. Conditional Tenders will not be accepted. CSCL has right to accept/reject any tender without assigning any reason.



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CSCL reserves all rights to reject whole or part of the Proposal, all or any proposal and to modify the terms and conditions.

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Email: smartcity.chd@nic.in

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<u>ABBREVIATIONS AND ACRONYMS</u>	
24x7	Twenty-Four & Seven Days
AMI	Advanced Metering Infrastructure
AMR	Automated Meter Reading
AWWA	American Water Works Association
BDS	Bid Data Sheets
BG	Bank Guarantee
CEO	Chief Executive Officer
CPHEEO	Central Public Health Engineering & Environmental Organization
CPWD	Central Public Works Department
CSCL	Chandigarh Smart City Limited
CST	Central Sales Tax
DD	Demand Draft
Dia.	Diameter
DMA	District Metered Area
DNIT	Detailed Notice Inviting Tender
DoT	Department of Telecom
EEC	European Economic Council
e.g.	For Example
EMD	Earnest Money Deposit
etc.	Et Cetera
FCRI	Fluid Control Research Institute
FoA	Form of Agreement
FPR	Fortnightly Progress Report
GIS	Geographic Information System
GoI	Government of India
GPS	Global Positioning System
GST	Goods & Services Tax
HHU	Hand Held Unit
ICCC	Integrated Command & Control Center
ICT	Information & Communication Technology



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<u>ABBREVIATIONS AND ACRONYMS</u>	
i.e.	That Is
IEC	International Electro-technical Commission
INR	Indian National Rupee
IP	Ingress Protection
ISO	International Organization for Standardization
IST	Indian Standard Time
ITB	Instructions To Bidders
IWA	International Water Association
JV	Joint-Venture
L1	First Lowest Bidder
L2	Second Lowest Bidder
LOI	Letter Of Intent
LoRaWAN	Low Range Wide Area Network
LPCD	Liter Per Capita Per Day
LPS	Liter Per Second
MCC	Municipal Corporation Chandigarh
MDPE	Medium Density Poly-Ethylene
MGD	Million Gallons Per Day
MID	Measuring Instruments Directives
MIS	Management Information System
MLD	Million Liters Per Day
MoU	Memorandum of Understanding
NEFT	National Electronics Funds Transfer
Nos.	Numbers
NRW	Non-Revenue Water
O&M	Operation & Maintenance
OIML	International Organization of Legal Metrology
PAN	Permanent Account Number
PBG	Performance Bank Guarantee
PERT	Program Evaluation and Review Technique



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<u>ABBREVIATIONS AND ACRONYMS</u>	
POA	Power Of Attorney
Qmax	Maximum Flow
Qmin	Minimum Flow
Qn	Nominal Flow
Qt	Transitional Flow
RA	Running Account
Ref.	Reference
RF	Radio Frequency
RFP	Request For Proposal
RTGS	Real Time Gross Settlement
Sq.Km.	Square Kilometer
TDR	Term Deposit Receipt
TOR	Terms of Reference
TPA	Tripartite Agreement
UFW	Unaccounted For Water
VAT	Value Added Tax
w.e.f.	With Effective From



1 INTRODUCTION

1.1 ABOUT - "SMART CITY MISSION"

Smart Cities Mission is an urban renewal and retrofitting program by the Government of India with a mission to develop 100 cities all over the country making them citizen friendly and sustainable. The Union Ministry of Urban Development is responsible for implementing the mission in collaboration with the state governments of the respective cities.

Smart city mission envisions of developing an area within 100 cities in the country as model area based on an area development plan, which is expected have rub-off effect on other parts of the city and nearby cities and towns. City will be selected based on the Smart cities challenge, in which cities will compete in a countrywide competition to get the benefits from this mission. As of July 2017, 90 cities have been selected for upgrade as part of smart city mission after they defeated other cities in the challenge. It is five-year program, where all of the Indian states and Union territories are participating except West Bengal by nominating at-least one city for the smart city challenge.

Financial aid will be given by the central and state government between 2017 - 2022 to the cities and mission starts showing results from 2022 onwards.

Each city will create a corporate company headed by a full time CEO to implement the smart city mission. The execution of projects may be done through joint ventures, subsidiaries, public-private partnership (PPP), turnkey contracts, etc. suitably dovetailed with revenue streams. Center and state government will provide INR 1,000 Crore funding to the company, as equal contribution of INR 500 Crore each. The company has to raise additional fund from the financial market as a debt or equity.

Under which, **Municipal Corporation Chandigarh** is committed to implement various urban infrastructure developments including 24x7 pressurized Water Supply system, recycle water supply system, Augmentation of STPs, Installation of Smart water metering etc., to improve the basic amenities and services to the residents of Chandigarh City. For this purpose, SPV under the name & style **Chandigarh Smart City Limited (CSCL)** has been created.

Chandigarh as a Smart City has a vision for good heath for the people of the city which is essential to achieve the goal of making the city live-able with a safe and reliable public health infrastructure.

1.2 ABOUT PROJECT AREA - "MANIMAJRA"

Manimajra is situated on the old Ropar-Shimla road at a distance of approximately 8 Km on the North East of Chandigarh across Sukhna Choe. The town is connected with Chandigarh by the 200' wide Chandigarh-Kalka road leading upto NH 22 to Shimla. Two additional links, one along Kishangarh and other Route No. 3 also connect the town. However, these two roads are cut across by the railway line which acts as an impediment in the smooth connectivity. The town is bound by the natural nallah emanating from the Shivalik Hills on the north eastern side, the Chandigarh-Kalka railway track on the south-west and north-west sides and the interstate boundary on its south-eastern side. The township is surrounded by new developments of Rajiv Gandhi Information & Technology Park and Mansa Devi Housing Complex (Haryana) towards the north and the Panchkula Township on the east.

Manimajra is a small historical town in Chandigarh. In view of its stature as a census town and due to its unique characteristics historicity and prime location amidst the large urban agglomeration. Located on the interstate border with Haryana, the towns of Panchkula, Shree Mata Mansa Devi Complex, Pinjore



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Kalka Complex and the Chandimandir Cantonment adjoin/are in close proximity to it. While the residents of the town now also enjoy some of the social infrastructure of the neighboring towns in terms of education, health, recreation etc. Manimajra provides a range of formal and informal services found wanting in neighboring towns and this role it has performed all along while the urban towns took shape. Having grown from a small village, at the time of the inception of the original plan, it has transformed from a pure rural to a peri urban to an urban town. Major portion of its revenue area has been acquired by the Chandigarh Administration for setting up various pockets such as the IT park etc. Of the total area of 855.26 acres of the town which include the fort, the old abadi area of Manimajra, various planned and non-planned townships /settlements and the eleven planned pockets around it, most of the area has already been developed as various housing, commercial and cultural schemes. Manimajra divided into 10 (Ten) DMAs (District Metered Area) and 4 (Four) Zones for implementation of Smart Water Metering.

<u>PROJECT AREA - "MANIMAJRA"</u>				
Zone No.	DMA No.	Location	Area (Acre)	No. of Houses
1.	101	Modern Housing Complex, Rajeev Vihar, AWHO, etc.	195.98	4,260
2.	102	Mariwala Town	14.65	435
	103	Pipliwala Town	41.28	918
	105	Shanti Nagar, Shivalik Park	68.75	571
	104	Adarsh Colony, Bank Colony, Police Quarter	60.78	250
	106	Subhash Nagar	58.32	430
3.	201	Motor Market, Pocket No.- 1	119.69	388
	202	NAC Market, Shivalik Enclave	89.82	300
	204	Indra Colony	91.48	2,060
4.	203	Old Abadi, Darshni Bagh, Gurudwara Dera Sahib, Thakur Dwara, Gobindpura, Balmiki Mohalla, Nagla Basti	114.51	2,575
TOTAL			855.26	12,187

1.3 OBJECTIVE

In line to the implementation of Smart City Mission, Chandigarh Smart City Limited (CSCL) is in process of implementing 100% Smart Water Metering for the entire Manimajra. Also, another work for converting intermediate water supply to 24x7 pressurized water supply to each and every household within Manimajra is in pipeline and will be implemented as well.



The objective of the said work **“SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT”** is conserving the water resource. In order to achieve this, it is utmost necessary to minimize the Unaccounted for Water/ Non-Revenue Water (UFW/NRW). Thus, to know the exact percentage of Non-Revenue Water or how much water is leaked, theft etc. at various stages in the process and hence smart metering becomes must. In Manimajra it has to be two pronged strategies because apart from the leakages, theft, etc. there is high per capita consumption (being part of Chandigarh, i.e. 220 lpcd approx.) since long. It is necessary to change the mind set while plugging these physical leakages.

The project intends to implement Smart Water Metering to exactly measure the water consumption and thereby application of water charges based on the effective water consumption by the consumers.

By implementing 100% Smart Water Metering, CSCL can conduct water audit and systematic leakage detection and repair activity to bringing down the level of UFW/NRW in the distribution system to the desired level of less than 15%.

The project is intended to be implemented in One (1) Year including Three (3) Months of Defects Liability Period followed by Seven (7) Years of Operation & Maintenance as per the schedule mentioned below:

S.No.	Project Stage	Description
1.	1st Year	100% Smart Water Metering for the proposed project alongwith Defects Liability Period.
2.	2nd Year onwards till 8th Year	Operation & Maintenance of 100% installed Smart Water Meters under proposed project.

Note: To expedite the work and to finish the same at the earliest as per project requirements, the aforesaid Timeline is tentative and may be reduced/shortened in mutual agreement with the Successful Bidder.

1.4 DUE DILIGENCE BY BIDDERS

Bidder (s) may prior to submitting their Proposals online, examine the requirements at their own expense and obtain and ascertain for themselves, at their own responsibility and other information necessary for preparing their Proposals.

Bidders may prior to submitting the proposal may carry out reconnaissance of the area and get acquainted with the existing situation.

Bidder shall be deemed to have full knowledge of the requirements of the work. Chandigarh Smart City Limited (CSCL) will not accept any responsibility or liability for any errors, omissions, inaccuracies or errors of judgment with respect to information or materials provided by Chandigarh Smart City Limited (CSCL), in this RFP Document or otherwise, with respect to this assignment/project. Although such information and materials are provided to the best of Chandigarh Smart City Limited (CSCL)'s belief, however their verification is the sole responsibility of Bidder.



Neither Chandigarh Smart City Limited (CSCL), nor their employees or consultants make any representation or warranty as to the accuracy, reliability or completeness of the information provided nor will have any liability to any bidder which may arise from or be incurred or suffered in connection with anything contained in this RFP and the award of the work or otherwise arising in any way from the selection process.

1.5 PURCHASE OF BID DOCUMENT

Interested bidder(s) can purchase/download the tender documents online from website <https://etenders.chd.nic.in> from __. __.2019 to __. __.2019. The bidder(s) shall pay INR 10,000 /- Only (Indian National Rupee Ten Thousand Only) and GST @ 18% as Bid Document Charges (Non-refundable) by Bank Transfer through RTGS in the A/c of CSCL (A/c No.: 50100074016350; A/c Name: Chandigarh Smart City Ltd.; Bank Name & Address: HDFC Bank, SCO 78-79, Sector 8-C, Chandigarh (UT), Chandigarh - 160018; IFSC: HDFC0000107).

1.6 BID VALIDITY PERIOD

Each Proposal shall indicate that it is a firm Proposal and that the Proposal will remain valid for a period not less than Seventy-Five (75) Days from the due date of the submission of the Proposal.

Chandigarh Smart City Limited (CSCL) will reject any Proposal, which does not meet this Bid Validity Period requirement.

Chandigarh Smart City Limited (CSCL) may request one or more extensions of the Bid Validity Period. To make such request, Chandigarh Smart City Limited (CSCL) shall give notice in writing to the Bidder At least Seven (7) Days prior to expiration of the Bid Validity Period.

When an extension of the Bid Validity Period is made, Bidder shall not be permitted to change the terms and conditions of their Bids.

The Bid Validity Period of the Successful Bidder shall be automatically extended till the date on which the Agreement is signed and is in force.

1.7 AMENDMENT OF RFP

The Addendum/Corrigendum will be displayed on the website <https://etenders.chd.nic.in>. Each such Addendum/Corrigendum shall become part of the RFP Document.

1.8 COMMUNICATION BETWEEN BIDDER & CHANDIGARH SMART CITY LIMITED

All communication, unless specified otherwise, on this RFP Document to Chandigarh Smart City Limited (CSCL) shall be addressed to:

Chief Executive Officer (CEO)

Chandigarh Smart City Limited (CSCL),

Building No. 1, 2nd & 3rd Floor, Adjoining SCO 17-18-19, Over New Bridge, Sector 17-A,

Chandigarh – 160017 (INDIA)

Email: smartcity.chd@nic.in

Tel: 0172-2708765



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

1.9 DETAILS REGARDING THE TENDER PROCESS

Name of Project	SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT
Cost of Project (Estimated)	INR 14.84 Crore (INR Fourteen Crore and Eighty-Four Lakh Only)
Name of the Client	Chandigarh Smart City Limited (CSCL)
Address of the Client	Chief Executive Officer (CEO) Chandigarh Smart City Limited (CSCL), Building No. 1, 2nd & 3rd Floor, Adjoining SCO 17-18-19, Over New Bridge, Sector 17-A, Chandigarh – 160017 (INDIA) Email: smartcity.chd@nic.in
Mode	E-Tendering
Website	https://etenders.chd.nic.in
Tender Fee	INR 10,000 /- Only and GST @18%
Date of Purchase (Tender)	__ . __ .2019, 03:00 PM
Date of Submission of Clarifications/Queries	Not later than due date of Pre- Bid Meeting.
Contact Details for Queries	smartcity.chd@nic.in Clarifications/Queries will not be entertained other than received on above email
Date of Pre-Bid Meeting	__ . __ .2019, 11:00 PM
Place of Pre-Bid Meeting	Chief Executive Officer (CEO) Chandigarh Smart City Limited (CSCL), Building No. 1, 2nd & 3rd Floor, Adjoining SCO 17-18-19, Over New Bridge, Sector 17-A, Chandigarh – 160017 (INDIA) Email: smartcity.chd@nic.in
Date of Submission (Tender)	__ . __ .2019, 03:00 PM
Bid Validity Period	75 Days from the due date of the submission (Tender)
Date of Opening (Technical Proposal Only)	__ . __ .2019, 04:00 PM



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

Date of Opening (Financial Proposal)	Date will be informed later on.
Bid Security/ Earnest Money Deposit	Rs. 24.84 Lakhs in shape of online transfer i.e. BG/RTGS/ NEFT or in form of Demand Draft (DD) favouring Chandigarh Smart City Limited payable at Chandigarh or by Bank Transfer through RTGS in the A/c of CSCL (A/c No.: 50100074016350; A/c Name: Chandigarh Smart City Ltd.; Bank Name & Address: HDFC Bank, SCO 78-79, Sector 8-C, Chandigarh (UT), Chandigarh - 160018; IFSC: HDFC0000107). The Scanned copy of EMD shall be submitted online. The Original Demand Draft shall be submitted at the office of CSCL, Chandigarh on the date of opening of Technical Bid.
Performance Guarantee	<p>i. WORKS CONTRACT: This Performance Bank Guarantee will be for an amount equivalent to 5% of Works Contract Value (2.5% from Bidder and 2.5% from Smart Water Meter Manufacturer), shall be submitted to Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL), within Twenty-One (21) Days of receipt of Letter of Intent (LOI).</p> <p>ii. O&M CONTRACT: This Performance Bank Guarantee will be for an amount equivalent to 5% of O&M Contract Value (2.5% from Bidder and 2.5% from Smart Water Meter Manufacturer), shall be submitted to Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL), prior to completion of successful Defects Liability Period (DLP).</p>

1.10 PROPOSAL PREPARATION COST

The Bidder shall be responsible for all the costs associated with the preparation of its Proposal and its participation in the Bidding Process. Chandigarh Smart City Limited (CSCL) shall not be responsible or in any way liable for such costs, regardless of the conduct or outcome of the bidding.

1.11 GENERAL PROVISIONS

1.11.1 NON-DISCRIMINATORY AND TRANSPARENT BIDDING PROCEEDINGS

Chandigarh Smart City Limited (CSCL) shall ensure that the rules for the Bidding Process for the Project are applied in a non-discriminatory, transparent and objective manner. Chandigarh Smart City Limited (CSCL) shall not provide any information to its Bidder, with regard to the Project or the Bidding Process, which may have the effect of restricting competition.

1.11.2 PROHIBITION AGAINST COLLUSION WITH OTHER BIDDER

Each Bidder shall submit a Single Bid. Each Bidder shall warrant by its Bid that the contents of its Bid have been arrived at independently. Any Bid which has been arrived at through consultation, collusion, or understanding with any other prospective Bidder for the purpose of restricting competition shall be deemed to be invalid and the Bidder shall lose its Bid Security. Anti-collusion certificate shall be submitted as per format given.



1.11.3 ENTITY BARRED FROM BIDDING

Any entity which has been barred by the Central Government or any State Government/U.T. or a statutory authority or a public sector undertaking, as the case may be, from participating in any assignment/study and the bar subsists as on the Date of Proposal, would not be eligible to submit a Proposal either by itself or through its Associate.

1.11.4 ONGOING LEGAL DISPUTE WITH MUNICIPAL CORPORATION

Any entity which has ongoing legal dispute with Municipal Corporation Chandigarh/CSCL and such dispute is under an arbitral or judicial authority shall not be eligible to submit a Proposal either by itself or through its Associate.

1.11.5 INDUCEMENTS

Any effort by Bidder to influence processing of Bids or award decision by Chandigarh Smart City Limited (CSCL), or any officer, agent or Advisor thereof may result in the rejection of such Bidder's Bid. In such a rejection of Bid, the Bidder shall lose its Bid Security.

1.12 CONFIDENTIALITY

Chandigarh Smart City Limited (CSCL) shall treat all Bids and other documents, information and solutions submitted by Bidder as confidential, and shall take all reasonable precautions that all those who have access to such material, treat this in confidence.

Chandigarh Smart City Limited (CSCL) will not divulge any such information unless it is ordered to do so by any authority, which has the power to require its release.

Each Bidder shall, whether or not submit its Bid, treat the RFP Document and other documents and information provided by Chandigarh Smart City Limited (CSCL) in connection with the Project or the bidding proceedings as confidential for a period of Five (5) years from the issuance of the request for proposal (RFP) Document. During this period, the Bidder shall not disclose or utilize any such documents, information without the written approval of Chandigarh Smart City Limited (CSCL) or as required by law or any governmental authority.

Chandigarh Smart City Limited (CSCL) and each bidder shall ensure that their associate or any third party to whom for the bid document was required to be divulged for the preparation of bid or for evaluation, as the case may be, such associates or third party maintains the confidentiality of the bid document and the evaluation.

Any information relating to examination, clarification, evaluation and comparison of bids and recommendations for the award of a contract shall not be disclosed to Bidder or any other person not officially concerned with the Bid Process until the award to the Successful Bidder has been communicated.

1.13 RIGHT TO ACCEPT ANY BID AND TO REJECT ANY OR ALL BIDS

Notwithstanding anything contained in this RFP, Chandigarh Smart City Limited (CSCL) reserves the right to accept or reject any Proposal and to annul or suspend the bidding process and reject all Proposals without assigning any reason hereof, at any time prior to the issuance of Letter of Intent (LOI) without incurring any liability or consequences or any obligation to inform the affected Bidder of the grounds for rejection.



1.14 PROPOSAL DUE DATE

Chandigarh Smart City Limited (CSCL) requires that Proposals responding to this RFP be submitted as per the Proposal Due Date mentioned already under DETAILS REGARDING THE TENDER PROCESS and or as specified in the RFP document.

Chandigarh Smart City Limited (CSCL) may, in its absolute discretion and prior to the Proposal Due Date, extend the deadline for submission of the Proposals, including for the reasons of insufficient response on the proposed due date. Notice of any extension of the Proposal Due Date shall be given in the form of Addendum/Corrigendum.

The Addendum/Corrigendum will be displayed on the website <https://etenders.chd.nic.in> & <https://smartnet.niua.org>. Each such Addendum/Corrigendum shall become part of the RFP Document.

1.15 ALTERATION/MODIFICATION/WITHDRAWAL OF SUBMITTED PROPOSAL

No changes/withdrawal to the submitted proposal shall be allowed.

1.16 SOURCE COUNTRY

Eligible source country for all Bidders is defined as “India”, and further referred to as “the country of origin”. The Bidder shall be a registered firm/company in accordance to the applicable Laws of country of origin.

1.17 LANGUAGE

The Proposal and all related correspondence and documents shall be written in English Language. Supporting documents and printed literature furnished by Bidder with the Proposal may be in any other language provided that they are accompanied by an appropriate translation of pertinent passages in the English language. Supporting materials, which are not translated into English, will not be considered. For the purpose of interpretation and evaluation of the Proposal, the English language translation shall prevail.

1.18 CURRENCY

The currency (ies) of the bid and the payment currency (ies) shall be in Indian National Rupee (INR), and further referred to as “the local currency”.

2 INSTRUCTIONS TO BIDDERS (ITB)

2.1 ELIGIBILITY CRITERIA

Following is the minimum criteria required w.r.t. eligibility for Bidders.

2.1.1 TECHNICAL ELIGIBILITY CRITERIA FOR BIDDER

The bidder should be registered in India as per the identity of the Bidder; shall be any registered partnership firm or Limited Company, and must be legally competent. (shall be eligible as per the constitutional document for providing services for said kind of the project and shall not be insolvent/bankrupt as per the laws of India);

- a) Bidder should have signed Memorandum of Understanding (MOU) with Smart Meter Manufacturer; Bidder shall sign MOU with only One (1) Smart Water Meter Manufacturer.
- b) After successful award of the Contract, Bidder has to execute a "Tripartite-Agreement" between Bidder, Smart Water Meter Manufacturer and CSCL; wherein Roles and Responsibilities of all the parties will be clearly mentioned.
- c) Bidder/ Smart Water Meter Manufacturer with whom MOU is signed should have successfully developed, supplied and maintained Billing Software/Customer Services for at least Twelve (12) Months in last Seven (7) Years ending last day of the month previous to the one in which bids are invited.
- d) Smart Water Meter Manufacturer must fulfill all the qualifying criteria i.e. General, Technical and Financial Eligibility Criteria as specified in this RFP.
- e) The Bidder should have satisfactory completed and commissioned (in India or Abroad) in the last Seven (7) Years ending last day of the month previous to the one in which bids are invited;
 - i. **One similar work** (as defined above) of value **not less than 80%** of the estimated cost of the work, or
 - ii. **Two similar works** (as defined above) each of the value **not less than 60%** of the estimated cost of the work, or
 - iii. **Three similar works** (as defined above) each of the value **not less than 40%** of the estimated cost of the work.

Whereas, Similar Nature of Works stands for "Supply, Installation, Testing, Commissioning of Water Meters or Water Meters in Water Supply Works".
- f) Bidder should have satisfactory experience of Supply, Installation, Testing, Commissioning of minimum 15,000 Nos. (Fifteen Thousand Nos.) Water Meters (any type) in last Seven (7) Years ending last day of the month previous to the one in which bids are invited.

or

Bidder should have satisfactory carried out Supply, Installation, Testing, Commissioning of minimum 7,500 Nos. (Seven Thousand Five Hundred Nos.) AMR/AMI Smart Water Meters in last Seven (7) Years ending last day of the month previous to the one in which bids are invited.
- g) Bidder should have satisfactory carried out Operation & Maintenance for a minimum period of Twelve (12) Months in last Seven (7) Years ending last day of the month previous to the one in which bids are invited.

- h) Bidder should attach/enclose Certificate for satisfactory commissioning of works from the officer not below the rank of Executive Engineer.

In the first step, Chandigarh Smart City Limited (CSCL) will evaluate the information submitted by the Bidder including the general information, eligibility criteria, etc. The bidder not fulfilling the minimum eligibility criteria will not be considered for bid evaluation.

2.1.2 FINANCIAL ELIGIBILITY CRITERIA FOR BIDDER

- a) Average Annual Turnover of the Bidder shall be equal to or greater than INR 7.42 Crore (INR Seven Crore and Forty Two Lakh Only) in Three (3) Preceding Financial Years 2016-17, 2017-18, 2018-19.
- b) Profit before Tax should be positive in at least Three (3) Financial Years, out of last Five (5) Financial Years 2014-15, 2015-16, 2016-17, 2017-18 and 2018-19.
- c) Bidder shall demonstrate that it has access to, or has available Liquid Assets (aggregate of Working Capital, Cash in hand) and/or lines of Credit sufficient to meet the Construction Cash Flow requirements, minimum of INR 10.00 Crore (INR Ten Crore) as on March 31st2019.
- d) Bidder who have applied for/are undergoing Corporate Debt Restructuring (CDR) or facing recovery proceedings from Financial Institutions or facing winding up proceedings or those under Board for Industrial & Financial Reconstruction (BIFR) in the last Five (5) Financial Years ending March 31st 2019, shall not be considered.

Note: Complete Financial Details required shall be certified by its Chartered Accountant/ Statutory Auditor. Information provided/submitted without certification as stated will not be considered for evaluation.

2.1.3 MISCELLANEOUS FOR BIDDER

In addition to above, Bidder must provide the following;

- a) Copies of the original documents defining the constitution or legal status, place of registration and principal place of business; written Power of Attorney (POA) to the signatory of the Bid.
- b) Reports on Financial standings, such as profit and loss statements and auditor's reports for last Five (5) Financial Years.
- c) Evidence of access to line(s) of credit and availability of other financial resources, certified by the bankers (not more than 3 months old w.r.t. due date of the submission).
- d) List of similar works completed during previous years duly supported with performance certificate from authority for whom work has been completed and information shall include name of work, estimated cost, date of start & completion.
- e) Litigation History.
- f) List of Personnel(s) etc.

2.1.4 TECHNICAL ELIGIBILITY CRITERIA FOR SMART WATER METER MANUFACTURER

- a) Manufacturer should have worked at least for Three (3) Years in the area of Design, Manufacturing of Water Meter conforming to ISO 4064 and or OIML R49 with EEC/MID Certifications in India/Abroad shall be eligible. *(Necessary Certificates should be attached)*
- b) Manufacturer blacklisted/debarred, anywhere in India or Abroad cannot participate in bidding process.
- c) Manufacturer, who are ready to share open source communication system protocol for AMR shall be eligible.
- d) Manufacturer must possess permission to use free frequency for AMR Smart Water Meter Communication System.
- e) Smart Water Meters shall be of protection class of IP68.
- f) Manufacturer should have manufactured/supplied in India or Abroad at least 50,000 Nos. (Fifty Thousand Nos.) Mechanical (Single/Multijet)/Electro Magnetic/Ultrasonic Water Meters of any size in last Seven (7) Years ending last day of the month previous to the one in which bids are invited. *(Necessary Certificates should be attached)*.
- g) Manufacturer should have supplied minimum 30,000 Nos. (Thirty Thousand Nos.) AMR Smart Water Meters of any size, with at least one lot of minimum 4,000 Nos. (Four Thousand Nos.) Which are running satisfactorily in last Seven (7) Years ending last day of the month previous to the one in which bids are invited. *(Necessary Certificates should be attached)*.
- h) Manufacturer should have supplied/implemented AMR/AMI Smart Water Meters Communication System in Potable Water Supply Project for at least Twelve (12) Months in last Seven (7) Years ending last day of the month previous to the one in which bids are invited.
- i) After successful award of the Contract, Manufacturer shall sign a “Tripartite-Agreement” between Smart Water Meter Manufacturer, Bidder and CSCL; For Warranty/Guarantee, Spares Parts and exclusive Supports during Operation & Maintenance for a Period of Seven (7) Years from the Date of successful installation of the Smart Water Meters.

2.1.5 FINANCIAL ELIGIBILITY CRITERIA FOR SMART WATER METER MANUFACTURER

- a) Average Annual Turnover of the Bidder shall be equal to or greater than INR 14.84 Crore (INR Fourteen Crore and Eighty-Four Lakh Only) in Three (3) Preceding Financial Years 2016-17, 2017-18, 2018-19.
- b) Profit before Tax should be positive in at least Three (3) Financial Years, out of last Five (5) Financial Years 2014-15, 2015-16, 2016-17, 2017-18 and 2018-19.

Note: Complete Financial Details required shall be certified by its Chartered Accountant/Statutory Auditor. Information provided/submitted without certification as stated will not be considered for evaluation.

2.1.6 MISCELLANEOUS FOR SMART WATER METER MANUFACTURER

In addition to above, Manufacturer must provide the following;

- a) Copies of the original documents defining the constitution or legal status, place of registration and principal place of business; written Power of Attorney (POA) to the signatory of the MOU.
- b) Reports on Financial standings, such as profit and loss statements and auditor's reports for last Five (5) Financial Years.
- c) Litigation History etc.

2.2 SUBMISSION OF BID

Complete bidding process shall be online (e-tendering).

All the notification & details terms and conditions regarding, this bid hereafter will be published online on website <https://etenders.chd.nic.in>.

Bidding documents can be seen and downloaded from the above website. The bid shall be submitted in electronic format on the above website as specified under DETAILS REGARDING THE TENDER PROCESS and or as specified in the RFP document.

Bids must be accompanied with scanned copy of EMD in the form of Demand Draft. Bid shall be treated as invalid if scan copies are not submitted online along with the bid. Bidder shall submit original bank Demand Draft at the address as specified under DETAILS REGARDING THE TENDER PROCESS and or as specified in the RFP document.

The desired qualification information (*in respective formats*) as specified in RFP, Bidder should upload information as scanned copies in PDF format. If required, Bidder should submit original copies of scanned copies for verification during opening of Technical Proposal.

Time and Date of opening of Financial Bids will be informed by email to Technically Qualified Bidders.

The guidelines to download the tender documents and online submission of bids and procedure of tender opening can be downloaded from website <https://etenders.chd.nic.in>

Chandigarh Smart City Limited (CSCL), reserves the right to accept or reject any or all the tenders without assigning any reason.

2.3 DOCUMENTS COMPRISING OF BID

2.3.1 PART 1 - TECHNICAL BID

Bidder(s) need to upload/submit duly signed Forms as prescribed (*enclosed in Sample Forms*) along with documentary evidence as under;

- a) Checklist.
- b) Letter of Proposal.
- c) Power of Attorney (POA).
- d) Tripartite-Agreement (TP-A).
- e) Copy of Earnest Money Deposit (EMD).
- f) General Information of Bidder.



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

- g) Financial Turnover.
- h) Financial Capabilities.
- i) Experience Record – Details of overall works.
- j) Experience Record – Details of similar nature of works.
- k) Experience Record – Details of ongoing commitments/works.
- l) List of Key Personnel.
- m) Litigation History.
- n) Details/Copy of PAN.
- o) Details/Copy of latest Income Tax returns.
- p) Details/Copy of GST.
- q) Details/Copy of latest VAT/CST returns.
- r) Affidavit/Undertakings;
 - i. That “agrees to all the Terms & Conditions of bidding document”.
 - ii. That information being submitted is correct and true, and that any false information shall lead to disqualification at any stage.
 - iii. That “agrees if any further qualifying information may be requested, and agrees to furnish any such information at the request of the CSCL”.
 - iv. That “binds himself with all the stipulations of the Bidding Document including period of completion, provision of adequate equipment, personnel and other resources required for completion within the stipulated completion period and agrees to augment them, if found necessary for timely completion of the Project/Work, as desired by the CSCL”.
 - v. That “shall not sub-contract/sub-let or assign or transfer or cause to be assigned or transferred, whether actually or as the result of takeover, merger or other change of identity or character of the firm, any of its rights or obligations under the contract or any part, share or interest therein”.
 - vi. That “not having been black-listed or debarred by any Govt./Semi-Govt./Corporation/Organization at any stage”.
 - vii. That “not having any ongoing legal dispute with Municipal Corporation Chandigarh”.
- s) Anti-Collusion Certificate.
- t) Organizational Structure.
- u) Approach and Methodology.
- v) Implementation Schedule.
- w) Format of Performance Bank Guarantee
- x) Form of Agreement (FOA)
- y) Format of Memorandum of Understanding (MoU)

- z) Affidavit of Undertaking (To be Issued by Original Manufacturer)
- aa) Undertaking - Establishment of Service Center

Note: The entire proposal shall be strictly as per the Sample Forms (enclosed in Bid Data Sheets) in this document. Bids with deviation from these formats shall be liable for rejection.

2.3.2 PART 2 - FINANCIAL BID

The Financial Proposal shall be submitted strictly as per Format given on website <https://etenders.chd.nic.in>.

The Price shall be quoted entirely in the currency of Indian National Rupee (INR).

- a) The bidders are required to fill all the columns of the priced bid as uploaded. The Bidder shall fill in rates and prices for all items of the Works described in the Bill of Quantities. Items against which "No Rate" or "Price" is entered by the Bidder shall be deemed covered by the rates for other items in the Bill of Quantities and will not be paid for separately by the Employer/CSCL.
- b) The Bidder's quote includes all Taxes and Duties. Further, the CSCL will not be liable to pay any differences in Taxes/Duties applicable, on due date of submission or during the implementation upto completion of the project. Thus, the quoted Price shall remain fixed throughout the contract period, which shall also include loading, unloading, packing and forwarding, transportation/retransformation for local transfer, freight, transit insurance and all type of taxes, duties, etc. to complete the awarded work. Therefore, Bidder shall not be entitled to claim any sort of concession, whatsoever on account of the rise in the prices of the articles in the market due to whatsoever reasons during the period of contract.

2.3.3 SUBMISSION INSTRUCTIONS

The Bidder(s) are expected to carefully review the contract provisions described in the RFP for preparation of their Bids/Proposals.

The entire proposal shall be strictly as per the Bid Data Sheets (BDS or Sample Forms) in this document. These forms must be completed without any alteration to their format, and no substitutes will be accepted. All fields shall be completed with the information requested. Bids with deviation from these formats shall be liable for rejection.

Also, Disclosure of Commercial Information of the Bid in Part 1 - Technical Part shall be considered as the sufficient ground for rejection of that particular Bid.

2.4 BID VALIDITY PERIOD

Each Proposal shall indicate that it is a firm Proposal and that the Proposal will remain valid for a period not less than Seventy Five (75) Days from the due date of the submission of the Proposal.

Bid shall remain valid for the period as already specified under DETAILS REGARDING THE TENDER PROCESS and or as specified in the RFP document.

Note: Bids/Proposals valid for a shorter period shall be considered nonresponsive and will be rejected.

2.5 BID SECURITY/EARNEST MONEY DEPOSIT (EMD)

The amount of the Bid Security/EMD as already specified under DETAILS REGARDING THE TENDER PROCESS and or as specified in the RFP document, and shall be in the shape of online transfer, i.e. RTGS, NEFT, BG, Demand Draft, etc.

The Bid(s) not accompanied by the requisite Bid Security/EMD shall be considered nonresponsive and will be rejected.

The EMD given by all the bidder except the lowest bidder shall be refunded immediately after the expiry of stipulated bid validity period or immediately after acceptance of successful bidder, whichever is earlier without any interest.

The Bid Security/EMD of the Successful Bidder, i.e. First Lowest (L1) Bidder will be returned after submission of its Performance Bank Guarantee.

In case Chandigarh Smart City Limited (CSCL) decides to annul the Bidding Process, Chandigarh Smart City Limited (CSCL) will promptly release Bid Security/EMD of all the Bidder(s).

The Bid Security/EMD may be forfeited in the following cases, without prejudice to its other rights or claims against the Bidder(s) under any other section of this document or provisions of law;

- a) If after Bid opening the Bidder(s) withdraws his bid during the period of Bid Validity specified in the Bid or its extended period, if any; or
- b) If the Bidder fails to accept and comply Letter of Intent (LOI).
- c) In the case of a successful bidder, if the Bidder fails to sign the Contract or to furnish Performance Bank Guarantee within specified time in accordance with the format given in the RFP
- d) During the bid process, if a Bidder indulges in any such deliberate act as would jeopardize or unnecessarily delay the process of bid evaluation and finalization.
- e) During the bid process, if any information found wrong / manipulated / hidden in the bid.
- f) The decision of CSCL regarding forfeiture of the EMD and rejection of bid shall be final & shall not be called upon question under any circumstances.

2.6 SECURITY DEPOSIT (SD)

a) Retention Money:

- i. The Engineer on behalf of the Employer shall retain 5% of the amount of each payment due to the Contractor until Completion of the whole of the Project to cover the cost that may be involved in removal of defects, imperfections, or taking remedial measures in the work executed.
- ii. 50% of the total amount retained shall be repaid to the Contractor after three months of completion of the whole of the Project as certified satisfactory by the Engineer with respect to removal of all defects, imperfections, short comings and taking remedial measures, that may be necessary and after recording of final measurements of work done, for which the certificate of the Engineer would be conclusive.
- iii. The remaining amount of the retained money shall be repaid after three months of successful completion of Defects Liability Period (DLP), and after the Engineer has certified that all Defects notified by the Engineer to the Contractor before the end of this period have been corrected.



- b) **Additional Security Deposit:** The rate quoted by the bidder in a range of 15% (below) of the Estimated Cost shall be considered as a normal bid. In case the bidder quotes rate more than 15% below the Estimated Cost put to tender, Additional Security Deposit in the form of Bank Guarantee equivalent to the amount by which the bid is lower than the normal bid shall be given at the time of ward of Tender. This Bank Guarantee shall serve as Additional Security and will be released after completion of the work period of the job. The Bank Guarantee should be as per CSCL format initially valid for Twelve (12) Months work period and should be extended if required up to work completion. All charges/expenses for procuring the Bank Guarantee extending it from time to time till the completion of the actual work done period shall be borne by the Bidder and will not be reimbursed. Bank Guarantee shall be of any Nationalized Bank/Scheduled Bank only, and in favor of **Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL)**.

2.7 PERFORMANCE BANK GUARANTEE (PBG)

The amount of the Performance Bank Guarantee as already specified under DETAILS REGARDING THE TENDER PROCESS and or as specified in the RFP document, and shall be in the shape of “Bank Guarantee” furnished by a Nationalized Bank/Scheduled Bank only, and in favor of Chandigarh Smart City Limited (CSCL).

The successful bidder shall at his own expense, deposit with Employer, within 7 days of issuance of Letter of Intent (LoI), an unconditional and irrevocable Performance Bank Guarantee (PBG), in favour of Chandigarh Smart City Limited (CSCL) for the due performance and fulfilment of the contract. For extension of time for submission of Performance Guarantee beyond stipulated time, CSCL will charge 12% per annum on daily basis but such extension shall not exceed by another seven (7) days. However, in case last date of submission of performance guarantee happens to be bank holiday the last day of submission shall be the next working day. The PBG shall be submitted in two part.

- i. **WORKS CONTRACT:** This Performance Bank Guarantee will be for an amount equivalent to 5% of Works Contract Value (2.5% from Bidder and 2.5% from Smart Water Meter Manufacturer), shall be submitted to Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL), within Seven (7) Days of issuance of Letter of Intent (LOI). The Performance Bank Guarantee shall be valid for a minimum period of Sixty (60) days after the date of expiry of successful Defects Liability Period, and should be in the format prescribed in this RFP.
- ii. **O&M CONTRACT:** This Performance Bank Guarantee will be for an amount equivalent to 5% of O&M Contract Value (2.5% from Bidder and 2.5% from Smart Water Meter Manufacturer), shall be submitted to Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL), within 7 days of issuance of Letter for intimation of Successful Completion of Defects Liability Period (DLP). The Performance Bank Guarantee shall be valid for a minimum period of sixty (60) days beyond the date of expiry of the O&M Period, and should be in the format prescribed in this RFP. Also, Performance Security shall be reduced annually after adjusting the cost of accepted O&M Contract Price for previous year.

All charges whatsoever such as premium, commission, etc. with respect to the Performance Bank Guarantee shall be borne by the Successful Bidder/Manufacturer. The Performance Bank Guarantee may be discharged/returned by CSCL upon being satisfied that there has been due performance of the obligations of the Successful Bidder under the Contract. However, no interest shall be payable on the Performance Bank Guarantee. In the event of the Successful Bidder being unable to service the Contract for whatever reason, CSCL would evoke the PBG. Notwithstanding and without prejudice to any rights

whatsoever of CSCL under the Contract in the matter, the proceeds of the PBG shall be payable to CSCL as compensation for any loss resulting from the Successful Bidder's failure to complete its obligations under the Contract. CSCL shall notify the Successful Bidder in writing of the exercise of its right to receive such compensation within Fourteen (14) Days, indicating the contractual obligation(s) for which the Successful Bidder is in default. CSCL shall also be entitled to make recoveries from the Successful Bidder's Bills, Performance Bank Guarantee, or from any other amount due to him, the equivalent value of any payment made to him due to inadvertence, error, collusion, misconstruction or misstatement.

In addition to above, Performance Bank Guarantee shall be extended from time to time for such period as may be desired by the Chandigarh Smart City Limited (CSCL).

2.8 OPENING OF BIDS

Bids received shall be opened as specified under DETAILS REGARDING THE TENDER PROCESS and or as specified in the RFP document.

The Bids shall be opened in the presence of authorized representatives of the Bidders, who choose to attend. The names of authorized representatives of the Bidders will be announced at the Bid Opening and recorded.

After the Bid Opening, information relating to the examination, clarification and evaluation of Bids and recommendations concerning the Bid Award shall not be disclosed.

2.9 RESPONSIVENESS OF BIDS

The Bids received would be subject to a responsiveness check followed by a step-wise evaluation procedure. The Bids submitted by Bidders shall be initially scrutinized to establish "Responsiveness". The Bids shall be deemed "Responsive" if it satisfies all of the following requirements;

- a) It is received by the due date as specified.
- b) It is accompanied by a valid Bid Security/EMD.
- c) It has strictly followed the procedure laid down for submission of Bids.
- d) It includes sufficient information for it to be evaluated and is in the requisite formats as specified.

The Bids not satisfying any of the above conditions shall be deemed to be Non- Responsive and liable to rejection.

Chandigarh Smart City Limited (CSCL) reserves the right to reject any of Bids if;

- a) At any time, a material misrepresentation is made or uncovered, or
- b) The Bidder does not respond promptly and thoroughly to requests for supplementary information required for evaluation of the Bids.

The only "Responsive" Bids of Bidders shall be evaluated.

2.10 EVALUATION OF BIDS

In the first step, CSCL will evaluate the Technical Proposal submitted by the Bidders as per the eligibility criteria as specified in the RFP Document.

CSCL would subsequently evaluate the adequacy of the technical information so as to comply with the conditions set out in the Agreement. However, no weightage will be given for the same. The objective of



the Technical Evaluation shall be to access the technical competence of the Bidders. However, if required at any stage during technical evaluation of Bids, clarifications may be sought from the bidders. Also, Bidders may be asked to make presentation on their technical competence, if required.

After completion of Technical evaluation, CSCL would prepare a list of Technically Qualified/Eligible Bidders. Therefore, all the Technically Qualified/Eligible Bidders will be notified and requested to attend the opening of their Financial Bids, Date and Time and Venue of the same will also be intimated to respective Bidders.

Thereafter, Financial Bids of only technically qualified/eligible Bidders shall be opened in the presence of authorized representatives of the Bidders, who choose to attend. The names of authorized representatives of the Bidders will be announced at the Bid Opening and recorded.

2.11 SELECTION OF SUCCESSFUL BIDDER

As stated already under DETAILS REGARDING THE TENDER PROCESS and or as specified in the RFP document.

The bidder quoting the Lowest Price will be considered as “Successful Bidder” i.e. First Lowest (L1) Bidder. Such Successful Bidder would be issued a Letter of Intent (LOI).

Also, Failure of the First Lowest (L1) Bidder to agree with the Terms & Conditions of the RFP/Contract shall constitute sufficient grounds for the annulment of the award of contract, in such a situation the contract may be awarded to the next most responsive Bidder i.e. Second Lowest (L2) Bidder.

2.12 AWARD OF CONTRACT

Chandigarh Smart City Limited (CSCL) shall intimate the decision to the Successful Bidder and then take further steps to award the Contract to the Successful Bidder.

2.13 INTERPRETATION OF DOCUMENTS

Chandigarh Smart City Limited (CSCL) will have the sole discretion in relation to;

- a) The interpretation of this RFP, the proposals and any documentation provided in support of the proposals.
- b) All decisions in relation to the evaluation and ranking of proposals, whether or not to require any clarifications or additional information from Bidders in relation to its proposal and the selection of the Successful Bidder.
- c) Chandigarh Smart City Limited (CSCL) will have no obligation to explain its interpretation of this RFP, the proposals or their supporting documentation and information or to explain the evaluation process, ranking process or the selection of the Successful Bidder.

2.14 MOBILIZATION ADVANCE

- i. The Engineer on behalf of the Employer shall make advance payment to the Contractor on his specific request in writing within Forty-Five (45) days from the date of issue of Letter of Award of the amounts up to 5% of the contract amount (excluding maintenance cost if any) against provision by the Contractor of an Unconditional Bank Guarantee in a form and by a bank acceptable to the Engineer on behalf of the Employer for the amounts equal to 110% of the amount of Advance Payment to be released. The guarantee shall remain effective until the advance payment has been repaid, but the amount of the guarantee shall be progressively reduced by the amounts repaid by the Contractor. Simple Interest shall be charged at the rate of 10% per annum on the advance payment.



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

- ii. The Contractor is to use the advance payment only to pay for Equipment, Plant and Mobilization expenses required specifically for execution of the works. The Contractor shall demonstrate that

advance payment has been used in this way by supplying copies of invoices or other documents to the Engineer.

- iii. The advance payment shall be repaid by deducting proportionate amounts from payments otherwise due to the Contractor, following the schedule of completed percentages of the Works on a payment basis. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, Price Adjustments, Compensation Events, or Liquidated Damages.

Portal Copy

3 TERMS OF REFERENCE (TOR)

3.1 SCOPE OF WORK

“SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT”.

- 3.1.1.** The completion period for Supply, Installation, Testing, Commissioning work is Twelve (12) Months from the Date of Commencement. Also, includes Defects Liability Period of Three (3) Months.
- 3.1.2.** The Successful Bidder will have to ensure the Supply, Installation, Testing, Commissioning of all equipments i.e. Smart Water Meters, Gateway, Hand Held Unit (HHU), etc. as per the Tender. Penalties will be levied for any sort of delay.
- 3.1.3.** The Successful Bidder shall be responsible to arrange the inspection at Manufacturer’s Premises for a minimum number of Two (2) Officers as authorized by CSCL for inspection call at the Successful Bidder’s cost to ascertain the existing infrastructure of the Manufacturer.
- 3.1.4.** At the arrival of the First (1st) Lot of AMR/AMI Smart Water Meters at the project site, not later than Sixty (60) Days from the Date of Commencement, a randomly selected sample of the Smart Water Meters shall be sent for testing. The Lab Testing of AMR/AMI Smart Meters shall include the tests (as mentioned in Section 10 i.e. Technical Specifications of this RFP/Contract) as per ISO: 4064:2005 standards which will be conducted at MID/NABL accredited lab at manufacturers place or FCRI or elsewhere as desired by CSCL. The same procedure will be carried out at the arrival of the Second (2nd) Lot of AMR/AMI Smart Water Meters (if any) not later than Seventy-Five (75) Days from the Date of Commencement & Third (3rd) Lot of AMR/AMI Smart Water Meters (if any) not later than Ninety (90) Days from the Date of Commencement. During the supply of Smart Water Meters, samples from each lot may be obtained by random sampling basis from each lot. Number of samples depends on the size of the lot under supply.
- 3.1.5.** The lot size and corresponding sample size, and criteria of acceptance are mentioned below. The criterion for acceptance is based on the following table which is mentioned in IS 779: 1994. Second sample will be necessary only when the number of meters failed in first sample falls in between acceptance and rejection number.

Lot Size	First Sample	Acceptance Number	Rejection Number	Second Sample	Cumulative Acceptance
1-50	5	0	1	-	-
51-150	13	0	2	13	1
151-280	20	0	3	20	3



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

Lot Size	First Sample	Acceptance Number	Rejection Number	Second Sample	Cumulative Acceptance
281-500	32	1	3	32	4
501-1200	50	2	5	50	6
1201-3200	80	3	6	80	9
3201-10000	125	5	9	125	12

- 3.1.6.** It will be mandatory for the successful bidder to provide the demonstration of his remote AMR/AMI Smart Water Meter, reading and the proposed scheme for bill preparation to the CSCL staff as and when required at his cost, before the installation of AMR/AMI Smart Water Meters starts.
- 3.1.7.** The scheme of remote reading shall specify the required nos. of Gateways, HHU (in case of emergency/Standby Device), Control Center, etc., to collect & upload data for the proposed area w.r.t. the Contract.
- 3.1.8.** The AMR/AMI scheme shall be formulated keeping in view that the Smart Water Meter readings to be obtained by LoRaWAN (FIXED SYSTEM) based AMR/AMI technology (LoRaWAN enabled), which shall be appropriate for the make & size of the water meters & its software, shall have an output format as desired by CSCL.
- 3.1.9.** The demonstration of the remote AMR/AMI Smart Water Meter reading shall be carried out for a cluster of 20 Meters. The Successful bidder will have to bear the cost of demonstration including cost of meters and their fixing at site. In case the demonstration at the given demo area is unsatisfactory to the Engineer-In-Charge, the whole procedure will become null and void, and the Engineer-In-Charge will have the power to terminate the Contract. In such case, the Successful Bidder shall bear the cost for uninstalling the meters and re-establish the same conditions at site. The demonstration will include the following;
- On handing over the identified demo area, the Successful bidder will fix the AMR/AMI Smart Water Meters complete in all respects (inclusive of all accessories).
 - Remote reading of individual and groups of water meters from a distance of 10 km with clear line of sight, and 1 Km in densely populated areas with LoRaWAN (FIXED SYSTEM) as well as by HHU.
 - Remote reading of individual and groups of water meters from a distance of 200 m with clear line of sight under submergence condition with lid of chamber in closed position, with LoRaWAN (FIXED SYSTEM) as well as by HHU.
 - Remote reading of individual and grouped water meter from 50 m with obstruction of any structures under submergence condition with lid of chamber in closed position, with LoRaWAN (FIXED SYSTEM) as well as by HHU.

3.1.10. Integration of System:

- a) Integration of Smart Water Meter reading data with existing system of Software (if any) for printing & e-publishing (SMS/Email) of bills.
- b) Integration of complete proposed system (i.e. Metering Data, Data Management Software, Billing Data, etc.) with ICCC (Integrated Command & Control Center) as proposed by CSCL under ICT (Pan City) components.
- c) Also, an application (i.e. mobile app. for all the platforms/operating systems) will be developed to make the consumers aware of the water consumption, billing information etc. on his mobile device.

3.1.11. The AMR communication frequency used should be operating on free frequency band, and the AMR Smart Water Meter Manufacturer has to produce the valid copy of license issued by Govt. of India / Dept. of Telecom (DOT), stating that the said operating frequency lies in the free band and has the permission to use the same.

3.1.12. Installation of AMR/AMI Smart Water Meters means replacing the existing meter /House Connection part only for all consumers with suitable measure to the satisfaction of Engineer in Charge.

3.1.13. After the Confirmatory Consumer Survey, the details indicated in the relevant Item's in Technical Specification, and which shall be kept updated throughout the Operation & Maintenance Period of 7 Years.

3.1.14. The Successful bidder shall issue laminated photo identity cards under the joint signatures of Executive Engineer of the zone & Authorized representative of the Successful Bidder to its personnel responsible for carrying out the meter installation and maintenance. While on work, the Identity cards will be displayed by the employees of the Successful Bidder. The Successful Bidder's employees will be courteous in their interaction with the consumer. It will be binding on the Successful Bidder to discontinue the services of any of its employee with immediate effect on receipt of complaint (verbal or in writing) on verification by the engineer in charge.

3.1.15. Existing consumer meter, possibly found at work sites, shall be removed by dismantling existing threaded/flanged specials without damaging the specials. If the meter belongs to the consumer, then the meter and all fittings shall be returned to the consumer. If the meter is property of MCC in consumer data provided by CSCL then meter and all fittings shall be deposited in MCC's Office.

3.1.16. The Successful bidder shall submit a Fortnightly Progress Report (FPR) on Smart Water Meters supplied & installed to the CSCL. The Progress Report will include details of the consumer connection where the water meter is installed and the date of installation. Non-submission of said Report shall invite penalty of INR 1000/- (Rs. One Thousand Only) per day of delay shall be levied and recovered from the Successful Bidder. Format of the Fortnightly Progress Report (FPR) will be designed by the Successful bidder in consultation with CSCL.

3.1.17. All the rights of software and database developed by the Successful Bidder/Manufacturer shall remain with CSCL including source code.



- 3.1.18.** CSCL and the Successful bidder will persuade the consumers for changing the House Service Connection & Installation of new AMR/AMI Smart Water Meters. In case of denied access to the installation site, three (3) Day Notice will be served to the consumer by the Engineer-In-Charge.
- 3.1.19.** The work of installation of meters will be supervised by the Engineer-In-Charge & its designated staff. All site disputes in respect of installation of meters will be sorted out from time to time by the Executive Engineer of the zone or his appointed representative.
- 3.1.20.** The Successful bidder shall install the AMR/AMI Smart Water Meters as per standard and sound engineering practices. Successful Bidder shall also educate the consumers to avoid damage to the newly installed Smart Water Meters.
- 3.1.21.** Working Time: Installation of new AMR/AMI Smart Water Meters will be carried during non-supply hours, i.e. between 09:00 AM to 06:00 PM on all the 7 days of week as per the convenience of the consumers.
- 3.1.22.** The Successful bidder shall not at any time do, cause or permit such activity on the site or do anything, which shall cause unnecessary disturbance or inconvenience to the consumer, tenants or occupants of other properties and to the public in general.
- 3.1.23.** If not already established, the Successful Bidder shall be required to establish its Customer Care Center, Testing Bench/Laboratory, Smart Water Meter Calibration Service Center in project area immediately after the award of the work. The Successful Bidder shall set up a Testing Bench/Laboratory to carry out minor repairs and to conduct accuracy test. Smart Water Meter Testing Bench is to be designed for measuring the accuracy and pressure losses of water meters of Dia. 15 mm & 25 mm. These establishments will continue to be maintained throughout the term of the Contract including Operation & Maintenance period and it shall be equipped to carry out the required functions for installation, maintenance including calibrations and tests for ascertaining the accuracy of the meters, replacement/repair and stocking of spares, and any other obligations prescribed by the Contract. Proper record will be maintained for the meters tested/repared in the service center workshop. All the receipt of supply & subsequent issue of meters shall be under the supervision of the Engineer-In-Charge.
- 3.1.24.** The Successful bidder shall ensure adequate arrangements/availability of water for construction & drinking purposes before start of work. In case water is provided from MCC distribution network, it will be a metered connection under commercial category for drinking purposes only. Necessary piping work shall be done by the Successful bidder at its own cost.
- 3.1.25.** The Successful bidder shall provide guarantee against all manufacturing defects for the supplied and installed equipment as mentioned in technical specifications. The 7 years' period shall be reckoned from the date of issue of the certificate stating the successful commissioning of the complete installed meters w.r.t. total quantity all including testing of AMR/AMI LoRaWAN enabled (Fixed Network System).
- 3.1.26.** The Successful bidder shall be responsible for maintain and repair the system during the guarantee period as mentioned in technical specifications. The comprehensive maintenance shall include costs of all material required for repairs or replacement of meter(s) and all allied parts with all labor required for removing of defective meter and fixing of tested meter and annual/regular comprehensive maintenance of all meters fixed, cleaning of dial to keep reading easily readable,



attending leakages from joints on either side of meter, etc. During the Guarantee period if any meter becomes defective or not found as per specification, the same shall be repaired/replaced free of cost by the Successful Bidder.

- 3.1.27.** If the meter is found stolen, the same will not be covered under guarantee of the Successful Bidder.
- 3.1.28.** Complaints regarding abnormal readings will also be treated as defective meters unless proved otherwise by conducting field test within consumer premises. The meter shall be tested on complaint & if found defective showing incorrect reading shall be treated as defective meter. The Successful Bidder has to arrange for the replacement of such water meters with duly tested meters.
- 3.1.29.** The Successful bidder shall keep sufficient stock of all consumable spares and tested meters during guarantee period and will maintain adequate infrastructure in project area for repairs of water meters supplied under the contract. The Successful Bidder shall be equipped with all the tools, spares and personnel for carrying out the repairs & replacement. The work force engaged by the Successful Bidder for the installation/inspection at site shall wear uniform displaying Successful Bidder's logo & ID card for each person. The Successful Bidder, within Six (6) Months from the Date of Commencement, shall set up its establishments in project area for efficient maintenance of supplied meters.
- 3.1.30.** A deduction of INR 100/- (Rs. One Hundred Only) per reading in each billing cycle shall be made for the number of readings not collected/taken.
- 3.1.31.** The defective meter will be removed and new tested meter would be installed immediately within 1 Day after intimation by Engineer-In-Charge. However, the upper limit should not be more than Three (3) Days, failing which a penalty of INR 500/- (Rs. Five Hundred Only) per meter per day of delay shall be levied and recovered from the Successful Bidder. If quantity of defective meters supplied by the Successful Bidder exceeds 5% of the total quantity supplied at any point of time, the defective meters shall be replaced at site and not repaired. Above penalty is over and above the compensation defined for delay in completing the awarded work within stipulated completion period. The Successful bidder may take defective meters to his work place to rectify the defect for subsequent use.
- 3.1.32.** The Successful bidder shall keep a sufficient buffer stock of new meters for the purpose of replacement of out of order/damaged meters. In case the quantity of defective meters requiring replacement is in excess of 5% of the supplied quantity at any stage, then the 20% value of security deposited will be forfeited.
- 3.1.33.** If in case the meter is damaged beyond repairs the Successful Bidder shall first get it verified by Engineer-In-Charge before replacing the meter.
- 3.1.34.** The Successful bidder shall appoint a full-fledged team of skilled technicians, tools & vehicle to attend and resolve the customer complaints of urgent nature viz. leakage from the body of meter & fittings, blockage of strainer of the meter, within 24 hours irrespective of any holiday. The Successful Bidder will provide a help line number for contact and registration of complaints from the consumers. GPS mapping of installed meters will also in the scope of Successful bidders for route management and other requirement during maintenance period. If failing to appoint the required Key Personal, a penalty of INR 600/- (Rs. Six Hundred Only) per person per day shall be levied and recovered from the Successful Bidder

- 3.1.35.** The Successful bidder will be responsible for taking readings of AMR/AMI Smart Water Meters when required, and acquisition, transmission, uploading the reading data in the Computer at the Central Control Room for further processing and analysis specified by CSCL. The Successful bidder shall collect the data from AMR/AMI Smart Water Meters. The remote system in which the data will be stored shall have the requisite software to read the data stored on the pen drives. The remote system shall also have the requisite software to cover these main functions;
- Database of the consumers in each Water Supply Zone.
 - Database for the information on the O&M carried out in each Water Supply Zone.
 - Compile the Data as per Water Supply Zone and bring all the data concerning that Water Supply Zone together at the same time.
- 3.1.36.** The Successful bidder shall establish a fully automatic Test Bench that is sustained by PLC Systems. The Successful bidder shall comprehensively maintain all the test setups & all the equipment's of meter test setup of 15 mm - 25 mm sizes for the period upto expiry of O&M Period of 7 Years, Also the Successful bidder shall obtain calibration certificates as per requirement or shall be get renewed for each year for all the instruments of all test setups during this said period (i.e. for the period upto the expiry of O&M Period of 7 Years), from the FCRI Laboratory only. The test setup shall be designed as per the conditions mentioned in the tender.
- 3.1.37.** The test setup shall be designed for testing of flow Accuracy rate (Q_{min} , Q_t , Q_n & Q_{max}), Pressure loss & Pressure tightness of Smart Water Meter.
- 3.1.38.** Each Smart Water Meter test setup shall be capable to test the Accuracy of flow for four flows rates i.e. Minimum flow (Q_{min}), Transitional flow (Q_t), Nominal flow (Q_n) and Maximum flow (Q_{max}), Pressure Loss testing, Hydrostatic pressure test, etc.
- 3.1.39.** Each Smart Water Meter test setup shall be installed & commissioned after obtaining all the necessary approvals from CSCL and approval of the line diagram/flow chart of the test setup. This line diagram/flow chart will contain the detailed floor plan with dimensions, positioning of various valves, equipment's, measuring apparatus, instruments & flow control systems, central control panel, pipe work and software etc. CSCL reserves the right to inspect the test setup at Manufacturer's works for evaluation purpose, before opening of price bid. The decision for such evaluation will be final & binding on the Successful bidder.
- 3.1.40.** The Successful bidder shall submit the following listed documents for each size of test setup i.e. for 15mm and 25mm, along with the bid;
- The size wise capacity of test setup i.e. number of meters installed for accuracy testing at one time.
 - Line Diagram/Floor Plan with positioning of pump, motor, meter under test, pipe work, test bed, apparatus/instruments & valves etc., for each size test setup. Electrical points, water inlet & outlet, etc.
 - The space required for total installation & commissioning of each test setup.

- d) List of equipment's/measurement apparatus/instruments, etc. used in the test setup with its capacity, such as; Electrical Pump & Motor, Central Control Panel, Water Storage & collection tank, Air Compressor, Pipe Work, Pressure Gauge, Reference devices, etc.

3.2 CONSUMER SURVEY & NETWORK DIGITIZATION

3.2.1. The scope includes carrying out confirmatory consumer survey of consumers as well as carry out a preliminary activity of network survey and its digitization in the implementation area, all the available details w.r.t. consumer data and network data alongwith Topographical Survey Details, Base Map etc. will be handed over to Successful Bidder by Engineer-In-Charge. The objectives of said activity are;

- a) To define with great accuracy, the number of consumer meters, for the different sizes to be installed in the town, and their spatial distribution within the distribution system. This information will be essential to properly plan the consumer metering component of the project.
- b) To provide a sound database for CSCL for estimating the revenues related to the tariff structure to be adopted for the different categories of users: residential, commercial, industrial and institutional users, etc.
- c) To provide the basic information for setting up a preliminary database of the water consumers.
- d) To attribute the appropriate consumer classification to each connection (domestic, commercial, education, industrial etc.).
- e) To identify the water connections that has to complete the registration process.
- f) To collect/confirm the GPS coordinates and other physical data related to all the connection points in the network. This information shall be transferred on GIS and available for various planning scopes.
- g) To know the consumers' expectations for an improved service.

As stated that updated data of the project area available with CSCL will be provided, However Successful bidder has to confirm, check, verify in field, rectify and modify (if required).

3.3 CONSUMER AWARENESS

3.3.1. A key factor for the success of any major infrastructure project is the consensus of the concerned community. The achievement of consensus should be pursued through a determined effort to inform the population on the project, on its benefits as well as on various aspects related to the introduction of the proposed scheme. It is important that the people are made aware that a rational use of water will not imply an increase of the water charges even after the full implementation of the project. Also, the level of awareness influences positively the willingness to pay of the consumers and, hence, the cost recovery and ability of the water utility to cover the water production and distribution costs. Finally, it should also point out that an effective awareness program may also provide the water utility with essential information on various aspects such as; ability and willingness to pay, people perception about the quality of the service that they are receiving and the complaints on the deficiencies of the service, people expectations about the improvements determined by new system. The above mentioned information will be very useful for the CSCL in order to properly address the communication to the community, to correct the

distribution deficiencies with improved O&M, to refine the strategy for the gradual adjustments of tariffs and to put in place appropriate measures able to improve the business- consumer relations, etc. In conclusion, to maintain effective consumer awareness programs is an effective tool for achieving various objectives such as to improve the level of satisfaction of the consumers, to raise the quality of service, to develop and apply the appropriate water tariff and finally, to improve the socioeconomic and financial sustainability of the project.

3.3.2. Awareness Program: In order to achieve the expected results, an awareness program must be carried out at different stages along the project cycle and then during the Operation & Maintenance Period. The following campaigns are proposed:

- a) Prior to start the project implementation. This will provide the correct information on the proposed upgrading of the water supply infrastructure and on the introduction of the AMR/AMI Smart Water Metering System and on the water charges related to the measured water consumption.
- b) At the start of the Operation & Maintenance Period, this will be important to monitor the people appreciation on the improvement of the water service, highlight possible deficiencies to be corrected, measure the level of acceptance of the new billing and payment method, etc.
- c) In the second half of the 7 Years O&M Period, in order to monitor if the distribution has improved and if the people has adapted to the AMR/AMI Smart Water Metering System, 24x7 modality of water distribution. It will also highlight the level of performance of the Contractor in the O&M of the system under his competence.

The following Schedule has been provided to achieve the set objectives and expected results at different stages along the project cycle i.e. (i) Prior to Start the Project Implementation, (ii) At the Start of Operation & Maintenance Period, and (iii) In the Second Half of the Operation & Maintenance Period.

SCHEDULE: CONSUMER AWARENESS AND FEEDBAK

Activity		Time Limit	Coverage	Indicator
(i)	Awareness Program for Smart Meters for each DMA	Within 30 days of Signing of Contract	25% of DMA Households	Feedback* from Consumer
		Within 45 days of Signing of Contract	50% of DMA Households	
		Within 60 days of Signing of Contract	100% of DMA Households	
(ii)	Awareness Program for Functionality of Smart Meters for each DMA	Within 30 days of Start of O&M	25% of DMA Households	Feedback* from Consumer
		Within 45 days of Start of O&M	50% of DMA Households	
		Within 60 days of Start of O&M	100% of DMA Households	

SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

(iii)	Performance & Impact Assessment of Smart Meters for each DMA	Within 30 days after expiration of 4 th Year of O&M Period	25% of DMA Households	Feedback* from Consumer
		Within 45 days after expiration of 4 th Year of O&M Period	50% of DMA Households	
		Within 60 days after expiration of 4 th Year of O&M Period	100% of DMA Households	

*To take feedback from the Consumers under Awareness Programme; the Successful Bidder will evolve a Feedback Format which shall be finalized by the CSCL for use by the Successful Bidder for getting feedback from the Consumers.

3.4 HOUSE SERVICE CONNECTION

Replacement of all existing House Service Connection, complete in all respects. By cutting of existing connection, arrangement with MDPE pipe, fixing of New Smart Water Meter with allied pipe fittings alongwith all necessary arrangements, i.e. Union Socket, Coupling, Adapter, etc.

3.5 OPERATION & MAINTENANCE

Operation & Maintenance of AMR/AMI Smart Water Meters and allied infrastructure for a period of Seven (7) Years.

The comprehensive maintenance shall include costs of all material required for repairs or replacement of meter(s) and all allied parts with all labor required along with annual/regular comprehensive maintenance of all meters fixed, replacement of battery, cleaning of dial to keep reading easily readable, attending leakages from joints on either side of meter, or any of the defects noticed, etc.

SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

4 PROPOSED IMPLEMENTATION SCHEDULE

4.1 IMPLEMENTATION SCHEDULE (TENTATIVE)

The project “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT” is intended to be implemented in One (1) Year including Defects Liability Period followed by Seven (7) Years of Operation & Maintenance Period as per the Schedule tabulated below:

IMPLEMENTATON SCHEDULE (TENTATIVE): SUPPLY, INSTALLATION, COMMISSIONING ALONGWITH ALL ASSOCIATED WORKS AND OPERATION & MAINTENANCE FOR 7 YEARS FOR AMR/AMI BASED SMART WATER METERS (MULTIJET/ ELECTRO-MAGNETIC/ ULTRASONIC TYPE) FOR MANIMAJRA (PILOT PROJECT) UNDER CHANDIGARH SMART CITY PROJECT, CHANDIGARH.														
S.No.	ACTIVITY	MONTH (12 Nos.)												MONTH (84 Nos.)
		1	2	3	4	5	6	7	8	9	10	11	12	
1	Mobilization, Site Office Set-Up, Confirmatory Survey, etc.													
2	Establishment of Central Data Base/Control Room													
3	Establishment of Customer Care, Testing Bench/Laboratory etc.													
4	Supply of AMR/AMI based Smart Water Meters(MULTIJET/ELECTRO-MAGNETIC/ ULTRASONIC TYPE) including Performance and Test Certificates from International or National Authorized/Notified Agency; (i) Conforming to Latest Updation of ISO 4064, OIML R49, MID Certified (ii) Meter of Class - C Type or equivalent (iii) Protection Class - IP 68 (iv) Equipped with RF unit/ LoRaWAN, alongwith Installation in complete respect i.e. Cutting of existing Connection, Removal of existing Meter, Installation of New Meter Box, Fixing of New Meter with allied Pipe Fittings alongwith all the necessary arrangements including Testing and Commissioning, etc.;													



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

**IMPLEMENTATON SCHEDULE (TENTATIVE):
 SUPPLY, INSTALLATION, COMMISSIONING ALONGWITH ALL ASSOCIATED WORKS
 AND OPERATION & MAINTENANCE FOR 7 YEARS
 FOR AMR/AMI BASED SMART WATER METERS
 (MULTIJET/ ELECTRO-MAGNETIC/ ULTRASONIC TYPE)
 FOR MANIMAJRA (PILOT PROJECT)
 UNDER CHANDIGARH SMART CITY PROJECT, CHANDIGARH.**

S.No.	ACTIVITY	MONTH (12 Nos.)												MONTH (84 Nos.)
		1	2	3	4	5	6	7	8	9	10	11	12	
4.1	LOT 1 (4,000 Nos.)			█	█	█								
4.2	LOT 2 (4,000 Nos.)				█	█	█	█						
4.3	LOT 3 (4,000 Nos.)						█	█	█					
4.4	LOT 4 (Balance Nos.)													█
5	Establishment of Advanced Metering Infrastructure;													
5.1	Supply & Installation of all the equipments i.e. Gateway, HHU, etc.		█	█	█									
5.2	Testing, Commissioning of AMI System; Smart Water Meters, Gateway, HHU, etc.					█	█	█	█	█	█	█	█	
6	Defects Liability Period													
6.1	LOT 1 (4,000 Nos.)						█	█	█					
6.2	LOT 2 (4,000 Nos.)							█	█	█				
6.3	LOT 3 (4,000 Nos.)									█	█	█		
6.4	LOT 4 (Balance Nos.)													█
7	Operation & Maintenance (After successful Completion, Testing & Commissioning of 100% of all the activities)													
7.1	O&M Period for 7 Years (12th Month onward for Total 84 Months)													█

5 PARTICULAR CONDITIONS OF CONTRACT

5.1 DEFINITIONS

- 5.1.1.** ‘Employer/Owner/Client’ shall mean the Chandigarh Smart City Limited (CSCL) on whose behalf the enquiry is issued by the Engineer-In-Charge and shall include his successors and assigns, as well as his authorized officers/ representatives.
- 5.1.2.** ‘Engineer/Engineer-In-Charge’ shall mean an authorized representative of Employer to supervise and pass instructions to the Contractor on behalf of the Employer.
- 5.1.3.** ‘Inspector’ shall mean the authorized representatives appointed by the Employer or the Engineer-in-Charge for purpose of inspection of Materials/Equipment/Works.
- 5.1.4.** ‘Bidder’ shall mean the firm/party/company who quote against an enquiry.
- 5.1.5.** ‘Contractor’ shall mean the successful bidder, whose Tender has been accepted by the Employer.
- 5.1.6.** ‘Manufacturer’ refers to a Person or firm/company who is the Producer and Furnisher of the Material or Designer and Fabricator of equipment as per the Specifications, who in turn shall submit the same to the Employer under the ‘Contract’. The term “Meter Manufacturer” here in should be read and treated as “Water Meter Manufacturer”.
- 5.1.7.** ‘Project’ shall mean the project specified under Section 3 and Section 10 of the Tender.
- 5.1.8.** ‘Site’ shall mean the actual place of the proposed 'project' as detailed in the ‘Specifications or other place where work has to be executed under the Contract.
- 5.1.9.** ‘Month’ shall mean English calendar month.
- 5.1.10.** ‘Specification’ shall mean collectively the complete document including covering letter issued by the Employer for inviting bids and such Amendments, Revisions, Deletions or Additions, as may be made subsequently in writing pertaining to the method and manner of performing the work or to the quantities and qualities of materials to be furnished under this ‘Contract’. If any particular work or part or portion thereof is not covered by the ‘Specification’, the specification for such work shall mean the relevant Bureau of Indian Standards specification for or relative to the particular work or part or portion thereof shall mean standard engineering practice approved in writing by the Engineer-In-Charge with or without modification.
- 5.1.11.** ‘Bid’ shall mean the proposal/document that the Bidder submits in the requested and specified form in the ‘specification’.
- 5.1.12.** ‘Plant’ or ‘Equipment’ and ‘works’ shall mean respectively the goods to be supplied and services to be provided by the Bidder under the ‘Contract’.
- 5.1.13.** ‘Contract’ means the Conditions of Contract, the Employer's Requirements, the Tender, the Bidder's Proposal, the Bill of Quantities, the Letter of Intent (Work Order), the Contract Agreement and such further documents as may be expressly incorporated in the Letter of Intent or Contract Agreement.

- 5.1.14.** For the purposes of defining the different activities and obligations under the Contract, the Contract will be comprised of a “Works Contract” and an “O&M Contract”, as defined in the following Clause 5.1.15 & Clause 5.1.16 below; such definitions are for convenience only and shall not affect the rights or obligations of the Employer or the Bidder under the Contract.
- 5.1.15.** ‘Works Contract’ means that portion of the Contract that relates to the Providing, Constructing, Supplying, Erecting, Testing & Commissioning of the Works and the remedying of any defects, but excluding Operation and Maintenance of the facilities for the Operation and Maintenance Period, in accordance with the provisions of the Contract.
- 5.1.16.** ‘O & M Contract’ means that portion of the Contract that relates to the Operation and Maintenance of the facilities for the Operation and Maintenance Period, as defined in the Tender Data Sheet, but excluding the portion of Providing, Constructing, Supplying, Erecting, Testing & Commissioning of the Works and the remedying of any defects, in accordance with the provisions of the Contract.
- 5.1.17.** Plant’ or ‘Equipment’ and ‘works’ shall mean respectively the goods to be supplied and services to be provided by the Bidder under the ‘Contract’.
- 5.1.18.** ‘Time for Completion’ means the time for completing the Works, as stated in the Bid. The Bidder will be required to take all possible measures to ensure that the Works are executed in conformity with the Technical Specifications, and that the whole of the Works are completed within the scheduled Time for Completion. The whole of the Works shall be completed and shall have passed the Tests on Completion, and successful installation within the Time for Completion of the Works as specified in the Bid Data Sheet. The Completion Certificate will be issued upon successful installation & inspection of the installation and successful completion of Defects Liability Period. After receiving the Completion Certificate, Operation and Maintenance of the facilities shall be carried out for the period as specified in the Bid Data Sheets.
- 5.1.19.** ‘Time for Operation and Maintenance’ means the time for operating and maintaining the constructed facilities as stated in the Bid, calculated from the date upon which the Works have been completed, commissioned and as certified by the Engineer-In-Charge.
- 5.1.20.** ‘Contract Price’ shall mean the price agreed and mentioned in the Contract Agreement.
- 5.1.21.** ‘Effective Date of Contract’ shall mean the Calendar date on which Employer have issued to the Successful Bidder the ‘Letter of Intent/Work Order’ or any other date agreed between the Employer and the Successful Bidder, specifically mentioned in the Letter of Intent.
- 5.1.22.** ‘Contract Period’ shall mean the period during which the ‘Contract’ shall be executed as agreed between Successful Bidder and Employer in the ‘Contract’ and it starts with the Effective Date of Contract.
- 5.1.23.** ‘Guarantee Period’ shall mean the period during which the ‘Plant or Equipment’ shall give the same performance as guaranteed by the Bidder in the Schedule of Guarantee in the ‘Specification’.

- 5.124. 'Approved' and 'Approval' where used in the 'Specification' shall mean, respectively, approved by and approval of the Employer or the Engineer-in-Charge.
- 5.125. When the works' Approved', 'Subject to Approval', 'Equal to', 'Proper', 'Requested', 'As directed', 'Where directed', 'When directed', 'determined by', 'accepted', 'Permitted', or words and phrases of like import are used, the approval judgment, direction etc., is understood to be a function of the Employer or the Engineer-in-Charge.
- 5.126. 'Engineer-In-Charge' instructions shall mean details, directions and explanations issued by the Engineer-in-Charge in writing, and drawings (s) and /or oral instructions to be ratified in writing within 48 (Forty-Eight) hours from time to time during the contract period.
- 5.127. 'Notice in Writing' or 'Written Notice' shall mean a notice in written, typed or printed characters sent (unless delivered personally) or otherwise proved to have been received by registered post to the last known private or business address or registered office of the addressee and shall be deemed to have been received when in the ordinary course of post, it would have been delivered.
- 5.128. 'Writing' shall include any manuscript, typewritten or printed statement under or over signature and /or seal as the case may be.
- 5.129. 'Bidder's Works' shall mean and include the land and other places which are used by the BIDDER for the manufacture of 'Equipment' for performing of the 'Works'.
- 5.130. 'Drawings' shall mean all.
- Drawings furnished by the Employer or the Engineer-In-Charge as a basis for proposals.
 - Supplementary drawings furnished by the Employer or the Engineer-In-Charge to clarify and to define in greater detail the intend of the 'Contract'.
 - Drawings submitted by the Successful Bidder with his proposal provided such drawings are acceptable to the Employer or the Engineer-In-Charge.
 - Drawings furnished by the Employer or the Engineer-In-Charge to the Successful Bidder during the progress of the work; and
 - Engineering Data and Drawings submitted by the Successful Bidder during the progress of the work provided the same are prepared based on the accepted designs provided, such drawings are acceptable to the Engineer-in-Charge.

5.2 DEFINITIONS OF TERMS

5.2.1 Words and Terms

The words and terms specified in this section or pronouns in their stead, shall, for the purpose of this Contract have the meanings as given in the previous section.

5.2.2 Earnest Money and Performance Security Deposit

Earnest Money deposit shall be furnished by the Bidder and Performance Security Deposit shall be furnished by the Successful Bidder as stipulated in Tender, no interest will be payable on the Earnest Money Deposit or the Performance Security Deposit, if any.

5.2.3 Mode of Payments

- 5.2.3.1. As per the details mentioned in the Bid.
- 5.2.3.2. The Successful Bidder shall submit the running Bills to the Engineer-In-Charge and the Engineer-In-Charge will check the bill & recommend to the Employer for further process. The Engineer-In-Charge shall verify & record the bill and send the same to the account department for payment.
- 5.2.3.3. Detailed Activity Chart and Procurement Schedule shall be prepared by the Successful Bidder and shall be got approved from the Engineer-In-Charge. The dates of receipt of equipment/material on site shall be so adjusted that the related civil work would be ready for installation/erection on receipt of equipment/material on site. In addition to above the Successful Bidder will have to procure material/equipment on the site only after prior approval of the Engineer-In-Charge. The payment against receipt of equipment/material shall not be due to the Successful Bidder as specified in the Bid.
- 5.2.3.4. The Successful Bidder shall register with relevant authorities, for applicable Taxes before Work Order is issued. All applicable taxes including GST will be borne by the Successful Bidder.
- 5.2.3.5. Deductions towards Income Tax, Works Contract Tax, Cess and other statutory recoveries shall be made from RA bills at the rates applicable from time to time.
- 5.2.3.6. All the payments shall be made by CSCL, in the form of crossed account payee Cheque drawn on banks in Chandigarh or RTGS Mode.
- 5.2.3.7. GST will be deducted from the payment made to the Contractor as per the GST Act and instructions issued from time to time

5.2.4 Raising of funds for the work

- 5.2.4.1. The Successful Bidder shall be solely responsible for raising of funds and making available money for carrying out the work. The Successful Bidder will arrange cash flow during the entire period of the work to suit the schedule.
- 5.2.4.2. CSCL shall not transfer any legal rights either temporarily or permanently to the Successful Bidder or his funding/financing agency.
- 5.2.4.3. CSCL shall not furnish to the Successful Bidder or his funding/financing agency any document which is intended as security or assurance for the purpose of raising of funds.

5.2.5 Delay and Extensions of Time

- 5.2.5.1. The time allowed for carrying out these work shall be strictly observed by the Successful Bidder and shall be deemed to be of essence. The Successful Bidder will be allowed to enter the site on the date of commencement and he shall forthwith begin the work.
- 5.2.5.2. The Successful Bidder agrees that the work shall be commenced and carried on at such points and at such times and seasons as may be directed by the Engineer-In-Charge in accordance with the schedule of completion of work. The Successful Bidder shall familiarize himself with the site and rights of way, local conditions and with all the circumstances which may or are likely to affect the performance and completion of work and he shall account for such conditions. The progress of work shall be checked at regular fortnightly intervals and the



percentage progress shall be commensurate with the time elapsed.

- 5.2.5.3.** If the Successful Bidder desires extension of time for completion of work on the grounds of hindrance or any other ground, he shall apply in writing within 7 days of the date of hindrance to the Engineer-In-Charge. The application shall contain documentation for proof and justification of extension. Successful Bidder shall be responsible for the consequences arising out of such extension.
- 5.2.5.4.** No necessity for an extension of time is anticipated but if untoward or extraordinary circumstances should arise beyond the control of the Successful Bidder, which in the opinion of the Engineer-In-Charge/ Employer should entitle the Successful Bidder to a reasonable extension of time, such extension may be granted but will not release the Successful bidder from any of his obligations. For the purpose of this clause, untoward or extraordinary circumstances are defined separately in this section. Under such circumstance only, extension of time may be granted but the Successful Bidder shall not be entitled to any additional compensation. In case of strike or lockout the Successful Bidder shall, as soon as possible, give written notice to the Engineer-In-Charge/Employer, but the Successful Bidder shall constantly endeavor to prevent delay and do all that may reasonably be required to proceed with the work.
- 5.2.5.5.** The Engineer-In-Charge/ Employer shall have the right of discontinuance of the work, in whole or in part, for such time as may be necessary, if external conditions make it desirable to do so, in order that the works shall be well and properly executed. In such cases, the Successful Bidder shall have no claim for idle time, etc. However, the Engineer-In-Charge may grant extension of reasonable time for completion of Contract in such cases.
- 5.2.6 Liquidated Damage for Delay**
- 5.2.6.1.** In the event of the Successful Bidder failing to comply with the approved Time Schedule, he shall be liable to pay as damages an amount as indicated in this document.
- 5.2.6.2.** The Employer may without prejudices to any other method of recovery, deduct the amount of such damages from any money due to the Successful Bidder. In the event of extension of time being granted by Engineer-In-Charge/Employer in writing, such damages will become applicable after expiry of such extended period.
- 5.2.6.3.** All sums payable by way of liquidity damages, shall be considered as reasonable compensation to be applied to the use of the Employer without reference to the actual loss or damage sustained.
- 5.2.6.4.** GST as applicable will be charged separately on liquidated damages and penalties.
- 5.2.7 Infringement of patents**
- 5.2.7.1.** The Successful Bidder agrees that he shall assume all liabilities and fully indemnify and save harmless, the Employer, his successors or assigns, from and against all suits, claims, proceedings, damages, losses, expenses, fees, royalties arising from any infringement, real or claimed, of any patent or any articles, machine manufacture, structure, composition, arrangement, improvement design, device, methods or progress embodied or used in performance of the Contract. The Employer and his successors and assigns shall give written notice of 7 days of all such claim and patent infringements suits or proceedings instituted against him, to the Successful Bidder, who will defend the same and will give the Successful

bidder authority, assistance and all available information to enable him to do so.

5.2.8 Assignment

- 5.2.8.1.** The whole of the work included in this Contract shall be executed by the Successful Bidder. The Successful Bidder shall not, directly or indirectly transfer, assign or sublet the Contract or any part thereof, nor shall he take new partner without consent of the Employer.

5.2.9 Changes in Constitution

- 5.2.9.1.** Where the Successful Bidder is a partnership firm or limited liability company, any change in the constitution of the firm or ownership or partnership shall be on previous approval in writing by the Employer.

5.2.10 Damages to persons & property and insurance in respect of;

- 5.2.10.1.** The Successful Bidder shall be responsible for all injuries to persons, animals or things, and for all damage to property which may arise from operations or neglect of himself or of any of his approved sub-contractors and their employees, whether such injury or damage arises from carelessness, accident or any other causes whatever in any way connected with the carrying out of this contract. This clause shall be held to include, inter-alia, any damage to buildings; roads, footpaths, bridges or ways, equipment, pipes, cable, etc. within or outside the project site, of the Employer or third parties and the work forming subject of this contract by frost, rain or any other inclemency of weather. The Successful bidder shall indemnify and hold the Employer harmless in respect of all and any expenses arising from any such injury or damage as aforesaid and also in respect of any award of compensation of damage consequent upon such claim.
- 5.2.10.2.** The Successful Bidder shall reinstate at his cost all damages of every sort mentioned above, so as to deliver the whole of contract works complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.
- 5.2.10.3.** The Successful Bidder shall indemnify the Employer against all claims which may be made against the Employer by any member of public or other third party in respect of anything which may arise in respect of the works or in consequence thereof and shall at his expense arrange to effect and maintain until virtual completion of the contract, with an approved nationalized insurance, a policy of insurance in the joint name of the Employer and the Successful Bidder against such risks and he shall deposit, such policy or policies with Engineer-In-Charge from time to time during the currency of the contract. The Successful Bidder shall indemnify the Employer against all claims which may be made upon the Employer under any statute in force during currency of this contract or at common law in respect of any employee of the Successful Bidder and/ or his sub- contractor. The Successful Bidder shall be responsible for anything, which may be excluded from the above referred insurance policies and also for all other damage to any property arising out of and incidental to the negligent or defective execution of works under this Contract.
- 5.2.10.4.** The Successful Bidder shall also indemnify the Employer in respect of any cost, charges or expenses arising out of any claim or proceedings and also in respect of any award of compensation of damage arising there from.

- 5.2.10.5.** The Employer/Engineer-In-Charge shall be at liberty and is hereby empowered to deduct the amount of any damages, compensation cost, charges and expenses arising or accruing from or in respect of any such claim or damage from any sum due or to become due to the Successful Bidder.
- 5.2.10.6.** The Employer/Engineer-In-Charge shall not be responsible or not be held liable for any damage to person or property consequent upon use, misuse or failure of any construction tools and equipment used by the Successful Bidder or any of his sub-contractor even though such construction tools and equipment be furnished, rented or loaned to him by the Employer. The acceptance and/or use of any such tools and/or equipment by the Successful Bidder /Sub-Contractor shall be construed to mean that the Successful bidder accepts all responsibility for and agrees to indemnify and save harmless the Employer/Engineer-In- Charge from any and all claims for said damages resulting from said, misuse or failure of such tools and equipment for which the Employer may be liable.
- 5.2.11 Damage Insurance**
- 5.2.11.1.** Unless otherwise instructed by the Engineer-In-Charge, the Successful Bidder shall on signing the Contract insure in India the works and keep them insured until the completion of contract against loss or damages by fire or any other hazard with a Successful Bidder to be approved by the Engineer-In-Charge, in the joint names of the Employer and the Successful bidder for such amount and for any further sum if called upon to do so by the Engineer-In- Charge, the premium of such further sum being allowed to the Successful Bidder as an authorized extra. Such policy shall cover the property of the Employer only and shall not cover any property of the Successful Bidder or any of his approved sub- contractor or employee. The policy should be taken from India with any of the Indian Insurance Company Only. The Successful bidder shall deposit the policy and receipts of premiums with the Engineer-In-Charge within Twenty-One (21) days from the date of signing the Contract otherwise instructed by the Engineer-In-Charge. In default thereof, the Employer/Engineer-In-Charge on his behalf may so insure and may deduct the premiums from any money due or may become due to the Successful Bidder. The Successful Bidder shall, as soon as the claim under the policy is settled, or the work reinstated by the insurance office, should they elect to do so, proceed with all due diligence with completion of works in the same manner as though the fire or any hazard had not occurred and in all respects under the same conditions of Contract. In such an event, the Successful Bidder shall be entitled to such extension of time as Engineer-In-Charge may deem fit.
- 5.2.11.2.** Notwithstanding the above, the Successful Bidder shall provide adequate portable fire extinguishers in his work area and take all adequate precautions against fire hazard and train his supervisors/ workmen regularly in firefighting techniques.
- 5.2.11.3.** In the event of occurrence of any fire attributable in the opinion of the Employer/ Engineer-In-Charge to the Successful Bidder's negligence, no extension of time will be granted.
- 5.2.12 Suspension**
- 5.2.12.1.** If the Successful Bidder, except on account of any legal restraint upon the Employer, preventing the continuance of work shall suspend work or in the opinion of the Engineer-In-

Charge shall neglect or fail to proceed with due diligence in the performance of his part of the Contract or if he shall more than once make default in respect or Scope of Contract, the Employer/ Engineer-In Charge shall have power to give notice in writing to the Successful Bidder requiring that the work be proceeded within a reasonable manner and with reasonable dispatch. Such notice issued to him by the Employer/ Engineer-In-Charge shall purpose to be a notice under this Clause. After such notice is given, the Successful Bidder shall not be at liberty to remove from the site of works any plant or materials belonging to him which shall have been placed thereon for the purpose of works and the Employer shall have a lien upon all such plants and materials to subsist from the date of such notice until the same is complied with. If the Successful Bidder fails to proceed with the works as therein prescribed within Seven (7) days, the Employer may proceed as prescribed.

5.2.13 Termination of Contract by Employer

5.2.13.1. If the Successful Bidder commit any Act of Insolvency or shall be judged as insolvent, or shall make an assignment or compensation for the greater part in number or amount of his creditors, or shall enter into a Deed of Assignment with his creditors, or shall have an order made against him or pass an effective winding up resolution either compulsorily or subject to the supervision of court or voluntary, or if the official assignee of the Successful Bidder shall repudiate the Contract, or if the official assignee or liquidator in any such winding up shall be unable, within seven days after notice to him requiring to do so, to show to the reasonable satisfaction of the Engineer-In-Charge that he is able to carry out and fulfill the Contract and if required, give security therefore, or if the Successful Bidder r shall suffer any payment under this Contract to be attached by or on behalf of any creditors of the Successful Bidder , or if the Successful bidder shall charge or encumber this Contract for any payment due or which may become due to the Successful Bidder there under, or if the Engineer-In- Charge shall certify in writing that in his opinion the Successful Bidder ;

- a) Has abandoned the Contract, or
- b) Has failed to commence the works. Or has without any lawful excuse under these conditions suspended the progress of the works for seven days after receiving from the Engineer-In-Charge written notice to proceed with the work. or
- c) Has failed to proceed with the work with such due diligence and failed to make such due progress as would enable the works to be completed within the time agreed upon, or
- d) Has failed to remove materials from the site or to pull down and replace works within seven days after receiving from the Engineer-In- Charge written notice that the said materials or work were condemned and rejected by the Engineer-In-Charge under these conditions, or
- e) Has neglected or failed persistently to observe and perform all or any of the acts matters or things required by this contract to be observed and performed by the Successful Bidder Seven (7) days after written notice shall have been given to the Successful Bidder requiring him to observe or perform the same, or
- f) Has acted to the detriment of good workmanship or in defiance of Engineer-In-Charge's instructions to the contrary sublet any part of the Contract.

- 5.2.13.2.** In any of the above said circumstances, the Employer/ Engineer-In-Charge may, notwithstanding any previous waiver, after giving seven days' notice in writing to the Successful Bidder , terminate the Contract but without thereby affecting the powers of the Engineer- In-Charge or the obligations and liabilities of the Successful Bidder , the whole of which shall continue to be in force as full as if the Contract is not so terminated and as if the works subsequently executed had been executed by or on behalf of the Successful Bidder . Further, the Employer/ Engineer-In-Charge by his agents' servants may enter upon and take possession of the works and all plants, tools, scaffoldings, sheds, machinery, power, utensils and materials laying upon the premises or adjoining roads and property and use the same as his own property or may employ the same Successful Bidder in carrying on and completing the works or by employing any other person to complete the works. The Successful Bidder shall not in any way interrupt or do any act, matter or thing to prevent or hinder such other person employed for completing and furnishing or using the materials and plant for works.
- 5.2.13.3.** When the works shall be completed, or as soon thereafter as convenient the Engineer- In-Charge shall give a notice in writing to the Successful Bidder to remove his surplus material and plant and should the Successful Bidder fail to do so within seven days after receipt thereof by him, the Employer may sell the same by public auction and shall give credit to the Successful Bidder for the amount so realized after deducting for the costs incurred by the Employer for the realization of proceeds. The Engineer-In-Charge shall thereafter, ascertain and certify in writing, what shall be due or payable to the Successful Bidder by the Employer for the value of the said plant and materials so taken possession by the Employer and the expense or loss the Employer shall have been put to in getting the works completed. The amount so certified as payable by the Employer to the Successful Bidder or by the Successful Bidder to the Employer shall thereupon be paid. The certificate of the Engineer- In-Charge shall be final and conclusive.
- 5.2.14** **Laws**
- 5.2.14.1.** The Contract shall be governed by the laws of the U.T. Chandigarh for time being in force with the same force and effects as if incorporated in full into this document.
- 5.2.14.2.** Should any such conflicts require changes in the Contract documents, the Successful Bidder shall promptly notify the Engineer-In-Charge. No proceedings relating to this Contract shall be taken by the Successful Bidder in any Court of law except in Chandigarh.
- 5.2.15** **Rates to include Taxes**
- 5.2.15.1.** The amounts quoted by the Successful Bidder in Price Schedule shall be inclusive of all material labour, plant and equipment, royalties, taxes including Goods and Services Tax to be levied by Central/ State Governments or any public bodies and everything necessary to complete the work satisfactorily and as per the work specifications. The price shall be firm and not subject to exchange, variations, labour conditions or any conditions whatsoever.
- 5.2.15.2.** The Successful Bidder when called for by the Employer shall furnish detailed analysis in support of price quoted by him. The Employer reserve the right to use the analysis supplied in settling, any deviations or claims arising out of this Contract.



5.2.16 Engineer-In-Charge cannot waive obligations

5.2.16.1. Neither the Engineer-In-Charge nor any of his assistants or agents shall have any power to waive any of the obligations of the Successful Bidder and for his performing good work as herein described. Regarding any disagreement pertaining to Technical matters between the Engineer-In-Charge and the Successful Bidder, Employer, decision in this regard will be final and binding to the Successful Bidder.

5.2.16.2. Regarding any disagreement pertaining to financial matters between the Engineer-In- Charge and the Successful Bidder, the decision of Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL), in this regard will be final and binding to the Successful Bidder.

5.2.17 Works; Party abandoned

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

5.2.17.2. The Successful Bidder shall be paid the charges on the cartage only if material actually brought to the site by the Successful Bidder and rendered surplus as a result of the abandonment or curtailment of the work or any portion thereof and taken back by the Successful Bidder, provided however, that the Engineer-In-Charge shall have in all such cases, the right to purchase these materials at their purchase price or at current local rates whichever may be less.

5.2.18 Successful Bidder's address

5.2.18.1. Both the addresses appearing in the Agreement and the Successful Bidder's office at or near the site of the works are hereby designated as places to either of which notices, letters or any other communication to the Successful Bidder may be mailed or delivered. The delivery at either of the above places or depositing in any postbox of any letter, notice or other communication addressed to the Successful Bidder, shall be deemed sufficient notice of service thereof upon the Successful Bidder and the date of such notice shall be the date of such delivery or depositing. The first named address may be changed at any time by an instrument in writing executed and acknowledged by the Successful Bidder and delivered to the Employer/ Engineer-In-Charge. Nothing herein contained shall be deemed to preclude or render inoperative the service of any notice, letter or other communication upon the Successful Bidder personally.

5.2.19 Independent Bidder

5.2.19.1. The bidder agrees to perform the Contract as an independent bidder and not as an agent of any employee of the Employer.

5.2.20 No other understandings

5.2.20.1. There are no other understandings between the parties other than as set forth in the Contract. All communications, either verbal or written, made prior to the date of the Contract are hereby aborted and withdrawn unless such communications are made part of the Contract.

5.2.21 Dispute Resolution

5.2.21.1. Amicable Resolution

a. Any dispute, difference or controversy whatever nature howsoever arising under or out of or in relation to this Agreement between the parties, and so notified in writing by either party to the other party (the “Dispute”) shall in the first instance, be attempted to be resolved amicably in accordance with the procedure set forth in Clause 5.2.21.2 below.

b. The parties agree to use their best efforts for resolving all disputes arising under or in respect of this agreement promptly, equitably and in good faith, and further agree to provide each other with a reasonable access during normal business hours to all information and data pertaining to any dispute.

5.2.21.2. Direct Discussion between Parties

The Parties agree that any dispute that may arise between them shall be first submitted for direct discussion between the parties. For this purpose, “the notice of dispute” sent by one party to other party under clause 5.2.21.1 shall be considered an invitation for discussion, and it should specify a reasonable time and venue for conduct of the negotiation proceedings. In addition, the notice of dispute shall specify the basis of the dispute and the amount claimed. In the direct discussion proceedings, each party shall be represented by the officials or employees with sufficient knowledge and authority over the subject matter of the dispute in order for the discussion to be meaningful. At the discussion proceedings, the party that has given the notice of dispute shall present an offer of a settlement, which may form that starting point of discussion between the two parties during the discussion proceedings.

5.2.22 Arbitration

Any dispute, difference or Claim arising out of or in connection with this agreement which is not resolved amicably shall be settled by Arbitration in accordance with the Provisions of the Arbitration and Conciliation Act, 1996 including the Arbitration and Conciliation (Amendment) Act, 2015 and any statutory modification/amendments thereof for the time being in force to be read with the Chandigarh Arbitration Centre (CAC) Rules, 2018. The appointment of Arbitrator(s) shall be made from the approved Panel of Arbitrators provided under the Chandigarh Arbitration Centre (CAC) (Arbitration Proceedings) Rules, 2018 as available on the website of High Court of Punjab and Haryana at Chandigarh i.e. https://highcourthd.gov.in/?trs=adr_rules by the parties. The Dispute shall be referred to a Sole Arbitrator to be appointed by mutual consent of the Parties herein. In case of disagreement on the appointment of Sole Arbitrator by the parties, there shall be a Board of Three (3) Arbitrators of whom one shall be appointed by the Employer, one shall be appointed by the Successful Bidder, and the third shall be appointed by the two arbitrators appointed as aforesaid. The award resulting from arbitration shall be final and binding upon the Parties and shall be enforceable in accordance with the provisions of the Arbitration Act subject to the rights of the aggrieved parties to secure relief from any higher forum. The fees of the Arbitral

Tribunal and the cost of the arbitration proceedings shall be borne by the Parties in equal proportions. Each Party shall bear its own legal fees incurred as a result of any Dispute under this Clause. Pending the submission of and/or decision on a Dispute and until the arbitral award is published; the Parties shall continue to perform their respective obligations under this Agreement.

5.2.22.1. The arbitration proceedings shall be conducted in Chandigarh and the venue of the Arbitration proceedings shall be the Chandigarh Arbitration Centre. The arbitration proceedings shall be conducted in the English language.

5.2.23 Engineer-In-Charge's Instructions

5.2.23.1. The Successful Bidder shall carry out and complete the works in every respect in accordance with this Contract and in accordance with the directions and to the satisfaction of the Engineer-In-Charge. The Engineer-In Charge may in his absolute discretion from time to time issue further drawings and /or written instructions, details, directions and explanations which are hereafter collectively referred to as 'Engineer-In-Charge's Instructions' in regards to;

- a) The variation or modification of the design, quality or quantity of works or the omission or substitution of any work.
- b) Any discrepancy in the drawings or between the Bill of Quantities and/or drawings and/or specification.
- c) The removal from the site of any material brought thereon by the Successful bidder and the substitution of any other materials there for.
- d) The removal and/ or re- execution of any works executed by the Successful bidder.
- e) The dismissal from the works of any persons employed there upon.
- f) The amending and making good of any defects.
- g) The opening up for inspection of any work covered up.

5.2.23.2. The Successful Bidder shall forthwith comply with & duly execute any work comprised in such Engineer-In-Charge's instructions provided always that instructions, directions and explanations given to the Successful Bidder or his superintendent upon the works by the Engineer-In-Charge shall, if involving a variation, have been confirmed in writing by the Successful Bidder within seven days and the Engineer-In-Charge's written approval obtained.

5.2.23.3. If compliance with the Engineer-In-Charge's instructions as aforesaid involves work beyond that contemplated by the Contract, unless the same were issued owing to some breach of this Contract by the Successful Bidder, the Employer shall pay to the Successful Bidder the prices for the extra item for said work, valued as hereinafter provided.

5.2.24 Extra Item

5.2.24.1. The Items for which no rates are available in the Bill of Quantities, Successful bidder shall inform Employer/Engineer-in-Charge of the same during the R.A. Bills submitted. The rate for extra items of works shall be fixed/paid as per CPWD Works Manual and Terms & General Conditions of CPWD Works Manual will be used.

5.2.25 Variation

5.2.25.1. The items indicated in the Bill of Quantities are the estimated Quantities and Variation in the Quantities within $\pm 25\%$ of that indicated shall be paid at the same price quoted by the



Successful Bidder. If the quantities exceed by more than +-25% of that indicated in the Bill of Quantities payment for the same shall be done as described in Clause 5.2.25.2.

5.2.25.2. This item will be treated as an Extra Item and will be paid as described in Clause 5.2.24.1

5.2.26 Bidder informed – as to the conditions

5.2.26.1. The bidder shall inspect, examine and obtain all information and satisfy himself regarding all matter and things such as right of way, surface and sub-surface water conditions to be encountered, the character of equipment and facilities needed for the execution of the work, the location and suitability of all construction materials, the quantities of various sections of the work, and local labour conditions, relating to the execution and maintenance of works to be carried out under the Contract or any hindrances or interference to or with construction and maintenance of the works from any cause whatsoever including any other operation of works, which may or will be carried out or adjacent to the site of the works under the Contract and shall make allowance for all such contingencies in the Contract price and will not raise any claims or objections against the Employer in any of such matters as mentioned above.

5.2.26.2. The acceptance of the order or signature of the Contract will be considered as evidence that such an examination was made and later claims for labour, equipment or materials required for difficulties encountered will not be allowed.

5.2.26.3. Any record of sub-surface conditions water records and other observations which may have been made by the Engineer-In-Charge/Employer with reasonable care and accuracy. Such records may be provided, available to the bidder for his information. If such records are made available, there is no expressed or implied guarantee, as to neither the accuracy of the records nor any interpretation of them. The bidder shall recognize this and form his own opinion of the character of materials to be encountered or excavated, from inspection of the ground and put his own interpretation on records.

5.2.26.4. The prices quoted by the bidder shall be based on his own knowledge and judgment of the conditions and hazards involved and not upon any information furnished by the Engineer-In-Charge / Employer.

5.2.27 Successful Bidder to provide everything necessary

5.2.27.1. The Successful Bidder shall provide everything necessary for the proper execution of the works according to the intent and meaning of the drawings, schedule of quantities and specifications taken together whether the same may or may not be particularly shown or described therein, provided that the same can reasonably be inferred there from, and if the Successful Bidder finds any discrepancy therein shall refer the same immediately to the Engineer-In-Charge whose decision shall be final and binding on the parties.

5.2.27.2. The Successful Bidder shall supply, fix and maintain at his cost, during the execution of any works all the necessary centering, scaffolding, staging planking, timbering, strutting, shoring, pumping fencing, hoarding, watching and lighting by night as well as by day, required not only for the proper execution and protection of the said works, but also for the protection of the public and the safety of any adjacent roads, streets, cellars, walls, houses, buildings and all other erections, matters or things, and the Successful Bidder shall take out and remove any or all such centering, scaffolding, staging, planking, timbering, strutting, shoring etc. As occasion shall require or when ordered to do so and shall fully reinstate and make good all matters and

things disturbed during the execution of the works to the satisfaction of the Engineer-In-Charge. The Successful Bidder shall be paid no additional amount for the above and for any access to be made to reach the construction site. The Successful Bidder shall submit design

- 5.2.27.3.** and drawing for shuttering & centering work for the approval of the Engineer- in-Charge before commencing the works.
- 5.2.27.4.** All materials shall be new and of the best respective kinds described in the Schedule of quantities and / or specifications and in accordance with the Engineer-In-Charge's instructions and the Successful Bidder shall upon the request of the Engineer-In-Charge furnish him with all invoices, accounts, receipts, certificates and other vouchers, to prove that the materials comply herewith. The Successful Bidder shall at his own cost arrange for and / or carry out any test of materials which the Engineer-In-Charge may require.
- 5.2.27.5.** It shall be the responsibility of the Successful Bidder to unload, store in a safe and acceptable manner all construction materials and equipment in whole or part, as directed by the Engineer-In-Charge.
- 5.2.27.6.** The Successful Bidder is required to provide and maintain all tools, and equipment and instructions necessary to perform his work. He shall provide all fuels, lubricants and compressed air for the operation and maintenance of his construction tools.
- 5.2.27.7.** The Successful Bidder is obliged to arrange for all his requirement of materials to complete the work as indicated in the specifications.
- 5.2.27.8.** The Successful Bidder shall provide facilities for his office, warehouse, tool room, change room or any other building required to execute his work.
- 5.2.27.9.** Samples of all material to be used, whether bricks, rubble stone, aggregate, sand, timber etc. shall be tested in approved laboratory and submitted by the Successful Bidder and must be got approved by the Engineer-In-Charge before they are used. Approved samples shall be kept with the Engineer-In-Charge and all supplies shall strictly conform to the samples. Materials not strictly conforming to the samples are liable to be rejected.
- 5.2.27.10.** The Successful Bidder shall not sell, assign, mortgage, hypothecate or remove partly or fully completed structures, equipment or materials which have been installed or which may be necessary for the completion of the Contract.

5.2.28 Submission and approval of drawings etc.

- 5.2.28.1.** If any construction drawings will be provided to the Successful Bidder for execution of the Civil works during the project period. Successful Bidder shall keep the drawing in good condition and shall use the latest revision(s) if any, for execution purpose. For mechanical and Electrical Equipment's and for any work for which designs are needed to be submitted by the Successful bidder it shall submit the same in Three sets of which will include detailed design calculations / specifications equipment. The Engineer-in-Charge will review the Designs and Drawings of the Mechanical and Electrical works as and when submitted and based on the acceptability instruct the Successful Bidder for any clarifications etc., in Designs and Drawings. Engineer-in-Charge will only, after reviewing, the Designs and the respective Drawings submitted by the Successful bidder and found suitable and which are in line with the

Quality as per the specifications, forward the same to the Successful Bidder. Only after having received the go ahead, the Successful Bidder can use the approved drawings and designs for further manufacturing and subsequent procurement. One set of such approved drawings/design calculations/specifications will be returned to the Successful Bidder for the purpose of using them in the execution of work.

5.2.28.2. Any additional information, further detailed calculations will have to be furnished by the Successful Bidder on demand by the Engineer-In-Charge for the purpose of approval as described above.

5.2.28.3. The Successful Bidder shall have to submit all the working drawings/ sketches, diagrams to be used for the work to the Employer and all such drawings/ design calculations/ specifications shall have to be approved from the Employer who in turn will forward the same to the Engineer-In-Charge for further process and issuing to the Successful Bidder, before starting of any work related to them.

5.2.28.4. Even though the drawings/ design calculations/ specifications submitted by the Successful Bidder are approved by the Engineer-In-Charge, such approval shall not absolve the Successful Bidder from his duties, responsibilities and liabilities as expected for carrying out the work.

5.2.29 To Define Terms and Explain plans

5.2.29.1. The various parts of the Contract are intended to be complementary to each other, but should any discrepancy appear, or any misunderstanding arise as to the import of anything contained therein, the explanation of the Engineer-In-Charge shall be final and binding.

5.2.29.2. Whenever, in the specifications or on the drawings which are a part of this Contract or which may be furnished by the Successful Bidder for use on this work, the terms and description of various qualities of workmanship, material, structures, processes, plant or other features of the Contract are described in general terms, the meaning of fulfillment of which must depend on judgment, then in all such question of fulfillment of such specification or requirements shall be decided by the Engineer-In-Charge. Said materials shall be furnished, said work shall be done, and said structures, plant or feature shall be constructed or furnished in full and complete in accordance with, interpretation of the Engineer-In-Charge in his full satisfaction and approval, provided such interpretation is not in direct conflict with the drawings and specifications and generally accepted good practice.

5.2.29.3. Matter shown either on the drawings or in the specifications shall be done and furnished as it is shown in both except where expressly excepted either in the specifications or on the drawings, figured dimensions shall in all cases be taken in preference to scaled dimensions or measurements and detailed drawings to general drawings of the same part of the work.

5.2.30 Water, Electricity and other facilities

5.2.30.1. Successful Bidder shall have to make, his own provisions for supply of water and electricity from various agencies or from his sources for the execution of work.

5.2.31 Engineer-In-Charge to direct work & order Alterations, Modifications, Deletions

5.2.31.1. The Engineer-In-Charge shall have the right to direct the manner in which all work under this Contract shall be conducted in so far as may be necessary to secure the safe and proper progress

and the specified quality of the work, and all work shall be done and all material shall be furnished to the satisfaction and approval of the Engineer-In-Charge.

- 5.2.31.2.** Additional drawings and explanations to exhibit or illustrate details may be provided by the Successful Bidder. The written decision of the Engineer-In- Charge as to the true construction and meaning of the drawings and explanations shall be binding upon the Successful Bidder.
- 5.2.31.3.** If at any time the Successful Bidder's method, materials or equipment appear to the Engineer-In- Charge to be unsafe, insufficient or inadequate for securing the safety of the workmen or the public, the quality or work or the rate of progress required, he may order the Successful Bidder to increase their safety, efficiency and adequacy, and the Successful Bidder shall comply with such orders. If at any time the Successful Bidder 's working force and equipment are, in the opinion of the Engineer-In- Charge inadequate for securing the necessary progress, as herein stipulated, the Successful bidder shall, if so directed, increase the working force and equipment to such an extent as to give reasonable assurance of compliance with the Schedule of completion. The failure of the Engineer-In-Charge to make such demands shall not relieve the Successful Bidder of his obligations to secure the quality, the safe conducting of the work and the rate of progress required by the Contract, and the Successful Bidder alone shall be and remain liable and responsible for the safety, efficiency, and adequacy of his methods, materials, working force, equipment and timely completion of job irrespective of whether or not he makes any change as a result of any order or orders received from the Engineer-In-Charge.
- 5.2.31.4.** The Engineer-In-Charge shall have the power to make any alternations in, omissions from, additions to the original specifications, drawings, designs and instructions that may appear to him to be necessary or advisable during the progress of the work and the Successful Bidder shall bound to carry out the work in accordance with any instructions that may be given to him in writing by the Engineer-In-Charge and such alternations, omissions, additions or substitutions shall not invalidate the Contract. Any altered, additional or substituted work which the Successful Bidder may be directed to do in the manner above specified as the work, shall be carried out by the Successful Bidder on the same conditions in all respects on which he agreed to do the main work and the similar rates as are specified in the tender for the main work, unless such alternations are not similar to or derivable from the items of work and form extra items.
- 5.2.32 Successful Bidder's Supervision**
- 5.2.32.1.** The Successful Bidder shall, during the whole time of the work is in progress, employ a qualified personnel's as stated in the tender document, to be in charge of the works with adequate experience in handling of jobs of this nature and with the prior approval of the Engineer- In-Charge. The personnel shall be constantly in attendance at the site during working hours. During Successful Bidder's absence during working hours, if unavoidable, and also beyond working hours, when it may be necessary to give directions, orders may be given by the Employer/Engineer- In-Charge and shall be received and obeyed by the Successful Bidder's superintendent or even foreman who may have charge of the particular part of the work in reference to which orders are given. If requested to do so, the Employer/ Engineer-In-Charge shall confirm such orders in writing. Any direction, instructions or notices given by the Engineer-In-Charge to him, shall be deemed to have been given to the Successful Bidder.



The required powers and authority shall be given to the Successful bidder's representative (Personnel) so as to engage labour or purchase materials and proceed with the work as required for speedy execution.

5.2.32.2. None of the Successful Bidder's personnel's, supervisors or labour should be withdrawn from the work without due notice being given by the Employer / Engineer-In-Charge, further no

such withdrawals shall be made from the work when in the opinion of the Engineer-In-Charge such withdrawals will jeopardize the required pace of progress/successful completion of the work.

5.2.32.3. The Successful Bidder shall employ in or about execution of the works only such persons who are careful, skilled and experienced in their respective trades. The Employer shall be at liberty to object to and require the Successful Bidder to remove any persons employed by the Successful Bidder, in or about execution of works who in the opinion of the Employer/Engineer-In-Charge misconducts himself or is incompetent or negligent in the proper performance of his duties and all such persons shall not be employed upon the works without prior permission of the Employer.

5.2.32.4. Neither the Successful Bidder, nor the Engineer-In-Charge shall hire or employ any employee of the other party.

5.2.33 Setting Out Works

5.2.33.1. The Successful Bidder shall set out the works and shall be responsible for true and perfect setting out of the same and for the correctness of the positions, levels, dimensions and alignment of all parts thereof. If at any time any error shall appear during the progress of any part of the work, the Successful Bidder shall at his own expense rectify such error, if called upon, to the satisfaction of the Engineer-In-Charge.

5.2.33.2. The Successful Bidder shall provide all facilities, instruments and attendance to the Engineer-In-Charge or his deputed representative to check his work. Instrument brought by the Successful Bidder shall be in good working condition and are subject to approval of the Engineer-In-Charge. Checking in part or full or setting out or any line or level by the Engineer-In-Charge shall not in any way relieve the Successful bidder of his responsibility for the correctness thereof.

5.2.33.3. The Successful Bidder shall establish and maintain base lines and bench marks adjacent of the various sections of work. All such marks and stakes must be carefully preserved by the Successful Bidder and in case of their destruction by him or any of his employees; they will be replaced at the Successful Bidder's expense.

5.2.33.4. The Successful Bidder shall be responsible for the accuracy of all dimensions within the various sections of the work according to the figures of dimensions on the drawings.

5.2.34 Access

5.2.34.1. The Engineer-In-Charge, his representatives and the Employer shall at all reasonable times have free access to the works and / or to the workshops, factories or other place where materials are being prepared or constructed for the Contract and also to any place where the material are laying or from which they are being obtained. The Successful Bidder shall give every



necessary facility to the Engineer-In-Charge and his representatives for inspection and examination and test of the materials and workmanship even to the extent of discontinuing portions of the work temporarily or of uncovering or taking down portions of finished work.

5.2.34.2. If any work is to be done at place other than the site of the works, the Successful Bidder shall obtain the written permission of the Engineer-In-Charge for doing so.

5.2.35 Failure by the Successful Bidder to comply with the Engineer-In-Charge instructions

5.2.35.1. If the Successful Bidder after receipt of written notice from the Engineer-In-Charge requiring compliances with such further drawings and /or the Engineer-In-Charge instructions fail within seven days to comply with the same, the Engineer-In-Charge may employ and pay other agencies to execute any such work whatsoever as may be necessary to give effect thereto and all costs incurred in connection therewith shall be recoverable from the Successful Bidder by the Employer on a certificate by the Engineer-In-Charge as a debt or may be deducted by him from any money due or to become due to the Successful Bidder.

5.2.36 Construction Supervision and Workmanship

5.2.36.1. The Engineer-In-Charge will engage his own supervisory staff of works as may be deemed fit. The Successful Bidder shall provide the Supervisor every facility and assistance for examining the works and materials for checking and measuring the works and materials. The Supervisor shall have no power to revoke, alter, enlarge or relax any requirement of the Contract, but may sanction only day work, additions, deviations or omissions, or any extra work whatever as may be authorized by the Engineer-In-Charge.

5.2.36.2. The Supervisor will act as representatives of the Employer and shall have the power to give notice to the Successful Bidder or to his Foreman of non- approval of any work or materials, and such work shall be suspended or the use of such material shall be discontinued, until the decision of the Engineer-In-Charge is obtained.

5.2.36.3. The work shall be conducted under the general direction of the Engineer-In-Charge and is subject to inspection by his supervisors to ensure strict compliance with the terms of the Contract. No failure of the Engineer- In-Charge or his supervisors during the progress of the work to discover or to reject materials, or work not in accordance with the requirement of this Contract, shall be deemed as acceptance thereof or a waiver of defects therein and shall be considered to be an acceptance of the work or materials which are not strictly in accordance with the requirements of this Contract. No changes whatsoever to any provision of the specifications shall be made without written authorization of the Employer.

5.2.36.4. The Successful Bidder shall execute the whole and every part of the work in the most substantial and workman like manner as regards material and in all other respects.

5.2.36.5. The provisional acceptance of sections of the work shall not be considered so as to prevent the Engineer-In-Charge from requiring replacement of defective work that may become apparent after the said provisional acceptance and shall not be constructed in any way on the basis for a claim of extra compensation for any cause whatsoever by the Successful Bidder.

5.2.37 To remedy Defective Work and Defects Liability Period

5.2.37.1. If the work or any portion thereof shall be damaged in any way excepting by the acts of the

Employer, or if defects not readily detected by proper inspection before the final completion and acceptance of the whole work, the Successful Bidder shall forthwith make good, without compensation, such damages or defects in a manner satisfactory to the Engineer-In-Charge/Employer. In no case shall defective or imperfect work be retained.

- 5.2.37.2.** The period of Three (03) Calendar Months from the date of successful completion, commissioning or performance run of the complete Smart water meters along with AMR/AMI System unless otherwise agreed in writing by the Employer/ Engineer-In-Charge will be deemed as the “Defects Liability Period”. In case any defect in the work due to wrong assumptions in designs, bad materials and / or bad workmanship developed in the work before the expiry of this period, the Successful Bidder on notification by the Employer shall rectify or remedy the defects at his own Cost and he shall make his own arrangements to provide material, labour, equipment and any other appliances required in this regard. In case even on due notification by the Employer, the Successful Bidder fails to rectify or remedy the defects the Employer shall have the right to get this done by other agencies and recover the cost incurred by deductions from any money due or that may become due to Successful Bidder.
- 5.2.37.3.** The Employer may in lieu of such amending and making good by the other agencies, deduct from any money due to the Successful Bidder a sum to be determined by the Employer equivalent to the cost of amending such work and in the event of such due payment becoming insufficient, recover the balance from the Successful Bidder together with any expenses to the Employer may have incurred in connection with such recovery.
- 5.2.37.4.** The Successful Bidder shall remain liable under the provisions of this clause notwithstanding the passing by the Employer of any certificate, final or otherwise or the passing of any accounts.
- 5.2.37.5.** The Successful Bidder shall see that the excavated material or debris from the work under the Contract shall be placed at a place and in a manner, as designated by the Engineer-In-Charge and he shall remove it from time to time as required by the Engineer-In-Charge so that they shall not cause any interference or obstruction to the Employer or other Successful Bidder’s work in the adjacent areas.
- 5.2.38 Night Work, Holiday Working – Permission**
- 5.2.38.1.** The Successful Bidder normally is to work during daytime only and is required to complete the work in all respects as stipulated in the tender documents. However, night work or holiday work may be permitted under particular exigencies with prior approval of the Engineer-In-Charge.
- 5.2.38.2.** Sufficient light shall be arranged/provided by Successful Bidder to safe guard the workers and the public and to afford adequate facilities for proper placing and inspecting the material when the night work is in progress.
- 5.2.39 Daily Diary & Progress Status Report**
- 5.2.39.1.** A daily diary register will be kept in the supervisor’s office. The Successful Bidder will supply all detailed information every day at nine hours for the day preceding and diary will be jointly signed by the site supervisor and Successful Bidder’s representatives, every day in token of its correctness.



- 5.2.39.2.** A works instruction book, serially numbered will also be kept in the site supervisors' office and all day-to-day instructions will be given in that book. The Successful Bidder's representative shall report every day to see these instructions and sign them at the bottom in token of his having seen them.
- 5.2.39.3.** The Successful Bidder shall supply all information regarding procurement of materials and progress of construction work, as it is required by the Engineer- In-Charge for compiling the progress reports. The Successful Bidder shall provide a weekly plan for the execution of the work for coming week.
- 5.2.40 Successful Bidder to remove all offensive matter and clean-up**
- 5.2.40.1.** All soil, dirt or other matter of an offensive nature taken out of any excavation, trench, sewer, drain, cesspool or other place shall be carried away by the Successful Bidder to some pit or place provided by him away from the site or work and approved by local authorities.
- 5.2.40.2.** As a part of the work included in this Contract, the Successful Bidder shall completely remove and satisfactorily dispose of all temporary buildings, shall remove or grade, to the extent directed, all embankments or coffer dams made for construction purposes, shall satisfactorily fill excavations as directed, shall remove all plant and equipment, shall satisfactorily dispose of all rubbish resulting from the operations under this Contract and shall do all work necessary to restore the territory embraced with the site conditions to at least as good order and conditions at the beginning of the work under this Contract.
- 5.2.41 Safety Precautions**
- 5.2.41.1.** The Successful Bidder shall pay particular attention to ensure safety of his staff and workmen and others in the vicinity and shall be responsible for any loss of life or injury to persons due to negligence or any other causes whatever except natural causes. He shall provide all necessary fencing and lights required to prevent accidents and shall be bound to bear the expenses of defense of every suit, action or other proceedings at law that may be brought by any person for injury sustained owing to neglect of the above precautions and to pay any damages and costs which may with consent of the Successful Bidder be paid to compromise any claim of any such person.
- 5.2.41.2.** The Successful Bidder shall reinstate all damage of every part mentioned in this clause so as to deliver the whole of the contract work complete and perfect in every respect and so as to make good or otherwise satisfy all claims for damage to the property of third parties.
- 5.2.41.3.** The Successful Bidder shall take all precautions necessary and shall be responsible for the safety of the work and shall maintain all lights, guards, sign boards, temporary passages, or other protection necessary for the purpose. All work shall be done at the Successful Bidder's risk and free from all expenses to the Employer. The Successful Bidder shall be responsible for any loss or damage to material, tools or other articles used or held for use in connection with work. The work shall be carried on to completion without damage to any work or property of the Employer or of others and without interference with the operation of existing machinery or equipment.
- 5.2.41.4.** The use of explosive in manner, which might disturb or endanger the stability, safety, or quality of the works, will not be allowed. Explosives shall be stored, handled and used as prescribed by the law and regulation of the Indian Union, the state/U.T., in which the work is performed

and sub- divisions thereof. Special attention must be given to immediate disposal of paper wrappings from explosives, which are poisonous to livestock.

- 5.2.41.5.** All the documents regarding safety aspects should be made available to the Employer at any time during the progress of the work.
- 5.2.41.6.** All safety requirements as per the various applicable laws shall be strictly complied with. If the safety requirements are found to be not adhered to, this will be enough cause for the breach of Contract and the Contract may be terminated.
- 5.2.42 Fair Wages**
- 5.2.42.1.** The Successful Bidder shall comply with all industrial and labour rules and regulations, which are in force from time to time. The Successful Bidder has to follow strictly the Government Labour Acts that are in force at present and at all future times and all necessary arrangements for labour will have to be made by the Successful Bidder.
- 5.2.42.2.** No child labour shall be employed in the work.
- 5.2.42.3.** The Successful Bidder shall pay not less than fair wage to labour engaged by him on the work. “Fair Wage means wage whether for time or piece work notified at the time of inviting tenders for the work and where such wages have not been done so notified, the wages prescribed by the Central Public Works Department for the district/cities in which the work is done and it shall not be less than the minimum rates of wages fixed by the Government (Central or State/U.T.) for that class of employees engaged on the same type of work in the same area.
- 5.2.42.4.** The Successful Bidder shall notwithstanding the provisions of any Contract to the contrary cause to be paid a fair wage to laborers indirectly engaged on the work including any labour engaged by his Sub-connectors in connection with the said work, as if the laborers had been immediately employed by him.
- 5.2.42.5.** In respect of all laborers directly or indirectly employed in the works for the performance of the Successful Bidder’s part of this agreement, the Successful bidder shall comply with or cause to be complied with C.P.W.D. Labour Regulations made by the Government from time to time in regard to payment of wages, wage period, deductions from wages, recovery of wages not paid, any deductions from wages, any deductions unauthorized made, maintenance of wage register, wage cards, publication of scale of wages, leave, maternity benefit and other terms of employment, inspection and submission of periodical returns and all other matters of alike nature to the Employer/Engineer-In-Charge and / or to the Labour Welfare Officer or any other person Authorized by the Government.
- 5.2.42.6.** The Employer shall have the right to deduct from the money due to the Successful Bidder, any sum required or estimated to be required for making good the loss suffered by a worker or workers by reason of non-payment of wages of deductions made from his or their wages which are not justified by their terms of the Contract or non- observation of regulations.
- 5.2.42.7.** The Successful Bidder shall at his own expense provide or arrange for protective clothes and equipment like helmets, safety belts gumboots, welding goggles etc. for his laborers / employees engaged in trades which may be injurious to their health unless proper precautions are taken.
- 5.2.42.8.** If all the safety norms are not provided, it will be enough cause for breach of Contract &

Contract shall be terminated.

5.2.43 Camps and Sanitary Conveniences

- 5.2.43.1.** The responsibility for providing any accommodation, feeding and sanitary necessities for the men employed by the Successful Bidder shall be that of the Successful Bidder exclusively and such facilities shall be provided outside the premises of the Employer. The Employer may provide the Successful Bidder with space for building a temporary structure or warehouse, which shall not be used for housing any labour or supervisory force of the Successful bidder. Within 2 weeks of completion of contract, the Successful Bidder shall remove and hand over to the Employer the space made available in a clean and tidy condition.
- 5.2.43.2.** The Successful Bidder shall not put up any unauthorized hutments, canteens or teashops on the Employer's property. These, if any, shall be with the knowledge and prior approval of the Engineer-In-Charge in writing.
- 5.2.43.3.** It shall be very clearly understood that the Successful Bidder shall not put up any structure for housing his labour or his supervisory staff on the Employer's land without the specific prior consent of the Employer.
- 5.2.43.4.** The Successful Bidder shall provide adequate supply of water for the use of laborers. The provisions shall not be less than 10 liters of potable and wholesome water per head per day for drinking purpose and 100 liters of clean water per head per day for flushing and washing purposes. The Successful Bidder shall make necessary arrangements for the treatment of sewage by providing septic tanks. He shall also provide efficient arrangement for draining away sludge water so as to keep the camp neat and tidy. All charges on these accounts shall be borne by the Successful Bidder.
- 5.2.43.5.** The Successful Bidder shall make arrangement for conservancy and sanitation in the labour camps according to the rules of the local public health and medical authorities and shall generally follow the requirements of "Model Rules for the Protection of Health and Sanitary Arrangements for Workers employed by the Successful Bidder.

5.2.44 Intoxicants

- 5.2.44.1.** The Successful Bidder shall not permit use of intoxicating liquor upon the works included in this Contract, or upon any of the ground occupied or controlled by him under this Contract.

5.2.45 Identification Badges

- 5.2.45.1.** The Successful Bidder shall provide each of his employees including labour, with identification badge, at his cost. The color & design of these badges shall subject to the approval of the Employer. The employees shall display the badges on their person so that the badges are clearly visible for easy checking by gateman as they enter the premises of the Employer. The badges shall be serially numbered. The Successful Bidder's initials shall be printed with the number on the badge.
- 5.2.45.2.** The Successful Bidder should immediately notify to the Employer if any of the badges are lost and a new one issued in its place or when badges are carried away by discharged labour. No employees of the Successful bidder, without a badge will be permitted to enter the premises of work, except in such cases, where special permission of the Employer or the Engineer-In-Charge is obtained.

5.2.46 Force Majeure

5.2.46.1. Force Majeure is herein is defined as (1) any clause which is beyond the control of the Successful Bidder or the Employer, as the case may be, (2) natural phenomenon like flood, draught, earthquakes and epidemics notified by the Government, (3) act of any Government authority, domestic or foreign, like war, declared or undeclared, government priorities, quarantine, embargoes, licensing control or production or distribution restrictions, (4) accidents and disruptions like fire and explosions. (5) transport problems due to force majeure or accidents, (6) strikes, slowdowns, lockouts and sabotage by the persons other than those under control of the Successful bidder, (7) riots and civil commotion. (8) Failure or delay in the supply or delivery of materials, plant or equipment to the Successful bidder as consequence of any of force majeure causes enumerated at 1 to 7 above.

5.2.47 Work in Monsoon and Dewatering

5.2.47.1. The construction and erection work may entail working in monsoon also. The Successful Bidder must maintain labour force as may require for the job and plan execute the construction and erection according to the prescribed schedule. No extra working period or payment will be considered for such work in monsoon.

5.2.47.2. During monsoon and other period, it shall be the responsibility of the Successful Bidder to keep the construction site free from accumulation of water at his own cost.

5.2.48 Schedule of Liquidated Damages

5.2.48.1. Delay: Compensation for delay and limit of compensation for delay shall be as follow: - Compensation for delay shall be calculated at the rate of INR 3,000/- per day of delay. The limit of compensation shall be 10% (Ten Percent) of the Total Contract Amount inclusive of capital and O&M cost as given in the schedule. After reaching on 10%, it will be breach of Contract and the Contract shall be terminated.

6 CONTRACT DATA

6.1 TABLE – “CONTRACT DATA”

The following Contract Data is supplement to this document;

S. No.	Ref.	Condition/Description	Data
1	1.5	Bid/Tender Document Fee	INR 10,000 /- (Rs. Ten Thousand Only) and GST @ 18%.
2	1.6	Bid Validity Period	75 (Seventy Five) Days from the due Date of the submission of the proposal.
3	1.9	Bid Security	INR 24.84 Lakh /- (Rs. Twenty Four Lakh Eighty Four Thousand Only)
4	1.17	Language	English
5	1.18	Currency	Indian National Rupee (INR)
6	2.6	Bid Security/ Earnest Money Deposit	Rs. 24.84 Lakh Only in shape of online transfer i.e. BG/RTGS/ NEFT or in form of Demand Draft (DD) favouring Chandigarh Smart City Limited payable at Chandigarh.
7	2.7	Performance Guarantee	<p>i. WORKS CONTRACT: This Performance Bank Guarantee will be for an amount equivalent to 5% of Works Contract Value (2.5% from Bidder and 2.5% from Smart Water Meter Manufacturer), shall be submitted to Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL).</p> <p>ii. O&M CONTRACT: This Performance Bank Guarantee will be for an amount equivalent to 5% of O&M Contract Value (2.5% from Bidder and 2.5% from Smart Water Meter Manufacturer), shall be submitted to Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL).</p>

SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8	2.14	Mobilization Advance	5% of the contract amount (excluding maintenance cost if any)
9	3.1.4	Inspection at Manufacturer's Premises	<ul style="list-style-type: none"> • First (1st) Lot of AMR/AMI Smart Water Meters at the project site: not later than Sixty (60) Days from the Date of Commencement. • Second (2nd) Lot of AMR/AMI Smart Water Meters at the project site: not later than Seventy Five (75) Days from the Date of Commencement. • Third (3rd) Lot of AMR/AMI Smart Water Meters at the project site: not later than Ninety (90) Days from the Date of Commencement.
10	3.1.16	Penalty w.r.t. Non-Submission of Fortnightly Progress Report	INR 1000/- (Rs. One Thousand Only) per day of delay
11	3.1.21	Working Time	During non-supply hours, i.e. between 09:00 AM to 06:00 PM on all the 7 days of week
12	3.1.30	Deduction w.r.t. number of readings not collected	INR 100/- (Rs. One Hundred Only) per reading in each billing cycle shall be made for the number of readings not collected/taken.
13	3.1.31	Penalty w.r.t. Delay in removal of Defective Meters and Installation of Tested Meters	INR 500/- (Rs. Five Hundred Only) per meter per day of delay shall be levied and recovered.
14	3.1.32	Penalty in case the quantity of Defective Meters requiring replacements is in excess of 5% of the supplied quantity at any stage.	20% value of Security Deposited will be forfeited.

SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

15	3.1.34	Penalty w.r.t. Non-Appointment of Key Personnel	INR 600/- (Rs. Six Hundred Only) per person per day shall be levied and recovered.
16	5.2.25.1	Variation	Variation in the Quantities within +-25% of that indicated shall be paid at the same price quoted by the Successful Bidder. If the quantities exceeds by more than +-25% of that indicated in the Bill of Quantities, Thus items will be treated as an Extra Item and will be paid as per the prevailing practices & rules of CSCL/MCC.
17	5.2.37.2	Defects Liability Period	The period of Three (03) Calendar Months from the date of successful completion, commissioning or performance run of the complete Smart water meters alongwith AMR/AMI System unless otherwise agreed in writing by the Employer/Engineer-In-Charge.
18	5.2.48.1	Schedule of Liquidated Damages: Delay	<ul style="list-style-type: none"> • Compensation for Delay: INR 3000/- (Rs. Three Thousand Only) per day. • Limit of Compensation: 10% of the Total Contract Amount.
19	7.2	Payment Schedule	Refers to Detailed Schedule of Payments for Works & Services.

SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

7 PAYMENT TERMS

7.1 PROPOSED WORK

The project "SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT" is intended to be implemented in One (1) Year including Defects Liability Period followed by Seven (7) Years of Operation & Maintenance Period.

7.2 PAYMENT SCHEDULE

The Detailed Schedule of Payments for Works and Services is tabulated as follows:

PAYMENT SCHEDULE (PROPOSED): SUPPLY, INSTALLATION, COMMISSIONING ALONGWITH ALL ASSOCIATED WORKS AND OPERATION & MAINTENANCE FOR 7 YEARS FOR AMR/AMI BASED SMART WATER METERS (MULTIJET/ ELECTRO-MAGNETIC/ ULTRASONIC TYPE) FOR MANIMAJRA (PILOT PROJECT) UNDER CHANDIGARH SMART CITY PROJECT, CHANDIGARH.		
S. No.	ACTIVITY	Percentage of Item (%)
1	Mobilization, Site Office Set-Up, Confirmatory Survey, etc.	5%
2	Establishment of Central Data Base/Control Room;	100%
2.1	Supply of all items in complete respects	50%
2.2	Installation of all items in complete respects	10%
2.3	Successful Installation, Testing & Commissioning of Management Software (Data, Billing, etc.)	20%
2.4	Successful Generation of Bill (for 100% installed Smart Water Meters)	10%
2.5	After complete Setup, Installation, Testing & Commissioning	10%



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

PAYMENT SCHEDULE (PROPOSED):		
SUPPLY, INSTALLATION, COMMISSIONING ALONGWITH ALL ASSOCIATED WORKS AND OPERATION & MAINTENANCE FOR 7 YEARS FOR AMR/AMI BASED SMART WATER METERS (MULTIJET/ ELECTRO-MAGNETIC/ ULTRASONIC TYPE) FOR MANIMAJRA (PILOT PROJECT) UNDER CHANDIGARH SMART CITY PROJECT, CHANDIGARH.		
S.No.	ACTIVITY	Percentage of Item (%)
3	Establishment of Customer Care, Testing Bench/Laboratory etc.	100%
3.1	Supply & Installation of all items in complete respects	50%
3.2	Successful Testing & Commissioning	50%
4	AMR/AMI based Smart Water Meters (MULTIJET/ ELECTRO-MAGNETIC/ ULTRASONIC TYPE)	100%
4.1	Supply & Installation of Smart Water Meters (Lot-Wise) alongwith allied works complete in all respects	65%
4.2	Successful Testing & Commissioning (Lot-Wise) of Smart Water Meters including AMI System	20%
4.3	After Successful Completion of Defects Liability Period	15%
5	Establishment of Advanced Metering Infrastructure;	100%
5.1	Supply & Installation of Gateway, HHU, etc. alongwith allied works complete in all respects	50%
5.2	Successful Testing & Commissioning of AMI System including Smart Water Meters	25%
5.3	After Successful Completion of Defects Liability Period	25%

SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

<p align="center">PAYMENT SCHEDULE (PROPOSED): SUPPLY, INSTALLATION, COMMISSIONING ALONGWITH ALL ASSOCIATED WORKS AND OPERATION & MAINTENANCE FOR 7 YEARS FOR AMR/AMI BASED SMART WATER METERS (MULTIJET/ ELECTRO-MAGNETIC/ ULTRASONIC TYPE) FOR MANIMAJRA (PILOT PROJECT) UNDER CHANDIGARH SMART CITY PROJECT, CHANDIGARH.</p>		
S. No.	ACTIVITY	Percentage of Item (%)
6	Operation & Maintenance Period for 7 Years (12th Month onwards for Total 84 Months), After successful Completion, Testing & Commissioning of 100% of all the activities	100%
6.1	34% Share of the Total Project Cost (CAPEX+OPEX) will be paid as O&M Cost on "Triannual" basis (i.e. after every Four (4) Months) upto 84 Months. Therefore, Total 21 Nos. of O&M Invoices will be submitted by the Successful Bidder during the O&M Period. Thus, approximate 1.619% Amount (i.e. of Total 34%) will be released w.r.t. each O&M Invoice claimed by Successful Bidder.	34%



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

BID DATA SHEETS (BDS)

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8 BID DATA SHEETS (BDS)			
8.1	CHECKLIST		
	NO.	DESCRIPTION	<u>ATTACHED</u> (YES/NO)
	8.1	CHECKLIST	
	8.2	LETTER OF PROPOSAL	
	8.3	POWER OF ATTORNEY (POA)	
	8.4	TRIPARTITE AGREEMENT (TPA)	
	8.5	DETAILS/COPY OF EARNEST MONEY DEPOSIT (EMD)	
	8.6	GENERAL INFORMATION	
	8.7	FINANCIAL TURNOVER	
	8.8	FINANCIAL CAPABILITIES	
	8.9	EXPERIENCE RECORD – DETAILS OF OVERALL WORKS	
	8.10	EXPERIENCE RECORD – DETAILS OF SIMILAR NATURE OF WORKS	
	8.11	EXPERIENCE RECORD – DETAILS OF ONGOING COMMITMENTS/WORKS	
	8.12	PERSONNEL CAPABILITIES	
	8.13	EQUIPMENT CAPABILITIES	
	8.14	LITIGATION HISTORY	
	8.15	DETAILS/COPY OF PAN	
	8.16	DETAILS/COPY OF LATEST INCOME TAX RETURNS	
	8.17	DETAILS/COPY OF GST RETURNS	
	8.18	DETAILS/COPY OF LATEST VAT/CST RETURNS	
	8.19	AFFIDAVIT/UNDERTAKINGS	
	8.20	ANTI-COLLUSION CERTIFICATE	
	8.21	ORGANIZATIONAL STRUCTURE	
	8.22	APPROACH AND METHODOLOGY	
	8.23	IMPLEMENTATION SCHEDULE	
	8.24	FORMAT OF PERFORMANCE BANK GUARANTEE	
	8.25	FORM OF AGREEMENT (FOA)	
	8.26	FORMAT OF MEMORANDUM OF UNDERSTANDING (MoU)	
	8.27	FORMAT OF UNDERSTAKING (TO BE ISSUED BY ORIGINAL MANUFACTURER)	
	8.28	UNDERTAKING - ESTABLISHMENT OF SERVICE CENTER & TEST BENCH	

Note:

1. Qualification documents/forms listed above, complete in all respects (strictly as per BDS/Sample Forms), should be submitted. Also, it shall be signed by a duly authorized person of the firm.
2. Necessary, additional documents/sheets can be added to these forms, e.g. Brochure of firm, Audit Sheets of Turnover, Financial Data, Technical Data, Completion Certificate of Works issued by Employer, Copy of Registration/Incorporation Certificate, Copy of PAN, Copy of GST, Copy of latest returns of IT/VAT/CST, etc.
3. The language for submission shall be English.
4. The information furnished must be sufficient for the satisfaction of the employer to show that the bidder is capable in all respects to successfully complete the envisaged work.
5. Incomplete documents/forms shall be summarily rejected.



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.2 LETTER OF PROPOSAL

To

Chief Executive Officer (CEO)
Chandigarh Smart City Limited (CSCL)
Building No. 1, 2nd & 3rd Floor,
Adjoining SCO 17-18-19, Over New
Bridge, Sector 17-A, Chandigarh –
160017 (INDIA)

1. Being duly authorized to represent and act on behalf ofname of bidder..... (hereinafter referred to as the "Applicant"), and having reviewed and fully understood all the bidding information provided, the undersigned hereby apply to be qualified by yourselves as a Successful bidder for the following work;

SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT

2. You and your authorized representatives are hereby authorized to conduct any inquiries or investigations to verify the documents, information, and statements submitted w.r.t. this proposal, and to seek clarification from undersigned, our banker and respective clients regarding any general, technical and financial aspects. This letter will also serve as authorization to any individual or authorized representative of any institution referred herein for supporting information and to provide such information deemed necessary and as requested by yourselves to verify the documents, information, and statements provided/submitted in this proposal, i.e. competence of the bidder, experience, resources, etc.

3. You and your authorized representatives may contact the following person for any sort of further information on general, technical and financial matters;

Table with 6 columns: Name, Address 1, Telephone 1, Email 1, Address 2, Telephone 2, Email 2

4. This proposal is made with the full understanding that;
i. Proposal by Bidder will be subject to verification of all information submitted for bidding at any time of bidding.
ii. Your office reserves the right to;
a. amend the scope and value of contract under this work,
b. reject or accept any proposal, cancel the bidding process, and reject all bids.
c. your office shall not be liable for any such actions and shall be under no obligation to inform the bidder of the grounds for them.

5. The undersigned declare that the statements made and the information provided in the duly completed proposal is complete, correct and true in every detail.



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

Signed		Signed	
Name		Name	
For and on behalf ofname of bidder.....		For and on behalf ofname of Manufacturer.....	
Signed		Signed	
Name		Name	
For and on behalf ofname of bidder.....		For and on behalf ofname of Manufacturer.....	

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.3	POWER OF ATTORNEY (POA)
<p>Attested Power of Attorney (latest) w.r.t. said work “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT” to be provided/submitted by the bidder.</p> <p><i>Note: Bidders as well as Manufacturer should individually provide the above.</i></p>	

Portal Copy

**8.4 TRIPARTITE AGREEMENT (TPA)****INR 500/- NON-JUDICIAL STAMP PAPER****PARTY I**

This undertaking is issued byname of bidder..... a company incorporated in India and having its registered office at registered office address of bidder...hereinafter referred as "**BIDDER**" which expression shall, unless repugnant to the context or meaning thereof, be deemed to mean and include all its representatives, its successors and permitted assigns in favor of the CSCL.

PARTY II

This undertaking is issued byname of the original equipment manufacturer... .. a company incorporated in India and having its registered office at registered office address of manufacturer..... hereinafter referred as "**MANUFACTURER**", which expression shall, unless repugnant to the context or meaning thereof, be deemed to mean and include all its representatives, its successors and permitted assigns in favor of the CSCL.

PARTY III

This undertaking is issued to "Chief Executive Officer, Chandigarh Smart City Limited". Hereinafter referred asname of employer....., which expression shall, unless repugnant to the context or meaning thereof, be deemed to mean and include all its representatives, its successors and permitted assigns in favor of the CSCL.

WHEREAS The Chief Executive Officer, Chandigarh Smart City Limited (CSCL) has invited tender for "SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT" (hereinafter referred as Work).

WHEREAS the "**BIDDER**" has requisite expertise in SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF AMR/AMI SMART WATER METERS OF LoRaWAN (FIXED SYSTEM) INCLUDING OPERATION & MAINTENANCE & related Infrastructural Works and has the requisite pre-qualification for the aforesaid Work.

WHEREAS the "**MANUFACTURER**" has requisite expertise in DESIGN, MANUFACTURE, IMPORT/EXPORT, SALE & SUPPLY of AMR/AMI SMART WATER METERS & TEST SETUP and has requisite expertise in the field of consumer water metering and has the requisite pre- qualification for the supply of the said Smart water meters for the aforesaid Work.

WHEREAS as per tender for the work the CSCL has stipulated particular conditions to enter into a specific and binding UNDERTAKING by approved Bidder & Smart Water Meter Manufactures to Design, Manufacture, Supply and Provide all necessary Technical Backup, Spares & Services of the requisite Test Setups as per the technical specifications elaborated in the tender & Operation and Maintenance during entire project period.

"Below mentioned Roles & Responsibilities are just guidelines, Party I & Party II should mention clearly the Roles & Responsibilities of Bidder and Meter Manufacturing Company as per there understanding"



IN VIEW OF THE ABOVE AND IN THE EVENT OF THE WORK BEING AWARDED TOname of bidder..... BY CSCL, WE HEREBY AGREE TO UNDERTAKE AS UNDER:

PARTY I / "BIDDER"

1. Procurement & Supply of AMR/AMI Smart Water Meters as per tender specifications.
2. Procurement & Supply of Gateways, Smart Water Meter reading devices/HHU, and Reading/Management Software as per tender specifications.
3. Installation of AMR/AMI Smart Water Meters under "Manufacturer" guidance and as per tender specifications.
4. Providing meter box/accessories/fittings/couplings for meter fixing as approved by "Manufacturer".
5. Installation of AMR/AMI Smart Water Meters as per tender specification.
6. Consumption Data Collection/Transmission by **LoRaWAN ENABLED/FIXED SYSTEM**.
7. Generations & Submission of bills to CSCL.
8. Attend all consumers' complaints related to Smart Water Meters along with "Manufacturer".
9. Repair & Maintenance or Replacement of AMR/AMI Smart Water Meters as per tender specifications for during entire project period.
10. Uninstallation & Reinstallation of meters as and when required.
11. Confirmatory Consumer Survey for the project area.
12. Consumer Awareness Program.
13. Operation & Maintenance for a period of 7 (Seven) Years.

PARTY II / "MANUFACTURER"

1. We have studied the tender document and the requirements therein in detail and hereby confirm to adhere to relevant terms and conditions.
2. To Design & Supply Smart Water Meters, and Test Setups as per the Implementation Schedule finalized by Bidder and also to provide all the necessary Technical Backup, Spares & Services during the entire period of the Contract. (Smart Water Meters, Meter Reading/Management Software/Hardware).
3. The Smart Water Meter Manufacturer will provide signed Warranty Contract for Hardware for a period of 7 years from the date of successful installation of meters.
4. The Smart Water Meter Manufacturer will provide Training & Support to civil associate to attend customer grievances/complaints redressal related to meter performance during the entire contract period.
5. The Smart Water Meter Manufacturer shall be responsible for repair the meters and the AMR/AMI **LoRaWAN ENABLED/FIXED SYSTEM** during the guarantee period as mentioned in technical specifications. The maintenance shall include costs of all material required for repairs or replacement of meter. During the guarantee period if any meter becomes defective or not found as per specification, the same shall be repaired/replaced free of cost by the "Manufacturer"
6. The Smart Water Meter Manufacturer shall keep a sufficient buffer stock of new meters for the purpose of replacement of out of order/damaged meters.
7. The Smart Water Meter Manufacturer shall be solely responsible for replacement of defective/faulty AMR/AMI Smart Water Meters against supply of meters for assigned work contract.
8. The Smart Water Meter Manufacturer shall appoint a full-fledged team of skilled technicians, tools & vehicle to attend and resolve the customer complaints of urgent nature viz. leakage from the



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

- body of meter, fittings, blockage of strainer of the meter, within 24 hours irrespective of any holiday.
- 9. The Smart Water Meter Manufacturer will provide total support and training to Civil Contractor staff regarding AMR/AMI Smart Water Meters, its reading, data collection/transmission etc. by Gateway, reading device with reading/management software & how to transfer reading data in CSV format for monthly billing purpose, etc.
- 10. All the relevant terms and conditions of the tender document of the work shall be applicable mutatis mutandis (as it is basis) with respect to Design, Manufacture, Supply & Providing Technical Backup, Spares & Services during the entire period of the Contract.
- 11. In case of failure to adhere to delivery schedules/non-compliance of tender specifications pertaining to our part, the CSCL can hold us equally responsible for such acts & deeds and shall reserve the right to initiate actions deemed fit in the interest of the work.
- 12. All decisions thus taken by the CSCL in this regard shall be final and binding on "Bidder" and "Manufacturer".

This Undertaking shall not be revoked till the Work is successfully completed as per the tender conditions.

IN WITNESS WHEREOF, we issue this Undertaking on the day of Month of Year.

We hereby confirm the above and agree to abide by the same.

Name	name of the person, who is authorized to act as the Representative on behalf of the bidder.	Signed	
Position		Date	
For and on behalf of name of the bidder.....			
Name	name of the person, who is authorized to act as the Representative on behalf of the Manufacturer	Signed	
Position		Date	
For and on behalf of name of the original equipment manufacturer			
Name	name of the person, who is authorized to act as the Representative on behalf of the Employer	Signed	
Position		Date	
For and on behalf ofname of Employer.....			



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.5	DETAILS/COPY OF EARNEST MONEY DEPOSIT (EMD)
Details/Copy of Earnest Money Deposit (EMD) w.r.t. said work “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT” to be provided/submitted by the bidder.	

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.6 GENERAL INFORMATION	
<u>Bidder's Information</u>	
1.	Bidder's Legal Name
2.	Bidder's Legal Address
3.	Bidder's Country of Constitution
4.	Bidder's Year of Constitution
5.	Bidder's Authorized Representative
	Name
	Address
	Contact No.
	Email
<u>Manufacturer's Information</u>	
1.	Bidder's Legal Name
2.	Bidder's Legal Address
3.	Bidder's Country of Constitution
4.	Bidder's Year of Constitution
5.	Bidder's Authorized Representative
	Name
	Address
	Contact No.
	Email
Note:	
1. Necessary, additional documents/sheets should be attached alongwith, e.g. Brochure of firm, Copy of Registration/Incorporation Certificate, etc.	



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.7		FINANCIAL TURNOVER	
<u>Average Annual Turnover</u>			
For Bidder;			
S.No.	Financial Year	Turnover (INR)	
1.	2016-17		
2.	2017-18		
3.	2018-19		
	Total, INR		
	Average Annual Turnover, INR		
For Manufacturer;			
S.No.	Financial Year	Turnover (INR)	
1.	2016-17		
2.	2017-18		
3.	2018-19		
	Total, INR		
	Average Annual Turnover, INR		
Note:			
1. Necessary, additional documents/sheets should be attached alongwith, e.g. Audited Financial Statements for the last Five (5) Financial Years 2014-15, 2015-16 ,2016-17, 2017-18 & 2018-19, and must demonstrate the soundness of the Bidder's and Manufacturer's Financial Position etc.			
2. Complete Financial Details shall be certified by Chartered Accountant/Statutory Auditor. Information provided/submitted without certification as stated will not be considered for evaluation.			
3. Bidder as well as Manufacturer should individually provide the same.			



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

DRAFT PERFORMA FOR SOURCE OF FINANCE

(ON THE LETTER HEAD OF BANK)

To

Chief Executive Officer (CEO)
Chandigarh Smart City Limited (CSCL)
Building No. 1, 2nd & 3rd Floor,
Adjoining SCO 17-18-19, Over New
Bridge, Sector 17-A, Chandigarh –
160017 (INDIA)

Dear Sir

This is to certify that name of the bidder is a reputed company/firm with good financial standing. If the Contract for the work “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT” is awarded to above firm, we shall be able to provide overdraft/credit facilities of INR only.

Yours Faithfully

Date: _____

(Signature of Issuing Authority)

Name of Issuing Authority: _____

Designation of Issuing Authority: _____



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.10	EXPERIENCE RECORD: DETAILS OF SIMILAR NATURE OF WORKS			
<u>Details of Contract(S) of Similar Works</u>				
Name of Bidder				
Name of Contract				
Name of Employer				
Address of Employer				
Nature of Work/ Scope of Work				
Role in Contract	Solo/Single entity	Tick, if	Partner in Joint-Venture	Tick, if
Value of Contract	In figures	INR/-		
	In words	INR Only.		
Date of Award				
Date of Commencement				
Date of Completion				
Contract Duration Months			
Note:				
2. Details of Experience mentioned in above Form, without Certificate from Respective Employer (i.e. officer not below the rank of Executive Engineer) shall not be considered.				
3. Use separate Forms, to fill the details of contract(s) of similar works for each Contract/Work.				
4. The Experience of Contract/Work, completed and commissioned (in India or Abroad) in the last Seven (7) Years ending last Day of the Month previous to the one in which bids are invited shall be considered.				
5. Incomplete Form shall be summarily rejected.				



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.12 PERSONNEL CAPABILITIES					
<u>List of Key Personnel</u>					
S.No.	Position	Minimum No. Required	Qualification (Minimum)	Experience in Similar Works (Years)	To be Filled by Bidder
1.	Field/Site Engineer	1	Diploma in Engineering	3	
2.	Customer Relation Officer	1	Graduate	2	
3.	Computer Operator	2	10+2 with minimum 6 months Diploma/ Course in Computer Applications	2	
4.	Lab Technician	1	Diploma in Engineering	2	
5.	Lab Assistant	1	Matriculation with ITI or Certificate Course	2	
6.	Plumber	1	-	2	
7.	Plumber Helper	1	-	2	

Note:

1. Bidder should provide the suitable qualified personnel, who are capable in all respects to successfully complete the envisaged work as per the Terms of Reference.
2. Moreover, if required than Employer may ask to Bidder to depute/mobilize the additional staff as per the requirement (if any).
3. The information furnished above must be sufficient for the satisfaction of the employer to show that the personnel listed above are capable in all respects to successfully complete the envisaged work.
4. The above format will not be used for evaluation purposes.



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.13 EQUIPMENT CAPABILITIES					
<u>List of Equipment</u>					
S.No.	Equipment Type & Characteristics	Minimum No. of Sets to be Supplied	Availability		Remarks, if any
			Own	Lease	
1.					
2.					
3.					
4.					
5.					
6.					

Note:

1. Bidder should provide the minimum suitable equipment, the number and capacity of the equipment to be engaged in the said work is to be compatible with nature and magnitude of work in all respects to successfully complete the envisaged work as per the Terms of Reference.
2. All the equipment specified above are to be in good working condition.
3. Moreover, if required than Employer may ask to Bidder to engage the additional equipment as per the requirement (if any).
4. The information furnished above must be sufficient for the satisfaction of the employer to show that the equipment listed above are compatible with nature and magnitude of work in all respects to successfully complete the envisaged work.
5. The above format will not be used for evaluation purposes.



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.15 | **DETAILS/COPY OF PAN**

Details/Copy of Permanent Account Number (PAN) to be provided/submitted by the bidder.

Note: Bidders as well as Manufacturer should individually provide the above.

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.16 DETAILS/COPY OF LATEST INCOME TAX RETURNS

Details/Copy of Latest Income Tax Returns for last Three (3) Financial Years 2016-17, 2017-18 & 2018-19 to be provided/submitted by the bidder.

Note: Bidders as well as Manufacturer should individually provide the above.

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.17 | **DETAILS/COPY OF GST RETURNS**

Details/Copy of Latest Goods & Services Tax Returns to be provided/submitted by the bidder.

Note: Bidders as well as Manufacturer should individually provide the above.

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.18	DETAILS/COPY OF VAT/CST
<p>Details/Copy of Latest Value Added (VAT) and Central Service Tax Returns to be provided/submitted by the bidder.</p> <p><i>Note: Bidders as well as Manufacturer should individually provide the above.</i></p>	

Portal Copy

**8.19 AFFIDAVIT/UNDERTAKING****INR 100/- NON JUDICIAL STAMP PAPER****TO WHOMSOEVER IT MAY CONCERN**

1. That “agrees to all the Terms & Conditions of bidding document”.
2. That information being submitted is correct and true, and that any false information shall lead to disqualification at any stage.
3. That “agrees if any further qualifying information may be requested, and agrees to furnish any such information at the request of the Chandigarh Smart City Limited (CSCL)”.
4. That “binds himself with all the stipulations of the Bidding Document including period of completion, provision of adequate equipment, personnel and other resources required for completion within the stipulated completion period and agrees to augment them, if found necessary for timely completion of the Project/Work, as desired by the Chandigarh Smart City Limited (CSCL)/Employer”.
5. That “shall not sub-contract/sub-let or assign or transfer or cause to be assigned or transferred, whether actually or as the result of takeover, merger or other change of identity or character of the firm, any of its rights or obligations under the contract or any part, share or interest therein”.
6. That “not having any ongoing legal dispute with Municipal Corporation Chandigarh/CSCL”.
7. That I/We do hereby undertake that I/We have not been black listed / Debarred / suspended by any Govt. or Semi Govt. or Corporation or Private Organization during the last seven years.
8. That I/We do hereby undertake and confirm that eligible similar works has / have not been executed though another contractor on back to back basis.
9. That I/We do hereby undertake that no complaint / FIR has been registered / no criminal proceedings against the firm / partners of the firm or its director are pending / ongoing in any court of law regarding any offence punishable under IPC / any other law of the land applicable. If any such fact comes to the notice of the CSCL, the CSCL shall reject the tender / bid straightway without assigning any reason.
10. That I/We do hereby undertake that he / she / Director / Partner of the firm / company / agency have never been convicted of any criminal offence.
11. That I/ We do hereby undertake that the particulars given by me are true and correct to the best of my knowledge and belief and nothing has been concealed thereof. I am aware that in case of any discrepancy/ false statement found, it will lead to rejection of my bid / tender and CSCL will debar / blacklist the firm / agency as per policy of blacklisting issued by Chandigarh Administration vide notification dated 27.02.2009.
12. That I/We do hereby undertake that there are no pending dues to be deposited by the agency with any Government Department / Govt. Undertaking or Board or Organization / Public Sector Undertaking anywhere in the country.
13. That I/We do hereby undertake that in case any such violation comes to the notice of Department before the date of start of work or during the execution of work, CSCL shall be free to forfeit the entire amount of earnest money and / or performance guarantee deposited by me.

Signed	person, who is authorized to act as the Representative on behalf of the bidder	Signed	person, who is authorized to act as the Representative on behalf of the manufacturer
Name	person, who is authorized to act as the Representative on behalf of the bidder	Name	person, who is authorized to act as the Representative on behalf of the manufacturer
Date		Date	
Contact Details		Contact Details	
Address		Address	
For and on behalf of name of bidder.....			
For and on behalf of name of manufacturer.....			



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.20 ANTI-COLLUSION CERTIFICATE

TO WHOMSOEVER IT MAY CONCERN

- 1. That we hereby certify and confirm that in the preparation and submission of our Proposal, we have not acted in concert or in collusion with any other Bidder or other person(s) and also not done any act, deed or thing which is or could be regarded as anti-competitive.
2. We further confirm that we have neither offered nor will offer any illegal gratification in cash or kind to any person or agency in connection with instant proposal.

Table with 4 columns: Signed, Name, Date, Contact Details, Address for both bidder and manufacturer. Includes signature lines for 'name of bidder' and 'name of manufacturer'.

Portal



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.21 ORGANIZATIONAL STRUCTURE

Details of Organizational Structure to be provided/submitted by the bidder.

Note: Bidders as well as Manufacturer should individually provide the above.

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.22	APPROACH AND METHODOLOGY
<p>Detailed Approach and Methodology to successfully complete the said work “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT” within stipulated time, to be provided/submitted by the bidder.</p>	

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.23 IMPLEMENTATION SCHEDULE

Detailed task-wise w.r.t. time-line, Implementation Schedule to successfully complete the said work “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT” within stipulated time, to be provided/submitted by the bidder.

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.24 FORMAT OF PERFORMANCE BANK GUARANTEE

INR 100/- NON JUDICIAL STAMP PAPER

To
Chief Executive Officer (CEO)
Chandigarh Smart City Limited (CSCL)
Building No. 1, 2nd & 3rd Floor,
Adjoining SCO 17-18-19, Over New
Bridge, Sector 17-A, Chandigarh –
160017 (INDIA)

WHEREASname of bidder..... (Hereinafter called the “the Successful Bidder/Contractor”)
has undertaken a pursuance of Contract No.....dated
..... to execute the work “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF
LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND
OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT)
UNDER CHANDIGARH SMART CITY PROJECT” (hereinafter called “the contract”)

AND WHEREAS it has been stipulated by you in the said Contract that the Successful Bidder/Contractor
shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security
for compliance with the obligation in accordance with the Contract.

AND WHEREAS we have agreed to give the Successful Bidder/Contractor such a Bank Guarantee.

NOW THEREFORE we hereby affirm that we are the Guarantor and responsible to you on behalf of the
Successful Bidder/Contractor, up to a total of INRamount of guarantee.....only such
sum being payable in the types and proportions of currencies in which the Contract Price is payable. And
we undertake to pay you, upon your first written demand and without cavil or argument any sum or sums
within the limits of INRamount of guarantee..... only 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 Successful Bidder/Contractor
before presenting us with the demand.

We further agree that no change or addition to or other modification of the Terms & Conditions of the
Contract or to the Works to be performed there under or of any of the Contract Document(s) 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.

The Guarantee shall be encashable at Chandigarh.

Signature and Seal of the Guarantor _____

Name of the Bank _____

Address of the Bank _____

Dated _____



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.25 FORM OF AGREEMENT (FOA)

INR 500/- NON JUDICIAL STAMP PAPER

This agreement made Date.... day of Month.... 20.... between **Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL), Building No. 1, 2nd & 3rd Floor, Adjoining SCO 17-18-19, Over New Bridge, Sector 17-A, Chandigarh – 160017 (INDIA)** (hereinafter called “the Employer”)

andname and address of contractor..... (Hereinafter called “the Successful Bidder/Contractor”) or the other part.

Whereas, the Employer is desirous that the Successful Bidder/Contractor execute “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT” (hereinafter called “the works”) and the Employer has accepted the bid by the Successful Bidder/Contractor for the execution and completion of such works and the remedying of any defects therein, at a cost of INRvalue of contract.only.

NOW THIS AGREEMENT WITNESSETH as follows:

- 1. In this agreement, works 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 constructed as part of this Agreement).
2. In consideration of the payments to be made by the Employer to the Successful Bidder/Contractor as hereinafter mentioned, the Successful Bidder/Contractor hereby covenants with the Employer to execute and complete the works and remedy and defects therein in conformity in all aspects with the provisions of the Contract.
3. The Employer hereby covenants to pay the Successful Bidder/Contractor in consideration of the execution and completion of the works and the remedying the defects wherein Contract price or such other sum as may become payable under the provisos of the Contract at the times and in the manner prescribed by the Contract.
4. The following documents shall be deemed to form and be ready and construed as part of this Agreement Viz.
i. Letter of Intent (LOI)
ii. Request for Proposal (RFP)
iii. Contractor’s Bid and
iv. Any other documents listed in the Clause 2.3 as forming part of the Contract:

In witnessed whereof the parties there to have caused this Agreement to be executed the day and year first before written.

Table with 2 columns: For the Employer and For the Successful Bidder/Contractor. Each column has a row for 'Signed' and a row for '(Authorized Signatory)' with a line for a signature.



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

Name	_____	Name	_____
Designation	_____	Designation	_____
For and on behalf ofname and address of the Employer.....		For and on behalf of name and address of Successful Bidder	
Witness 1	_____	Witness 1	_____
Name	_____	Name	_____
Address	_____	Address	_____
	_____		_____
Witness 2	_____	Witness 2	_____
Name	_____	Name	_____
Address	_____	Address	_____
	_____		_____
Seal of the Employer.....	Seal of the Successful Bidder.....

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.26 FORMAT OF MEMORANDUM OF UNDERSTANDING (MoU)

INR 500/- NON JUDICIAL STAMP PAPER

This agreement made Date.... day of Month.... 20....

Between

M/sname of the original equipment manufacturer..... a company incorporated in India and having its registered office at registered office address of manufacturer..... hereinafter referred as "MANUFACTURER",

On the One Hand

And

M/sname of bidder..... a company incorporated in India and having its registered office at registered office address of bidder..... hereinafter referred as "BIDDER".

Reference:

For the Tender invited by Chandigarh Smart City Limited (CSCL) for "SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT".

It is hereby agreed as follows: -

That the above Two parties have entered into Memorandum of Understanding for "SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT" & related Infrastructural Works along with its software system and technical supports only for the above mentioned tender of Chief Executive Officer (CEO), Chandigarh Smart City Limited (CSCL), Building No. 1, 2nd & 3rd Floor, Adjoining SCO 17-18-19, Over New Bridge, Sector 17-A, Chandigarh – 160017 (INDIA), INDIA (hereinafter called "the Employer") to work together wherein "BIDDER" will be the Tenderer to the Employer and 'MANUFACTURER' will be a sub-supplier to the "BIDDER" for the Supply, Installation, Testing, Commissioning of AMR/AMI Smart Water Meters & Test Setup as per "EMPLOYER"s reference specifications. 'MANUFACTURER' undertakes to extend all requisite technical pre and after sales support and all necessary spares as may be required for the entire duration of the Contract, as dictated by the terms and conditions specified in the reference tender.

"clear identification of all the Roles & Responsibilities of Bidder and Meter Manufacturing Company should be mentioned in this part/document"

We hereby confirm the above and agree to abide by the same.

For the Bidder		For the Manufacturer	
Signed	_____	Signed	_____
	(Authorized Signatory)		(Authorized Signatory)



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

Name	_____	Name	_____
Designation	_____	Designation	_____
For and on behalf ofname and address of the bidder.....		For and on behalf of name and address of manufacturer	
Witness 1	_____	Witness 1	_____
Name	_____	Name	_____
Address	_____	Address	_____
	_____		_____
Witness 2	_____	Witness 2	_____
Name	_____	Name	_____
Address	_____	Address	_____
	_____		_____
Sealof the bidder.....	Sealof the manufacturer.....

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.27 AFFIDAVIT OF UNDERSTAKING (TO BE ISSUED BY ORIGINAL MANUFACTURER)

To
Chief Executive Officer (CEO)
Chandigarh Smart City Limited (CSCL)
Building No. 1, 2nd & 3rd Floor,
Adjoining SCO 17-18-19, Over New
Bridge, Sector 17-A, Chandigarh –
160017 (INDIA)

SUBJECT: LETTER OF AUTHORIZATION-CUM-UNDERTAKING

REFERENCE: Tender for “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT”.

Dear Sir

We, M/sname of the original equipment manufacturer..... having its registered office at registered office address of manufacturer..... hereinafter referred as "MANUFACTURER" hereby authorizename of the authorized dealer..... having their registered office at registered office address of authorized dealer....., to offer our Test Setup and its equipments & software system and as per the requirements of the tender specifications.

We hereby agree that against tender for “SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT”, our products have been offered to the CSCL,name of bidder..... and we undertake to extend them all required technical & service support/backup for the successful Supply, Installation, Testing, Commissioning of AMR/AMI Smart Water Meters & Test Bench Setup along with its maintenance and its guarantee, etc. for the complete contractual project, as per the tender specifications & as per our detailed technical offer enclosed in the tender.

Further that if M/sname of the original equipment manufacturer..... withdraws his undertaking or any violation comes to the notice of CSCL, then M/sname of the original equipment manufacturer..... shall deposit the non-refundable amount equivalent to EMD submitted by the Bidder as damages to CSCL. CSCL also reserves the right to debar/ black-list the Manufacturer.

Table with 4 columns: Signed, Name, Address, and Date/Contact Details. Includes a row for 'For and on behalf of' with a signature line.



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

8.28 UNDERTAKING - ESTABLISHMENT OF SERVICE CENTER & TEST BENCH

INR 100/- Non JUDICIAL STAMP PAPER

TO WHOMSOEVER IT MAY CONCERN

1. I/We, M/sname of bidder..... having its registered office atregistered office address of bidder..... hereinafter referred as "BIDDER" hereby declare that our company has a Sales/Service Center in Chandigarh located at specify address....., and adequate to fulfill all the requirements as per the tender specifications.

or (whatever it may be the case)

I/We, M/sname of bidder..... having its registered office atregistered office address of bidderhereinafter referred as "BIDDER" hereby undertake that our company shall establish and put in operation a Sales/Service Center in Chandigarh and that this facility shall be adequate to fulfill all the requirements as per the tender specifications, within a period of Two (2) Months of awarding of the contract or issue of work order.

2. I/We, M/sname of manufacturer..... having its registered office at..... registered office address of manufacturer..... hereinafter referred as "MANUFACTURER" hereby undertake that shall establish Testing Bench/Laboratory, Smart Water Meter Calibration Service Center (as specified in this RFP) within Six (6) Months from the Date of Commencement of Work.

Table with 4 columns: For the Bidder (Signed, Name, Designation, Witness 1, Witness 2, Seal) and For the Manufacturer (Signed, Name, Designation, Witness 1, Witness 2, Seal). Includes fields for authorized signatory, name, designation, address, and seal.



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

PRICE BID

Portal Copy



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPERATION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

9 FINANCIAL PROPOSAL

9.1 UN-PRICED BILL OF QUANTITIES

The project to "SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPERATION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT" is intended to be implemented in One (1) Year including Defects Liability Period followed by 7 (Seven) Years of Operation & Maintenance Period. **Following Section 9.1 & 9.2 are part of the Price Bid, thus shall be filled/submitted online on <http://etenders.chd.nic.in> by the Bidder(s).**

9.1 UN-PRICED BILL OF QUANTITIES					
SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPERATION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT					
S.No.	Item Description	Quantity	Unit	Unit Rate (INR)	Amount (INR)
A	AMR/AMI BASED SMART WATER METERS (MULTIJET/ ELECTRO-MAGNETIC/ ULTRASONIC TYPE) :				
1	Supply of AMR/AMI based Smart Water Meters (MULTIJET/ ELECTRO-MAGNETIC/ULTRASONIC TYPE) alongwith Performance and Test Certificates from International or National Authorized/ Notified Agency: -				
	(i) Conforming to Latest Updation of ISO 4064, OIML R49, MID Certified				
	(ii) Meter of Class - C Type or equivalent				
	(iii) Protection Class - IP 68				
	(iv) Equipped with in-built RF unit/LoRaWAN				
	alongwith Installation in complete respect i.e. fixing of New Meter Box, Cutting of existing Connection, Fixing of New Meter with allied Pipe Fittings alongwith all the necessary arrangements including Testing and Commissioning, etc.				
	For the following sizes;				
1.1	15 mm Connection	13,500.00	Nos.		
1.2	25 mm Connection	200.00	Nos.		
TOTAL (A) , INR					

SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

9.1	UN-PRICED BILL OF QUANTITIES				
SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT					
S.No.	Item Description	Quantity	Unit	Unit Rate (INR)	Amount (INR)
B	AMR/AMI READY INFRASTRUCTURE				
2	Supply, Installation, Testing and Commissioning of Infrastructure required to Collect the Data from Consumer End to Central Data Base/Control Room required for AMR/AMI System.				
2.1	Gateway (1 Gateway for 0.70 Sq.Km area)	6.00	Nos.		
3	Supply, Installation, Testing and Commissioning of Infrastructure required to Collect the Data from Consumer End by Manual Means, in emergency case.				
3.1	Hand Held Unit	2.00	Nos.		
TOTAL (B) , INR					
C	CENTRAL DATA BASE/CONTROL ROOM				
4	Supply, Installation, Testing and Commissioning of Data Management Software/Server alongwith minimum required Hardware and Software items in complete respect as per specifications mentioned.				
4.1	Server System (including Windows, minimum required Software Packages, LCD/LED Monitor, UPS etc.) (For Water works - III)	1.00	Nos.		
4.2	Desktop (including Windows, minimum required Software Packages, LCD/LED Monitor, UPS etc.)	5.00	Nos.		
4.3	Bill Plotter/Printer (as per specification mentioned)	1.00	Nos.		
4.4	Copier/Printer/Scanner - All in One (as per specifications mentioned)	2.00	Nos.		
4.5	Billing Software (as per specifications mentioned)	1.00	LS		
4.6	Office setup alongwith Electrical Appliances	40.00	Sqm		
TOTAL (C) , INR					



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

9.1 UN-PRICED BILL OF QUANTITIES					
SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT					
S.No.	Item Description	Quantity	Unit	Unit Rate (INR)	Amount (INR)
D TESTING BENCH					
5	Supply, Installation, Testing & Commissioning of Testing Bench/Lab. alongwith minimum required equipments in complete respect as per specifications mentioned.				
5.1	Testing Bench/Lab (for 15 mm and 25 mm)	1.00	LS		
TOTAL (D) , INR					
GRAND TOTAL (A + B + C + D) , INR					
E OPERATION & MAINTENANCE					
6.1	Operation & Maintenance; Repairs or Replacement of installed Smart Water Meters, Gateways alongwith regular Maintenance complete in all respects, etc. for the Period of 7 Years including Installation and Defects Liability Period. (<i>Note:- Unit Rate (INR) filled should be w.r.t. per Meter per Month for 84 Months</i>).	13,700.00	Nos.		
6.2	Generation of Bill including Collection of Readings, Printing, Distribution (by email as well as through SMS alert), etc. (<i>Note:- Unit Rate (INR) filled should be w.r.t. per Meter per Month for 84 Months</i>).	13,700.00	Nos.		
6.3	ManPower during O&M Period for 7 Years	84.00	Months		
TOTAL (E) , INR					
COMPLETE COST (CAPEX + OPEX), INR					



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

9.2 PRICE BID SUMMARY SHEET

The project to "SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPERATION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT" is intended to be implemented in One (1) Year including Defects Liability Period followed by 7 (Seven) Years of Operation & Maintenance Period.

9.2 PRICE BID SUMMARY SHEET			
SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT			
Name, Address, and Details of the Bidder			
S.No.	Description	Amount, INR	
		(in figures)	(in words)
1.	(Reference 9.1: S.No. A:1,1.1,1.2) AMR/AMI BASED SMART WATER METERS(MULTIJET/ ELECTRO-MAGNETIC/ ULTRASONIC TYPE)		
2.	(Reference 9.1: S.No. B:2,2.1, 3,3.1) AMR/AMI READY INFRASTRUCTURE		
3.	(Reference 9.1: S.No.C:4,4.1,4.2,4.3, 4.4,4.5,4.6) CENTRAL DATA BASE/CONTROL ROOM		
4.	(Reference 9.1: S.No. D:5,5.1) TESTING BENCH		
TOTAL COST (1 +2 +3 +4) , INR			
5.	(Reference 9.1: S.No. E:6.1,6.2,6.3) OPERATION & MAINTENANCE		
TOTAL COST (5) , INR			
Note:			
1. I accept all Terms & Conditions given in the DNIT.			
2. If there is a difference between the figures and the words, the amount spelled out in the words will be considered.			



SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

TECHNICAL SPECIFICATIONS

Portal Copy

10 TECHNICAL SPECIFICATIONS

10.1 OVERVIEW

The purpose of this assignment is to SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT. The assignment will also include training of CSCL staff in Installing, Configuring, Testing and Meter Reading of the AMR/AMI SMART WATER METERING SYSTEM. The project is initiated to enhance MCC's efficiency and effectiveness in managing its consumer metering system.

This particular assignment will include but not limited to the following;

- Confirmatory Consumer Survey and Consumer Awareness Program.
- Change of Existing House Service Connections/Existing Water Meters.
- Providing, Supplying and Replacing the existing consumer water meters, if any with battery operated RF Module Multijet/Electro-Magnetic/Ultrasonic type AMR/AMI Smart Water Meters.
- Configure, Test, Installation and Commission the various sized Multijet/Electro-Magnetic/Ultrasonic type AMR/AMI Smart Water Meters, i.e. fixing of New Meter Box, cutting of existing Connection, Fixing of New Meter with allied Pipe Fittings alongwith all the necessary arrangements with all necessary accessories, reading and data processing Software, communication infrastructure i.e. Gateway, HHU etc.
- Support the Data Transmission from the meters to communication infrastructure i.e. Gateway, HHU via LoRaWAN, further from communication infrastructure to Central Control Room via GSM/GPRS/Ethernet Backhaul based FIXED NETWORK as per the rules & regulations of Department of Telecommunication, Govt. of India (DOT).
- An application (i.e. mobile app. for all the platforms/operating systems) will be developed to make the consumers aware of the water consumption, billing information etc. on his mobile device.
- To Train CSCL Staff in all aspects of managing this new Smart metering system.
- Operation & Maintenance of the AMR/AMI Smart Water Meters for active operation, data collection/transmission & processing of data at Central Control Room for the entire contract period including O&M as specified in RFP.
- Generation & Submission of Bills.
- The Successful Bidder shall keep a sufficient buffer stock of new meters for the purpose of replacement of out of order/damaged meters.
- The Successful Bidder will attend & solve the complaint immediately, the defective meter will be removed and new tested meter would be installed within 1 (One) Day, this will include calibration of meters. However, the upper limit should not be more than Three (3) Days, failing which a penalty per meter per day of delay shall be levied and recovered from the Successful Bidder. In case, the Successful Bidder is unable to solve the complaint or If in case the meter is damaged beyond repairs

the Successful Bidder shall first get it verified by Engineer-In-Charge before replacing the meter, he will replace the meter with new meter and inform the concern officials in 2 (Two) Hours.

- The Successful Bidder shall appoint a full-fledged team of skilled technicians, tools & vehicle to attend and resolve the customer complaints of urgent nature viz. leakage from the body of meter & fittings, blockage of strainer of the meter, within 24 hours irrespective of any holiday. The Successful Bidder will provide a help line number for contact and registration of complaints from the consumers.

It is envisaged that the selected Solution Provider can sub-contract a civil/mechanical Contractor for the actual and timely installation of the meters while preventing unnecessary water supply interruptions to the consumers. There may also arise need to construct shallow meter chambers in some areas. The Smart Water Meters should be able to have a local data display unit while transmitting the same to selected Command and Control Centre. It should also integrate with the MCC billing system. The billing software will make the water meter bill available to the consumers vide internet, mobile with secured payment gateway for online payment.

The Successful Bidder will transfer the complete ownership, license of software's to CSCL/Municipal Corporation Chandigarh. The software's will not be limited by time period. The tenderer should confirm that the solutions/software is able to work with at least 50,000 meters. During implementation the supplier shall work hand in hand with CSCL, for hands-on training in installation, configuration, testing and commissioning of 100% of the supplied Smart water meters.

10.2 DATA COLLECTION, TRANSMISSION, PROCESSING & MANAGEMENT

It is envisaged that the LoRaWAN enabled (FIXED NETWORK SYSTEM) is to be implemented and managed by the Successful Bidder. Data Collection/Transmission from the AMR/AMI Smart Water Meters to communication infrastructure i.e. Gateway, HHU via LoRaWAN, further from communication infrastructure to Central Control Room via. GSM/GPRS/Ethernet Backhaul based FIXED NETWORK SYSTEM. In any case of emergency or as per the instructions by CSCL or its Representatives, the data will be collected with the help of HHU through walk by/drive by mode and will strategically transmit to Central Data Base/Control Room. The collected data will be securely processed, analyzed & managed by the Successful Bidder. A report will be prepared on the same with the final output of generating the Bills to the individual consumers.

10.3 ON-JOB TRAINING

The Successful Bidder will be responsible for training initially to the project team and groups of CSCL personnel in both Operations & Maintenance of the system. For the project team, the training will include all aspects related to installation, configuration, testing, commissioning and operations and maintenance of the Smart water meter and the necessary accessories alongwith AMR/AMI Smart Water Metering System. The training of the project team will also include factory visit to the manufacturer's premises at his cost. The personnel will be trained to the extent that they will be able to demonstrate the ability to operate the system on their own.

The personnel will be taken through installation, handling, operation principles, possible malfunctions (hardware & software), their causes, troubleshooting and repair. They will be trained on both practical and theory of preventive and reactive maintenance.

Training manuals will be provided for operations and maintenance. The manuals must be fully self-explanatory. The maintenance manual must include a full uncut diagram showing all components of the Smart meter (not block diagram). During the contract, CSCL will attach suitable personnel to acquaint themselves with the system at every stage of installation, configuration and testing. Their role will initially be observatory and culminating to hands-on. This will not in any way absolve the supplier from any liability including proper workmanship, safety, security etc.

10.4 PERSONNEL, FACILITIES & OTHER REQUIREMENTS

For the purposes of effective management of this contract a project team will be constituted by CSCL, which will work hand in hand with the Solution Provider in all phases of the tender, to ensure timely and smooth delivery of the entire exercise.

The AMR/AMI Smart Water Meters equipped with RF Module Multijet/Electro-Magnetic/Ultrasonic type will be installed at consumers' premises to replace the existing meters. Ideally most of the existing meters are located next to the consumer's boundary however a couple of cases will require relocation to preferred sites within the consumer's premises.

10.5 CONSUMER SURVEY & DIGITIZATION

The scope includes carrying out confirmatory consumer survey of consumers as well as carry out a preliminary activity of network survey and its digitization in the implementation area, all the available details w.r.t. consumer data and network data alongwith Topographical Survey Details, Base Map etc. will be handed over to Successful Bidder by Engineer-In-Charge.

This specification covers the work of carrying out a confirmatory consumer survey in the service area to record all potential and existing consumers, and digitization on GIS platform to visualize and model the entire water supply network in the proposed area from source to household. This includes preparation and maintenance of comprehensive data regarding complete water supply system with the help of latest software for optimization of maintenance works and future documentation.

The objectives of said activity are;

- Details of consumption of water by different beneficiaries, i.e. Domestic, Industrial, Commercial, non-domestic etc.
- Determine the perception of water services received.
- Provide facts for formulation of policy for Water billing and revenue collection.
- Provide information and measures to be taken to improve the efficiency and financial performance of the Water distribution system.
- Evaluate the quality of service when reporting problems or making enquiries.
- Determine the level of awareness of promotional water conservation initiatives.
- Identify issues relating to payment and billing for services.

Also, After Taking Over complete existing available details w.r.t. consumer data and network data alongwith Topographical Survey Details, Base Map etc., Successful Bidder will carry out preliminary activities of surveying all the components of existing water supply system with their details by GPS mapping. Confirm all ground and underground assets such as pipeline, pumping station, service reservoirs

and other important appurtenances. Confirmation of location and other important information of all existing components related to water supply project and correcting same on the base map.

Inserting all the collected information on GIS Platform (existing Base map will be provided) and preparation of the detailed base map of existing water supply system showing the location of Smart Water Meters as installed on site.

10.6 CONSUMER AWARENESS

Consumer Awareness is an ongoing activity during project execution phase. The Successful Bidder shall prepare a detailed program get it approved from the CSCL before starting the implementation. The Awareness Program, in order to achieve the expected results, must be carried out at different stages along the project cycle and then during the Operation & Maintenance Period. The following campaigns are proposed:

- Prior to start the project implementation. This will provide the correct information on the proposed upgrading of the water supply infrastructure and on the introduction of the AMR/AMI Smart Water Metering System and on the water charges related to the measured water consumption.
- At the start of the Operation & Maintenance Period, this will be important to monitor the people appreciation on the improvement of the water service, highlight possible deficiencies to be corrected, measure the level of acceptance of the new billing and payment method, etc.
- In the second half of the 7 Years O&M Period, in order to monitor if the distribution has improved and if the people has adapted to the AMR/AMI Smart Water Metering System, 24x7 modality of water distribution. It will also highlight the level of performance of the Contractor in the O&M of the system under his competence.

10.7 AMR/AMI SMART WATER METERS

SPECIFICATIONS

- Water Meter shall be manufactured as per ISO 4064 Standards, IP 68, and have International Organization of Legal Metrology (OIML)/MID pattern approvals & shall bear marking on dial of water meter for each size.
- Water Meters of domestic sizes shall be equipped with RF based (LoRaWAN) AMR/AMI Technology, Multijet/ Electro-Magnetic/Ultrasonic type MID approved Smart water meters.
- Water Meters shall be fitted with RF based wireless remote trans-receivers for AMR readings and shall be an integral part of the water meter. Any external fitting whether company fitted or in situ fitted shall not be accepted.
- Water Meters shall be, Dry Dial with IP 68 Protection - No damages should occur even under the condition of continuous submersion under water, an integral strainer is required, an integral NRV is also required, Humidity Proof, Vibration Proof, Tamper Proof against electromagnetic fields.
- Water Meters shall have the Pressure Rating; Working Pressure of >16 Bars, and have the Environmental Temperature; 0-degree C to 50 degree C.
- Water Meters shall have the anti-magnetic properties/immunity, as specified in ISO:4064, when tested with 385 m Tesla to 400 m Tesla magnet is mandatory. For AMR system resistivity against application of magnet is not required

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- Water Meters of each size should have been duly tested and passed as per the relevant standards and specifications from Fluid Control Research Institute (FCRI) Kerala for performance test, supported with test certificate.
- Water Meters must be able to retain their accuracy, when installed in either horizontal, vertical or inclined planes.
- Water Meters will be fitted with an internal Return Flow Restrictor to Counter Reverse Flow.

APPLICABLE STANDARDS (UPDATED/LATEST AMENDMENTS)

- IS 779
- IS 2373
- IS 6784
- ISO 4064
- OIML R-49
- IS/IEC 60529 (IP 68)
- MID
- etc.

The meters shall be supplied complete with all the accessories; fitting material, nuts and nipples. Strainer & Sealing shall be provided as per relevant IS provisions. All Water Meters shall be protected and covered with Poly-Propylene (PP) meter protecting box.

MATERIAL OF CONSTRUCTION

- 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 applicable standards (referred above).
- The body of the meter shall be of Brass/Bronze/Engineering Plastic. The firm shall specifically mention in the offer, the metal used in manufacturing. 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.
- 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.
- The painting material used should be safe for human uses and not affect human health (Health Certificate should be attached/provided).
- Variation in weight of the meter will be permissible to $\pm 5\%$ of the weight indicated by the Successful Bidder in his technical bid.

- Each Water Meter should be supplied in separate individual box with its accessories and Test Certificates and Guarantee Card for free repair/replacement for duration of 7 Years. The number of individual boxes of meters shall not exceed 30 Nos. in each carton.
- Sampling Criteria for Accuracy Test; as specified in RFP.
- Supply shall be made strictly as per the sample meters including the weight, as approved by FCRI.
- **Markings on the Body of the Meter:**
 - Make/Brand
 - Size/Nominal Dia.
 - S.No./Year of Manufacture
 - Class "C" or equivalent
 - (Multijet/Electro-Magnetic/Ultrasonic)/Model
 - ISO/OIML/MID Reference
 - Direction of Flow
 - Unit of Measurement
 - CSCL/MCC
- **Totalizer:**

The Totalizer shall be designed in such a way that if the Totalizer protective glass is broken for a reason or another the Totalizer cannot be removed from its place. The Totalizer protective cover shall be made of sturdy glass and shall pass specified tests.

 - It shall be of straight reading type.
 - The Totalizer shall register in "Cubic Meter" units.
 - The Totalizer reading should be less than "1 KL".
 - The Totalizer shall consist of a row of minimum five on-line Consecutive digits to read at least 99,999 m³.
 - Another three/four digits or pointers shall register flows in decimals and be of a different color.
 - The Totalizer should be of Closed Type.
 - The Totalizer must be suitable for Test on an Electronic Test Bench.
 - Totalizer shall be made of suitable material required to maintain IP 68 protection class.
- **GPRS/LoRaWAN:**
 - The remote readings of AMR/AMI water meter need two-way communications without affecting reading throughout the entire period of contract including O&M.
 - The remote readings of AMR/AMI water meters should be obtainable by LoRaWAN (Fixed Network System), as well as by "Walk by/Drive by" in case of emergency or instructed by CSCL or its Representatives.



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- The remote readings of AMR/AMI water meters should be obtainable even under submerged conditions.
- The AMR/AMI System should have the facility to record the abnormalities, i.e. high consumption, water leakages, etc., along with necessary alarms.
- The system should use LoRaWAN transmission to permit operating with very low GSM signal levels and to enable a more predictable battery lifetime.
- The system must be capable of using any type of LoRaWAN transmission equipment to improve the success rate of the communication.
- The system must be capable of pre-defining Time of data transfer to the Server.
- The system will communicate on a daily base for Consumption Analysis, Consumption Profile and Data Alarms, in order to extend battery lifetime.
- The system will communicate in real time for Battery and Tamper alarms, in order to provide relevant monitoring and management data for operational purposes.
- The battery shall be replaceable notwithstanding any data loss.
- Installation of the device will require no special equipment.
- The system will provide a real time confirmation from the back-end server to ensure that the device is set up before the technician leaves the site.
- During this process the device will receive the confirmation from the server in order to prevent differences between devices and server.
- The system will provide a real-time transmission of an alert with the LoRaWAN reception level to ensure that the device will operate under installed conditions.
- The Configuration Menu shall be protected by password to ensure only authorized personnel can modify the parameters.
- It should be possible to program “on-the-fly”, i.e. without stopping the meter.
- The device shall have a minimum 7 (Seven) Year Battery Life, to avoid costly site visits and to reduce the risk of lost data.
- It shall be possible to replace the battery in the field without stopping the meter.
- The Successful Bidder shall have to provide Stand-by HHU in case the signal of LoRaWAN is weak or in a breakdown condition.
- The System should operate in free frequency band available in India, as per the notification of DoT, GoI (necessary documents should be provided).
- Other Requirements, mainly are as follows:

S.No.	REQUIREMENTS
1	The AMR shall have bidirectional data communication.

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2	The AMR should use LORA technology and should operate in 865-867 MHz frequency in the ISM band.
3	The line of sight range of the transceiver module to a gateway shall not be less than 10 Km.
4	The Water Meter should be able to communication infrastructure i.e. Gateway, Hand Held Unit if necessary. The range of communication distance (Line of Sight) to a Hand Held Unit shall be minimum 500m. Wireless MBUS shall be the protocol for communication to the Hand Held Unit.
5	The range of communication to a Gateway shall not be less than 1 Km even in densely populated areas with plentiful obstructions.
6	The AMR modules along with the Gateways shall form a simple star network. The AMR unit should be capable of communicating using LoRaWAN protocol to the Gateway.
7	Data from the Water Meters should reach the Server Once a Day.
8	The system should be capable of storing the following parameters; <ul style="list-style-type: none"> • Instantaneous Reading of Consumption; • Daily Consumption for the past 2 (Two) Years; • Periodic Data stored for Water Audit and Analysis; • Tamper / Alarm records.
9	The meters should report an alarm to the server as and when they arise.
10	The module enclosure is an integral part of the water meter and shall have IP 68 protection.
11	All Water Meter readings should be time stamped.
12	The AMR should have the capability to detect and record reverse flow in a separate Totalizer.
13	The AMR should be capable of the following; <ul style="list-style-type: none"> • Leak Detect; • Zero (No) Flow Detect; • High Flow Detect.
14	The AMR should operate even in electrically noisy environments with electromagnetic interference. The AMR should function even in the presence of high voltage power lines.

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15	The battery life of the unit shall not be less than 7 years. Battery usage has to be indicated at the server. Provision should be provided to replace batteries if required.
16	The Water Meter scale should be readable when the AMR module is installed.
17	The meter should withstand extreme weather conditions: <ul style="list-style-type: none"> • Temperature from -10 Deg C to +55 Deg C; • Relative humidity from 5% to 95%; • Submerged conditions.
18	Ability to operate in environment with Radio Frequency interference including those emanating from activities of the communication system frequency
19	The number of Gateways shall not exceed 1 per square Km.
20	The communication shall be encrypted to avoid tampering.
21	The HHU should be able to retrieve all data from the Water Meter.
22	The AMR module should be configurable either using the HHU or from the server.
23	Loss of communication should be indicated in the server within 48 hours.
24	The Transmit Power level shall not exceed 20 dB.
25	Receive Sensitivity should be better than -130 dB.

• **Lab Testing:**

The Lab Testing shall include following tests as per ISO: 4064:2005 standards which will be conducted at MID/NABL accredited lab at manufacturers place or FCRI or elsewhere as desired by the CSCL.

- Accuracy Testing of Water Meters at Qn.
- Accuracy Testing of Water Meter at Qn after clamping the magnet on the Water Meter.
- IP 68 Testing of Water Meters & AMR System.
- Remote reading of Water Meter in dry i.e. open air condition, in submerged condition i.e. under water with variable water depth conditions.
- Remote reading with different tamper alarms.
- Response time of AMR reading on communication infrastructure i.e. Gateway, HHU, Server, etc.
- Visual Inspection of AMR Water Meter and its AMR/AMI system along with its software.
- Real Index tests i.e. all the time electronic index of the water meter shall match with mechanical index.

- Demonstration of transmission of readings from Gateway to Server, as well as uploading of readings from HHU to Server.
- Life Cycle and Endurance Test.

These tests may be performed in the in-house Laboratory of the Smart Water Meter Manufacturer. The Employer will depute its Representatives, Project Management Consultants to the Smart Water Meter Manufacturing facility of the manufacturer to inspect the meter as per QAP approved by Engineer-In-charge. Inspection charges and all other charges shall be borne by the Contractor.

Also, Contractor will establish a semi-automatic Test Bench that is sustained by PLC Systems. The pneumatic cylinder which allows mounting and dismounting the meters for the installation is being controlled manually. Except the cylinder, all the other pneumatic cylinders, electromagnetic flow meters and regulation valves work respectively, with the support of computer aided PLC Systems.

- **Data Management Software:**

- The software shall give output, at least in the CSV (Comma Separated Value)/txt/xls format or as per any other desired format by CSCL.
- The Data Management Software must be capable of running on a standard PC compatible with minimum Pentium Processor; in addition, the software must run under Windows 95, Windows XP Professional, Windows Vista, Windows 7 and / or latest version of Windows Operating System.
- The Data Management Software should be cloud base and should have web portal access so that user can view customer data through browser. In addition to above Data Management Software will be installed on Server placed in Central Data Base/Control Room, and the software may have option for individual customer to view their meter consumption data through Web portal.
- The Data Management Software shall allow the Server Operator to review and edit any account in Data Management Software Database. Also, the Server Operator shall be able to create virtual networks or generate routes/groups as per zones or areas and activity reports.
- The Data Management Software shall provide database backup/restore functions and must have real-time data access. The software should be web-enabled and alerts to be provided through email/SMS to users.
- The Data Management Software shall alert the meter reader for unread accounts in that route.
- The Data Management Software should have the facility to export CSV/txt/xls files or as per any other pre-defined format by CSCL to Billing System.
- The Data Management Software shall enable the user(s) to specify the data to be exported from the Database for transferring to Billing System.
- The Data Management Software shall select the routes to be read, and assignment of routes to a reading device (i.e. Gateway, HHU etc.) and dynamic updating of routes and sub-routes to be enabled.
- The Data Management Software shall upload routes from the reading device through LoRaWAN/GPRS.

- The Data Management Software shall post the reading from the communication infrastructure on to appropriate accounts within the Database.
- The Data Management Software shall make a backup copy of the routes within the Database.
- The Data Management Software shall be able to set meter status on the fly, i.e. meter not okay, reading not reliable, meter maintenance required etc.
- The Data Management Software should be able to display all kind of data on screen at any time.
- The Data Management Software should have capability to add additional customer information and create customizable data fields.
- The Data Management Software should manage GPS data of AMR/AMI Smart Water Meters & Communication Infrastructure.
- The Data Management Software should manage customizable list of message codes.
- The Data Management Software should have a radio configuration tool; to enable/disable Water Meter.
- The Data Management Software should have the facility to view the photographs of meter taken at the time of installation (if any).
- **Development of Interface with Native Mobile App and Web Portal**
 - Functional requirements for Native Web portal/mobile app are mentioned below:
 - a. It should be a COTS solution to allow configuration of specific features as per the Chandigarh Municipal Corporation requirement.
 - b. The native portal/app shall have the ability to display water consumption history of the user in graphical formats. A more detailed analysis is provided in a tabular format listing the meter reading date, the reading, consumption, number of days, charges etc. The portal shall provide ability to edit, create, and delete pages or forms through easy-to-use configuration.
 - c. The web portal/mobile app shall have the ability to provide option for recording new service /connection requests/complaints lodged by the customer as new connection, disconnection, name change, category change, meter shifting etc. The user can view the service request status. The user can register complaints viz. water supply, faulty meter, water waste, leak etc.
 - d. The web portal or 3rd party portal/utility portal to provide the consumer near real time online views of both usage and cost, helping consumers to understand water usage and cost information, alerts and notifications and water savings tips with different levels of detail. The portal / mobile app shall provide user friendly access to consumer for their data via colorful graphs and charts and can download the data into a spreadsheet/pdf format.
 - e. The Water Portal/Mobile application shall have Analytics Portal for the municipal staff. This portal shall provide a configurable dashboard with visual display of key platform metrics including customer engagement/awareness metrics and transactional summary for all key business processes. Specifically, Utility personnel will be able to view the process KPIs and metrics for usage trends,

notifications sent and received for consumer awareness, customer behavior and customer enrollment.

○ Functional Requirements for Utility Portal:

- a. Customer Engagement Analytics: The analytics shall provide reports and live dashboards for customer interactions. The utility personnel will be able to view reports for tracking customer activity, notification status by channel, customer browsing activity metrics and administrative reports for daily, monthly, or data range activity for billing, usage, notification, and preference management activity. Specifically, the analytics views shall include:
- b. Customer behavior metrics including login and feature clicks by browser, device, and time Marketing Banner click metrics for Consumer awareness programs.
- c. Administrative settings to configure the application features, user roles, and user accounts. Specifically, Utility personnel shall:
 - Create and manage user roles for application including granting and revoking access to specific features
 - Create and manage utility user accounts including role assignments
- d. Ability for a utility personnel to create, view, add and update water supply events.

● **Billing Software:**

Billing Software; items mainly include Supply, Providing, Installing and Successfully Management & Running of Billing Software along with Mobile Application as per the requirement of CSCL.

The Billing Software should have main features as follows;

- Reduce loss & improve revenues with proper real time data captured.
- Efficient Management Dashboard with real time information & consolidated accounts.
- Improve overall operational synergy & efficient Business Intelligence Management.
- Efficient inventory management, improve asset management & better maintenance management.
- Solution should be scalable, flexible, end-to-end solution for the business processes in CSCL that have the highest value in terms of customers' assets services, regulations, and financials. It supports the gradual expansion and adaptation of transaction volume as well as new processes.
- Optimized meter-to-cash processes and days sales outstanding through end-to-end management of service, billing, and financials processes.
- Establishment of Call Center with Toll Free Number to increase customer satisfaction and Call Center efficiency using an integrated customer service collaboration solution that automates standard services and provides fast access and a single view into all data and work history related to your customers.
- Improved efficiencies in supply operations by providing a utility wide supply operations solution.
- Integrated financial information using standardized processes; providing visibility on capital, operational, and third-party expenditures; monitoring project costs and regulatory risks; and integrating business performance.

- Information with management processes helps Better managed investment, opportunities and risks through the establishment of strategic enterprise management techniques
- Optimized procurement processes and material inventory by enabling collaboration and contracting of operational management services with suppliers, contractors, and partners, as well as streamlining corporate-wide buying processes.
- Streamlined and simplified workforce-related processes through integrated employee transaction management, workforce deployment based on skills and availability, and innovative employee life-cycle management that aligns employee talents with corporate goals.
- Billing Software; Block Model of requirements for the project " SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN (FIXED SYSTEM) BASED 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT" is as follows:

Connection Management	Consumer Management	Reporting & Analysis
Submission of Application Form	Citizen Meter Management	MIS Reports*
Approval of Connections	Rate Management	Dashboards
New Connection Charges	Citizen Category Management	
Physical Connection, Creation of CCN & Meter Reading Route	Citizen Grievances Management	
Meter Reading	Consumer Usage Pattern	
Disconnection of Water Connection	Billing System	
Connection Restoration	Bill Collection and Deposit	
Unauthorized Water Connection	Bill Cancelation	
Mis-use of Water Connection	Dispute Registration and Settlements	
Meter Testing	File Tracking	
Meter Testing – For New Connection	Financial and Accounting	
Meter Testing – Suspected Low Consumption		
Meter Replacement with CSCL/MCC Meter		

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Connection Management	Consumer Management	Reporting & Analysis
Customer Compliant Registration	Compliant Tracking	Reporting & Analysis
Asset management		Reporting & Analysis

* MIS Reports – The data to be procured from Smart Meters Software to generate the following MIS Reports for:

- Consumer wise, DMA wise, Area wise, Ward wise, Tariff wise, Consumption wise, Amount wise.
- Defaulter Reports and Non-Functional Meters should be Daily Reports, Monthly Reports, Bi- Monthly Reports, Tariff wise, Area wise, and Consumption wise, Ward wise.
- Revenue Collection Reports should be Tariff wise, Consumer wise, DMA wise, Ward wise.

However, Detailed Technical requirements for above said Block Model will be finalized by the Contractor (as per requirement of the CSCL) in consultation with the Engineer-in-Charge; Final approval will be given by CSCL.

10.8 FIXING/INSTALLATION OF AMR/AMI SMART WATER METERS

- This refers to all Smart Water Meters for 15 mm and 25 mm size. All the existing house service connections will have to be replaced with New AMR/AMI Smart Water Meters of respective sizes w.r.t. size of existing, and to be fitted with MDPE pipes. Therefore, Fixing/Installation includes Installation in complete respect i.e. fixing of New Meter Box, cutting of existing Connection, Fixing of New Meter with allied Pipe Fittings alongwith all the necessary arrangements including Testing and Commissioning, etc.

After fixing the Successful Bidder has to check the fittings for possible leakages. All the fittings required for installation shall be provided and shall conform to the IS 1239 and IS 554.

- The Meter Box is always recommended to encompass & protect Water Meters installed on drinking water supply pipes. The Meter Box shall consist of main body and closing lid, the body shall have inlet and outlet windows through which the pipe passes through. The lid shall have a provision to screw and fix it permanently in place. The material of construction of the lid and body of the Meter box shall be weather resistant PP (Poly- Propylene). The material shall be safe to be buried in soil or exposed to sun. The Meter Box in its properly installed position shall be capable of withstanding load of human traffic typical of residential areas. The load bearing capacity of the meter box shall be tested by applying dead load of 100 kg on the meter box top for 1 (One) hour, without any side support. No signs of deformation of the box body shall be observed. While installing the meter box, compaction of soil around the body is required to increase its load bearing capacity.

The box is intended to include the AMR/AMI Consumer Smart Water Meters up to 50 mm. Since the sizes of the Water Meters of different manufacturers have also different sizes, the box size might also differ. In any case it should not be larger than 695x520x310 mm and of maximum weight 7.5 kg. The measurement shall be on the basis of completed number of boxes.

- The Specifications for MDPE Blue PE 80 Pipes for Fixing/Installation for House Service Connections of Dia. 15 mm and 25 are as follows:
 - Raw material used to Manufacture MDPE Blue Pipes shall be Virgin Natural Resin PE 80 containing those anti-oxidants, UV Stabilizers & Pigments necessary for Manufacturing of pipes. The Density of Pipes shall be in the Range 0.930 to 0.940 g/cm³ confirming to ISO 4427-1 Standard. The PE 80 Resin shall have MRS of 8 Mpa.
 - Effects on Water Quality; The MDPE PE 80 Blue Pipes shall confirm to Clause 5.3 of ISO 4427-2 for conveyance of Water for Human Consumption. Also the pipes intended for conveyance of potable water for Human consumption to be tested to comply with BS 6920 Specifications in any of the laboratories and respective Certificate of compliance to be produced for the parameters, i.e. Odor & Flavor of Water, Appearance of Water, Growth of Micro Organism, Extraction of substances that may be of concern to Public Health (Cyto-Toxicity), Extraction of Metals, or any as desired by CSCL.
 - Pressure Rating; The Pressure rating of MDPE Blue PE 80 Pipes shall be confirming to Clause 4.1 of ISO 4427.
 - Color of Pipes; the color of MDPE PE 80 Pipes shall be BLUE confirming to Clause 5.2 of ISO 4427-2.
 - Dimensions; The pipe dimensions shall be as per latest revisions of Clause 6 of ISO 4427-2 and pipes up to diameters 32 mm shall be supplied in Coils of 300 meters. The internal diameter, wall thickness, length and other dimensions of pipes shall be as per relevant tables of ISO 4427. Each pipe shall be of uniform thickness throughout its length. The dimension tolerances shall be as per Clause 6.3 Table 2 of ISO 4427-2.
 - Performance requirements; The Pipe supplied should have passed the acceptance test as per ISO 4427. The manufacturer should provide the test certificates for the tests, i.e. Melt Flow Rate, Density, Oxidation and Induction Test, Hydrostatic Test, Longitudinal Reversion Test. These tests may be performed in the in-house Laboratory of the Pipe Manufacturer. The Employer will depute its Representatives, Project Management Consultants to the pipe manufacturing facility of the manufacturer to inspect the pipes as per QAP approved by Engineer-In-Charge.
 - Lowering, Laying & Jointing of MDPE Pipes; Only the Existing House Service Connections/Existing Meters are to be replaced as per the site condition, by using MDPE pipes. The new meters are to be fixed on the place of existing Water Meter. The Successful Bidder has to submit the program of fixing of house service connection meters before actually starting the work. Also, The Successful Bidder shall suggest the preventive measures required to be taken by the consumers to avoid damage to the installed new Smart Water Meter. Any leakage observed in joints of special & pipe fixed by the Successful Bidder while installing the new Smart Water Meter during the contract period shall be repaired by the Successful Bidder at its own cost. If the ball valve needs replacement the same shall be provided by the consumer but fixed by the Successful Bidder while installing the meter.
 - Handling, Transportation, Storage and Lowering of pipes; If transportation of MDPE pipes from a distance greater than 300 Km than pipes shall be received only when bare coils of pipe have

been wrapped with hessian cloth. The truck use for transportation of the PE pipes shall be exclusively used of PE pipes only with no other material loaded-especially no metallic, glass and wooden items. The truck shall not have sharp edges that can damage the pipe. At the time of opening coils, it must be remembered that the coils are under tension and must be opened in a controlled manner. Straight length should be stored on horizontal racks giving continuous support. Loss/damages during transit. During handling, transportation, storage and lowering, all sections shall be handled by such means and in such a manner that no distortion or damage is done to the section or to the pipes as a whole. Pipes must not be stored or transported where they are exposed to heat sources likely to exceed 60° C. Pipes shall be stored such that they are not in contact with direct sunlight, lubricating or hydraulic oils, petrol, solvents and other aggressive materials. Scores or scratches to a depth of greater than 10% or more of wall thickness are not permissible; any pipes having such defects should be strictly rejected. PE pipes should not be subjected to rough handling during loading and unloading operations. Only polyester webbing slings should be used to lift heavy PE pipes by crane. Under no circumstances, chains, wire ropes and hooks shall be used on PE surface. Pipes shall not be dropped to avoid impact or bump. If any time during handling or during installation, any damage, such as gouge, crack or fracture occurs, the pipe shall be repaired if so permitted by the competent authority before installation.

- Lowering, laying of pipes; As per IS-7634.
- Jointing of pipes; the pipe shall have a jointing system that shall provide for fluid tightness for the intended service conditions. Appropriate jointing for MDPE pipe as per IS 4984 shall be selected considering site and working conditions, pressure and flow or liquid.
- Hydraulic Test; It should conform to IS: 4984 & IS 7634.
- Measurement; the net length of fixed pipe shall be measured in running meters correct to a cm. The portion of the pipe inside the joints shall not be included in the length of pipe work.

10.9 OPERATION & MAINTENANCE (FOR 7 YEARS)

The Successful Bidder shall provide guarantee against all manufacturing defects for the supplied and installed equipment for 7 years from the date of completion of the works.

The maintenance of meters installed before commencement of maintenance period will deem to be included in cost of the meter.

The Successful Bidder will be responsible for complete Operation and Maintenance of the system for 7 years after the successful installation and commissioning of every lot of 4000 nos. of meters successfully commissioned including AMR/AMI system and bill generation.

The data collection and generation consumer bills during the O&M period shall be carried out as per the instructions given by CSCL or its Representatives, i.e. Engineer-In-charge/ Project Management Consultants, etc.

All manpower required for carrying out the activities has to be provided by the Successful Bidder. The Successful Bidder shall keep a sufficient buffer stock of new meters for the purpose of replacement of out of order/damaged meters. The Successful Bidder will attend & solve the complaint immediately, the defective meter will be removed and new tested meter would be installed within 1 (One) Day, this will include calibration of meters. However, the upper limit should not be more than Three (3) Days, failing which a penalty per meter per day of delay shall be levied and recovered from the Successful Bidder. In case, the Successful Bidder is unable to

solve the complaint or If in case the meter is damaged beyond repairs the Successful Bidder shall first get it verified by Engineer-In-Charge before replacing the meter, he will replace the meter with new meter and inform the concern officials in 2 (Two) Hours. The Successful Bidder shall appoint a full-fledged team of skilled technicians, tools & vehicle to attend and resolve the customer complaints of urgent nature viz. leakage from the body of meter & fittings, blockage of strainer of the meter, within 24 hours irrespective of any holiday. The Successful Bidder will provide a help line number for contact and registration of complaints from the consumers.

Also as part of the Operation & Maintenance of Meters, Successful Bidder /Meter Manufacturer shall establish a test bench with following technical specification.

- **TEST BENCH:**

The Metrological Verification System (MVS) i.e. Water Meter Test Setup shall be designed and constructed for Nominal Diameter (DN) 15mm and 25mm size water meters, which will facilitate to carry out accuracy measurement, at four flow rates i.e. Maximum Flow (Q_{max}), Nominal Flow (Q_n), Transitional Flow (Q_t) and Minimum Flow (Q_{min}). These accuracy tests will be carried out in accordance with ISO: 4064 or equivalent standards. The Setup shall also facilitate the testing of pressure tightness & pressure loss for above sizes water meters.

The Metrological Verification System (MVS) shall be designed in such a way that, the meter test operation shall be semi-automatic, with pneumatically operated meter clamping system.

The scope of work includes “Design, Manufacture, Supply, Installation, Commissioning of Gravimetric Metrological Verification System and 15 Year’s comprehensive maintenance & yearly calibration of reference instruments of test setup, for measurement of accuracy, pressure tightness & pressure loss as per ISO: 4064 standard or equivalent for domestic type water meters”.

Technical Specifications for Domestic Test Setup:

- The test setup shall be designed for domestic type, cold and potable water meters, which will be tested in accordance with ISO: 4064 or equivalent standards.
- The test setup shall be designed for determining the water meter accuracy with the help of "collection" method, in which the quantity of water passed through the water meter is collected in one collecting tank (i.e. reference vessel), the collected quantity will be determined by Gravimetric system (weighing scale).
- Reference for checking accuracy; The accuracy of the meter will be determined by comparing the indicated volume of water meter with the weight of water collected in reference vessel.
- The test setup shall be semi-automatic, computer interfacing with Gravimetric measurement, suitable for accuracy measurement of domestic type water meters for sizes 15 mm and 25 mm.
- Separate test setup shall be designed for each size i.e. 15 mm and 25 mm of water meters.
- All the installed test setups shall use either the stable water source i.e. constant head tank or Variable Speed Drive pump (VSD) for measurement of accuracy.
- In case of constant head tank, the contractor will be required to design & construct the constant head water tank at the installation site, to cater to the required quantity of water for accuracy, pressure loss & pressure tightness testing of all domestic sizes as mentioned above.
- In case if VSD (Variable Speed Drive) system, is to be used for achieving the required head, the



suitable system shall be designed & installed for accuracy, pressure loss & pressure tightness testing, according to requirements and site conditions.

- The contractor will design the piping layout as per the available floor space. The designed pipe work layout shall be got approved from CSCL & accordingly the contractor shall fabricate and install the necessary pipe work for each test setup.
- The test setup lines of each test setup shall be generally parallel to each other.
- The series type water meter test setup shall be used for calibrating and conducting accuracy, pressure loss & pressure tightness test on all classes of domestic water meters (screwed ends) manufactured in accordance with ISO: 4064 or equivalent standards.
- The Successful Bidder shall offer test setups for sizes of 15 mm & 25 mm water meters. The partial offer for test setup i.e. for one size or incomplete size range will be out rightly rejected. Moreover, the Successful Bidder shall offer the test setup for all three tests i.e. Accuracy, Pressure Loss & Pressure Tightness, Partial Offer for any one of two tests will not be accepted & will be out rightly rejected.
- All the equipment's & measuring instruments used in respective test setups should be duly calibrated and tested from any NABL accredited lab, or any international laboratory accredited to their respective country's national test laboratory, prior to their installation & commissioning. During the supply of test setup, the calibration certificate should be accompanied with their respective reference instruments.
- During Accuracy Testing, the water meters shall be installed in series manner, the test setup shall accommodate more than one water meter at single time and minimum capacity of the test setup shall be as per the following table:

S.No.	Meter Size (mm)	Test Setup Quantity (Nos.)	Test Lines (Nos.)	Minimum Quantity of Meters on each Test Setup (Nos.)
1.	15	1	Single Line	10
2.	25	1	Single Line	10

- During supply, the Successful Bidder shall note that the calibration & test certificates of all instruments as stated above shall be exclusively in the name of test setup manufacturer. Any other certificate will not be accepted & such materials / instruments will be rejected out rightly.
- After completion of erection of test setups at site & its trial runs, the entire system shall be got verification through 'Institute for Design of Electrical Measuring Instruments' (IDEMI), A Govt. of India Society for necessary calibrations & accuracy for mass & volume, pressures, etc. i.e. test results, only after this, the commissioning will be treated as valid.

- **BILLING SYSTEM:**

The Successful Bidder shall develop and set up a computerized Billing System and to work in Hindi Punjabi and English with all built in monitoring systems. The Successful Bidder shall provide the CSCL the access to the computerized Billing System. This built in monitoring systems shall be online and directly connected to the CSCL/MCC website/server, as the case may be which shall enable CSCL to monitor.

For the purpose of billing the Consumers w.r.t. supply of drinking Water, the Successful Bidder shall, in accordance with the Applicable Laws and then extant rules and regulations of the CSCL/MCC, carry out the following activities during the Operation & Maintenance period:

- Operator shall continue to generate, deliver water bills as per the then prevailing Water Tariff Notification;
- Record the water meter readings of the consumers every month, according to the meter reading schedule and assess the water charges at the prevailing water rates and advise the Consumer and the CSCL/MCC on the amounts so as to provide maximum time of 2 (Two) billing cycles to the consumer to undertake any repairs in internal plumbing of the consumer property to minimize wastage of water supplied;
- Generate Water Bill for the Consumers, in the name of the CSCL/MCC, based on the volume of drinking water consumed at the Water Charges set out by CSCL/MCC for the consumption. The Operator shall generate the Water Bills in the format specified or stipulated by the CSCL; Water bills shall specify due date of payment, date up to which payment is allowed with fine approved by CSCL and date due for disconnection, etc. or as desired by CSCL/MCC.
- Prepare a list of the Consumers, in Service Area, who have not made the Consumer Payments and submit the same to the CSCL/MCC within stipulated time mentioned in the water bill and carry out disconnections of Service to such Consumers as per terms hereof;
- The bills generated by the Operator should indicate that the Consumer Payment is collected on by CSCL/MCC and if payment is not made by the Disconnection Date the Operator shall submit the information to the CSCL/MCC about defaulter Consumers;
- Prepare & Submit Monthly, Quarterly and Annual Statements of billing in the Service Area to the CSCL/MCC.
- etc., as desired by CSCL/MCC.



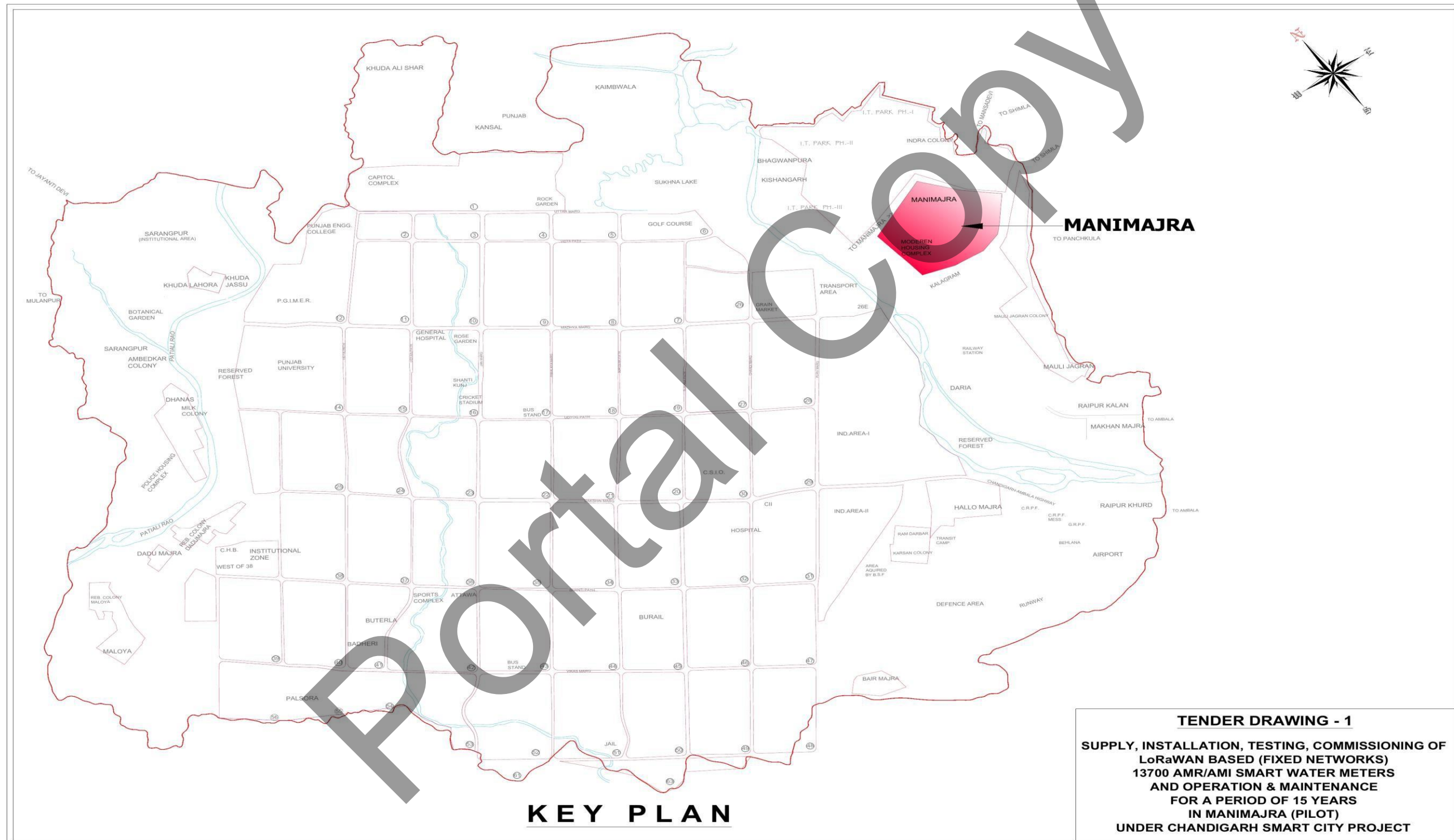
DRAWINGS

Portal Copy

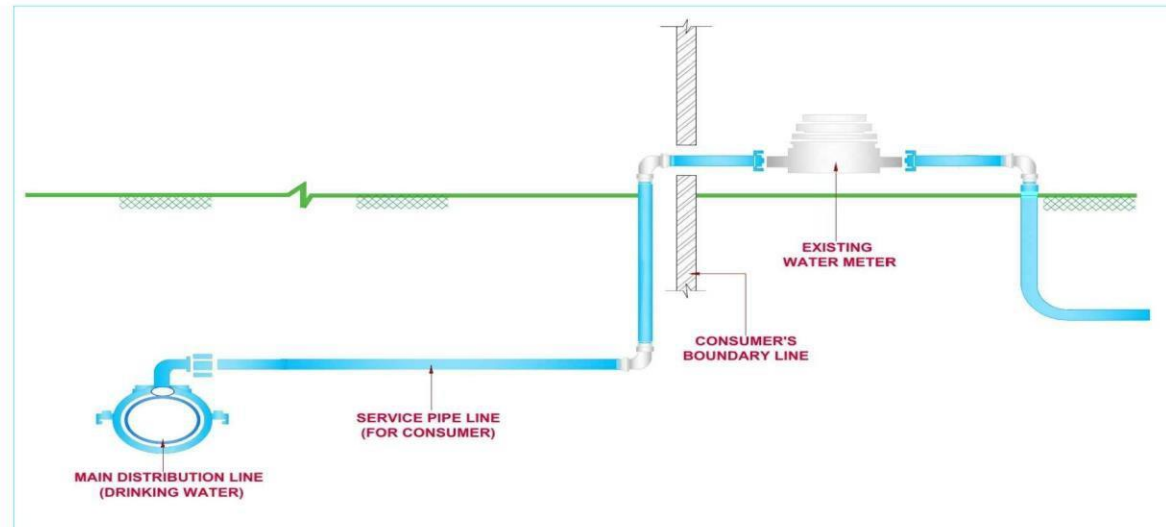
SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN BASED (FIXED NETWORK) 13700 AMR/AMI SMART WATER METERS AND OPEARTION & MAINTENANCE FOR A PERIOD OF 7 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT.

11 DRAWINGS

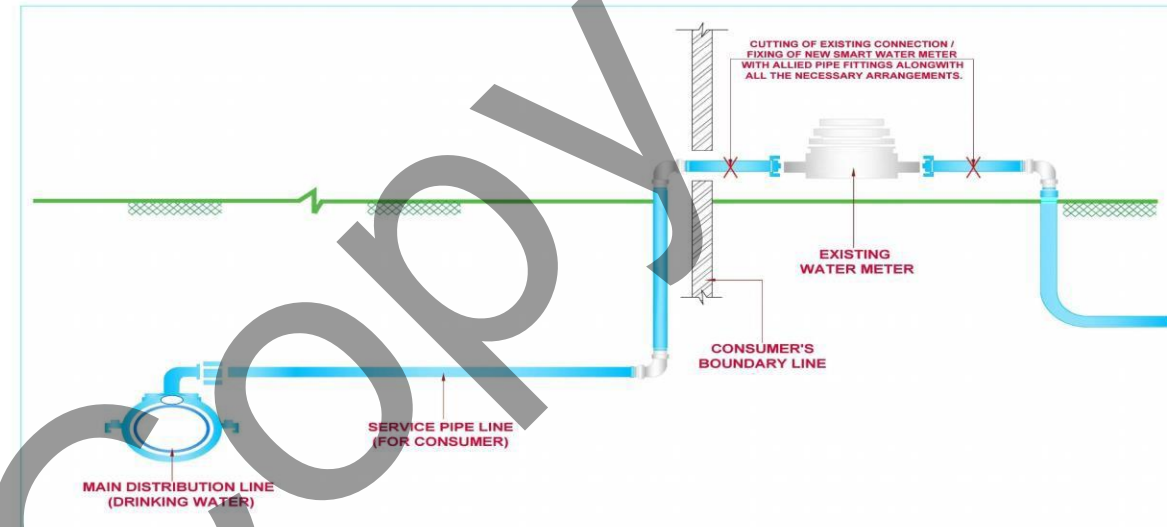
11.1 KEY PLAN (TENDER DRAWING - 1)



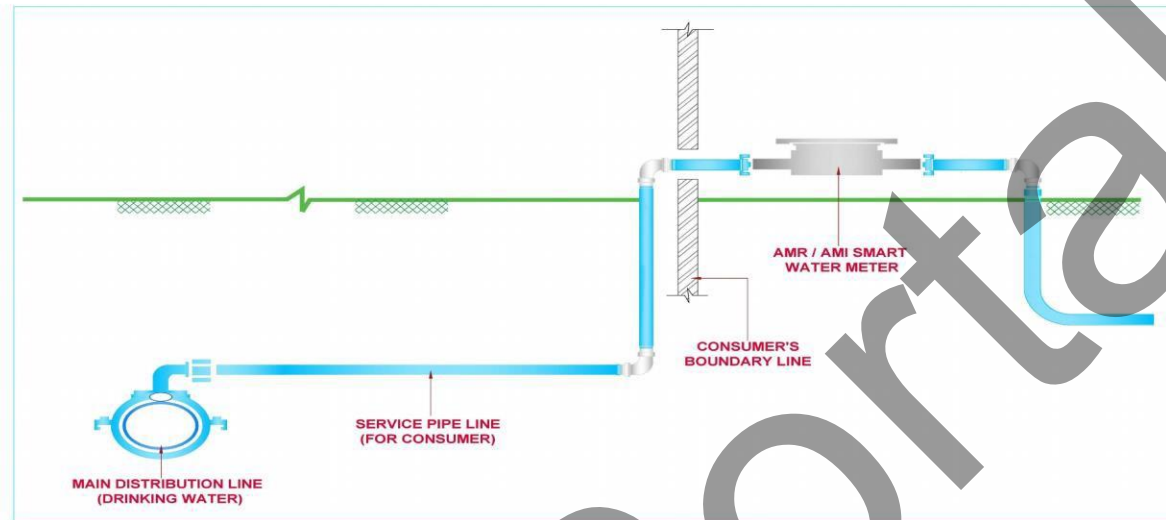
11.3 CONCEPTUAL DRAWINGS FOR HOUSE SERVICE CONNECTION (TENDER DRAWING - 3)



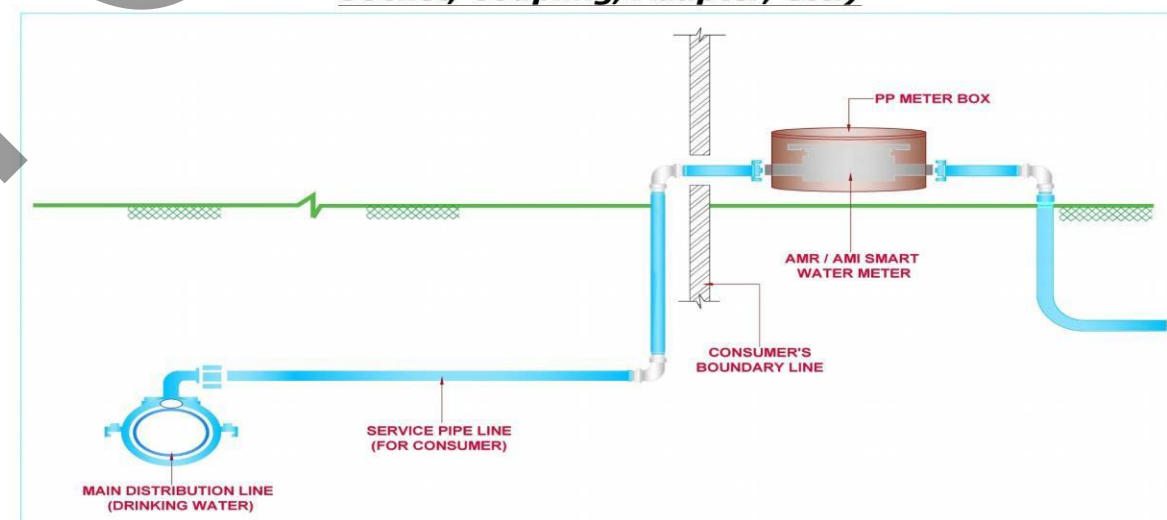
DRAWING 1: Showing Existing House Service Connection Arrangement



DRAWING 2: Showing Proposed House Service Connection Arrangement (By cutting of Existing Connection/Fixing of New Smart Water Meter with allied Pipe Fittings alongwith all the necessary arrangements, i.e. Union Socket, Coupling, Adapter, etc.)



DRAWING 3: Showing Fixed New AMR/AMI Smart Water Meter with allied Pipe Fittings alongwith all the necessary arrangements, i.e. Union Socket, Coupling, Adapter, etc.



DRAWING 4: Showing PP Meter Box installed on New AMR/AMI Smart Water Meter

CONCEPTUAL DRAWING OF HOUSE METER CONNECTION

TENDER DRAWING - 3

SUPPLY, INSTALLATION, TESTING, COMMISSIONING OF LoRaWAN BASED (FIXED NETWORKS) 13700 AMR/AMI SMART WATER METERS AND OPERATION & MAINTENANCE FOR A PERIOD OF 15 YEARS IN MANIMAJRA (PILOT) UNDER CHANDIGARH SMART CITY PROJECT