REQUEST FOR PROPOSAL (RFP)

Request for Proposal for works of Complete Automation & SCADA system of 198 tube wells and 72 over head tanks and all the appurtenant works thereof in Dehradun city, under Smart Water Management (SCADA) Project including Operation and maintenance for 5 years under "Smart City Mission" through e-procurement.

DEHRADUN SMART CITY LIMITED (DSCL)

777, Saatvik Tower, Rajender Nagar,
Kaulagarh Road, Dehradun, 248001, Uttarakhand, India
Ph: 0135-270894, Fax: 0135-2750817

RFP No: 01/DSCL/19-20/NCB/SCADA

Issued on: 24/07/2019

DISCLAIMER

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

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

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

DSCL may in its absolute discretion, but without being under any obligation to do so, can amend or supplement the information/clauses/articles in this RFP document. The information that DSCL is in a position to furnish is limited to this RFP only. The information contained in the RFP must be kept confidential. Mere submission of a responsive Bid/ Bid does not ensure selection of the Bidder as Contractor.

NOTICE INVITING TENDER-IMPORTANT DATES

Sl. No.	Activity	Duration
1.	Bid Ref No.	01/DSCL/19-20/NCB/SCADA
2.	Availability of Bid Documents	The Bid documents for this work shall be available from website http://uktenders.gov.in **from 24/07/2019 at 1000 Hours to 22/08/2019 up to 1000 Hours.**
3.	Pre-Bid Meeting	**03/08/2019 at 1100 Hours**. Bidder shall have to email their queries to agmproc-dscl@uk.gov.in on or before the pre-bid meeting date. Venue of Pre Bid Conference – Dehradun Smart City Limited, 777, Saatvik Tower, Rajender Nagar, Kaulagarh Road, Dehradun, 248001, Uttarakhand, India, Ph: 0135-2750894, Fax: 0135-2750817
4.	Pre-Bid Meeting Coordinator	**Mr. Surya Kotnala, Asst. General Manager (Procurement & Contract Management), Mob: +91 7060033338**
5.	Last date for downloading of Bid document from the E-procurement portal http://uktenders.gov.in	**22/08/2019 up to 1000 Hours**. The scan copy of the RFP document fees (Non-Refundable), Bid Security (EMD) and Affidavit shall be uploaded on the e-procurement website.
6.	Last date and time for Bid submission/ uploading of Bid in E-procurement	**22/08/2019 up to 1130 Hours**
7.	Submission of original documents i.e. RFP document fees (Non-Refundable), Bid Security (EMD) and Affidavit	**22/08/2019 up to 1200 Hours (Afternoon)** Address for submission of original documents: Dehradun Smart City Limited, 777, Saatvik Tower, Rajender Nagar, Kaulagarh Road, Dehradun, 248001, Uttarakhand, India, Ph: 0135-2750894, Fax: 0135-2750817
8.	Time and date of opening of Technical Bids	The Technical Bids will be opened on line by the Authorized Officers on **22/08/2019 at 1230 Hours (Afternoon)** in DSCL office.
9.	Date and time of opening of Financial Bids	Shall be informed later to technically qualified Bidders

NOTICE INVITING TENDER -IMPORTANT DATA

Bid Ref No.	01/DSCL/19-20/NCB/SCADA	
Organization Name	Dehradun Smart City Limited (DSCL)	
Name of Work	Request for Proposal for works of Complete Automation & SCADA system of 198 tube wells and 72 over head tanks and all the appurtenant works thereof in Dehradun city under Smart Water Management (SCADA) Project including Operation and maintenance for 5 years under "Smart City Mission" through e-procurement.	
Bid Type	National Competitive Bidding(NCB) Item Rate Mode	
Bid Currency	Indian National Rupees (INR) Only	
Payment Details	Bid validity period	180 days from the last date of Bid submission
	Project Duration	Implementation period –12 Months from the date of contract signing. Defect liability Period – 01 Years after the successful implementation period. Operation & Maintenance Period - 05 years after the successful implementation period.
	RFP Document Fees **(Non-refundable)**	INR 5,900/- (Indian Rupees Five Thousand Nine Hundred Only) including GST in the form of demand draft drawn in favor of "Chief Executive Officer, Dehradun Smart City Limited, payable at Dehradun"
	Bid Security (EMD)	INR 78, 40,000/- (Indian Rupees Seventy Eight Lakhs Forty Thousand Only) in the form of Demand Draft/FDR payable at Dehradun or an unconditional Bank Guarantee issued in favor of "Chief Executive Officer, Dehradun Smart City Limited'.
Addendum/Corrigendum	**Any Addendum/Corrigendum will be published on website http:// uktenders.gov.in only.**	

SECTION-I
INSTRUCTIONS TO BIDDERS

Section I -Instructions to Bidders (ITB)

	General
1. Scope of Bid	1.1 The Employer as defined in the BDS invite bids for the construction of Works as described in these documents and referred to as "the works". The name and identification number of the works is provided in the BDS. The bidders may submit bid of the work detailed in the table given in the Notice Inviting Tender. 1.2 The successful Bidder will be expected to complete the Works by the Intended Completion Date specified in the Part I General Conditions of Contract. 1.3 Throughout these documents, (a) The terms "bid" and "tender" and their derivatives (bidder/ tenderer, bid/ tender, bidding/ tendering, etc.) are synonymous. (b) The term "in writing" means communicated in written form (e.g. by mail, e-mail, and fax, including if specified in the BDS, distributed or received through the electronic-procurement system used by the Employer) with proof of receipt; (c) if the context so requires, "singular" means "plural" and vice versa; and (d) "Day" means calendar day.
2. Source of Funds	2.1 The funds shall be made available by the Government of India & Government of Uttarakhand
3. Eligible Bidders	3.1 A Bidder may be a firm that is a private entity, a state-owned enterprise or institution subject to ITB 3.5 – or any combination of them with a formal intent to enter into an agreement or under an existing agreement in the form of a Joint Venture (JV). In the case of a JV: (a) all partners shall be jointly and severally liable, and (b) The JV shall nominate a Representative who shall have the authority to conduct all business for and on behalf of any and all the parties of the JV during the bidding process and, in the event the JV is awarded the Contract, during contract execution. (c) JV will be allowed with a maximum no of 2 (two) firms 1 lead member +1 other member) (d) The bidder shall not alter its composition or legal status without the prior consent of the Procuring Entity / Employer.

	3.2 A Bidder, and all parties constituting the Bidder, shall have the nationality of India. 3.3 Government of Uttarakhand considers a conflict of interest to be a situation in which a party has interests that could improperly influence that party's performance of official duties or responsibilities, contractual obligations, or compliance with applicable laws and regulations, and that such conflict of interest may contribute to or constitute a prohibited practice. DSCL will take appropriate actions, which include not financing the contract, if it determines that a conflict of interest has flawed the integrity of any procurement process. Consequently all Bidders found to have a conflict of interest shall be disqualified. A Bidder may be considered to be in a conflict of interest with one or more parties in this bidding process if, including but not limited to: (a) they have controlling shareholders in common; or (b) they receive or have received any direct or indirect subsidy from any of them; or (c) they have the same legal representative for purposes of this bid; or (d) they have a relationship with each other, directly or through common third parties, that puts them in a position to have access to information about or influence on the Bid of another Bidder, or (e) influence the decisions of the Employer regarding this bidding process; or (f) A Bidder participates in more than one bid in this bidding process. Participation by a Bidder in more than one Bid will result in the disqualification of all Bid in which the party is involved. However, this does not limit the inclusion of the same subcontractor, not otherwise participating as a Bidder, in more than one bid; or (g) A Bidder participated as a consultant in the preparation of the design or technical specifications of the contract that is the subject of the Bid; or (h) A Bidder was affiliated with a firm or entity that has been hired (or is proposed to be hired) by the Employer as Engineer for the contract. 3.4 A firm shall not be eligible to participate in any procurement activities under a Government-financed project while under sanction imposed by DSCL. A bid from a sanctioned firm will be rejected. 3.5 Government-owned enterprises shall be eligible only if they can establish that they are legally and financially autonomous and

	operate under commercial law, and that they are not a dependent agency of the Employer. 3.6 Bidders shall provide such evidence of their continued eligibility satisfactory to the Employer, as the Employer shall reasonably request. 3.7 In case a prequalification process has been conducted prior to the bidding process, this bidding is open only to pre-qualified Bidders.. 3.8 Bidder should be registered in any State/Central Govt. organization.
	Bidding Documents
	Contents of Bidding Document
4. Sections of Bidding Document	4.1 The set of bidding documents comprises the documents listed below and should be read in conjunction with any addenda issued in accordance with Clause 6 of ITB. **PART 1** 1. Section I Instructions to Bidders (ITB) 2. Section II - Bid Data Sheet (BDS) 3. Section III - Evaluation and Qualification Criteria 4. Section IV - Bidding Forms 5. Section V – Part-1 Scope of Work 6. Section V – Part-2 Technical Specifications 7. Section V – Part-3 Drawings (If any) 8. Section VI General Conditions of Contract (GCC) 9. Section VII Particular Conditions of Contract (PCC) 10. Section VIII - Contract Forms **PART II** 1. Bill of Quantities (Price-Bid BOQ) 4.2 Bidding document will be available online on the website http://uktenders.gov.in. The bidder is expected to examine carefully all instructions, conditions of contract, Bid forms, terms and specifications, bill of quantities, Contract forms and drawings in the Bid Document. Failure to comply with the requirements of Bid Documents shall be at the bidder's own risk. Pursuant to clause 26.2 hereof, bids, which are not substantially responsive to the requirements of the Bid Documents, shall be rejected.
5. Clarification of Bidding Documents, Pre-	5.1 Prospective bidder requiring any clarification of the bidding document may notify the employer in writing by email on **agmproc-dscl@uk.gov.in**. The Employer will respond to any request for

bid Meeting & site visit	clarification received on or before the date of the pre-bid meeting. Copies of the employer's response will be uploaded in the e-procurement portal only including a description of the enquiry, but without identifying its source. 5.2 The Bidder is advised to visit and examine the Site of Works and its surroundings and obtain for itself, on its own risk and responsibility, all information that may be necessary for preparing the bid and entering into a contract for construction of the Works. The costs of visiting the Site shall be at the Bidder's own expense. 5.3 The Bidder and any of its personnel or agents will be granted permission by the Employer to enter upon its premises and lands for the purpose of such visit, but only upon the express condition that the Bidder, its personnel, and agents will release and indemnify the Employer and its personnel and agents from and against all liability in respect thereof, and will be responsible for death or personal injury, loss of or damage to property, and any other loss, damage, costs, and expenses incurred as a result of the inspection. 5.4 If a pre-bid meeting is to be held, the bidder or his authorized representative is invited to attend it. Its date, time and address are given in the notice inviting tender. The purpose of the meeting will be to clarify issues and to answer questions on any matter that may be raised at that stage. 5.5 The bidder is requested to submit any questions in writing on or before the pre bid meeting date in the format provided. 5.6 Minutes of the meeting, including the text of the questions raised (without identifying the source of the enquiry) and the responses given will be transmitted online (or otherwise). Any modifications of the bidding documents listed in Clause 4.1 of ITB, which may become necessary as a result of the pre-bid meeting shall be made by the Employer exclusively online through the issue of an Addendum pursuant to Clause 6 of ITB and not through the minutes of the pre-bid meeting. 5.7 Non-attendance at the pre-bid meeting will not be a cause for disqualification of a bidder.
6. Amendment of Bidding Documents	6.1 Before the deadline for submission of bids, the Employer may modify the bidding documents by issuing addenda online. 6.2 Any addendum thus issued shall be part of the bidding documents**.**

	6.3 To give prospective bidders reasonable time in which to take an addendum into account in preparing their bids, the Employer shall extend, as necessary, the deadline for submission of bids, in accordance with Clause **20.2 of ITB.**
	Preparation of Bids
7. Language of Bids	7.1 All documents relating to the Bid shall be in the language specified in the BDS.
8. Documents Comprising the Bid	8.1 The Bid shall comprise two envelopes submitted simultaneously online on the e-Government Procurement System (e-GPS) in accordance with ITB 20.1. One called the Technical Bid containing the documents listed in ITB 8.2 and the other the Price Bid containing the documents listed in ITB 8.3. 8.2 The Technical Bid shall comprise the following: (a) Letter of Technical Bid; (b) Bid Security, in accordance with ITB 12; (c) written confirmation authorizing the signatory of the Bid to commit the Bidder, in accordance with ITB 13.1; (d) documentary evidence in accordance with ITB 18.1 establishing the Bidder's qualifications to perform the contract; (e) Technical Proposal in accordance with ITB 15.1; (f) Any other document required in the BDS. 8.3 The Price Bid shall comprise the following: (a) Letter of Price Bid; Completed Price Schedules, in accordance with ITB 9 and 10, or as stipulated in the BDS. (b) Any other document required in the BDS. 8.4 In addition to the requirements under ITB 8.2, bids submitted by a JV shall include a copy of the Joint Venture Agreement entered into by all partners. Alternatively, a Letter of Intent to execute a Joint Venture Agreement in the event of a successful bid shall be signed by all partners and submitted with the bid, together with a copy of the agreement.
9. Bid Prices	9.1 The Contract shall be for the whole Works, as described in Clause 1.1 of ITB, based on the priced Bill of Quantities submitted by the Bidder. 9.2 The Price bid made by the contractor should exclude the GST and all other taxes and duties. For GST, refer GCC clause 41.1. Therefore, all the duties, taxes, royalties and other levies payable by the Contractor under the Contract, or for any other cause, shall be excluded in the rates, prices, and total Bid price submitted by the Bidder.

	9.3 The rates and prices quoted by the Bidder shall be fixed for the entire duration of the Contract and shall not be subjected to adjustment. 9.4 Provisional sum of 2 % of the awarded value of work shall be provided for the work of shifting of poles, cables, Telephone lines or other works approved by DSCL .The payment shall be paid to contractor on production of original bills and as per actual work done.
10. Currencies of Bid	10.1 The unit rates and the prices shall be quoted by the bidder entirely in Indian Rupees only.
11. Bid Validity	11.1 "Bids shall remain valid for a period specified in the BDS after the deadline date for bid submission specified in Clause 19.1 of ITB." 11.2 In exceptional circumstances, prior to expiry of the original time limit, the Employer may request that the bidders may extend the period of validity for a specified additional period. The request and the bidders' responses shall be made in writing or by email. A bidder may refuse the request without 11.3 Forfeiting his Bid Security/ Earnest Money. A bidder agreeing to the request will not be required or permitted to modify his bid, but will be required to extend the validity of his earnest money for a period of the extension, and in compliance with Clause 12 of ITB in all respects.
12. Earnest Money	12.1 The Bidder shall furnish, as part of the Bid, Earnest Money, in the amount specified in the BDS. 12.2 The Earnest Money Deposit (EMD) shall, at the Bidder's option, be in the form of Fixed Deposit Receipt, Bank Guarantee of a scheduled commercial bank, issued in favor of the name given in the BDS& shall be valid for six months or more after the last date of receipt of bids. Earnest money will be deposited, physically, with officer calling tender, before last date of submission of tender. A scanned copy of earnest money document will be submitted along with the tender 12.3 Any bid not accompanied by an acceptable Earnest Money, shall be rejected by the Employer as non-responsive. 12.4 The Earnest Money of unsuccessful bidders will be returned within 60 days of the end of the Bid validity period specified in Clause 11.1 of ITB. 12.5 The Earnest Money of the successful Bidder will be discharged when the Bidder has signed the Agreement and furnished the required Performance Security.

	12.6 The Earnest Money may be forfeited: If the Bidder withdraws the Bid after bid opening (technical bid) during the period of Bid validity; (a) In the case of a successful Bidder, if the Bidder fails within the specified time limit to (b) Sign the Agreement; and/or (c) Furnish the required Performance Security.
13. Format and Signing of Bid	13.1 Bidders shall submit their Bid electronically. Procedures for submission, sealing and marking are outlined in the ITB16. 13.2 The Bid shall be typed or written in indelible ink and shall be signed by a person duly authorized to sign on behalf of the Bidder. This authorization shall consist of a written confirmation as specified in the BDS and shall be attached to the bid. The name and position held by each person signing the authorization must be typed or printed below the signature.
14. Cost of Bidding	14.1 The Bidder shall bear all costs associated with the preparation and submission of its Bid, and the **Employer** shall in no case be responsible or liable for those costs, regardless of the conduct or outcome of the Bidding process.
15. Documents Comprising the Bid	15.1 The Bidder shall furnish, as part of the Technical Bid, a Technical Proposal including a statement of work methods, equipment, personnel, schedule and any other information as stipulated in Section 4 (Bidding Forms), in sufficient detail to demonstrate the adequacy of the Bidders' proposal to meet the work requirements and the completion time.
	Bid Submission
16. Process of e-Bid Submission	16.1 **Instruction for Online Bid Submission** I. Instructions to the Bidders to submit the bids online through the procurement portal for Procurement at http://uktenders.gov.in. II. Possession of valid Digital Signature Certificate (DSC) and enrollment/registration of the contractors/bidders on the e-Procurement/e-tender portal are prerequisite for e- tendering. II. Bidder should read each and every rules/regulations for uploading the bid on the e-procurement portal. 16.2 **Submission of Original Documents**: The bidders are required to separately submit (i) original demand drafts towards the cost of bid document and registration on e-procurement website (if not previously

	registered) (as per RFP); and (ii) original bid security in approved form; and (iii) original affidavit regarding correctness of information furnished with bid document, in the office **specified in the BDS**, before the opening of the technical part of the Bid, either by registered/speed post/courier or by hand, failing which the bids will be declared non-responsive and will not be opened. Hard copy of rest of the bid or any other document is not to be submitted.
17. Alternative Bids	17.1 Unless otherwise specified **in the BDS**, alternative Bids shall not be considered.
18. Documents Establishing the Eligibility and Qualifications of the Bidder	18.1 To establish its qualifications to perform the Contract in accordance with Section 3 (Evaluation and Qualification Criteria) the Bidder shall provide the information requested in the corresponding information sheets included in Section 4 (Bidding Forms).
19. Deadline for Submission of Bids	19.1 Bids must be uploaded online no later than the date and time **specified In the BDS**. 19.2 The Employer may, at its discretion, extend the deadline for the submission of Bids by amending the bidding document in accordance with ITB 6, In which case all rights and obligations of the Employer and Bidders previously subject to the dead line shall thereafter be subject to the dead line as extended.
20. Late Bids	20.1 The electronic bidding system would not allow any late submission of bids after due date & time as per server time.
21. Withdrawal , Substitution, and Modification of Bids	21.1 A Bidder may withdraw, substitute, or modify its Bid – Technical or Price prior to deadline for submission of Bids.
	Bid Opening
22. Opening of Technical Bids	22.1 The Employer will open the bids received, on line in the presence of the bidders/bidders' representatives who choose to attend at the time, date and place specified in the BDS. In the event of the specified date for the submission of bids being declared a holiday for the Employer, the Bids will be opened at the appointed time online on the next working day. 22.2 The technical bid shall be opened online. 22.3 The Employer will prepare minutes of the Bid opening, including the information disclosed to those present in accordance with Clause 22.1 of ITB. 22.4 Evaluation of the technical bids with respect to bid security, qualification information and other information furnished in Part I of

	the bid in pursuant to Clause 4.1 of ITB, shall be taken up and at the end of evaluation of technical bid a list will be drawn up of the responsive bids whose financial bids are eligible for consideration. 22.5 The Employer will notify Bidders in writing who have been rejected on the grounds of their Technical Bid being substantially non-responsive to the requirements of the Bidding Document. 22.6 At the time of the opening of the 'Financial Bid', the names of the bidders whose bids were found responsive in accordance with clause 22(iv) of ITB will be announced. The financial bids of only these bidders will be opened. The responsive bidders' names, the Bid prices, the total amount of each bid, and such other details as the Employer may consider appropriate will be announced by the Employer at the time of bid opening. Any Bid price, which is not read out and recorded, will not be taken into account in Bid Evaluation. 22.7 The Employer shall prepare the minutes of the opening of the Financial Bids. 22.8 Process to be Confidential 22.9 Information relating to the examination, clarification, evaluation, and comparison of bids and recommendations for the award of a contract shall not be disclosed to bidders or any other persons not officially concerned with such process until the award to the successful Bidder has been announced. Any attempt by a Bidder to influence the Employer's processing of bids or award decisions may result in the rejection of his Bid 22.10 Clarification of Bids and Contacting the Employer 22.11 No Bidder shall contact the Employer on any matter relating to its bid from the time of the bid opening to the time the contract is awarded. 22.12 Any attempt by the bidder to influence the Employer's bid evaluation, bid comparison or contract award decision may result in the rejection of his bid. 22.13 Examination of Bids and Determination of Responsiveness 22.14 During the detailed evaluation of "Technical Bids", the Employer will determine whether each Bid (a) meets the eligibility

	criteria defined in Clauses 3 and 4; (b) has been properly signed; (c) is accompanied by the required securities; and (d) is substantially responsive to the requirements of the bidding documents. During the detailed evaluation of the "Financial Bids", the responsiveness of the bids will be further determined with respect to the remaining bid conditions, i.e., priced bill of quantities, technical specifications and drawings. 22.15 A substantially responsive "Financial Bid" is one that conforms to all the terms, conditions, and specifications of the bidding documents, without material deviation or reservation. A material deviation or reservation is one (a) which affects in any substantial way the scope, quality, or performance of the Works; (b) which limits in any substantial way, inconsistent with the bidding documents, the Employer's rights or the Bidder's obligations under the Contract; or (c) whose rectification would affect unfairly the competitive position of other Bidders presenting substantially responsive bids. 22.16 If a "Financial Bid" is not substantially responsive, it will be rejected by the Employer, and may not subsequently be made responsive by correction or withdrawal of the nonconforming deviation or reservation.
	Evaluation and Comparison of Bid
23. Confidentiality	23.1 Information relating to the examination, evaluation, comparison, and post qualification of Bid and recommendation of contract award, shall not be disclosed to Bidders or any other persons not officially concerned with such process until information on Contract award is communicated to all Bidders. 23.2 Any attempt by a Bidder to influence the Employer in the evaluation of the Bid or Contract award decisions may result in the rejection of its Bid.
	23.3 Notwithstanding ITB 23.2, from the time of bid opening to the time of Contract award, if any Bidder wishes to contact the Employer on any matter related to the bidding process, it may do so in writing.
24. Clarification of Bids	24.1 To assist in the examination, evaluation, and comparison of the Technical and Price Bid, the Employer may, at its discretion, ask any Bidder for a clarification of its bid or submission in original, of any document submitted in the electronic bid. Any clarification submitted by a Bidder that is not in response to a request by the Employer shall not be considered. The Employer's request for clarification and the response shall be in writing. No change in the substance of the Technical Bid or prices in the Price Bid shall be sought, offered, or permitted, except to confirm the correction of arithmetic errors

	discovered by the Employer in the evaluation of the Price Bid, in accordance with ITB 27. 24.2 If a Bidder does not provide clarifications of its Bid by the date and time set In the Employer's request for clarification, its Bid may be rejected.
25. Deviations, Reservations, and Omissions	25.1 During the evaluation of Bids, the following definitions apply: (a) "Deviation" is a departure from the requirements specified In the bidding document; (b) "Reservation" is the setting of limiting conditions or with holding from complete acceptance of the requirements specified In the bidding document; and "Omission" is the failure to submit part or all of the Information or documentation required In the bidding document.
26. Preliminary Examination of Technical Bid	26.1 The Employer shall examine the Technical Bid to confirm that all documents and technical documentation requested in ITB Sub-Clause 8.2 have been provided, and to determine the completeness of each document submitted.
	26.2 The Employer shall confirm that the following documents and information have been provided in the Technical Bid. If any of these documents or information is missing, the offer shall be rejected. (a) Letter of Technical Bid; (b) Written confirmation of authorization to commit the Bidder; (c) Bid Security, if applicable; and (d) Technical Proposal in accordance with ITB15.
27. Correction of errors	27.1 The e-procurement system automatically calculates the total amount from unit rates and quantities and the system also automatically populates the amount in words from the amount In figures and therefore there is no scope of discrepancy and need for arithmetic correction
28. Evaluation of Price Bid	28.1 The Employer shall use the criteria and methodologies listed in this Clause. No other evaluation criteria or methodologies shall be permitted. 28.2 To evaluate the Price Bid, the Employer shall consider the following: 28.3 the bid price, excluding Provisional Sums and the provision, if any, for contingencies in the Summary Bill of Quantities for admeasurement contracts, or Schedule of Prices for lump sum contracts, but including Day work items, where priced competitively; 28.4 price adjustment for correction of arithmetic errors in accordance with ITB 27.1;

	28.5 price adjustment due to discounts offered in accordance with ITB 17.4; 28.6 adjustment for nonconformities in accordance with ITB 30.3; 28.7 application of all the evaluation factors indicated in Section 3 (Evaluation and Qualification Criteria); 28.8 The estimated effect of the price adjustment provisions of the Conditions of Contract, applied over the period of execution of the Contract, shall not be taken into account in bid evaluation. 28.9 If the Bid in an admeasurement contract, which results in the lowest Evaluated Bid Price, is seriously unbalanced or front loaded in the opinion of the Employer, the Employer may require the Bidder to produce detailed price analyses for any or all items of the Bill of Quantities, to demonstrate the internal consistency of those prices with the construction methods and schedule proposed. After evaluation of the price analyses, taking into consideration the schedule of estimated Contract payments, the Employer may require that the amount of the performance security be increased at the expense of the Bidder to a level sufficient to protect the Employer against financial loss in the event of default of the successful Bidder under the Contract. The increase in performance security shall be evaluated as per procedures specified in BDS.
29. Employer's Right to accept any Bid and to Reject any or all Bids	29.1 Employer reserves the right to accept or reject any Bid, and to cancel the bidding process and reject all bids, at any time prior to the award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Employer's action.
	Award of Contract
30. Award Criteria	30.1 The Employer shall award the Contract to the Bidder whose offer has been determined to be the lowest evaluated bid for aggregate Engineer construction and operation & maintenance and is substantially responsive to the Bidding Document, provided further that the Bidder is determined to be qualified to perform the Contract satisfactorily
31. Notification of Award	31.1 Prior to the expiration of the period of bid validity, the Employer shall notify the successful Bidder, in writing, via the Letter of Acceptance/Award included in the Contract Forms, that its bid has been accepted. 31.2 Until a formal contract is prepared and executed, the notification of award shall constitute a binding Contract. 30.3 At the same time, the Employer shall also notify all other Bidders of the results of the bidding, and shall publish in an English

	language newspaper or well-known and freely accessible website the results identifying the bid and contract numbers and the following information: (i) name of each Bidder who submitted a Bid; (ii) bid prices as read out at Bid Opening; (iii) name and evaluated prices of each Bid that was evaluated; (iv) name of bidders whose Bid were rejected and the reasons for their rejection; and (v) name of the winning Bidder, and the Price it offered, as well as the duration and summary scope of the contract awarded. After publication of the award, unsuccessful bidders may request in writing to the Employer for a debriefing seeking explanations on the grounds on which their Bid were not selected. The Employer shall promptly respond in writing to any unsuccessful Bidder who, after publication of contract award, requests a debriefing.
32. Signing of Contract	32.1 Promptly after notification, the Employer shall send the successful Bidder the Contract Agreement. 32.2 Within twenty-eight (28) days of receipt of the Contract Agreement, the successful Bidder shall sign, date, and return it to the Employer.
33. Performance Security	33.1 Within 21 (twenty one) days after receipt of the Letter of Acceptance/Award, the successful Bidder shall deliver to the Employer a Performance Security of ten (10%) of the Contract Price, valid up to 60 days beyond the date of completion of all the contractual obligations including any O&M period. 33.2 The performance security shall be either in the form of an unconditional Bank Guarantee or fixed deposit Receipts (FDR), in favor of Chief Executive Officer, Dehradun Smart City Limited Payable at Dehradun, Uttarakhand, from a Scheduled Commercial Bank. 33.3 Failure of the successful Bidder to comply with the requirements of Clause 32.1.shall constitutes sufficient grounds for cancellation of the award and forfeiture of the Earnest Money. He will also be debarred from participating in future bids under Dehradun Smart City Limited.
34. Advances:	34.1 The employer will provide mobilization advances and advance against security of equipment as provided in Part I General Condition of Contract. If specified in the tender document.
35. Corrupt or Fraudulent Practices	35.1 The Employer requires the bidders/Contractors to strictly observe the laws against fraud and corruption in force in India, namely, Prevention of Corruption Act, 1988.

SECTION II

BID DATA SHEET (BDS)

Section II – Bid Data Sheet (BDS)

ITB Reference	A. General
ITB 1.1	The number of the Invitation for Bids is: 01/DSCL/19-20/NCB/SCADA The Employer is: Chief Executive Officer, Dehradun Smart City Limited The name of the RFP is: Request for Proposal for works of Complete Automation & SCADA system of 198 tube wells and 72 over head tanks and all the appurtenant works thereof in Dehradun city under Smart Water Management (SCADA) Project including Operation and maintenance for 5 years under "Smart City Mission" through e-procurement.
	Contents of Bidding Document
ITB 5.1	**For clarification purpose only,** the Employer address is: Dehradun Smart City Limited, 777, Saatvik Tower , Rajender Nagar, Kaulagarh Road, Dehradun-248001, Uttarakhand, Email : agmproc-dscl@uk.gov.in
ITB 5.2	A Pre-Bid meeting ***shall*** take place. Place: Dehradun Smart City Limited, 777, Saatvik Tower , Rajender Nagar, Kaulagarh Road, Dehradun-248001, Uttarakhand, Email : agmproc-dscl@uk.gov.in **Date: 03/08/2019** **Time: 1100 Hours onwards**
ITB 6.1	Any addendum/clarification shall be uploaded on the portal http://uktenders.gov.in only
	Preparation of Bids
ITB 7.1	The language of the bid is : English
ITB 8.2	The Bidder should also refer to the checklist enclosed in the RFP for submission of the documents.
ITB 9.2	The rates quoted by the Contractor shall be exclusive of GST which will be paid /adjusted by the client at the time of payment of the bills of the Contractor and shall be deemed to be Inclusive of other taxes that the Contractor will have to pay for the performance of this Contract. The Employer will perform such duties In regard to the deduction of such taxes at source [TDS] as per applicable law.
ITB 11.1	The Bid validity period shall be 180 **days**.
ITB 12.1	The bidder shall furnish a Bid Security/EMD for an amount of **INR 78.40 Lakhs Only)** valid till 45 days beyond the validity of Bids i.e. (180+45 days).
ITB 12.2	The Bid Security/EMD shall be in the form of Demand Draft/FDR/TDR payable at Dehradun or an Unconditional Bank Guarantee issued in favor of Chief Executive Officer, Dehradun Smart City Limited.

ITB 13.2	The written confirmation of authorization to sign on behalf of the Bidder shall consist of Legally Enforceable Power of Attorney.
	Bid Submission
ITB 16.2	The date and time for submission of original documents like RFP Document Fees(Non-Refundable), Bid Security/EMD and Affidavit for Correctness of Bid is: **Date: 22/08/2019** **Time: Up to 1200 Hours (Afternoon)** Place: Dehradun Smart City Limited, 777, Saatvik Tower , Rajender Nagar, Kaulagarh Road, Dehradun-248001, Uttarakhand
ITB 17.1	Alternative Bids shall not be permitted.
ITB 19.1	The deadline for uploading the Bids is: **Date: 22/08/2019** **Time: Up to 1130 Hours** Place: Dehradun Smart City Limited, 777, Saatvik Tower , Rajender Nagar, Kaulagarh Road, Dehradun-248001, Uttarakhand
	Bid Opening
ITB 22.1	The online Bid opening of Technical Parts of Bids shall take place at: Dehradun Smart City Limited, 777, Saatvik Tower, Rajender Nagar, Kaulagarh Road, Dehradun-248001, Uttarakhand. **Date: 22/08/2019** **Time: 1230 Hours (Afternoon)**
ITB 28.9	The amount of additional performance security shall be worked out as follows: 1. No additional performance security for items up to 5% below the estimated item rates. 2. From 5% below to 15% below the estimated rate an additional performance security of 0.50% of the estimated cost of the item for every 1% below the estimated rate. 3. For more than 15% below the estimated rate, an additional performance security of 1% of the estimated cost of the item for every 1% below the estimated cost.

SECTION III

EVALUATION AND QUALIFICATION CRITERIA

Section III - Evaluation and Qualification Criteria

1.0 EVALUATION

The bidder shall fulfill the following qualifying requirements:-

1.1 Adequacy of Technical Proposal

Evaluation of the Bidder's Technical Proposal will include an assessment of the Bidder's technical capacity to mobilize key equipment and personnel for the contract consistent with its proposal regarding work methods, scheduling, and material sourcing in sufficient detail and fully in accordance with the requirements stipulated in Section 5 (Scope of Work).

Non-compliance with equipment and personnel requirements described in Section 5 (Scope of Work) shall not be grounds for bid rejection and such non-compliance will be subject to clarification and rectification prior to contract award.

2.0 Qualification Criteria

The Technical Bids will be evaluated based on the following criteria

No	Criteria	Requirement	Compliance Requirements				Submission Requirements
			Single Entity	Joint Venture (existing or Intended) where permitted			
				All members Combined	At least one Member	Each Member	
1	**Net Worth**	As a minimum and the bidder's net worth calculated as the difference between total assets and total liabilities should be positive. Submission of audited balance sheets for the last Financial years 2017-2018 *to* demonstrate the current soundness of the bidder's financial position and its prospective long-term profitability. **Minimum Net-Worth Required is INR 13.35 Crores**	Must meet requirement	Must meet requirements	Must meet requirement	N/A	Form Fin 1
2	**Annual Construction Turnover**	The Bidder shall have minimum annual turnover in any of the last five financial years for a value of **INR 53.00 Crores Only.**	Must meet requirement	Must meet requirements	Must meet 50% of the requirement	Must meet 25% of the requirement	Form Fin 2

3(a)	**Specific Construction Experience in Similar works**	**Experience** Bidder should have successfully completed as a prime contractor, JV member or sub-contractor in the last 7 years at least (a) One similar work- Electrical & Mechanical Works in water supply scheme with Automation and SCADA system of contract value 42.72 Cr. OR (b) Two similar work - Electrical & Mechanical Works in water supply scheme with Automation and SCADA system of contract value 26.70 Cr. Note: For Electrical works, the bidder should possess a valid Electrical license.	Must meet requirement	Must meet requirement (Maximum No. of Orders to achieve the said value is 2 Nos.)	Must meet 50% of the requirement	Must meet 25% of the requirement	Form EXP 2(a) with attachments
3(b)	**Specific Construction Experience in Similar works**	Bidder should have successfully executed in the last 7 years as a prime contractor, JV member or sub-contractor the following: a) Automation & SCADA system work for any Central Government/ any State Government organization of at least 135 tube wells & overhead tanks connected to a single control server/computer. b) Automation works with web based SCADA system for not less than 135 Tube wells & overhead tanks.	Must meet requirement	Must meet requirement (Maximum No. of Orders to achieve the said value is 3 to 5 Nos.)	Must meet 50% of the requirement	Must meet 25% of the requirement	Form EXP 2(a) with attachments

D. **Key Personnel**

The Bidder must demonstrate that he have suitably qualified (and in adequate numbers) minimum Key Personnel, as described in the Table below, those are required to perform the Contract. The Bidder shall provide details of the Key Personnel and such other Key Personnel that the Bidder considers appropriate, together with their academic qualifications and work experience. The Bidder shall complete the relevant Forms in Section IV, Bidding Forms. Bidder shall require the Employer's consent to substitute or replace the Key Personnel (reference the General Conditions of Contract 9.1) with equivalent or better qualifications only.

Sl No.	Position	Qualification	Number	Total years of work Experience	Similar Years Work Experience

1	Project Manager	BE Instrumentation/ Electronics/ Electrical Engineering or Equivalent	2	10	5
2	Computer Engineer (SCADA)	BE/MCA Computer	2	5	3
3	Site Engineer	Diploma in Instrumentation/ Electronics/ Electrical Engineering	4	5	3
4	Supervisors	12th pass with PCM	4	5	3
5	Electricians	ITI in Instrumentation/ Electronics/ Electrical	4	5	2

Note: - The list of the Technical persons as mentioned above is tentative. Engineer of the project nominated from DSCL may modify the above list of the Technical persons as per the project requirements.

2.1 Equipment's

2.1.1 List of minimum key equipment's to be deployed for Work (Electrical/ Infrastructure works)

Sl. No.	List of Equipment	Minimum required	Capacity	Available	Own/ Lease
	During Execution				
1	Automated software for testing of Modules	1 set			
2	Testing kit for RTU	4 set			
3	Milli volt / milli ampere calibrator (loop calibrator)	1 set			
4	Crimping Tool	2 set			
5	Rheostat	2 set			
6	Tools - Hacksaw - File - Spanner - Blade - Screw and spanner set drivers - Piler - Wire Stripper - Twiser - Hammer - Punch - Hand tap	4 set			

	- Drill bit - Nose plier Magnifying Glass				
7	Packing tools	2 set			
8	All tools related to instruments/ water Quality Sensors etc.	5 set			

Note: - The list of the equipment and plants as mentioned above are tentative. Engineer of the project nominated from DSCL may modify the above list of the equipments as per the project requirements. It is Preferred that the bidder submit the List of Electrical T & P also.

Note: The required format provided in the bid document should be filled for all the equipment mentioned above

SECTION IV

BIDDING FORMS

Note: Each filled form should contain the Project Name and RFP Ref No.

Letter of Technical Bid

Ref No._____ Date of Bid submission: _____
RFP No.: _____

To: The Chief Executive Officer,
Dehradun Smart City Limited,
777, Saatvik Tower, Rajender Nagar,
Kaulagarh Road, Dehradun-248001, Uttarakhand

We, the undersigned, declare that:

We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB-8);

We offer to execute works in conformity with the Bidding Documents the following Work/s: _____.
Our bid shall be valid for a period of 180 days from the bid submission due date in accordance with the bidding documents, and it shall remain binding up on us and may be accepted at any time before the expiration of that period;

If our bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;

We, including any subcontractors or suppliers for any part of the contract, do not have any conflict of interest in accordance with ITB 3.3;

We are not participating, as a Bidder or as a subcontractor, in more than one bid in this bidding process in accordance with ITB3.3,

Our firm, its affiliates or subsidiaries, including any Subcontractors or Suppliers for any part of the contract, has not been declared ineligible by Government of Uttarakhand (GoUK)/ Government of India (GoI) or any of its undertakings/ Other Departments any State Government, any public sector unit or any Local Body.

We are not a government owned entity / We are a government owned entity but meet the requirements of ITB 3.5;*

We understand that this bid, together with your written acceptance thereof included in your letter of award, shall constitute a binding contract between us, until a formal Contract is prepared and executed.

We agree to permit Dehradun Smart City Limited or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by Dehradun Smart City Limited or Government of India.

Name.....
In the capacity of.....
Signed.....
Duly authorized to sign the Bid for and on behalf of.....
Date.....

Forms for Personnel

Form PER – 1: Proposed Personnel

Bidders should provide the names and details of the suitably qualified Personnel to meet the requirement specified in section 3 (Evaluation and Qualification Criteria) using the Form below for each candidate.

Sr. No.	Name of the Personnel	Proposed Position

Form PER – 2: Resume of Proposed Personnel

(The Bidder shall provide all the information requested below. Fields with asterisk (*) shall be used for evaluation)

Position*		
Personnel information	Name:	Date of birth:
	Professional qualifications:	
	Experience (No of years) :	
Present employment	Name of employer:	
	Address of employer:	
	Telephone:	Contact (manager / personnel officer):
	Fax:	E-mail:
	Job title:	Years with present employer:

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

From*	To*	Company	Position	Relevant Technical and Management Experience

Forms for Equipment

The Bidder shall provide adequate Information to demonstrate clearly that it has the capability to meet the requirements for the key equipment listed In Section III (Evaluation and Qualification Criteria). A separate Form shall be prepared for each item of equipment listed, or for alternative equipment proposed by the Bidder.

Type of Equipment*		
Equipment Information	Name of manufacturer,	Model and power rating
	Capacity	Year of manufacture
Current Status	Current location	
	Details of current commitments	
Source	Indicate source of the equipment ☐ Owned ☐ Rented ☐ Leased ☐ Specially manufactured	

Site Organization
[Insert Site Organization Information]

Method statement

[Insert method Statement – A detailed note should be submitted outlining bidders proposed methodology and program of construction including Environmental and Social Management Plan, backed with equipment, materials and manpower planning and deployment, duly supported with broad calculations and quality control system/assurance procedures proposed to be adopted, justifying their capability of execution and completion of the work as per technical specifications within the stipulated review of completion as per mile stones]

Mobilization Schedule
[Insert Mobilization Schedule]

Construction Schedule

[Insert Construction Schedule in MS-Project/Primavera]

Bidder's Qualification

To establish its qualifications to perform the contract in accordance with Section III (Evaluation and Qualification Criteria) the Bidder shall provide the Information requested in the corresponding Information Sheets Included here under

Form ELI-1: Bidder's Information

Bidder's legal name	
In case of JV, legal name of each partner	
Bidder's country of constitution	
Bidder's year of constitution	
Bidder's legal address in country of constitution	
Bidder's authorized representative (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents. 1. In case of single entity, articles of incorporation or constitution of the legal entity named above, in accordance with ITB 3.1 and 3.2. 2. In case of a government-owned entity, any additional documents not covered under 1 above required to comply with ITB 3.5. 3. Authorization to represent the firm or JV named in above, in accordance with ITB 20.2. 4. In case of JV, letter of intent to form JV or JV agreement, in accordance with ITB 4.1.	

Form EL -2: Information for JV Bidders

Bidder's legal name	
JV Partner's or Subcontractor's legal name	
JV Partner's or Subcontractor's country of constitution	
JV Partner's or Subcontractor's year of constitution	
JV Partner's or Subcontractor's legal address in country of constitution	
JV Partner's or Subcontractor's authorized representative information (name, address, telephone numbers, fax numbers, e-mail address)	
Attached are copies of the following original documents. 1. Articles of incorporation or constitution of the legal entity named above, in accordance with ITB 4.1 and 4.2. 2. Authorization to represent the firm named above, in accordance with ITB 20.2. 3. In the case of government-owned entity, documents establishing legal and financial autonomy and compliance with commercial law, in accordance with ITB 4.5.	

Form LIT-1- Pending Litigation

Information on litigation history in which the bidder is involved.
(Each Bidder or member of a JV must fill in this form)

Non-Performed Contracts in accordance with Section III, Evaluation and Qualification Criteria			
Year	Non-performed portion of contract	Contract Identification	Total Contract Amount (Rs)
[Insert year]	[Insert amount and percentage]	Contract identification: [Indicate complete contract name/ number, and any other identification] Name of Employer: [Insert full name] Address of Employer: [Insert street/city/country] Reason(s) for nonperformance: [Indicate maIn reason(s)]	[Insert amount]
Pending Litigation, in accordance with Section III, Evaluation and Qualification Criteria			
☐ No pending litigation in accordance with Section III, Evaluation and Qualification Criteria. ☐ Pending litigation In accordance with Section III, Evaluation and Qualification Criteria.			

Year of dispute	Amount In dispute (INR)	Contract Identification	Total Contract Amount (INR)
		Contract Identification: _____ Name of Employer: _____ Address of Employer: _____ Matter In dispute: _____ Party who Initiated the dispute: ____ Status of dispute: _____	
		Contract Identification: Name of Employer: Address of Employer: Matter In dispute: Party who Initiated the dispute: Status of dispute:	
Litigation History in accordance with Section III, Evaluation and Qualification Criteria			
☐ No Litigation History In accordance with Section III, Evaluation and Qualification Criteria ☐ Litigation History in accordance with Section III, Evaluation and Qualification Criteria, as indicated below.			
Year of award	Outcome as percentage of Net Worth	Contract Identification	Total Contract Amount (INR)

[Insert year]	[Insert percentage]	Contract Identification: [Indicate complete contract name, number, and any other identification] Name of Employer: [Insert full name] Address of Employer: [Insert street/city/country] Matter In dispute: [Indicate main issues In dispute] Party who Initiated the dispute: [Indicate "Employer" or "Contractor"] Reason(s) for Litigation and award decision [Indicate main reason(s)]	[Insert amount]

Form FIN – 1: Financial Situation and Performance
(Each Bidder or member of a JV must fill in this form)

Information from Balance Sheet			
	2017-18	2016-17	2015-16
Total Assets (TA)			
Total Liabilities (TL)			
Net Worth (NW)			
Current Assets (CA)			
Current Liabilities (CL)			
Working Capital (WC)			
Total Revenue (TR)			
Profits Before Taxes (PBT)			
Profits After Taxes (PAT)			
Cash Flow from Operating Activities			

Note: The figures filled by the bidder in the above format should also be certified by the Chartered Accountant.

☐ Attached are copies of financial statements for the last three years required above; and complying with the requirements (Last three years legible audited financial statements (Balance sheets and Profit and Loss Accounts) including enclosures/annexures/ schedules/attachments/appendix). Audit report is also attached.

Form FIN - 2: Average Annual Turnover
(Each Bidder or member of a JV must fill in this form)

Annual turnover data	
Year	Amount in INR
2017-18	
2016-17	
2015-16	
Average Annual Turnover *	

Annual construction turnover calculated as total certified payments received for work In progress or completed, for last three years(2015-16,2016-17,2017-18) of the Bidder and should be certified by a Chartered Accountant.

Form FIN – 3: Financial Resources

(Each Bidder or member of a JV must fill in this form)

Specify proposed sources of financing, such as liquid assets, unencumbered real assets, lines of credit, and other financial means, net of current commitments, available to meet the total construction cash flow demands of the subject contract or contracts as specified In Section III, Evaluation and Qualification Criteria.

Source of Financing	Amount (Rs)
1.	
2.	
3.	
4.	

Form FIN 4: Existing commitments and on-going works

(Each Bidder or member of a JV must fill in this form)

Bidder should provide Information on their current commitments on all contracts that have been awarded, or for which a letter of Intent or acceptance has been received, or for contracts approaching completion, but for which an unqualified, full completion certificate has yet to be issued.

(A) Existing commitments and on-going works:

Description of work	Employer Contact details (Address, Tel, Fax, Email)	Value of Contract (In INR)	Stipulated Period of Completion	Value Of Works* Remaining To Be Completed (In INR.) (A)	Anticipated Date of Completion	Remaining Contract Period in Months (B)	Monthly Financial Requirement (A/B)
Cumulative Financial Resources Requirement for Existing Commitment							INR…… ……..

(B) Works for which bids already submitted and likely to be awarded/ expected additional commitment.

Description of works	Employer Contact details (Address, Tel, Fax, Email)	Estimated Value of works (In INR)	Stipulated Period of Completion	Date when decision is expected	Remarks, if any

*Attached Certificate (s) from the Employer

Form EXP – 2 (a): Specific Construction Experience
[The following table shall be filled in for contracts performed by the Applicant]

Similar Contract No.	Information			
Contract Identification				
Award date				
Completion date				
Role of contractor	Prime Contractor	Member In JV	Management Contractor	Sub-contractor
Total Contract Amount			Rs *	
If member In a JV or subcontractor, specify participation In total Contract amount			*	
Employer's Name:				
Address: Telephone/fax number E-mail:				

Note:

☐ Attached are completion certificates from the competent authority not less than the rank of Executive Engineer of any State /Central government department or corporation.

Form of Bid Security, Bank Guarantee

.....Bank's Name, and Address of Issuing Branch or Office.....
Beneficiary: ..... Name and Address of Employer.....

Date:.....
.....

Bid Security No.:
We have been informed that . . . . . name of the Bidder (hereinafter called "the Bidder") has submitted to you its bid dated . . . . . (Hereinafter called "the Bid") for the execution of.....name of contract.....under Invitation for Bid No.....("the IFB").
Furthermore, we understand that, according to your conditions, Bid must be supported by a bid guarantee.

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

has withdrawn its Bid during the period of bid validity specified by the Bidder in the Form of Bid; or

does not accept the correction of errors in accordance with the Instructions to Bidders (hereinafter "the ITB");or

Having been notified of the acceptance of its Bid by the Employer during the period of bid validity, (i) fails or refuses to execute the Contract Agreement, or (ii) fails or refuses to furnish the Performance Security, in accordance with the ITB.

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

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

. . . . . Bank's seal and authorized signature(s) . . . . . .
Note: All italicized text is for use in preparing this form and shall be deleted from the final document
Letter of Price Bid

Ref No._____ Date of Bid submission: _____
RFP No.: _____

To: The Chief Executive Officer,

Dehradun Smart City Limited,
777, Saatvik Tower, Rajender Nagar,
Kaulagarh Road, Dehradun-248001, Uttarakhand

We, the undersigned, declare that:
We have examined and have no reservations to the Bidding Documents, including Addenda issued in accordance with Instructions to Bidders (ITB-6) ;
We offer to execute works in conformity with the Bidding Documents.
The discounts offered and the methodology for their application are:
Our Bid shall be valid for a period of 180 days from the date fixed for the bid submission deadline in accordance with the Bidding Documents, and it shall remain binding upon us and may be accepted at any time before the expiration of that period;
If our Bid is accepted, we commit to obtain a performance security in accordance with the Bidding Documents;
We understand that this bid, together with your written acceptance thereof included in your notification of award, shall constitute a binding contract between us, until a formal contract is prepared and executed; and
We understand that you are not bound to accept the lowest evaluated bid or any other bid that you may receive.
We agree to permit DSCL or its representative to inspect our accounts and records and other documents relating to the bid submission and to have them audited by auditors appointed by DSCL or Government of India.
If awarded the contract, the person named below shall act as Contractor's Representative.

Name.....
In the capacity of.....
Signed.....
Duly authorized to sign the Bid for and on behalf of.....
Date.....

Format for Declaration by the bidder for not being Blacklisted / Debarred

(Each Bidder or member of a JV must fill in this form)

(To be submitted on the Letterhead of the bidder)

Date: dd/mm/yyyy

To: The Chief Executive Officer,
Dehradun Smart City Limited,
777, Saatvik Tower, Rajender Nagar,
Kaulagarh Road, Dehradun-248001, Uttarakhand

Subject: Request for Proposal for Pedestrianization of Paltan Market in Dehradun City under "Smart City Mission" through e-procurement.
RFP Reference No:

Dear Sir/ Ma'am,

I, authorized representative of _____, hereby solemnly confirm that the _____ ("Successful bidder") is not debarred/ black -listed by Central Government/ any State Government/ Public Sector Undertaking in India or similar agencies globally for unsatisfactory past performance, corrupt, fraudulent or any other unethical business practices or for any other reason as on last date of submission of the bid.

In the event of any deviation from the factual information/ declaration, DEHRADUN SMART CITY LIMITED reserves the right to reject the bid or terminate the Contract without any compensation to the Company.

Thanking you,
Yours faithfully,

_____ _____
Signature of Authorized Signatory (with official seal)

Date:
Name:
Designation:
Address:
Telephone & Fax: E-mail address:

Format of sending pre-bid queries at agmproc-dscl@uk.gov.in

RFP Reference No:

Bidder's Request For Clarification				
Name and complete official address of Organization submitting query/request for clarification			Telephone, Fax and E-mail of the organization Tel: Fax: Email:	
S. No.	Clause No.	Page No.	Content Of RFP Requiring Clarification	Change Requested/ Clarification required
1				
2				

Signature:
Name of the Authorized signatory:
Company seal:
Date and Stamped

Note: Bidder(s) are requested to send the queries in PDF with Sign and Company Seal and also in MS Excel/word for making consolidation process easy.

Format for Power of Attorney

(On a non-judicial stamp paper of appropriate value duly attested by notary public)

Know all men by these presents, we (name and address of the registered office of the Sole Applicant) do hereby constitute, appoint and authorize Mr./Ms._____R/o _____ who is presently employed with us and holding the position of_____, to do in our name and on our behalf, all such acts, deeds and things, necessary in connection with or incidental to the bid for Request for Proposal for _____ including signing and submission of all documents and providing information/ responses to DEHRADUN SMART CITY LIMITED and representing us in all matters in connection with our bid for the said Project.

We hereby agree to ratify all acts, deeds and things lawfully done by our said attorney pursuant to this Power of Attorney and that all acts, deeds and things done by our aforesaid attorney shall and shall always be deemed to have been done by us.

For (Signature)

(Name, Title and Address)

Accept

…… (Signature)

(Name, Title and Address of the Attorney)

Notes:

To be executed by the Applicant.
The mode of execution of Power of Attorney should be in accordance with the procedure, if any, laid down by the applicable law and the charter documents of the executant(s) and when it is so required the same should be under common seal affixed in accordance with the required procedure.
Also, wherever required, the executant(s) should submit for verification the extract of the charter documents and documents such as a resolution/ Power of attorney in favour of the Person executing this Power of Attorney for the delegation of power hereunder on behalf of the bidder.

FORMAT FOR AFFIDAVIT FOR CORRECTNESS OF BID

(To be given by the Bidder on non-judicial Stamp Paper of Rs. 100/-)
I.……..……..... S/o ……..……..……..., Resident of the ……..……,
……... (Insert designation) of the ……..….... (Insert name of the Bidder), do solemnly affirm and state as under:

1. That I am the authorized signatory of ……..(insert name of company) (hereinafter referred to as "Bidder") and I am duly authorized by the Board of Directors of the Bidder to swear and depose this Affidavit on behalf of the bidder.

2. That I have submitted information with respect to our eligibility for the "_____(hereinafter referred to as "Project") and I further state that all the said information submitted by us is accurate, true and correct and is based on our records available with us.

3. That I hereby affirm to furnish any information, which may be requested by Authority to verify our credentials/information provided by us under this Bid and as may be deemed necessary by Authority.

4. That if any point of time till the completion of all the contractual obligations, in case Authority requests any further/additional information regarding our financial and/or technical capabilities, or any other relevant information, I shall promptly and immediately make available such information accurately and correctly to the satisfaction of Authority.

5. That I fully acknowledge and understand that furnishing of any false or misleading information by us in Bid shall entitle us to be disqualified from the tendering process for the said Project. The costs and risks for such disqualification shall be entirely borne by us.

6. That, we fully acknowledge and understand that in case any false or misleading information, as furnished by us in our Bid, is found at a later stage after the signing of the Contract Agreement amongst Authority and …….. (Insert name of organization), it shall entitle DSCL to terminate the said signed Contract Agreement between the Parties. The costs and risks for such termination shall be entirely borne by us.

7. That all the terms and conditions of the Tender Document have been duly complied with.

VERIFICATION:
I, the above named deponent, do verify that the contents of points 1 to 7 of this affidavit are true and correct to my knowledge. No part of it is false and nothing material has been concealed.
Verified at ……, on this ……. day of…….……., 2019.

Checklist for Technical & Financial Bid

S. No.	Particulars	Yes/No	If Yes, Page No.
1	RFP Document Fees		
2	Bid Security/EMD		
3	Affidavit of Correctness of Bid		
4	Power of Attorney		
5	Undertaking to the effect that the company has not been black-listed(duly notarized)		
6	Copy of PAN CARD issued by income tax department with copy of income tax returns for the last three FY		
7	Copy of GST Registration Certificate		
8	Copy of Incorporation Certificate		
9	Letter of Technical Bid		
10	Form PER-1 for Personnel		
11	Form PER-2 for Personnel		
12	Form for Equipment		
13	Site Organization		
14	Method Statement		
15	Mobilization Schedule		
16	Construction Schedule		
17	Form ELI-1: Bidders Information		
18	Form LIT-1: Pending Litigation		
19	Form FIN-1: Financial Situation and Performance		
20	Form FIN-2: Average Annual Turnover		
21	Form FIN-3: Source of Financial Resource		
22	Form FIN-4: Existing Commitments & Ongoing Works		
23	Form EXP-1: General Construction Experience		
24	Form EXP-2: Specific Construction Experience		
25	Letter of Price Bid		
26	Audited Balance Sheets for the last three FY		
27	Any other relevant document		

SECTION 5
Scope of Work

This Section contains the Specification, the Drawings, and supplementary information that describe the Works to be procured. The specifications of the Equipments mentioned in the documents shall govern; and the equipment supplied, installed by the Contractor shall comply with stipulated specifications. The make/ manufacturer of the equipment if mentioned inadvertently in the bidding document shall have no effect.

SCOPE OF WORK

The overall scope of this project covers the following-

1. Geo-spatial referencing of all the tube wells and overhead tanks under the scope of this project.

2. Supply, installation, commissioning & testing of automation system comprising of the entire network of intelligent RTUs, instruments, cabling etc in order to facilitate logical, sequential and automatic operations of the tube wells.

3. Establishment of SCADA software & hardware at well-equipped Local Control Station (LCS) and at Master Control Stations (MCS).

4. Integration of the tube well sites with MCS & LCS equipped with functional SCADA system suitably located at circle and zonal offices.

Supply and installation of following material is proposed:

1. iRTU (intelligent Remote Terminal Unit) at each site
2. Touch Screen HMI
3. Upgradation of Electrical panels cum starters
4. Auto phase reversal units
5. Web based SCADA software & hardware at LCS & MCS, SCADA servers
6. 4G GPRS based communications system with all accessories at the sites
7. LCS and MCS, customization & integration of the software
8. Intelligent digital type smart energy meters
9. Isolation transformers for protection of RTUs/Instruments
10. Auto Chlorination system
11. Flow meters
12. Valve actuators for auto operation of valves
13. Pressure Transmitters

14. Ultrasonic Level sensors for OHT's

15. Chlorine Analyzer

16. pH analyzer

17. TDS analyzer

18. Turbidity analyzer

19. Depth sensors for measuring ground water level & draw down.

5. Testing and calibration of all hardware, sensors, analyzers, monitors, electrical equipment & meters from approved test labs and also third party inspection at the discretion of the Employer and submission of test reports and obtaining approval thereof from the Employer.

6. Installation & commissioning of all the SCADA, automation & instrumentation system listed above

7. Operation & Maintenance of Automation and SCADA system for 5 years. This will include operation & maintenance of all software, hardware, sensors, analyzers, monitors, electrical equipment & wiring, actuators, flow meters, pressure sensors, energy meters, automated chlorinators etc. installed or repaired under this contract.

8. Training and capacity building of Engineers, technicians and other supports staff of DSCL, Uttarakhand Jal Sansthan & any other designated line department(s) during the O&M duration as per the directions and to the satisfaction of DSCL to prepare them to take over the Works and to operate & maintain the automation and SCADA system efficiently after expiry of 5 years O&M period.

System Description:-

The system must provide a combination of power, metering, communications, data processing, analytics, generation & communications of reports and alerts etc. The system must consist of individual RTU, each co-located within a Pump House. Each RTU must provide local ICT services (power, metering, communication, and data processing) near its site of installation, and provide bidirectional communications to applications running in the cloud or at Central Server location. The system must also include a Central Management System, which aggregates data about the fleet of RTUs, allows enabling or disabling of onboard interfaces, and a web services interface so that this data can be consumed by external applications.

SECTION 5
PART-2
TECHNICAL SPECIFICATION

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5. TECHNICAL SPECIFICATIONS

5.1 Design requirements

1 Proposed Automation system shall be designed, manufactured, installed and tested to ensure the high standards of operational reliability. Instruments mounted in field and on panels shall be suitable for continuous operation. All electronic components shall be adequately rated and circuits shall be designed so that change of component characteristics shall not affect plant operation.

2 All equipment shall be new, of proven design, reputed make and shall be suitable for continuous operation. Electronic instruments shall utilize solid-state electronic components, integrated circuits, micro controllers etc., and shall be of proven design. **The equipment/instruments such as flow meter, level sensor, underground depth sensors etc. should be as per site requirement and in compliance with realistic conditions of site relating to the head, pressure etc.**

3 For transmitting instruments, output signal shall be 4-20 mA DC linear having two/three or four wire system.

4 Unless otherwise stated, overall accuracy of all measurement systems shall be ± 0.25 % of measured value and repeatability shall be ±0.5%.

5 Unless otherwise specified, the normal working range of all indicating instruments shall be between 30% and 80% of the full scale range.

6 The instruments shall be designed to permit maximum interchangeability of parts and ease of access during inspection and maintenance.

7 The field instruments i.e. the instruments mounted outside the control panel shall be mounted at a convenient height of approximately 1.2 m above grade platform and as per the norms for highest level of accuracy.

8 The instruments shall be designed to work at the ambient conditions of temperature, humidity, and chlorine contamination that may prevail. The instruments shall be given enough protection against corrosion.

9 All field instruments and cabinets/panel mounted instruments shall have tag plates/name plates permanently attached to them.

10 The performance of all instruments shall be unaffected for the ± 10% variation in supply voltage and ±5% variation in frequency simultaneously.

5.2 Broad design considerations for the proposed solution

Each subsystem shall be individually monitored and managed.

For example, generation sub-system shall has a separate monitoring system; in generation, there is a zone wise distribution of the tube wells across the entire Dehradun; here, for individual Zone, there is a local monitoring station which monitors Zone wise Tube wells on the GPRS backbone; Simultaneously, the data would also be transferred to main control station located at the suitable locations.

Such Local/Main monitoring stations shall be equipped with a GPRS system to manage the data traffic and keep the Local monitoring station free for other operations.

All the local monitoring stations shall be linked to the central station called the Master Control Station.

Basic design considerations for designing system of such a magnitude can cover following aspects; these are considered on a macro level basis:

1. Acquiring the important data like water flow, level, pressure, temperature, current, voltage, frequency, events through field instruments. The data could be either digital or analog.
2. Transmit the analog / digital data by means of smart transducers through control cables to the SCADA hardware; identified as Remote Terminal Units (RTU) which are analog / digital modules.
3. Monitor, archive, analyze the logged data and to generate control signals, event history, alarms, management reports and graphical presentation.
4. Transfer of data from the RTU to central LCS or MCS on GPRS communication backbone linking with the Master Control unit
5. Hardware hierarchy at the MCS level suitable to the usage requirements, criticality of data as well as safe and uninterrupted data storage and acquisition
6. Local conditions at each level in terms of stable power supply, geographical conditions, safety conditions
7. Local codes and practices being implemented for instruments, cabling, power supply, installation and safety
8. Possibility of the existing mechanical and electrical elements of each system to modify itself into a SCADA compatible operation (Possibility of transformation to retrofit application).
9. Instrumentation considerations, equipment selection and design parameters for instruments

5.3 Parameter Monitoring

Any monitoring system based on the concept of SCADA, basically bifurcates the monitoring parameters in to two basic types:

a. Analog parameter
b. Digital parameter

5.3.1 Elements in Data Acquisition

1. Analog Parameter :

An analog parameter provides continuous output. For a typical water system, it can be (say):

1. Flow

2. Temperature
3. Pressure
4. Chlorine content
5. Turbidity
6. pH
7. Power
8. Voltage
9. Current
10. Water level
11. Subsoil water level /ground water level

2. Digital Parameter :

A digital parameter provides status or alarm situation for the monitored equipment; for a typical tube well system it can be:

1. Pump status
2. SPP failure
3. Motor Trip
4. Overload Failure
5. DG Status
6. DG Trip
7. Level switch

3. Note on Digital Parameter Monitoring and Control :

Necessary provision shall be made for remote operation of the pump from the local RTU or from any of the control station. All necessary local / remote selector switches and feedback of the pump status along with L / R selector switch position should be in the electrical panel.

4. SCADA interface with Existing Pump SD panels :

In order to have the run and health status of pumps as well as execute On/Off operations from RTU/LCS/MCS, modifications are proposed in some of the Star delta starter panel of each pump; Modifications shall be incorporated in the SD panels. Potential free contacts shall be made available within ATS panel for all signals (status, trip, Overload etc) which ever are being proposed to be remotely monitored. Most panels are beyond up-gradation and hence replacement is proposed for such panels.

Also a 24V AC relay with 2W/2P auto-manual switch shall be wired for remote operation of these pumps. When the switch is in manual-mode, the pumps cannot be operated from the SCADA System but only from local electrical panel. This is important in any remotely operational system for safer maintenance program.

5.3.2 Typical Tube Well Station Hardware design

We furnish a typical IO summary chart a standard tube well station having single tube well; these are indicative and bidder has to visit sites for confirmed availability.

#	Description	AI	DI	DO	AO
1	Tube well Run Status		01		
2	Tube well Auto manual Status		01		
3	Tube well On/Off command			01	
4	Tube well Trip Status		01		
5	Trip identification as SPP		01		
6	Trip identification as OL		01		
7	Flow (discharge)	01			
8	UGR / OHT Level	01			
9	Electrical parameters as under				
	Tube well Motor Volts (R,Y,B)	03			
	Tube well Motor Current (R,Y,B)	03			
	Tube well Motor Line Voltage	01			
	Tube well Motor Line Current	01			
	Tube well Motor PF	01			
	Tube well Motor Freq	01			
	Tube well Motor KW	01			
	Tube well Motor KWH	01			
10	Intruder alarm			01	
11	DG Set (if utilized at TW)		01		
12	Subsoil water level	01			
13	TW discharge Pressure	01			
14	Power Fail Status		01		
	TOTAL	16	7	02	00

Note: Above I/O are indicative only, however at the minimum it should be 16AI, 16DI, 16DO and 2AO.

5.4 The SCADA Hardware Specifications

Intelligent Remote Terminal Unit architecture complexity is Industry 4.0, IIoT enabled flow chart programmable unit for ease of programming and ease of de-bugging.

Single card architecture housed in industrial IP55 or higher enclosure for simplified design; rack mount assembly is not preferred.

7" Touch Screen HMI display to display all the pumping Parameters simultaneously on real time basis. The HMI is used for local operation and set-point control and adjustment.

It should be programmable to display important parameters, mode of operation, signal strength of the GPRS network, current Date/Time, cause of Alarm condition and Scheduling information.

It should be possible by the local HMI to set/change mode of operation, set/change Date/Time, set/change scheduling information and enable /disable alarms on cell by an authentic user having access to the system through a given password. Touch Screen for AUTO/MANUAL, Pump/tube-well ON/OFF, viewing schedule and current date/time, recipe variables, On/Off/Trip/Feedback delay timers, GPRS configurations should also be provided.

The high performance INTELLIGENT REMOTE TERMINAL UNIT must be designed to log all the Tube well station parameters with time stamping in its NON-VOLATILE memory at the defined logging interval.

The parameter logging interval can be set from 1 reading/ 15 Min locally form the keyboard and remotely from the central control station. The logged data can then be down loaded to the central station PC. The report is generated in Microsoft EXCEL format.

The logged data shall be stored up to one year in the INTELLIGENT REMOTE TERMINAL UNIT and simultaneously transferred to the MCS on real time basis.

LED indication on the front panel shall be provided for the indication of the present mode of operation and for alarm status along with its simultaneous display on the MCS.

The INTELLIGENT REMOTE TERMINAL UNIT shall be battery backed-up so as to maintain time stamping during power failure of the monitored pumping parameters which can be used in further analysis

The INTELLIGENT REMOTE TERMINAL UNIT shall be designed to have communication compatibility for wireless mode viz. for GPRS, Radio or wired mode viz. Telephone and serial to transmit data and receive commands remotely. Communication ports shall be required in the SCADA Hardware as per system requirement considering:

5.4.1 Intelligent Remote Terminal Unit Detailed Specifications

Two Power Supplies configured in hot standby mode for full redundancy shall be provided with the following specifications.

1. Input: 230 VAC (range 170 to 270 VAC), 50 Hz
2. Type: SMPS Type for high efficiency.

3. Output: +5 VDC @ 3 amps
   a) +12 VDC @ 1 amps
   b) +24 VDC @ 1 amps Isolated for status inputs and outputs.
4. Battery Back-up: 4 hour of Battery back up for operation of INTELLIGENT REMOTE TERMINAL UNIT.

CPUs shall be provided with the following specifications.

1. ARM Cortex-A9 Quad core, 1GHz CPU clock
2. 2 GB RAM
3. FLASH MEMORY 4 GB
4. SD Memory up to 64 GB
5. Real Time Clock (+/-1 minute accuracy over one month)
6. 7" touch screen HMI
7. 16 bit high performance analog to digital converter for high resolution of acquired data
8. Watchdog timer to 1.6 sec. that provides a reset signal to the CPU if not toggled due to any hardware or software failure to ensure fail-safe operation.

Analog Inputs:

1. Input Range: 0 - 5 VDC, 4 - 20 mA, , HART INTERFACE available for smart instruments
2. Differential Mode inputs having high CMRR (Common Mode Rejection Ratio) differential amplifier Single ended inputs will not be considered**.**
3. 16 bit high Resolution.
4. Input Over voltage protection: +/- 30 VDC Continuous
5. Input Low pass RC (Rejection Circuit). Filter for each channel.
6. High performance Instrumentation amplifier
7. High CMMR (Common Mode Rejection Ratio)
8. Common mode voltage (max) $\pm$ 10 volts

Digital Inputs:

1. Optical isolation
2. 24 VDC inputs
3. isolated inputs
4. Input Current per channel: 12 mA @ 24 VDC
5. Current consumption (max) 180 ma @ 5 V
6. On/Off delay times 1.6 msec
7. Local LED status

Digital Output:

1. Contact rating 24 VDC @ 5 amps
2. On /off delay times 3 msec.
3. Local LED status.

Analog Output:

1. Optical isolation
2. Range:, 0-5 VDC, 4 –20 mA
3. 12 bit Resolution

Note: IO must be from same family as CPU & it must be from same manufactures. Isolation must be built in IO card. External Isolation card shall not be accepted.

Communication:

1. Industry standard peripheral interfaces for TOUCH SCREEN HMI
2. 2G/3G/4G GPRS/NB-IOT fall back MODEM
3. GPS INTERFACE
4. RS-485 Modbus Interface
5. Zig bee RF wireless Interface
6. Wi-Fi Enabled
7. Bluetooth Interface
8. POE Ethernet Port
9. Gigabit Ethernet Port
10. USB interface

Environmental Specification:

1. Operating Temperature: 0 – 70 degrees Celsius
2. Storage Temperature: -20 to 80 degree Celsius
3. Humidity: 95 % condensing
4. INTELLIGENT REMOTE TERMINAL UNIT shall be complying to IEC – 60068-2-1 / IEC – 60068-2-2 / IEC – 60068-2-30 / IEC – 60068-2-78 / IEC-68-2-6 / IS 9000 Part VIII / IEC-68-2-27 / IEC-61000-4-2 / IEC-61000-4-3 / IEC-61000-4-4 / IEC-61000-4-5 CISPR22
5. Vibration: IS Standard, 5-300 Hz, 0.35 mm / 5 g
6. IP 55 grade protection

Approvals:

1. IEC (International Electro-technical Commission) compliance for INTELLIGENT REMOTE TERMINAL UNIT internals

2. NEMA (National Electrical Manufactures Association) / UL / IP Listing for enclosures.

Protection:

1. Short Circuit Protection
2. Surge Protection using Metal oxide resistors.
3. Over Voltage protection
4. EMI (Electromagnetic Interference)/ EMC (Electromagnetic compatibility) protection.

Sr. No.	Description	Specification
1.	**Input /Outputs**	
	Analog Input (Minimum) Input ranges Resolution	6 Differential (EXPANDABLE) 0-5 VDC, 4-20 mA, HART 16 bit
	Digital Input (Minimum) Isolation Operational Voltage Specification	16 (EXPANDABLE) Optical Isolated (5000 Vrms for 1 min.) 24 VDC Local indication using LED
	Digital Output (Minimum) Isolation Operational Voltage Specification	8 (EXPANDABLE) Optical Isolated 24 VDC local indication using LED Works on the internal 24VDC. 6-10A continuous current (Resistive load). Pulse on or hold (latched outputs)
	Analog Output (Minimum) Output Range Resolution	4 (OPTIONAL) 0 to 10 VDC 12 bit
2.	CPU Redundant	Quad core, 1GHz CPU clock ARM9-Cortex Linux based CPU
3.	Programming Memory	4GB flash memory
4.	Data Memory	2 GB RAM

Sr. No.	Description	Specification
5.	Long Term Secondary Data Storage	64 GB using SD Memory
6.	RTC (Time Stamped Data Logging)	Real time clock for time stamping (RTC) Battery Backed RTC (20ppm crystal stability)
7.	Analog to digital converter	16 bit Resolution
8.	HMI A. Size B. Type	7”inch Color Touch Screen (capacitive Touch)
9.	Display	TFT LCD Color Display
10.	Communication	Serial (3 - RS 232, 1 - RS485) (Capable of communicating using GSM, GPRS, Data call, Satellite, Radio Modem or Serial wired), Ethernet (LAN)
11.	Communication ports	**6 in Total:** 2 RS 232 1 RS 485 1 Gigabit Ethernet Port (10/100/1000-MBPS 1 POE Ethernet Port (10/100 mbps) 1 USB Port
12.	Communication Protocol support	INTELLIGENT REMOTE TERMINAL UNIT should support all of the following protocols. 1. MODBUS TCP, RTU and ASCII 2. IEC 870-5-101 3. IEC 870-5-103 4. LEO Satellite Network 5. Quad band 850/900/1800/1900 Mhz 6. GPRS multi-slot class 10 (default)/ 8 (optional) 7. GPRS max downlink speed is 85.6 kbps.

Sr. No.	Description	Specification
		8. GPRS max uplink speed is 42.8 kbps. 9. GPRS coding schemes CS1, CS2, CS3 and CS4 10. 2G/3G/4G GPRS/NB-IOT GPRS FALL BACK 11. WI-FI x1 (802.11b/g/n) 12. BLUETOOTH x1 (4.0 BLE) 13. ZIGBEE-RF 2.4 GHz, IEEE 802.15.4, Data Rate: 250 kbps 14. GPS INTERFACE (EXTERNAL)
13.	USB Support	1 USB Slave Port
14.	Programming	INTELLIGENT REMOTE TERMINAL UNIT shall be easily programmable using flow chart programming.
15.	Enclosure	suitable IP55 Enclosure
16.	Operating temperature	0^o to 70^o C
17.	Storage temperature	-20^o to 80^o C
18.	Humidity	95% condensing
19.	Vibration	IS standard, 5-300 Hz
20.	Mounting	Wall mounted/Panel mounted
21.	Approvals / Compliance to IEC standards	Compliance to IEC– 60068-2-1/IEC–60068-2-2/IEC – 60068-2-30/IEC–60068 - 2-78/IEC-68-2-6/IS 9000 Part VIII/IEC-68-2-27/IEC-61000-4-2/IEC-61000-4-3/IEC-61000-4-4/IEC-61000-4-5 CISPR22
22.	Protections to cater to harsh conditions prevalent in water sector	1. Short Circuit Protection 2. Over Voltage protection 3. Under Voltage Protection

Sr. No.	Description	Specification
		4. EMI/EMC protection
23.	Power Supply	Power Supply shall be of high efficiency of SMPS type with large input range to meet Indian power conditions like: Universal AC input 85V- 264V, 50/60Hz
24.	Battery Backup	The INTELLIGENT REMOTE TERMINAL UNIT will be provided with battery backup (4 hour) to ensure that INTELLIGENT REMOTE TERMINAL UNIT is able to run / communicate even during power failure.
25.	Satellite Communication	INTELLIGENT REMOTE TERMINAL UNIT should be software ready to support LEO / GEO VSAT satellite communication in case the GPRS network is not available.

INTELLIGENT REMOTE TERMINAL UNIT shall be provided at each location and is ideal for a wide variety of 1 No. shall be provided well suited to meet the needs of SCADA.

The INTELLIGENT REMOTE TERMINAL UNIT shall be designed to cater the flow measurement, level measurement and the pump operation and control.

The INTELLIGENT REMOTE TERMINAL UNIT shall have built – in 10/100 Mbps Ether Net / IP port for peer to peer messaging offers users high speed connectivity between controllers, with the ability to access, monitor and program from anywhere an Ethernet connection is available.

The INTELLIGENT REMOTE TERMINAL UNIT shall have connectivity with 7” Color Touch screen allows to monitor data within the controller, optionally modify that data, and interact with the control program. Display status of embedded digital I/O and controller functions, and acts as a pair of digital trim pots to allow program.

5.4.2 Control Logic

The control logic shall be programmed using intuitive flow chart programming. The flow chart programming software shall have following features:

1. Logic building using flow chart components.
2. Debugging tools such as break nodes, break points, watch nodes etc.

3. It shall be possible to define watch variables and modify them during runtime.
4. Extensive recipe management features shall be provided.
5. Detailed project management shall be provided.
6. It shall be possible to see the effect of logic execution using mimic generated.
7. Logic shall be divided into emergency, sequence and interlocks.
8. Interlocks shall be defined a separate block.
9. It shall have a library of timers, counters and PID function blocks.
10. Selector switches shall be provided in individual ATS panels for selecting auto-annual mode.
11. A position selector switch shall be provided for selecting the priority operation of pumps.
12. Indicating lamps (cluster LED type) shall be provided on control panel for status of pumps and motorized valves.
13. Starting and Stopping of pumps, Open close operation of motorized valves, system start, and system stop functions shall be performed through Graphics only.
14. The pump operation will be scheduled based as well as can be level based. Further the pump operation and schedule will be automatically modified for equal run time to take care of power failures.

5.4.3 Local Monitoring Stations

The SCADA hardware described above shall be acquiring data at substation RTUs which are remotely located and being monitored; the data for these remote substation RTUs will be acquired on a GPRS wireless communication backbone at a LOCAL MONITORING STATIONs.

The LMS will hence be integrating the local intelligent units (RTUs) under its ambit as per the area segregation based on the geographical spread of the system.

The local monitoring station since handles more than one substation RTU, it shall be provided with a GPRS device which shall handle the data traffic between the substation nodes (SCADA hardware) and the respective LMS.

The MCS and LMS shall be loaded with SCADA Software; detailed specifications of the software are provided separately; this software shall be with unlimited analog and digital tags as well as the software shall be full development version.

5.4.4 Communication Subsystem

Communication subsystem is the key to the entire project being proposed data from the substation RTUs to Local control Stations and further from Local Control Stations to the MCS shall be communicated though a wireless GPRS communication.

The vendor should have executed a wireless GPRS based SCADA System for water sector.

The system shall have GPRS based communication mode with required accessories. Out of the three communication ports of the RTU, on port shall have GPRS modem connectivity for transmission of data/ receive commands on the cellular communication network.

The Offered GPRS System shall meet following as minimum:

Product

Dual band EGSM900 and GSM1800

Certified in accordance with GPRS Phase 2/2+

Data Communication

CSD up to 14.4 kbps

USSD

Non-transparent mode

V.110, V.32

At the same time, the system alarms at each local station should be available on mobile sets of respective user whose no. is stored in respective RTU hardware.

The user shall even be able to acquire the data of key parameters through an SMS query.

5.4.5 Master Remote Monitoring Station

The master control station or MCS proposed for respective sub-systems (Generation/pumping and sewage) at J shall be designed to acquire the data from all the respective LMS; Here too, a GPRS device shall be provided at the MCS, dedicated to uninterrupted communication and this GPRS device shall remain ON under all circumstances to ensure that no data is missed. This will also take care of a probable hang-up of the MCS system, which shall be computer hardware and not the SCADA hardware.

Information at the Local Control Station and the Master Control Station

A separate document specifying the SCADA software is attached with this tender. The software shall be with unlimited digital and analog tags and shall be a development version.

All operations can be executed from the MCS through extensive graphics support of the package, which also reduces the learning curve of an average operator. Distribution system Mimic Diagram makes it easy to identify that the entire set up of TW and WW that is generated on the MCS and user at a glance can have to total status information of the system.

While the operation can be carried out from the MCS, all the data logged onto the MCS is then analyzed through representation of this data in various meaningful user defined reports, graphs, trends and customized analytical requirements of the system.

Reports

One of the most important aspects of the SCADA System is generation of meaningful reports that summarize the huge amount of data acquired by the system. The report generation is a flexible facility allowing different levels of user-defined reports critical for an Operator, Supervisor, Engineer and Chairman. Operator level reports are detailed and timely for making process decision; however, the management level reports are a summary of all information and hence are concise compared to operator reports.

Customized Reports are provided by Report generator modules of SCADA Software.

Report generator provides flexibility in defining date and time information for scheduling reports as well as for specifying report contents. This means user can have:

a. Yearly, Monthly, daily water production reports

b. Daily water production report comparing today's production to same day's production of the previous month

Reports can be generated automatically in an unattended situation like hourly, shift or daily logs, monthly or yearly summaries of flow.

Reports can be auto saved in the defined and configured folders for archiving.

Alarms

Reports can be printed in response to predefined events such as a Tube Well outage report or a trip log report. Reports can also be printed automatically at predefined time duration.

Covered under the Alarm Monitoring module, this feature provides alarm reports for

a. Limit Cross over (for controlled parameters viz. over pressure, tank overflow,

b. Hardware alarm

c. Communication link alarm

d. Each alarm is time stamped and signaled on the MCS.

e. Severity of alarms is indicated through colour-coded representations of these alarms.

f. Selectable report fields provided by Report generator are as under:

g. Historical Values (Flow, pressure, levels)

h. Calculations based on complex equations (derived flow based on discharge pressure of TW etc)

i. Max/Min/Avg./Total over user defined time interval

j. Date/Time at which Max/Min occurred

k. Current Date and time

l. User defined variables

Trend Displays

Graphical trends for all critical parameters for immediate access to the behavior of a particular parameter over a period of time.

Also covers historical trending of parameters like total water production; this will help not only in concluding the pattern of system utility but also production forecasting after scrutiny of say last five successive years of production.

Graphical Displays

Graphs inter-relating critical parameters which help in evaluating overall system performance. Practically any parameter logged onto the MCS, can be interlinked. A few examples can be:

TW discharge pressure vs. Current consumed to cross check the hydraulic performance and electrical efficiency of the borewells.

Daily Cumulative water production vs. Peak flow rate during the day to ascertain pumping operations in order to meet the daily requirements of the denizens.

From the above, it is clear that huge amount of information logged onto the MCS is systematically presented by the SCADA package for decision making at all user levels.

The content, format and utility of this information in general is different for different levels of usage and it can be further customized for effective decision making of the high level staff of the Authority.

Hence, while the system shall, on one hand, operate the water distribution system to achieve optimum performance, the collection and analysis of the key performance parameters shall be used to further improve the system.

Customization Specifications

Report formats are enclosed at the end of the specifications in this document; vendor to confirm that similar reports shall be generated by the system

It is also desired from the Vendor to give clause wise confirmation to above specifications.

5.5 SCADA Software Specification

5.5.1 Work Stations

The offered system shall be 64 bit system with a i5 or higher processor with appropriate processing speed. The offered system shall be expandable and chip up gradable in future. The system shall be of reputed international brands like HP, IBM, DELL, etc.

The offered system shall be built around local bus system (e.g. PCI). The RAM shall be 16 GB or more. The system shall consist of 52X DVD drive, with 1 TB HDD Storage capacity, key board, Multi Media kit, mouse (with mouse pad). The mouse port shall be dedicated. The serial ports/Ethernet ports shall be high speed with 16550 UART support. A4 size color ink-jet printer shall be provided. A suitable rating UPS for the work station of reputed make shall be a part of supply.

Suitable Communication MODEM based on the wireless system offered with antenna and accessories shall also be a part of the MCS and MS

Important note:

Vendor shall supply full development license for each SCADA node without any restrictions in the number of tags.

5.5.2 Operating System

The monitoring and control software supplied by the bidder for the proposed water SCADA system shall be extremely customized for the applications and shall be:

- A License/development version
- Shall have unlimited Digital and Analog tags

The offered system shall be based on the state of the art 64-bit Windows NT operating system.

The operating system shall have following features:

a) Multi Tasking.

b) Multi User.

c) C2-level security.

d) Networking protocols support.

e) Graphical Users Interface (GUI).

f) WINDOWS emulation.

g) Industry standard RDBMS support.

h) Various Password support.

i) Support for object linking like DDE, OLE etc.

5.5.3 Application Software

The application software offered shall be scalable to meet the demands of growing networks. The application software is Web Based and shall be written in HTML responsive framework, the application software can view with all standard Internet browsers and it is browser independent. Similar Mobile Application which can work with any Android or IOS platform is required for remote monitoring from any site.

The application software has following features:

1. Google Map Interface for Location based Asset Monitoring with pin-Point Indicator
2. MIMIC Graphics with 3D and animated images with sound effect.
3. Alarm POP Up notification with sound effect.
4. Reports
5. Live Trends
6. Historical data and Graphs
7. Schedule Configurations
8. Controls through MIMIC graphics
9. GPRS Configurations
10. Creation of Groups for RTU/PLC
11. Creation of different Users for Group

5.5.4 Database

The application software shall have following database features:

a) Database offered shall be capable of accommodating at least :

- status indications
- computed values

b) Instantaneous information:

The On-line/ Real Time data is collection of telemeter misbrands status, manually entered parameters and calculated or derived parameters along with validity flags. Updating should take place as follows:

- Cyclic updating of measured values
- Instantaneous updating of status information.

c) Real-time database.

It should be possible to store various real time/on-line time stamped information, calculated results, event and alarm information in a permanent storage which can be retrieved for the study using the history option. The rate at which storage of the system shall be user-definable.

d) The database operations shall be carried out in the interactive mode from operators console without interfering with Data Acquisition system.

e) Data protection against accidental or unauthorized changes.

f) High availability.

g) Easy data maintainability.

h) Static database information of water distribution system e.g. size of pipes, joints, pumps etc.

i) Link with industry standard RDBMS for storing ON-LINE data.

j) Dynamic data exchange.

k) It shall be possible to change the limits of particular value while running the system.

l) Authorization: There shall be password protection for data amendment. It shall be restricted to “authorize” persons by password, which can be altered by them only.

m) There shall be facility to exchange real-time data with any other Dynamic data exchange application.

5.5.5 Data Processing

The offered system shall be capable of the following data processing functions:

a) It shall be possible to perform mathematical calculations.
b) It shall be possible to perform logical operations.
c) It shall be possible to program control logic. The programming software offered shall allow development of complex control logic using flow chart programming. Due to intuitive nature of flow chart programming and ease of programming, enigma desires to use it for programming of control logic. The board does not have expert software programmers and hence support for simple flow chart based programming tools is a must. The flowchart programming tool offered shall have facility for validating the logic developed, carrying out simulation runs, to control the process and to provide an operator interface.
d) The software shall be capable to add pseudo measurements.

5.5.6 Mimic Generation

The Application software shall consist of a built-in module for mimic generation. This function can be used for creating complex process diagrams using basic drawing entities and a library of pre-defined symbols. It shall be possible to represent a measurement as a digital readout, dial, horizontal bar, and vertical bar. It shall be possible to customize alarm massages window anywhere on the screen.

It shall be possible to create a detailed customized data acquisition / control screens by simple click and drag icons.

It shall be possible to create backgrounds using scanned photographs, maps, one-line diagrams, engineering drawings etc using popular graphics or engineering applications which can save images in bitmap formats.

5.5.7 Mimic Display

It should be possible to create new process diagrams that represent various sections of the water distribution network at different levels of details using the mimic generator package.

A Uniform Mimic Color Scheme shall be followed

Readability of mimics can be improved by use of appropriate color scheme. It should be possible to color code the entire water distribution network based on flow rates, location, number of consumer's etc.

Performing Pump Operations from Within Mimic

It shall be also possible to perform pumping operations from within mimic displays by just taking his cursor to the pump that he wants to operate and double click. This shall display a dialog box on the screen that displays the current status of the equipment. Operator shall be able to toggle this status and upon confirmation the actual operation shall be performed.

Switching Between Mimics

A list of all available mimics shall be displayed in a menu that can be invoked by selecting the mimic menu option. User can then select the mimic of his choice and on confirmation the selected mimic should be displayed.

Alternatively, a list of 6 mimics shall be always displayed on the bottommost line of the mimic. User can view its description in the right bottom portion of the screen by just taking his cursor over the mimic name. To select any mimic just click at the mimic name

Database Functions That Can Be Changed Online:

A highly flexible database editor shall be provided for configuring analog channels that allows as many as 28 fields to be changed/specified on-line.

Editable Analog Database Fields

Name

Tag Description

Channel Number

Units

Sensor Type

Scan Frequency

The following options shall be available.

- No Scanning
- 1 Second Scan class
- 5 Second Scan class
- 15 Second Scan class
- 30 Second Scan class
- 60 Second Scan class

Scan Skip Flag

- The options available shall be:
- Square Root Extraction
- Reasonability Limits
- Group/Section Assignment
- Trend Page Assignment
- Trip Group Assignment
- Historical Group Assignment

Shall be selectable from:

- No Logging
- 15 Seconds
- 30 Seconds
- 60 Seconds
- 2 Minutes
- 5 Minutes

H-L Alarm Limits
HH-LL Alarm Limits
EH-El Alarm Limits
Rate of Change Alarm Limits
Significant Change Limit
Alarm Priority

- Critical
- Normal Priority and

- Low Priority.

Alarm Dead Band
Zero Dead Band
Annunciator Output
Alarm Inhibit
Equation
Device Tagging

Editable Digital Database Fields

Tag Name
Tag Description
Channel Number
Alarm Code
The following codes shall be available.
Alarm Code #1)“ TRIP” / “ NORMAL” ,
Alarm Code #2)“ RUN” / “ STOP”,
Alarm Code #3)“ OPEN” / “ CLOSE” ,
Alarm Code #4)“ UP” / “ DOWN”,
Alarm Code #5)“ FULLOPEN” / “INTRANSIT” ,
Alarm Code #6)“FULLCLOSE” / “INTRANSIT” ,
Alarm Code #7)“ CLKWS” / “ ACLKWS” ,
Alarm Code #8)“ FULL” / “ EMPTY” ,
Alarm Code #9)“ OFF” / “ ON” ,
Alarm Code #10)“ FAST” / “ SLOW” ,
Alarm Code #11)“ TOP” / “ BOTTOM” ,
Alarm Code #12)“ NORMAL” / “ FIRE” ,
Alarm Code #13)“ NORMAL” / “ ABNORMAL” ,

Group Assignment
Trip Group Assignment
Device Tagging
Alarm Priority
Annunciator
Normal Status
Skip Flag
Historical Group Assignment
Alarm Inhibit
Auto/Manual Override
Status
Calculated

Graphical Historical Trending Functions

This option would allow trending of historical data. The various data types that should be possible to trend shall include:

Historical Data Types

The possible data types as follows:

Historical Data

This data type refers to the data that shall be logged using standard logging frequency and duration as specified by the system manager. The default logging frequencies required is 15 seconds, 30 seconds, 60 seconds, 5 minutes and 15 minutes and user shall be free to select any one of them. Moreover, to avoid disk full condition due to huge amount of data, these files should be deleted by the system after specified number of days. This data shall be therefore available only for a limited duration.

Hourly Data

Analog Data
Spot
Minimum
Maximum
Average

Digital Data
ON/OFF Data
ON Time

This data type refers to standard logging frequency of one hour and all database channels are logged.

User Defined Data

Analog X Minute Data
Spot
Minimum
Maximum
Average

Digital X Minute Data
ON/OFF Data
ON Time

This option shall be similar to hourly data option, the only difference being the logging frequency, which is specified by the user during initial system configuration.

Special Data Type

If user has specified any particular logging frequency and logging duration, he can retrieve that data using this option.

Historical Trend Display Options

The following options shall be provided to facilitate historical trend display.

Hide Trend Channel

Unhide Trend Channel

H-L Limit

HH-LL Limit

EH-EL Limit

10% +

10% -

Tabular Historical Data Display Functions

An option for tabular display of the historical data shall also be provided.

Spread Sheet Options

The following options shall be provided under this option:

Change Date of Data Being Displayed

Change Time of Data Being Displayed

Edit Historical Data

Save Historical Data

5.5.8 Report Generation

The report generation module shall consist of the following:

a. The report shall be able triggered based on time, event or user defined demand.

b. It shall be able to generate shift reports, daily reports, monthly reports, yearly reports from the historical database.

e. It shall be possible to print reports on demand, scheduled or automatically triggered by an event or time of day.

f. Facility should be provided for scheduling of reports automatically at the end of hour, shift or day. It should be possible to schedule reports multiple times within a day based on the user-defined times.

g. Peak Demand: Based on the data already collected the system should be able to carry out the following:

- Hourly/daily/weekly/monthly/yearly peak demands
- Peak demand for individual stations
- It should also be possible to graph out the above information on screen and well as on the Printer in different colors to allow proper Differentiability.

A number of standard reports shall be provided to enable use of the system from day one.

Sample Standard Reports to be provided

Some of the standard reports required are:

Demand Log Report

This report prints the current status of all parameters at the time of request.

Alarm Summary Reports

This report gives a list of all the channels that are in alarm or have returned back to normal but are not yet acknowledged the date and time at which the channel went into alarm shall be shown. Moreover, for normal channels the time when that channel returned to normal shall be also shown.

Spot Group Logs

This report is quite similar to the demand log, the only difference being that parameters belonging to a specified group or groups shall only print.

Historical Group Log

This report is similar to the spot group log report except that user can generate report based on the historical data that is logged.

Hourly Log Reports

These are logs that are printed at specific time intervals. However, in case printer in not on-line at that time, a facility shall be provided to print these reports on demand. The following types of logs shall be provided.

Hourly log

This log shall be initiated every hour and shall print out the hourly maximum/minimum and average values for the previous hour.

Shift log

Every 8 hours or at manager defined interval, shift log shall be printed out. This report consists of average, minimum and maximum values for each analog channel for the previous eight hours.

Daily log

This log provides information about average, minimum and maximum values of the entire day for each channel.

Daily Deviation Log

In any SCADA system it is of prime important to the user to know how his process variables have fluctuated during the day. This report shall provide exactly that information. For each process variable, reports of its maximum value along with its time of occurrence, minimum value along with its time of occurrence and running average value of the parameter shall be printed.

Event List

This report prints a list of events that match the following inputs.

Start Date

This defines the start date from which events should be searched.

- Start Time
- This defines the start time from which events should be searched.
- End Date
- This defines the date till which events have to be searched.
- End Time
- This defines the time till which events have to be searched.

Parameters (Analog)

User shall have the flexibility in defining the parameters that he wants to get reported.

Parameters (Digital)

This option allows for selection of digital channels and shall be similar to the one above.

Alarm Types

User can also select the alarm types that he wants to view.

Alarm/Event Display

It is required to appear the alarm on the SCADA PC and Mobile Sets of specified users. The alarm generation module shall consist of following:

a. The module shall provide monitoring the data acquired from field I/O devices, internally calculated points, on event bases and shall provide real time alarms.

b. There shall be facility to acknowledgement of each and every alarm generated using various options.

c. There should be a provision for individual acknowledgement of alarms and alarm display should provide information on whether a particular alarm has been acknowledged.

d. There shall be provision to assign different user defined priority levels.

e. The system should support six or more levels of alarms. Each alarm type should be displayed in different user configurable color to allow easy differentiability.

f. In case of more than one RTU, the RTU name of the channel in alarm should also be indicated.

g. It should be possible to retrieve alarms on the basis of the following conditions.

Start date and Time

- End date and Time
- RTU source
- Type of alarms
- Alarm Priority

Alarm Schedule

The following alarms shall be annunciated on the control panel, appear on the SCADA Computer and on the mobile sets

- Pump tripped on overload
- Pump tripped on SPP
- High level in OHT
- Low level in OHT
- Pump failed to start
- Pump failed to stop
- Motorized valve failed to open
- Motorized valve failed to close
- Emergency stop operated

The alarm schedule is indicative only. The contractor shall provide all alarms necessary for annunciation in order to achieve control and monitoring requirement.

Customized Reports:
Web Based SCADA shall be customized and programmed considering Water Application Modules and reports are necessary for Town Water Management system:

- Zone wise Monitoring

Following reports are required for monitoring and planning.

- Zone Wise TW or Pump ON Status
- Zone Wise TW or Pump OFF Status
- Zone Wise TW or Pump TRIP Status

- Zone Wise TW or Pump RTU/PLC Communication Status
- Zone Wise Total / Individual Pump Run Hour
- Zone Wise Total/ Individual Total Flow
- Comparative Summary Reports Run Hour Vs Total Flow
- Individual Energy Parameter Reports

Summary of all Zone TW/Pump ON/OFF/TRIP/Communication Status

5.6 Instrumentation & Cabling

5.6.1 Instruments

Level Indicator with Transmitter

An ultrasonic type level transmitter is being specified for continuous monitoring of the water level at the MCS and for the logical operation of the pumps based on water level

1	Particulars	1 no for OHT
2	Type	Ultrasonic measurement
3	Operating temperature	-10 ° C to 70 ^{0}C
4	Sp. Gravity	1.0
5	Viscosity	1.0
6	Accuracy	±0.1 % of range
7	Resolution	0.2 mm
8	Measuring range	0 – 5/10 meter
9	Power supply	15 to 24 V DC
10	Current output	4 – 20 mA, 2 wire
11	Enclosure	ABSXIP65

Flow transmitter- Full bore

1	Type	Electromagnetic full bore

2	Pipe size	80 mm to 500mm
3	Ambient temperature of fluid	-20 to 60 deg C.
4	Accuracy	+/- 5 % of reading
5	Output	4-20 mA
6	Electrode	SS 316
7	Power supply	250 V AC
8	Velocity	0.3 to 10 m/s
9	Coil housing	Coated steel
10	Pressure	PN10
11	Display	16X2 LCD
12	Protection	IP 67

Pressure transmitter

1	Type	Diaphragm type
2	Pressure range	13 to 500 psi
3	Diaphragm material	SS 316L
4	Output signal	1-5 V DC, 4-20 mA optional
5	Zero and spam offset	+/- 0.25% of FSD @ 21^0C
6	Accuracy	+/- 0.25% of FSD @ 21^0C
7	Long term stability	+/- 0.25% of FSD/year
8	Input power	10-30 V DC
9	Reverse polarity	Protected
10	Burst pressure	200% of rated range

Sub soil water level transmitter

1	Particulars	To measure underground water level
2	Type	Hydrostatic level measurement
3	Ranges	0 to 1 meter / 0 to 180 meter
4	Operating temperature	-10 ° C to 70 ^{0}C
5	Accuracy	+/-0.5%
6	Power supply	10 to 30 V DC
7	Current output	4 – 20 mA
8	Level probe	SS 316

pH Analyzer

1	GENERAL	SPECIFICATION
1	SENSORS	
1.1	TYPE	Combination electrode
1.2	ELECTRODE CONNECTION	Manufacturer Standard
1.3	TEMPERATURE RATING	-10º C – 60º C
1.4	PRESSURE RATING	6 Bar
1.5	SHAFT MATERIAL	Glass
1.6	DIAPHRAGM	Single Pore - 1 nos
2	TEMPERATURE SENSOR	NA
2.1	REFERENCE ELECTROLYTE	Manufacturer Standard
2.2	REFERENCE ELECTRODE	Manufacturer Standard
2.3	ELECTRODE HEAD	Manufacturer Standard
2.4	CABLE	Low noise Co-axial cable of 5 meters
2.5	SENSOR LENGTH	120 mm
3	TRANSMITTER	
3.1	TYPE	Microcontroller based, 2-wire transmitter
3.2	pH	0-14PH
3.3	TEMPERATURE	-20º C TO +200º C
3.4	SPAN	2pH – 14pH

3.5	DISPLAY	LCD display, programmable along with conversion factor
3.6	CURRENT OUTPUT	4-20 mA DC
3.7	CALIBRATION	Single/Dual Point Calibration
3.8	TEMPERATURE COMPENSATION	Automatic or Manual (PT 100/ PT 1000
3.9	POWER REQUIREMENTS	12 – 36 VDC with maximum load 600 Ω
4	ENCLOSURE MATERIAL	Die-cast Aluminium (LM6) with epoxy paint (Non - corrosive
4.1	MOUNTING TYPE	2" Pipe Type (Vertical
4.2	PROTECTION CLASS	IP 67
4.3	AMBIENT TEMPERATURE OPERATINGRANGE	-20˚C to + 70˚C
4.4	ELECTRODE HOLDER	To be supplied along
4.5	HOLDER TYPE	Flow thru chamber
4.6	MOC	SS

Chlorine Analyzer

1	GENERAL	Specification
1	MANUFACTURER	To be mentioned by the Supplier
1.1	MODEL NUMBER	To be mentioned by the Supplier
1.2	QTY	As per BOQ
1.3	INSTRUMENT RANGE	0 - 5 PPM
1.4	RESOLUTION	0.01 PPM
1.5	ACCURACY	
1.6	RESPONSE TIME	90% in 60 seconds
1.7	UNIT DISPLAYED	PPM
1.8	TEMP UNITS	°C, °F
2	SAMPLE CONDITIONS	
2.1	PROCESS TEMPERATURE	-5 TO 45 DEG C
2.2	INLET PRESSURE:	4 BAR
2.3	FLOW RATE:	> 30 Lit / Hr
2.4	MINIMUM CONDUCTIVITY	>150 MICRO S/CM
2.5	SAMPLE CONNECTIONS	Manufacturer Standard

3	SENSOR	
3.1	ELECTRODES	Potentiometric/Amperiometric
3.2	SELF CLEANING	AUTOMATIC SELF CLEANING SENSOR (Optional)
4	TRANSMITTER	Microprocessor based
4.1	NO. OF ANALOG OUTPUTS:	3 CURRENT Outputs
4.2	DISPLAY	Manufacturer Standard
4.3	OUTPUT SELECTIONS	0-20 mA, OR 4-20 mA
4.4	ALARM OUTPUTS	3 relays (NO/NC) FULLY PROGRAMMBALE
4.5	ph compensation	AUTO/ MANUAL COMPENSATION
4.6	POWER SUPPLY	100--230 VAC 50/60 HZ OR 24VAC/DC

Turbidity Analyzer

ONLINE TURBIDITY ANALYZER	
MEASURING RANGE	0/4.000, 0/40.00, 0/400.0 & 0/4000 NTU 9 -999 / 99 - 9999 PPM of SiO2 9 – 999 / 99 – 9999 mg/l of SiO2
SAMPLE TEMPERATURE	0 - 50°C
SET POINT	TWO(HIGH & LOW)SELECTABLE
TWO ANALOGUE OUT PUTS	: 0-20mA / 4 – 20 mA R max 600OHMS (ISOLATED
POWER SUPPLY	110 / 220 V ± 10%, 50Hz AC SELECTABLE
DDISPLAY	ALPHANUMERIC BACK-LIGHTED LCD DISPLAY
OPERATION	MANUAL AUTOMATIC&AND SIMULATED OPERATION
CALIBRATION	AUTOMATIC ZERO CALIBRATION AT EVERY MEASURING CYCLE
TURBIDITY PROBE	
RANGE	0 - 4000 NTU
RESOLUTION	0.001 ON SCALE 0/4.000 NTU, 0.01 ON SCALE 0/40.00 NTU 0.1 ON SCALE 0/ 400.0 NTU 1 ON SCALE 0/ 4000 NTU
ACCURACY	± 5% OF READING ON 0/400 NTU ± 10% OF READING ON 0/4000 NTU

LIGHT SOURCE	LED I.R. 890nm
BODY MATERIAL	SZ-9481 (10 METER

Energy meter

Sr. No.	Description	Specification
1	Type	True RMS Microcontroller based design ∅ 4W/3 ∅ 3W Balance & unbalanced operation
2	Accuracy class	1/ 0.5 (OPTIONAL)
3	Cut out size	92 x 92 mm Bezel: 96 x96 x mm
4	Suitable for	Multi parameter monitoring
5	Display	16 x 1 / 16 x 4 LC display
6	Casing	Compact 96 x 96 DIN enclosure
7	Key Pad	3 Functional keys to scroll through display pages for system values and programming parameter.
8	Auxiliary Supply	230 V or 110 V AC
9	Voltage Input	415 V or 110 V AV (field configurable)
10	Current rating	5A or 1A AC (field configurable)
11	Load range	120 % to 0.4% of rated CT primary
12	Operating P.F.	ZERO LAG to UNITY to ZERO LEAD
13	Communication	RS 485 output port Standard MODBUS RTU Protocol
14	Temperature	0 to $60^{O}C$
15	Storage	$-20^{0}C$ to $+70^{0}C$

Isolation Transformer

Sr. Nos	Description	Specification
1.	Make	Reputed
2	Primary	0-380V-440V-470V
3	Capacity:	300 VA
4	Insulation	2.5 Kv
5	Rated Temperature	55 deg. C
6	Frequency	50 Hz

with required DIN rail mounted glass fuse type 4 sq. mm screw terminals and with extended bottom mounting angle; in output side to provide push in type terminals 4 sq mm rating

GPRS MODEM

SNO	Description	Specification
1	FREQUENCY BAND	QUAD BAND 900/1800 MHZ
2	NETWORK	2G,3G,4G
3	POWER SPECIFICATION	7VDC TO 36 VDC (12VDC,1A NOMINAL)
4	OPERATING TEMPRATURE	–40°C to + 85°C
5	Accessories	RS232 Cable, Aluminum Casing
6	Casing	With Casing
7	Baud Rate	Auto Baud Rate Feature Inbuilt Range: 2400 to 460800

Over Voltage Under Voltage Trip Protection

Sr. Nos	Description	Specification
1	Make	Reputed
2	Supply Voltage	380-440 V AC
3	Over Voltage/ Under Voltage	Variable setting
4	Output Contact	2CO
5	Trip setting	Yes
6	Trip time delay	Yes
7	Resetting Mode	Auto/Manual/Remote

Motorized Actuator

Actuators specified below are to be installed on the discharge line of respective sluice valve of the pump. All the valves shall be operated by an electro mechanical actuator, comprising of motorized gear train and screw assembly which drives the valve stem. The actuator shall be supplied with the following accessories.

- 3phase, 415 V, ± 10%, 50 Hz. ± 5%, A.C. squirrel cage induction motor.
- Reduction gear unit.

- Torque switch mechanism complete with set of torque
- Limit switch mechanism complete with set of limit switches.
- Hand wheel for manual operation.

The actuator shall be suitable for operation in the climate conditions and power supply conditions given in the specification. The actuator shall be capable of producing not less than 1½ time the maximum required torque and shall be suitable for at least 15 minutes continuous operation.

Valve operational requirements:

The operation of valves must be sequential w.r.t the pump operation.

As the pump starts, the valve shall start to open and reach 70% opening (identified by a limit switch) only after the complete pressure / full pump speed is reached, does the

Valve open 100%; the operation of this valve shall be based on time sequence w.r.t start time of respective pump.

Actuator Specifications

Sr. No.	Description	Specification
1	Type	Three phase rotary / multiturn, quarter turn and linear
2	Enclosure	Standard/Flameproof version
3	Output speed	10-426 RPM
4	Output torque max.	30 MKG
5	Locking system	Self locking/ Non – self locking
6	Drive kW/HP	0.75/1 to 2.2/3
7	Drive Speed	1500/3000
8	Maximum Axial Thrust Capacity	12000 kgs
9	Output shaft designs	As per DIN 3210
10	Mechanical stopper	Adjustable
11	Coupling to suit	Butterfly valves, Sluice Valve
12	Gear reduction ratio	100:1 (max)
13	Type of gear box	Spur gear/worm gear
14	Supply Conditions	
	a. Rated voltage	415 VAC ± 10%
	b. Rated frequency	50 Hz ± 5%
	c. Combined variation	± 10%
	d. NO. of Phases	3 Phase (4 wire)
15	Reference Standards	I. S. 325, IEC34, VDE 0530,BS 2613

16	Type of motor	TEFC (Totally Enclosed Fan Cooled, Squirrel cage, Induction.) / TESC (Totally Enclosed Surface Cooled) for IP 67 / 68
17	Drive Frame Size	80/90
18	Rotor Class	KL 60
19	Protection	IP 65 as per IS 13947 Part I 1993
20	Class of Insulation	Class 'F' with temperature rise restricted to class 'B'
21	Duty cycle	As per IS 325 - S1 continuous (S4 - Modulating as a Special case) OR (S2 - 15 / 30 min as a special case.)
22	Method of starting	DOL - Direct on line with suitable actuator Panel
23	Reference ambient temp	50° C
24	Motor paint	corrosion proof epoxy resin paint
25	Motor duty	S1 Duty motor suitable for
		3 Nos. of consecutive starts in hot condition
		8 Nos. of starts distributed over 15 minutes.
26	Travel Switches	1 NO + 1 NC
27	Micro Switch	
	a. Torque Switches	1 NO + 1NC
	b. Travel / Torque Switches	2 NO + 2 NC

Electricals

Actuator Panel

Sr. Nos	Description		Specification
1.	Make		Reputed
2	Switchgear		
		Relay	AC,DC
		Contactors	2Nos
		Operational Voltage	415V Ac
		Indication Lamp For Open ,Close and Fault,3Phase	6
		Remote Local Switch	1
		Open Close Switch	1
		Isolation Transformer	1
		Overload Relay	1
		3 Pole MCB	1
		Terminal For Cable Termination	As required

Should be the Integral Part of the Integrated Panel and able to operate the actuators in

Manual as well as auto mode and should have required no of

- Relays
- Contactors
- Indications lamps
- Remote Local Switches
- 415 V , 50 Hz
- Should Be Fully compatible with Actuator supplied

Electrical starter panel – SD and Soft Starter

The **Star Delta** Starter is a very common type of starter and is used extensively as compared to the other type of starting methods of the induction motor. A star delta is used for a cage motor designed to run normally on the delta connected stator winding. The connection of a three-phase induction motor A **soft starter** is a solid-state device that protects AC electric motors from damage caused by sudden influxes of power by limiting the large initial inrush of current associated with motor startup. They provide a gentle ramp up to full speed. Below are the specifications of both type of starter.

General Specification:

- Wall/floor mounting type
- non compartmentalized
- dust and vermin proof, IP 54 protection
- 16 SWG CRCA sheet, powder coated with Siemens grey shade
- 415 V, 50 Hz
- single/double door, bottom gland plate, earthling terminal

STAR DELTA CONTROL PANEL

Sr No.	ITEM	RATING	QTY.
1	Switch Disconnector fuse unit	As req.	1 No.
2	HRC fuse link	As req.	3 Nos.
3	HRC Control fuse	20/6 Amp.	7 Nos.
3	Main Contactor 230 Volt	As req.	1 No.
4	Delta Contactor 230 Volt	As req.	1 No.
5	Star Contactor. 230 Volt	As req.	1 No.
6	Thermal over load relay	As req.	1 No.
7	96sq.mm Ammeter.	xx/5 Amp.	1 No.

8	96sq.mm Volt meter.	0-500 V.	1 No.
9	A & V meter selector switch	6 Amp	2 Nos.
10	Auto manual selector switch	6 Amp.	1 No.
11	Current Transformer	xx/5 Amp.	3 Nos.
12	LED type indicating lamp Red for R,Y, B, ON, OFF, O/L TRIP,SPP& ELR	22.5mm	8 Nos.
13	Push Button for START,STOP,O/L RESET & Timer fail	22.5mm	3 Nos.
14	Plug in type relay for PLC operation 2 C/O 230 Volt	6 Amp.	5 Nos.
15	Single phasing preventer with High/Low voltage cut off.	Voltage Sensing	1 No.
16	Electronics Timer	0-30 sec	1 No.
17	Earth leakage relay with CBCT	0.5 to 2.5 A.	1 No.
18	Panel cooling fan 230 V.	120 mm	2 Nos.
19	Switch with socket combined unit.	15/5 Amp.	1 No.
20	Filter Grill kit.	120 mm	2 Nos.
21	Lamp with Holder	40 Watt	1 Set.
22	Plug in type relay for PLC operation 2 C/O 24 V DC	6 Amp.	1 No.

SOFT STARTER PANEL SPECIFICATION

Sr.No	Items	RATING	Qty
1	MCB	As required	1
2	MCCB	As required	1
3	CONTACTOR	As required	2
4	SOFT STARTER Make	As required	1
5	GF WITH LINK	As required	3
6	GREEN PB WITH NO	As required	1

7	RED PB WITH NC	As required	1
8	IND.LAMPS	As required	1
9	RED IND.LAMPS	As required	1
10	GREEN IND.LAMPS	As required	1
11	SPP	As required	1
12	CT 5VA	As required	3
13	CONT, TRANSFORMER 200VA	As required	1
14	EXHAUST FAN WITH AIRVENT	As required	1
15	CONTROL SP MACB	As required	1
16	PLUG IN TYPE RELAY	As required	2
17	PLUG IN TYPE RELAY	As required	1
18	A/M SWITCH 3P 2	As required	1
19	MS ENCLOSURE	As required	
20	TERMINALS	As required	7

APR PANEL SPECIFICATION

SNO	DESCRIPTION	RATING	QUANTITY
1	CONTACTOR	As required	2
2	ACB FIXED TYPE	As required	2
3	GF WITH LINK	As required	4
4	GREEN PB WITH NO	START	1
5	RED PB WITH NC	STOP	1
6	STAY PUT EMG.STOP	STOP	1
7	RED IND.LAMPS	RYB SEQ.	1
8	RED IND. LAMPS	RBY SEQ,	1
9	SPP	3PHASE	1
10	TIMER	ON DELAY	1

11	A/M SWITCH SP 2W	6A	1
12	MS ENCLOSURE	APD	1
13	BUSBAR	As Required	1

Cable

- Following types of cables shall be supplied laid and terminated as per instructions provided.
- Copper 1.5 Sq. mm control cables from RTU panel to field sensors.
- Control cables for Aux. Supply to transducers
- GPRS cable between MCS/RTU and modems
- Any other cables required for the job.
- Control cables shall be of 1100 Volts grade, electrolytic copper conductor, PVC insulated, extruded PVC inner sheathed.
- Communication cable if used anywhere shall be twisted pair multi-core 1.0 Sq mm, Braided & Aluminum Foil Shielded & Screened as per Belden standards.

5.7 Installation Specifications (General)

Cable Installation Specifications

- The contractor shall follow all the ISI rules & regulations.
- Cable shall generally be installed in trenches and buried in ground except for some short run in trays below the floor. Cables are laid on trays and risers shall be neatly dressed and clamped at an interval of 1500 mm and 900 mm for horizontal and vertical cable runs.
- The clearance between electrical power & data cables must be maintained 6” min. throughout the route.
- The crossing of electrical power & STP cable shall be at 90° only.
- The shield of cable must not be removed up to cable entry to I/O.
- The twist of cable must be maintained up to final termination.
- The insulation twist shield shall not be damaged while pulling the cable.
- The cable loop of 200 mtr. shall be provided at each termination end.
- Each cable run shall be tagged with number that appears in the cable schedule. Cables shall be tagged at their entrance, every 30 mtr and exit from any equipment,

junction box. The tags shall be of aluminum with number punched on it and securely attached to the cable by not less that two turns of 16 SWG G.I. wire.

- The termination and connection of cables shall be done strictly in accordance with drawings and/ or directed by the Engineer. The work shall include all clamping, glanding, fitting, fixing, tapping, crimping and grounding as required.
- The vendor shall perform all drilling, cutting on the gland plate and any other modification required and plugging the extra holes. The vendor shall provide on control cable cores at all terminations. Termination and connections shall be carried out in such a manner as to avoid strain on the terminals.
- The vendor shall supply the required cable glands of suitable type and size. Cable glands shall be of heavy duty, tinned brass, single/ double compression type complete with necessary armor, clamp and tapered washer etc. Cable gland shall match with the size of different control cables. They shall provide dust and leak proof terminations.
- The vendor shall make every effort to minimize wastage during erection work. In any case, the wastage shall not exceed 2.5 % for total quantity of cable supplied.

General Installation

- Phasing out NO/NC contacts in panels for breaker auxiliary switch for on/off indications, along with necessary wiring.
- Phasing out of spare NO/NC contacts in panels for “Auto Trip” indication with necessary wiring.
- Installation, earthling, testing and commissioning of RTU panel along with necessary wiring for above mentioned points.
- Supplying, installation, testing and commissioning of hardware, peripherals etc.
- Supplying, installation, testing, customization of software’s.
- Submission of cable schedules, wiring schedules, test reports, final “AS BUILT” drawings etc.
- Handing over the system as a whole after becoming fully operational to the Enigma.
- Although it may not be specified here, but all other work required for successful installation, testing and commissioning shall be in vendor’s scope.

Installation of instruments

- Flow meters if asked for shall be installed according to the recommended practices to ensure full bore arrangement; installation shall be carried out with all necessary

fittings and fixtures by piping vendor; supply, testing and performance guarantee of the flow meter to shall be a part of the contract of SCADA Vendor.

- Instruments like Level transmitter shall be installed by SCADA Vendor, only according to accepted standards and specifications.
- Actuator shall be installed by by the SCADA Vendor on the Existing Valve depending on the Valve condition non repairable value shall be removed by the SCADA vendor with new Motorized Actuator valve assembly
- Necessary loop power supply for operation of instruments like Valve etc shall be provided by Department.

Section VII - General Conditions of Contract

The Conditions of Contract, read in conjunction with Part II Particular Conditions of Contract and other documents listed therein, should be a complete document expressing fairly the rights and obligations of both parties.

The form of Conditions of Contract that follows has been developed for smaller measurements contracts for construction on the basis of the practice of the Government of India, and considerable experience in different States in India in the drafting and management of contracts, bearing in mind a trend in the construction industry towards simpler, more straightforward language.

General Conditions of Contract

i. General

In this Agreement, unless it be repugnant to the context herein or the subject otherwise requires, these words and expressions defined below shall have the meanings assigned to them:

1. Definitions	(a) The **Accepted Contract Amount** shall mean and include the amount accepted in the Letter of Acceptance/Award for the execution and completion of the works and remedying any defects in accordance with the terms of the Agreement. (b) **"Applicable Laws"** shall mean and include all laws which are applicable to the Project and/or to the Contractor extending to the State of Uttarakhand, having been enacted or brought into force by Government of India or Government of Uttarakhand including, notifications, orders, instruments, regulations and rules made thereunder and judgments, decrees, injunctions, writs and orders of any Court or Tribunal or Authority or Forum, as for the time being in force during the subsistence of this RFP. (c) **Bill of Quantities** shall mean and include the priced and completed Bill of Quantities forming part of the Bid. (d) **Compensation Events** shall mean and include those defined in the Clause 42 of the GCC. (e) The **Competent Authority** shall mean and include the DSCL or its Chief Executive Officer or the Additional Chief Executive Officer or anybody or committee or entity constituted or any person or entity or body or committee delegated with specified limited power for specific limited purpose by the Chief Executive Officer of the employer. (f) The **Completion Date** shall mean and include the date of completion of the works as certified and declared by the DSCL or 6 months for construction work period from the date of signing of contract, whichever is later, in addition to and 5 years for operation and maintenance after the expiry of such construction work period. (g) The **Contract** shall mean this Contract Agreement, between the Employer and the Contractor to execute, complete and maintain the works and the documents listed in sub-clause 2.3 of the GCC. (h) The **Contractor** shall mean the party whose bid to carry out the works has been accepted by the Employer and the men, agents, servants, directors,

	managers, consultants, sub-consultants, officers, staffs of the party whose bid has been accepted by the employer. (i) The **Contractor's Bid** shall mean and include the completed bidding documents submitted by the Contractor to the Employer. (j) The **Contract Price** shall mean and include the price stated in the Letter of Acceptance and thereafter as adjusted in accordance with the provisions of the Contract. (k) **Days** are calendar days; **months** are calendar months. (l) **Defect** shall mean and include any part of the works not completed or not performed or not done in accordance with the contract. (m) The **Defects Liability Certificate** shall mean and include the certificate issued by Employer, after the Defect Liability Period has ended and upon correction of defects by the Contractor after the expiry of the Completion date. (n) The **Defects Liability Period** shall mean and include the date on which the Defects Liability Certificate. (o) **Drawings** shall mean and include the drawings of the works but not limited to the Contract, and any additional and modified drawings issued by or on behalf of the Employer in accordance with the Contract or instruction of the Competent Authority in writing or the Engineer-In-Charge and shall be deemed to include the figures, calculations, other information, facts, images, representations, graphical or otherwise provided or approved for the execution of the Contract. (p) **"DSCL"** shall mean and Dehradun Smart City Limited. (q) The **Employer** shall mean Dehradun Smart City Limited or DSCL and any of its officer, men, agents, servants, directors, managers, consultant and sub consultant as has been referred throughout this document. (r) **Engineer** shall mean the person appointed by the Employer and responsible for supervising the execution of the Works and administering the Contract and all acts incidental as well as consequential for the proper execution of the work for which he is appointed by the employer in accordance with the terms and conditions of such appointment and who shall be treated as the Engineer-In-Charge (E in C)for the purposes of this project.

	(s) **Equipment** shall mean Contractor's machinery and vehicles brought temporarily to the Site work. (t) **"Force Majeure"** or **"Force Majeure Event"** shall mean acts, events, conditions and/or occurrences as specified in the GCC 61. (u) "**In writing**" or "written" shall mean hand-written, type-written, printed or electronically made, resulting in a permanent record; (v) The **Initial Contract Price** shall mean the Contract Price listed In the Employer's Letter of Acceptance/Award. (w) The **Intended Completion Date** shall mean the date on which it is agreed by the parties that the Contractor shall complete the works as per **PCC** including date approved by the Engineer-in charge by issuing an extension of time or an acceleration order in writing. (x) **Materials** shall mean all supplies, including consumables, used by the Contractor for incorporation in the work. (y) The **Particular Condition of Contract** shall mean the documents and other information, which comprise the Contract, specifying. (z) **Plant** shall mean any integral part of the work that shall have equipment's, mechanical, electrical, chemical, function, tools, machineries and shall include site area, land area where such things are lying and operating. (aa) **PMC shall mean** the project management consultant appointed by Employer for the job as the agreement between the employer and the PMC.The objective of PMC is specified in GCC63. (bb) **"RFP" shall mean** Request for Proposal document issued by DSCL, including all **"Tender Documents"** and "**Bidding Documents"**. (cc) The **Site** shall mean the area defined as such in the PCC. (dd) **Site Investigation Reports** shall mean those that were included in the bidding document and are factual and Interpretative reports about the surface and subsurface conditions at the Site. (ee) **Specification** shall mean the specification of the works included in the Contract and any modification or addition made or approved by the Engineer-in charge the Competent Authority, as the case may be.

(ff) The **Start Date** shall mean date given in the PCC which shall be latest date by when the Contractor shall commence execution of the works.

(gg) **Subcontractor** shall mean a person or corporate body who has a Contract with the Contractor to carry out a part of the work In the Contract, which Includes work on the Site.

(hh) **"Tax"** shall mean all tax, duty, and levy, charge whatsoever charged, imposed or levied under Applicable Laws. Payable/ leviable in respect of the said Project.

(ii) **Temporary Works** shall mean works designed, constructed, installed, and removed by the Contractor that are needed for construction or Installation of the works.

(jj) **"Tender/ Bid/"** shall means the Contractor's quoted Technical and/or Financial Proposal and detailed Proposal for the Project, including the Contractor's Proposal, submitted to the Employer and as accepted by the ultimately Employer.

(kk) **"Termination Date"** shall mean the date on which this Contract Agreement terminates by efflux of time or by issuance of a Termination Notice.

(ll) **"Termination Notice"** shall mean the communication received issued in accordance with this Contract Agreement by a Party to the other Party for terminating this Contract Agreement.

(mm) **"Termination Payment"** shall mean the amount payable by the Employer to the Contractor upon the termination of this Contract Agreement.

(nn) "**Third Party**" shall mean any Person, real or judicial, or entity other than the Parties to this Contract Agreement.

(oo) **"Transfer Date"** shall mean the day immediately following the last day of the Contract Period, including any extensions thereto or earlier termination thereof in accordance with the terms of the Concession Agreement.

(pp) **"Variation"** shall mean a modification, improvement or change in the works, services, and facilities etc to be carried out by the Contractor, such that the cost of implementing the modification, improvement or change can be recovered through a 30-day adjustment of the Contract Period.

	(qq) **"Works"** shall mean the Construction of Smart Road including Construction of Multi utility duct, Laying of Water Supply lines, Sewer lines, Drains, & other related works including Operation and maintenance for 5 years and all the appurtenances thereof, including any other permanent, temporary or urgent works required to be done for proper execution of this Agreement. (rr) " **Parties**: DSCL/Employer and Contractor hereinafter individually shall be referred to as a 'Party' and collectively as 'Parties' "
2. Interpretation	2.1 In interpreting these GCC, words indicating one gender include all genders. Words indicating the singular also include the plural and words indicating the plural also include the singular. Headings have no significance. Words have their normal meaning under the language of the Contract unless specifically defined. The Engineer shall provide Instructions clarifying queries about these GCC. 2.2 If sectional completion is **specified In the PCC**, references In the GCC to the Works, the Completion Date, and the Intended Completion Date apply to any Section of the Works (other than references to the Completion Date and Intended Completion Date for the whole of the Works). 2.3 The documents forming the Contract shall be Interpreted In the following order of priority: (a) Contract Agreement, (b) Letter of Award, (c) Contractor's Bid & Original Price Bid BOQ, (d) General Conditions of Contract, (e) Particular Conditions of Contract, (f) Specifications, (g) Drawings (if applicable), (h) Any other document **listed In the PCC** as forming part of the Contract.
3. Language and Law	3.1 The language of the Contract and the law governing the Contract are **stated In the PCC**.
4. Engineer's Decisions	4.1 Except where otherwise specifically stated, the Engineer shall decide contractual matters between the Employer and the Contractor In the role representing the Employer.
5. Delegation	5.1 Unless otherwise **specified In the PCC,** the Engineer may delegate any of his duties and responsibilities to other people, except to the Adjudicator, after notifying the Contractor, and may revoke any delegation after notifying the Contractor.

6. Communica-tions	6.1 Communications between parties that are referred to in the Conditions shall be effective only when in writing. A notice shall be effective only when it is delivered
7.Subcontracting	7.1 The contractor may subcontract part of the construction work with the approval of the Employer in writing, upto 25% of the contract price but will not assign the Contract. Subcontracting shall not alter the contractor's obligations. 7.2 Beyond what has been stated in clauses 7.1, if the contractor proposes sub-contracting any part of the work during execution of the works, because of some unforeseen circumstances to enable him to complete the work as per terms of the contract, the Employer will consider the following before according approval: i.The Contractor shall not sub-contract the whole of the works. ii.The Contractor shall not sub-contract any part of the work without prior Consent of the Employer. Any such consent shall not relieve the contractor from any liability or obligation under the contract and he shall be responsible for the acts, defaults and neglects of any his sub-contractor, his agents or workmen as fully as if they were the acts, defaults or neglects of the Contractor, his agents and workmen. 7.3 The Engineer should satisfy himself before recommending to the Employer whether a.The circumstances warrant such sub-contracting: and b. The sub-contractor so proposed for the work possess the experience, qualification and equipment necessary for the job proposed to be entrusted to him in proportion the Quantum of works to be sub- contracted.
8. Other Contractors	8.1 The contractor shall co-operate and share the site with other contractors. Public authority's utilities and the employer between the dates given in the schedule of other contractors, as referred to in the PCC. The contractor shall also provide facilities and services for them as described in the schedule. The employer may modify the schedule of other contractor, and shall notify the contractor of any such modification.

9. Personnel	9.1 The Contractor shall employ for the construction work and routine maintenance the technical personnel named in the Section 3 or other technical persons approved by the Engineer. The Engineer will approve any proposed replacement of technical personnel only if their relevant qualifications and abilities are substantially equal to or better than those of the personnel stated in the Section 3 . 9.2 If the Engineer asks the Contractor to remove a person who is a member of the Contractor's staff or work force, stating the reasons, the Contractor shall ensure that the person leaves the Site within seven days and has no further connection with the Works in the Contract. 9.3 The Contractor shall not employ any retired Gazetted officer who has worked in the Engineering Department of the State Government and has either not completed two years after the date of retirement or has not obtained State Government's permission to employment with the Contractor
10. Employer's and Contractor's Risks	10.1 The Employer carries the risks which this Contract states are Employer's risks, and the Contractor carries the risks which this Contract states are Contractor's risks.
11. Employer's Risks	11.1 The Employer is responsible for the excepted risks which are (a) in so far as they directly affect the execution of the Works in the Employer's country, the risks of war, invasion, act of foreign enemies, rebellion, revolution, insurrection or military or usurped power, civil war, riot commotion or disorder (unless restricted to the Contractor's employees), natural calamities and contamination from any nuclear fuel or nuclear waste or radioactive toxic explosive, or (b) a cause due solely to the design of the Works, other than the Contractor's design.
12. Contractor's Risks	12.1 All risks of loss of or damage to physical property and of personal injury and death which arise during and in consequence of the performance of the Contract other than the excepted risks, referred to in clause 11.1, are the responsibility of the Contractor.
13. Insurance	13.1 The Contractor shall provide, In the joint names of the Employer and the Contractor, Insurance cover from the Start Date to the end of the complete contractual obligations including the O&M Period. In the amounts and deductibles **stated In the PCC** for the following events which are due to the Contractor's risks: (a) loss of or damage to the Works, Plant, and Materials [which are Incorporated In works]; (b) loss of or damage to Construction Equipment; (c) loss of or damage to property (except the Works, Plant, Materials, and Equipment) In connection with the Contract; and (d) Personal Injury or death.

	13.2 Policies and certificates for Insurance shall be delivered by the Contractor to the Engineer for the Engineer's approval before the Start Date. All such Insurance shall provide for compensation to be payable In Indian Rupees required to rectify the loss or damage Incurred. 13.3 If the Contractor does not provide any of the policies and certificates required, the Employer may affect the Insurance which the Contractor should have provided and recover the premiums the Employer has paid from payments otherwise due to the Contractor or, if no payment is due, the payment of the premiums shall be a debt due. 13.4 Alterations to the terms of an Insurance shall not be made without the approval of the Engineer. 13.5 Both parties shall comply with any conditions of the Insurance policies.
14. Site Data	14.1 The Contractor shall be deemed to have examined any Site Data **referred to In the PCC**, supplemented by any Information available to the Contractor.
15. Queries about the PCC	15.1 The Engineer will clarify queries on the PCC
16. Contractor to Construct the Works	16.1 The Contractor shall construct and Install the Works In accordance with the Specifications and Scope of Work and as per Instructions of Engineer. 16.2 The contractor shall construct the works with intermediate technology, i.e., by manual means with medium input of machinery required to ensure the quality of works as per specifications. The contactor shall deploy the equipment and machinery as given in Section 3.
17. The Works to Be Completed by the intended Completion Date	17.1 The Contractor may commence execution of the Works on the Start Date and shall carry out the Works In accordance with the Program submitted by the Contractor, as updated with the approval of the Engineer, and complete them by the Intended Completion Date.
18. Approval by the Engineer	18.1 The Contractor shall submit Specifications and Drawings showing the proposed Temporary Works to the Engineer, for his approval. 18.2 The Contractor shall be responsible for design of Temporary Works. 18.3 The Engineer's approval shall not alter the Contractor's responsibility for design of the Temporary Works. 18.4 The Contractor shall obtain approval of third parties to the design of the Temporary Works, where required.

	18.5 All Drawings prepared by the Contractor for the execution of the temporary or permanent Works, are subject to prior approval by the Engineer before this use.
19. Safety	19.1 The Contractor shall be responsible for the safety of all activities on the Site specified in the Annexure -1 Clause C5.
20. Discoveries	20.1 Anything of historical or other Interest or of significant value unexpectedly discovered on the Site shall be the property of the Employer. The Contractor shall notify the Engineer of such discoveries and carry out the Engineer's Instructions for dealing with them.
21. Possession of the Site	21.1 The Employer shall handover complete or part possession of the site to the Contractor 7 days in advance of construction program. At the start of the work, the employer shall handover the possession of at-least 50% of the site.
22 Access to the Site	22.1 The Contractor shall allow the Engineer and any person authorized by the Engineer access to the Site and to any place where work In connection with the Contract is being carried out or is intended to be carried out.
23 Instructions, Inspections and Audits	23.1 The Contractor shall carry out all Instructions of the Engineer which comply with the applicable laws where the Site is located. 23.2 The Contractor shall keep, and shall make all reasonable efforts to cause its Subcontractors and sub-consultants to keep, accurate and systematic accounts and records In respect of the Works In such form and details as will clearly identify relevant time changes and costs.
24 Appointment of the Arbitrator	The Arbitrator shall be appointed as per the mutual agreement of both the parties.
25 Procedure for Disputes	If any dispute arises out of this Contract with regard to the interpretation, meaning and breach of the terms of the contract or in the work of operation, the matter shall be tried to be resolved amicably by the parties and in case of failure, the same shall be referred to the Sole Arbitrator to be appointed mutually by the parties, whose decision shall be final and binding on the parties. All arbitration proceedings shall be as per Arbitration and Conciliation Act 1996 with its amendments from time to time. The Seat of Arbitration shall be at Dehradun and the Courts at Dehradun alone shall have jurisdiction to entertain any matter arising out of this agreement/contract."

25.1.1 Program	**B. Time Control** 26.1 Within the time stated in the **PCC**, the Contractor shall submit to the Employer for approval a Program showing the general methods, arrangements, order, and timing for all the activities in the Works and will submit the detailed drawings of the all of work and same shall be reviewed and approved by Engineer of DSCL or through other agency approved by DSCL. 26.2 The Contractor shall submit the list of equipment and machinery being brought to site, the list of key personnel being deployed, the list of machinery/equipment being placed in field laboratory and the location of field laboratory along with the Program. The Engineer-In charge shall cause these details to be verified at each appropriate stage of the program. 26.3 An update of the Program shall be a program showing the actual progress achieved on each activity and the effect of the progress achieved on the timing of the remaining work, including any changes to the sequence of the activities. 26.4 The Contractor shall submit to the Employer for approval an updated Program at intervals no longer than the period stated in the **PCC.** If the Contractor does not submit an updated Program within this period, the Employer may withhold the amount stated in the **PCC** from the next payment certificate and continue to withhold this amount until the next payment after the date on which the overdue Program has been submitted. In the case of a lump sum contract, the Contractor shall provide an updated Activity Schedule within 14 days of being instructed to by the Engineer. 26.5 The Employer's approval of the Program shall not alter the Contractor's obligations. The Contractor may revise the Program and submit it to the Employer again at any time. A revised Program shall show the effect of Variations and Compensation Events.
25.1.2 Extension of the Intended Completion Date	27.1 The Employer shall extend the Intended Completion Date if a Compensation Event occurs or a Variation is issued which makes it impossible for Completion to be achieved by the Intended Completion Date without the Contractor taking steps to accelerate the remaining work, which would cause the Contractor to incur additional cost. 27.2 The Employer shall decide whether and by how much to extend the Intended Completion Date within 21 days of the Contractor asking the Employer for a decision upon the effect of a Compensation Event or Variation and submitting full supporting information. If the Contractor has failed to give early warning of a delay or has failed to cooperate in dealing with a delay, the delay by this failure shall not be considered in assessing the new Intended Completion Date.

28 Delays Ordered by the Engineer	28.1 Engineer may instruct the Contractor to delay the start or progress of any activity within the Works.
29 Management Meetings	29.1 The Engineer may require the Contractor to attend a management meeting. The business of a management meeting shall be to review the plans for the Works. 29.2 The Engineer shall record the business of management meetings and provide copies of the record to those attending the meeting and to the Employer. The responsibility of the parties for actions to be taken shall be decided by the Engineer either at the management meeting or after the management meeting and stated in writing to all who attended the meeting.
30 Early Warning	30.1 The Contractor shall warn the Engineer at the earliest opportunity of specific likely future events or circumstances that may adversely affect the quality of the work, Increase the Contract Price, or delay the execution of the Works. The Engineer may require the Contractor to provide an estimate of the expected effect of the future event or circumstance on the Contract Price and Completion Date. The estimate shall be provided by the Contractor as soon as reasonably possible. 30.2 The Contractor shall cooperate with the Engineer In making and considering proposals for how the effect of such an event or circumstance can be avoided or reduced by anyone Involved In the work and In carrying out any resulting Instruction of the Engineer.
	Quality Control
31.Identifying Defects	31.1 The Engineer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may have a Defect.
32. Tests	32.1 The Contractor shall provide all apparatus, assistance, documents and other Information, electricity, equipment, fuel, consumables, Instruments, labour, materials, and suitably qualified and experienced staff, as are necessary to carry out the specified tests efficiently. 32.2 If the Engineer Instructs the Contractor to carry out a test not specified In the Specification to check whether any work has a Defect and the test shows that it does, the Contractor shall pay for the test and any samples. If there is no Defect, the test shall be a Compensation Event.
33. Identifying Defects and Correction of Defects	33.1 The Engineer shall check the Contractor's work and notify the Contractor of any Defects that are found. Such checking shall not affect the Contractor's responsibilities. The Engineer may instruct the Contractor to search for a Defect and to uncover and test any work that the Engineer considers may have a Defect. 33.2 The contractor shall permit the Employer's Technical auditor to check the contractor's work and notify the Engineer and Contractor of any defects that are

	found. Such a check shall not affect the Contractor's or the Engineer's responsibility as defined In the Contract Agreement. 33.3 The Engineer shall give notice to the Contractor of any Defects before the end of the Defects Liability Period, which begins at Completion, and is **defined In the PCC.** The Defects Liability Period shall be extended for as long as Defects remain to be corrected. 33.4 Every time notice of a Defect is given, the Contractor shall correct the notified Defect within the length of time specified by the Engineer's notice.
1. Uncorrected Defects	34.1 If the Contractor has not corrected a Defect within the time specified In the Engineer's notice, the Engineer shall assess the cost of having the Defect corrected, and the Contractor shall pay this amount.
	Cost Control
2. Contract Price	35.1 In the case of an admeasurements contract, the Bill of Quantities shall contain priced items for the Works to be performed by the Contractor. The Bill of Quantities is used to calculate the Contract Price. The Contractor will be paid for the quantity of the work accomplished at the rate in the Bill of Quantities for each item. 35.2 In the case of a lump sum contract, the Activity Schedule shall contain the priced activities for the Works to be performed by the Contractor. The Activity Schedule is used to monitor and control the performance of activities on which basis the Contractor will be paid. If payment for Materials on Site shall be made separately, the Contractor shall show delivery of Materials to the Site separately on the Activity Schedule.
36 Changes In the Contract Price	36.1 If the final quantity of the work done differs from the quantity in the Bill of Quantities for the particular item by more than 25 percent, provided the change exceeds 1 percent of the Initial Contract Price, the Engineer shall adjust the rate to allow for the change. The Engineer shall not adjust rates from changes in quantities if thereby the Initial Contract Price is exceeded by more than 20 percent, except with the prior approval of the Employer.
37 Variations	37.1 The Engineer shall, having regard to the scope of the Works and the sanctioned estimated cost, have power to order, in writing, Variations within the scope of the Works he considers necessary or advisable during the progress of the Works. Such Variations shall form part of the Contract and the Contractor shall carry them out and include them in updated Programs produced by the Contractor. Oral orders of the Engineer for Variations, unless followed by written confirmation, shall not be taken into account.
38 **Payments for Variations**	38.1 If rates for variation items are specified in Bill of Quantity, the contactor shall carry out such work at the same rate. This shall apply for variation only up to the limit prescribed in the PCC. 38.2 If the rates for Variation are not specified in the Bill of Quantities, the Engineer shall derive the rate from similar items in the Bill of Quantities.

39 Cash Flow Forecasts	39.1 When the Program, is updated, the Contractor shall provide the Engineer with an updated cash flow forecast.
40 Payment Certificates	40.1 The Contractor shall submit to the Engineer monthly statements of the estimated value of the work executed less the cumulative amount certified previously. 40.2 The Engineer shall check the Contractor's monthly statement and certify the amount to be paid to the Contractor. 40.3 The value of work executed shall be determined by the Engineer. The value of work executed shall comprise: 40.4 In the case of a lump sum contract, the value of work executed shall comprise the value of completed activities in the Activity Schedule. 40.5 The value of work executed shall include the valuation of Variations and Compensation Events. 40.6 The Engineer may exclude any item certified in a previous certificate or reduce the proportion of any item previously certified in any certificate in the light of later information
41 Payments	41.1 Payments shall be adjusted for deductions for advance payments security deposit, other recoveries in terms of the Contract and taxes at source, as applicable under the law. The Engineer shall pay the Contractor the amounts he had certified within 30 days of the date of each certificate 41.2 The Employer may appoint another authority, as specified in the PCC (or any other competent person appointed by the Employer and notified to the contractor) to make payment certified by the Engineer. 41.3 Items of the Works for which no rate or price has been entered in shall not be paid for by the Employer and shall be deemed covered by other rates and prices In the Contract. 41.4 Payment for Operation and Maintenance period shall be paid in quarterly installment for every year of the rate quoted by bidder in price bid. 41.5 Provisional sum of 2 % of the awarded value of work shall be provided for the work of shifting of poles, cables, Telephone lines or other works approved by DSCL .The payment shall be paid to contractor on production of original bills and as per actual work done.
42 Compensation Events	42.1 The following shall be Compensation Events unless they are caused by the Contractor 42.1.1 The Engineer orders a delay or delays exceeding a total of 30days. 42.1.2 The effects on the Contractor of any of the Employer's Risks.

	42.2 If a Compensation Event would prevent the Works being completed before the Intended Completion Date, the Intended Completion date shall be extended. The Employer shall decide whether and by how much the Intended Completion Date shall be extended.
43 Tax	43.1 The Engineer shall adjust the Contract Price if taxes, duties, and other levies are changed between the deadline for the submission of bids for the Contract and the date of the last Completion certificate. The adjustment shall be the change in the amount of tax payable by the Contractor, provided such changes are not already reflected In the Contract Price.
44 Currencies	44.1 All payments shall be made In Indian Rupees.
45 Price Adjustment	45.1 Not applicable
46 Security Deposit/ Retention and Release of Performance Security and Security Deposit/ Retention.	46.1 The Employer shall retain security deposit of 5% of the amount from each payment due to the Contractor until completion of the whole of the construction Work. No security deposit/ retention shall be retained from the payments for Routine maintenance of works. 46.2 On the completion of the whole of the construction Work and completion of operation and maintenance of two year half the total amount retained as Security Deposit is repaid to the contractor and half when the operation and maintenance of five year has passed and the Engineer has certified that all defects notified by the Engineer to the contractor before the end of his period have been corrected. 46.3 The performance security equal to the ten percent of the contract price of contract is repaid to the contractor when the period of six years (Construction and operation and maintenance period) is over and the Engineer has certified that the contractor has satisfactorily carried out the Works. 46.4 If the contractor so desires then the Security Deposit can be converted into any interest bearing security of schedule commercial bank in the name of the Employer or National Saving Certificates duly pledged in favor of the Employer for Defect Liability Period including Operation and Maintenance.
47 Liquidated Damages	47.1 The Contractor shall pay liquidated damages to the Employer at the rate per week or part thereof stated in the PCC for the period that the Completion Date is later than the Intended Completion Date. Liquidated damages at the same rate shall be withheld if the Contractor fails to achieve the milestones prescribed in the PCC. However, in case the Contractor achieves the next milestone the amount of the liquidated damages already withheld shall be restored to the Contractor by adjustment in the next payment certificate. The total amount of liquidated damages shall not exceed the amount defined in the PCC. The Employer may deduct liquidated damages from payments due to the Contractor. Payment of liquidated damages shall not affect the Contractor's other liabilities. 47.2 If the Intended Completion Date is extended after liquidated damages have been paid, the Engineer shall correct any overpayment of liquidated damages by the Contractor by adjusting the next payment certificate.

48 Advance Payment	The Employer will make the interest bearing advance payment to the Contractor within 60 days of contract signing as follows: 48.1 Mobilization advance payment up to a maximum of 10% of initial contract price shall be paid to the contractor after submission of an unconditional and irrevocable bank guarantee in a form given by the employer and from any scheduled commercial banks or nationalized banks acceptable to the Employer for an amount equal to the advance payment (to be drawn before the end of 20% of the contract period). 48.2 Materials advance shall be paid only for non-perishable items as 75% of the total value of materials brought at site. At any one time materials of not more than 20% value of total BOQ items will be brought at site .After the consumption of the materials brought at site , next lot of materials will be brought. 48.3 The Contractor is to use the advance payment only to pay for Nonperishable Materials and mobilization expenses required specifically for execution of the Contract. The Contractor shall demonstrate that advance payment has been used in this way by supplying copies of invoices or there documents to the Engineer. The recovery of mobilization advance shall start from bill after the work done exceeds 10% of the initial contract price or **three** months from the date of payment of advance which ever period concludes earlier and shall be made at the rate of 15% of the work done in each IPC (Interim payment certificate) The recovery of advance shall be completed when 90% of the work has been completed or prior to the expiry of original time for completion whichever is earlier. No account shall be taken of the advance payment or its repayment in assessing valuations of work done, Variations, price adjustments, Compensation Events, Bonuses, or Liquidated Damages.
49 Securities	49.1 The Performance Security equal to ten percent of the contract price and additional security for unbalanced bids shall be provided to the Employer no later than the date specified in the Letter of Acceptance and shall be issued in the form given in the PCC and by a scheduled commercial bank. The Performance Security shall be valid until a date 45 days from the date of expiry of Defect Liability Period including Operation and Maintenance and the additional security for unbalanced bids shall be valid until a date 45 days from the date of issue of the certificate of completion.
50 Cost of Repairs	50.1 Loss or damage to the Works or Materials to be incorporated in the Works between the Start Date and the end of the Defects Correction periods shall be remedied by the Contractor at his cost if the loss or damage arises from the Contractor's acts or omissions..
	Finishing the contract
51 Completion of Construction and Operation and Maintenance	51.1 The contractor shall request the Engineer to issue a certificate of completion of the construction of the works, and the Engineer will do so upon deciding that the construction works is completed and after successful completion of operation and maintenance period of five year certificate of operation and maintenance will be issued.

52 Taking Over	52.1 Effective from the Transfer Date or the termination date, whichever is later, the Contractor shall, transfer and assign to the Employer or its nominated agency, as the case may be, free and clear from any charges, liens and encumbrances created by the Contractor of all the Contractor's right, title and interest in and to the Works/ movable and immovable assets. The Contractor shall also deliver to the Employer or its nominated agency on transfer date or the termination date, whichever is later such project reports, manuals, plans, design drawings, reports, accounts operation and maintenance manual and other information as may reasonably be required by the Employer or its nominated agency to continue the operation of the Project either directly or by its nominated agency. The personnel of the Contractor may continue to be the employees of the Contractor subject to their written consent and the transfer of all the movable & immovable assets shall not in any manner affect their status as employees of the Contractor and they shall have no claim to any type of employment or compensation from the Employer or its nominated agency, which arises prior to such transfer. 52.2 On completion of the transfer by the Contractor to the Employer, the Employer shall issue an "Operation and Maintenance Agreement Completion Certificate" to the Contractor. The Operation and Maintenance Agreement Completion Certificate will have the effect of constituting evidence of transfer of all rights, titles and interests in the Project by the Contractor, and their vesting in the Employer.
53 Final Account	53.1 The contractor shall supply the Engineer with a detailed account of the total amount that the Contractor considers payable for construction works under the contract within 21 days of issue of certificate of completion of construction of works. The Engineer shall issue a defect liability including Operation and Maintenance certificate and certify any payment that is due to the correct and complete. If the account is not correct or complete, the Engineer shall issue within 42 days a schedule that states the scope of the corrections or additions that are necessary. If the account is still unsatisfactory after it has been resubmitted, the Engineer shall decide on the amount payable to the contractor and issue a payment certificate within 28 days of receiving the Contractor's revised account. The payment of final bill for construction of works will be made within 14 days thereafter. 53.2 In case the account is not received within 21 days of issue of Certificate of Completion as provided in clause 50. I above, the Engineer shall proceed to finalize the account and issue a payment certificate within 28 days. The payment of final bill for construction of works will be made within 14 days thereafter.
54 Operating and Maintenance Manuals	54.1 If "as built" Drawings and/or operating and maintenance manuals are required, the Contractor shall supply them by the dates stated in the PCC. 54.2 If the Contractor does not supply the Drawings and/or manuals by the dates stated in the PCC, or they do not receive the Engineer's approval, the Engineer shall withhold the amount stated in the PCC from payments due to the Contractor.
55 Termination	55.1 The Employer may terminate the Contract if the Contractor causes a fundamental breach of the Contract.

	55.2 Fundamental breaches of Contract shall include, but shall not be limited to, the following: I. The Contractor stops work for 28 days when no stoppage of work is shown on the current Program and the stoppage has not been authorized by the Engineer; II. The Contractor is declared as bankrupt or goes into liquidation other than for approved reconstruction or amalgamation; III. The Engineer gives Notice that failure to correct a particular Defect is a fundamental breach of Contract and the Contractor fails to correct it within a reasonable period of time determined by the Engineer; IV. The Contractor does not maintain a Security, which is required; V. The Contractor has delayed the completion of the Works by the number of days for which the maximum amount of liquidated damages can be paid, as defined in clause 44.1; VI. Any other fundamental breaches as specified in the PCC. VII. If the Contractor fails to deploy machinery and equipment or personnel as specified in the PCC at the appropriate time. 55.3 Notwithstanding the above, the Employer may terminate the Contract for convenience 55.4 If the Contract is terminated, the Contractor shall stop work immediately, make the Site safe and secure, and leave the Site as soon as reasonably possible.
56 Payment upon Termination	56.1 If the Contract is terminated because of a fundamental breach of Contract by the Contractor, the Engineer shall issue a certificate for the value of the work done and Materials ordered less liquidated damages, if any less advance payments received up to the date of the issue of the certificate and less the percentage to apply to the value of the work not completed, as indicated in the PCC. If the total amount due to the Employer exceeds any payment due to the Contractor, the difference shall be recovered from the security deposit, and performance security. If any amount is still left un- recovered it will be a debt payable to the Employer. 56.2 If the Contract is terminated at the Employer's convenience, the Engineer shall issue a certificate for the value of the work done, the reasonable cost of removal of Equipment, repatriation of the Contractor's personnel employed solely on the Works, and the Contractor's costs of protecting and securing the Works and less advance payments received up to the date of the certificate, less other recoveries due in terms of the Contract, and less taxes due to be deducted at source as per applicable law.
57 Property.	57.1 All Materials on the Site, Plant, Equipment, Temporary Works, and Works shall be deemed to be the property of the Employer for use for completing balance construction work if the Contract is terminated because of the Contractor's default, till the Works is completed after which it will be transferred to the Contractor and credit, if any, given for its use.

58 Releases from Performance	58.1 If the Contract is frustrated by the outbreak of war or by any other event entirely outside the control of the Employer or the Contractor, the Engineer shall certify that the Contract has been frustrated. The Contractor shall make the Site safe and stop work as quickly as possible after receiving this certificate and shall be paid for all work carried out before receiving it and for any work carried out afterwards to which a commitment was made.
59 Labor Laws and Regulations	59.1 The Contractor shall comply with all relevant labor laws and regulations applicable to the Contractor's personnel. 59.2 The Contractor shall provide equal wages and benefits to men and women for work of equal value or type. 59.3 The Contractor shall not employ any child to perform work, including work that is economically exploitative, or is likely to be hazardous to, or to interfere with, the child's education, or to be harmful to the child's health or physical, mental, spiritual, moral, or social development. "Child" means a child below the statutory minimum age of 18 Years. 59.4 The Contractor shall not employ "forced and compulsory labor" in any form. "Forced or compulsory labor consists of all works or service, not voluntary performed that is extracted from an individual under threat or force or penalty. 59.5 The Contractor shall also comply the Labour law as given in Annexure 1
60 Environmental Laws and Regulations	60.1 The Contractor shall comply with all applicable national, provincial, and local environmental laws and regulations. The contractor shall take all reasonable steps to protect the environment on and off the Site and to avoid damage or nuisance to persons or to property of the public or others resulting from pollution, noise or other causes arising as a consequence of his methods of operation. During continuance of the contract, the contractor shall abide at all times by all existing enactments on environmental protection and rules made there under, regulations, notifications and bye-laws of the State or Central Government, or local authorities and any other law, bye-law, regulations that may be passed or notification that may be issued in this respect in future by the State or Central Government or the local authority. 60.2 The Contractor shall comply the Environment Management Plan as given in Annexure 2.
61 Force Majeure	61.1 The contractor shall not be liable for forfeiture of its Performance Security, liquidated damages, or termination for default if and to the extent that it's delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure. 61.2 For purposes of this Clause, "Force Majeure" means an event or situation beyond the control of the Contractor that is not foreseeable, is unavoidable, and

	its origin is not due to negligence or lack of care on the part of the Contractor. Such events may include, but not be limited to, acts of the Employer in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes. 61.3 If a Force Majeure situation arises, the Contractor shall promptly notify the Employer in writing of such condition and the cause thereof. Unless otherwise directed by the Employer in writing, the Contractor shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.
62 Role and Responsibility for Social Issue	62.1 The Contractor shall comply the Social issue given in Annexure 3.
63 Objective of PMC	63.1 The objective of this PMC is to assist the DSCL in implementation of the Project till the successful completion and handing over of all works to the DSCL and comprehensively supervise the works and activities carried out by the Bidder(s) as "Engineer's Representative" under the respective contract(s) in a manner that would ensure: 63.2 Total compliance of technical specifications and various other requirements contained in the respective contracts by the Bidder(s); 63.3 High standards of quality assurance system in the Consultancy as well as the works and activities of the Bidder(s); 63.4 Comprehensive and documented reporting to the DSCL of Consultant's own activities, progress of the Project(s) and compliances/ non-compliances by the Bidder(s); 63.5 Proper verification of measurements and bills submitted by the Bidder(s) so that payments made by the DSCL against these bills truly reflect the actual work done at site complying with the requirements of the respective contract(s);

SECTION VII
PARTICULAR CONDITIONS OF CONTRACT

Particular Conditions of Contract

A. General	
GCC 1.1 (r)	The Employer is Dehradun Smart City Limited, Dehradun, *Uttarakhand.*
GCC 1.1 (g) **GCC 1.1 (s)**	Completion period for Complete Automation & SCADA system of 198 tube wells and 72 over head tanks and all the appurtenant works thereof in Dehradun city under Smart Water Management (SCADA) Project including Operation and maintenance for 5 years under "Smart City Mission" through e-procurement is 12 (Twelve) months from the date of contract signing. Engineer-in charge is the _____, appointed by Employer.
GCC 1.1 (bb)	The Project Management Consultant is technical consultant appointed by the Employer shall proof-check all GFC drawings/design submitted by the successful bidder and approve the drawings for execution of works.
GCC 1.1 (cc)	The Site is located at, Dehradun, ABD area, Uttarakhand.
GCC 1.1 (hh)	The intended Start Date shall be _____
GCC 1.1 (tt)	The Works consist: Request for Proposal for Complete Automation & SCADA system of 198 tube wells and 72 over head tanks and all the appurtenant works thereof in Dehradun city under Smart Water Management (SCADA) Project including Operation and maintenance for 5 years under "Smart City Mission" through e-procurement
GCC 3.1	The language of the contract is *English.* The law that applies to the Contract is the laws of Republic of India.
GCC 5.1	The Engineer *may* delegate any of his duties and responsibilities.
GCC 14.1	Site Data are as per Section V Part-1 Scope of work and Part-2 Technical Specifications.
GCC 21.1	The Site Possession Date(s) shall be: The site will be physically handed over by the Employer to the Contractor before date of start as per contract agreement and both the employer as well as the Contractor will issue a joint signed letter mentioning the handing over and taken over of the site.
B. Time Control	
GCC 26.1	The Contractor shall submit for approval a Program for the Works within 15 days from the date of the Letter of Acceptance and the Program shall be a part of the contract.
GCC 26.4	The period between Program updates is 10 days. The amount to be withheld for late submission of an updated Program is INR 1, 00,000/-.
C. Quality Control	
GCC 33.3	The Defects Liability Period is: one year

D. Cost Control	
GCC 41.2	Employer may appoint another authority, will be Project Management Consultant
GCC 46.1	The proportion of payments retained (Retention Money) shall be 5% from each monthly bill subject to the maximum of 5% of final contract price.
GCC 47.1	The liquidated damages for the whole of the Works are *[0.5% of the final Contract Price]* per week. The maximum amount of liquidated damages for the whole of the Works is *10%* of the final Contract Price. or milestone 1 0.50% of the Contract Price per week For milestone 2 0.50 % of the contract price per week For milestone 3 0.50% of the contract price per week Milestone Physical target* of Period from the date of start of work works to be completed Milestone 1 20% 1/3rd of Intended completion period ** Milestone 2 50% 2/3rd of Intended completion period** Milestone 3 100% Full Intended completion period** *Physical progress shall be assessed as per the latest MPR duly verified by Engineer. ** Intended completion period shall be twelve months from the Start Date.
GCC 48.1	An advance of 10 % of contract value shall be given to the contractor on submission of an unconditional and irrevocable bank guarantee in a form given by the employer and from any scheduled commercial banks or nationalized banks acceptable to the Employer for an amount equal to the advance payment. The advance payment shall be adjusted from the monthly invoices uniformly.
GCC 49.1	Within 21 (twenty one) days after receipt of the Letter of Acceptance/Award, the successful Bidder shall deliver to the Employer a Performance Security of ten (10%) of the Contract Price including of GST, valid up to 60 days beyond the date of completion of all the contractual obligations including any O&M period. The performance security shall be either in the form of an unconditional Bank Guarantee or fixed deposit Receipts (FDR), in favor of Chief Executive Officer, Dehradun Smart City Limited Payable at Dehradun, Uttarakhand, from a Nationalized or Scheduled Commercial Bank.

	Failure of the successful Bidder to comply with the requirements of this Clause shall constitute sufficient grounds for cancellation of the award and forfeiture of the Earnest Money. He will also be debarred from participating in future bids under Dehradun Smart City Limited.
	Finishing the contract
GCC 54.1	The date by which "as built" drawings (and maintenance manuals) are required - within 56 days of issue of completion certificate
GCC 54.2	The amount to be withheld for failing to produce "as built" drawings by the date required in GCC 54.1 is 10 lakh (INR)
GCC 55.2(V)	The maximum number of days is: 140 Days
GCC 58.1	The percentage to apply to the value of the work not completed, representing the Employer's additional cost for completing the Works, is 20%.

ANNEXURE-1

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

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

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

c) **Employees P.F. and Miscellaneous Provision Act 1952:-** The Act Provides for monthly contributions by the Employer per workers @ 10% or 8.33%. The benefits payable under the Act are:

i. Pension or family pension on retirement or death, as the case may be.
ii. Deposit linked insurance on the death in harness of the worker. Payment of P.F. accumulation or retirement/death etc.

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

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

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

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

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

i) **Payment of Bonus Act 1965: -** Deleted

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

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

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

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

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

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

p) **Factories Act 1948 :-** The Act lays down the procedure for approval of plans before setting up a factory, health and safety provisions, welfare provisions, working hours, annual earned leave and rendering information regarding accidents or dangerous occurrences to designated authorities. It is applicable to premises employing 10 persons

or more with aid of power or 20 or more persons without the aid of power engaged in manufacturing process.

ANNEXURE-2

SALIENT FEATURES OF SOME OF THE MAJOR LAWS THAT ARE APPLICABLE FOR PROTECTION OF ENVIRONMENT.

1. The Environment (Protection) Act, 1986 and as amended: This provides for the Protection and improvement of environment and for matters connected therewith, and the prevention of hazards to human beIngs, other livIng creatures, plants and property. 'Environment' Includes water, air and land and the Inter-relationship which exists among and between water, air and land, and human beIngs, other livIng creatures, plants, micro-organism and property.

2. The Forest Conservation Act, 1980, as amended, and Forest (Conservation) Rules, 1981 as amended: These provides for protection of forests by restricting conversion of forested areas Into non- forested areas and prevention of deforestation, and stipulates the procedures for cuttIng any trees that might be required by the applicable rules. Permissions under the Act also stipulates the norms and compliance requirements of the employer and any contractor on behalf of the employer.

3. State Tree Preservation Acts as may be In force: These provide for protection of trees of important species. Contractors will be required to obtain prior permission for full or partial cutting, uprooting, or pruning of any such trees.

4. The Wildlife (Protection) Act, 1972, and as amended: This provides for protection of wildlife through notifying National Parks and Sanctuaries and buffer areas around these zones; and to protect Individuals of nationally important species listed In the Annex of the Act.

5. The Biological Diversity Act, 2002: This provides for conservation of biological diversity, sustainable use of components of biological diversity, and fair and equitable sharing of the benefits arising out of the use of biological resources, knowledge and for matters connected therewith or Incidental thereto.

6. The Public Liability Insurance Act, 1991 as amended and The Public Liability Insurance Rules, 1991 as amended: These provide for public liability Insurance for the purpose of providing immediate relief to the persons affected by accident occurring while handling hazardous substances and for mattes connected herewith or Incidental thereto. Hazardous substance means any substance or preparation which is defined as hazardous substance under the Environment (Protection) Act 1986, and exceeding such quantity as may be specified by notification by the Central Government.

7. The Ancient Monuments and Archaeological Sites and Remains Act, 1958 and the Ancient Monuments and Archaeological Sites and Remains (Amendment and Validation) Act, 2010, the Ancient Monuments and Archaeological Sites and Remains

Rules, 1959 amended 2011, the National Monuments Authority Rules, 2011 and the similar State Acts: These provide for conservation of cultural and historical remains found In India. Accordingly, area within the radii of 100m and 300m from the "protected property" are designated as "protected area" and "controlled area" respectively. No development activity (Including building, mining, excavating, blasting) is permitted In the "protected area" and development activities likely to damage the protected property is not permitted In the "controlled area" without prior permission of the Archaeological Survey of India (ASI) or the State Departments of Art 160 and Culture or Archaeology as applicable.

8. The Environmental Impact Assessment Notification, 2006 and as amended: This provides for prior environmental clearance for new, modernization and expansion projects listed In Schedule 1 of the Notification. Contractors will be required to ensure that no work starts until applicable clearances under the Notification is not available. Contractors will be responsible for implementation of any environmental and Social management plan stipulated as per the permission under this Notification; and will be required to prepare and submit to the employer and compliance report stipulated in the permission under the Notification.

9. The Water (Prevention and Control of Pollution) Act, 1974 as amended, and the Water (Prevention and Control of Pollution) Rules, 1975 as amended: These provide for the prevention and control of water pollution and the maintaining and restoring of wholesomeness of water. 'Pollution' means such contamination of water or such alteration of the physical, chemical or biological properties of water or such discharge of any sewage or trade effluent or of any other liquid, gaseous or solid substance Into water(whether directly or Indirectly) as may, or is likely to, create a nuisance or render such water harmful or Injurious to public health or safety, or to domestic, commercial, Industrial, agricultural or other legitimate uses, or to the life and health of animals or plants or of aquatic organisms. Contractors will need to obtain consent for establishment and consent for operation of any item of work or Installation of equipment that generates waste water, and observe the required standards of establishment and operation of these items of work or Installations; as well as Install and operate all required waste water treatment facilities.

10. The Water (Prevention and Control of Pollution) Cess Act, 1977 and The Water (Prevention and Control of Pollution) Cess Rules, 1978: These provide for the levy and collection of access on water consumed by persons carrying on certain Industries and by local authorities, with a view to augment the resources of the Central Board and the State Boards for the prevention and control of water pollution under the Water (Prevention and Control of Pollution) Act, 1974.

11. The Air (Prevention and Control of Pollution) Act, 1981 as amended, and the Air (Prevention and Control of Pollution) Rules, 1982: These provides for prevention, control and abatement of air pollution. 'Air Pollution' means the presence In the

atmosphere of any 'air pollutant', which means any solid, liquid or gaseous substance (Including noise) present In the atmosphere In such concentration as may be or tend to be Injurious to human beings or other living creatures or plants or property or environment. Contractors will need to obtain consent for establishment and consent for operation of any item of work or Installation of equipment that generates air pollution such as batching plants, hot mix plants, power generators, backup power generation, material handling processes, and observe the required standards of establishment and operation of these items of work or Installations.

12. Noise Pollution (Control and Regulation) Rules, 2000, and as amended: This provides for standards for noise for day and night for various land uses and specifies special standards in and around sensitive receptors of noise such as schools and hospitals. Contractors will need to ensure compliance to the applicable standards, and Install and operate all required noise control devices as may be required for all plants and work processes.

13. Chemical Accidents (Emergency Planning, Preparedness and Response) Rules, 1996: This provides for Requirement of preparation of on-site and off-site Disaster Management Plans for accident-prone areas.

14. The Explosives Act 1884 and the Explosives Rules, 2008: These provide for safe manufacture, possession, sale, use, transportation and import of explosive materials such as diesel, Oil and lubricants etc.; and also for regulating the use of any explosives used in blasting and/or demolition. All applicable provisions will need compliance by the contractors.

15. The Petroleum Rules, 2002: This provides for safe use and storage of petroleum products, and will need to be complied by the contractors.

16. The Gas Cylinder Rules 2004 and amendments: This provides for regulations related to storage of gas, and possession of gas cylinder more than the exempted quantity. Contractors should comply with all the requirements of this Rule.

17. Manufacture, Storage and Import of Hazardous Chemical Rules of 1989 and as amended: These provide for use and storage of hazardous material such as highly Inflammable liquids like HSD/LPG. Contractors will need to ensure compliance to the Rules; and In the event where the storage quantity exceeds the regulated threshold limit, the contractors will be responsible for regular safety audits and other reporting requirements as prescribed In the Rules.

18. Hazardous & Other Wastes (Management and Tran's boundary Movement) Rules, 2016: These provide for protection of general public from improper handling storage and disposal of hazardous waste. The rules prescribe the management requirement of hazardous wastes from its generation to final disposal. Contractors will need to obtain permission from the State Pollution Control Boards and other designated authorities for

storage and handling of any hazardous material; and will to ensure full compliance to these rules and any conditions imposed in the permit.

19. The Bio Medical Waste Management Rules, 2016: This provides for control, storage, transportation and disposal of bio-medical wastes. As and where the contractor has any first aid facility and dispensaries, established in either temporary or permanent manner, compliance to these Rules are mandatory.

20. Construction and Demolition Waste Management Rules, 2016: This provides for management of construction and demolition waste (such as building materials possible to be reused, rubble and debris or the like); and applies to all those waste resulting from construction, re-modeling, repair or demolition of any civil structure. Contractor will need to prepare a waste disposal plan and obtain required approval from local authorities, if waste generation is more than 20 tons in any day or 300 tons in any month during the contract period; and ensure full compliance to these rules and any conditions imposed in the regulatory approval.

21. The E-Waste (Management) Rules, 2016: This provides for management of E-wastes (but not covering lead acid batteries and radio-active wastes) aiming to enable the recovery and/or reuse of useful material from e-waste, thereby reducing the hazardous wastes destined for disposal and to ensure the environmentally sound management of all types of waste of electrical and electronic equipment. This Rule applies to every manufacturer, producer, consumer, bulk consumer, collection centers, 162 dealers, e-retailer, refurbished, dismantler and recycler Involved In manufacture, sale, transfer, purchase, collection, storage and processing of e-waste or electrical and electronic equipment listed In Schedule I, Including their components, consumables, parts and spares which make the product operational.

22. Plastic waste Management Rules, 2016: This provides for control and management of the plastic waste generated from any activity. Contractors will ensure compliance to this Rule.

23. The Batteries (Management and Handling) Rules 2001: This provides for ensuring safe disposal and recycling of discarded lead acid batteries likely to be used in any equipment during construction and operation stage. Rules require proper control and record keeping on the sale or import of lead acid batteries and recollection of the used batteries by registered recyclers to ensure environmentally sound recycling of used batteries. Contractors will ensure compliance to this Rule.

24. The Ozone Depleting Substances (Regulation and Control) Rules, 2000 and as amended: This provides for regulation of production and consumption of ozone depleting substances In the country, and specifically prohibits export to or import from countries not specified In the Rules, and prohibits unless specifically permitted, any use of ozone depleting substance.

25. The Coastal Regulation Zone Notifications, 1991 and as amended: This provides for regulation of development activities within the 500m of high tide line In coastal zone and 100m of stretches of rivers and estuaries Influenced by tides. Contractors will be required to ensure that no work starts until applicable clearances under the Notification is not available. Contractors will be responsible for implementation of any plan stipulated as per the permission under this Notification; and will be required to prepare and submit to the employer and compliance report stipulated in the permission under the Notification.

26. The Motor Vehicle Act 1988 as amended (and State Motor Vehicle Acts as may be In force) and the Motor Vehicle Rules, 1989, and as amended (and State Motor Vehicle Rules as may be In force): To minimize the road accidents, penalizing the guilty, provision of compensation to victim and family and check vehicular air and noise pollution. Contractors will be required to ensure full compliance to these rules.

27. Easement Act, 1882: This provides for the rights of landowners on groundwater. Contractors will need to ensure that other landowners' rights under the Act is not affected by any groundwater abstraction by the contractors.

28. State Groundwater Acts and Rules as may be in force and the Guidelines for Groundwater Abstraction for drinking and domestic purposes In Notified Areas and Industry/Infrastructure project proposals In Non-Notified areas, 2012: These provide for regulating extraction of ground water for construction/Industrial and drinking and domestic purposes. Contractors will need to obtain permission from Central/State Groundwater Boards prior to groundwater abstraction through digging any bore well or through any other means; and will to ensure full compliance to these rules and any conditions imposed in the permit.

29. The Mines Act, 1952 as amended; the Minor Mineral and concession Rules as amended; and the State Mineral (Rights and Taxation) Acts as may be in force: These provide for **163** for safe and sound mining activity. The contractors will procure aggregates and other building materials from quarries and borrow areas approved under such Acts. In the event the contractors open any new quarry and/or borrow areas, appropriate prior permission from the State Departments of Minerals and Geology will need to be obtained. Contractors will also need to ensure full compliance to these rules and any conditions imposed in the permit.

30. The Insecticides Act, 1968 and Insecticides Rules, 1971 and as amended: These provide for regulates the manufacture, sale, transport, distribution, export, import and use of pesticides to prevent risk to human beings or animals, and for matters connected therewith. No one should import or manufacture; sell, stock or exhibit foe sale; distribute, transport, use: (i) any misbranded Insecticides, (ii) any Insecticide the sale, distribution or use of which is for the time being prohibited under the Act; and (iii) any

Insecticide except In accordance with the condition on which it was registered under the Act.

31. National Building Codes of India, 2005 and as amended: This provides guidelines for regulating the building construction activities In India. The code mainly contains administrative regulations, development control rules and general building requirements; stipulations regarding materials, structural design and construction; and building and plumbing services. Contractors will be required to comply with all Bureau of Indian Standards Codes dealing with: (i) use and disposal of asbestos containing materials In construction; (ii) paints containing lead; (iii) permanent and temporary ventilations In workplace; (iv) safety, and hygiene at the workplace; (v) prevention of fire; (vi) prevention of accidents from faulty electrical gadgets, equipment and accessories; and all other such codes Incidental to the Contract.

ANNEXURE-3

The scope is to address and resolve social issues and consultations with stakeholders and communities, including socially and economically disadvantaged communities before during and after construction phase. The approach in particular include the following:

- Identifying key social issues associated with the proposed project and specify the project's social development outcomes;
- Assessing potential social and economic impacts both during the construction phase and in the operation phase.
- Reviewing policies, regulations and other provisions that relate to resettlement and rehabilitation, Equality, Socio-economic Development of people and other social issues;
- Social screening of various project components and likely impacts in terms of land, built-up Structures (loss of structures, houses, livelihood, etc.), and resultant involuntary resettlement and provide inputs (in terms of magnitude of impacts and mitigation measures).
- Based on the assessment of potential social and economic impacts establish criteria that will assist in the formulation of strategies; to the extent possible maximize project benefits to the local population and minimize adverse impacts of the project interventions in project area;
- Inform, consult and carry out dialogues with the project stakeholders on matters relating to project design, objectives, and implementation and provide specific recommendations to avoid/minimize social risks;
- Screen the social development issues in the project area and its vicinity and accordingly design the social services that may have to be provided by the project in order to improve the quality of life;
- Organization of Labour Awareness campaigns for Health, Hygiene and Safety.
- Organization of Community Awareness Campaigns on various social issues in project area.
- Community Consultations to obtain feedback and suggestions for better outcomes.
- Develop monitoring and evaluation mechanism to assess the social development outcomes.
- Ease of Access must be provided to the affected people (Road Users, Commercial and Residential).

- Proper Traffic Diversion Plan will be discussed, prepared and approved by the Transport Department as well as must be informed and circulated before initiation of work.
- Consultation with Shop Owners, House Owners and Community will be done and proper information will be circulated before initiation of work.
- Major construction activities will be implemented during night hours.
- All safety Provisions will be followed during construction.
- Cautionary Boards, Signages shall be installed at each construction site during construction.
- Road wise Awareness Campaigns & Sensitization programs for Road Users and Construction Labour can also be planned.
- ***If any partial damage of Commercial and residential structure will occur during construction, contractor will be responsible to compensate the loss and/or restore the same".***

SECTION VIII - CONTRACT FORMS

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

Attachment: Contract Agreement

Contract Agreement

THIS AGREEMENT made the . . . . . Day of . . . . . ., ..., between . . . . . [name of the Employer]. . . . . (Hereinafter "the Employer"), of the one part, and . . . . . [name of the Contractor]. . . . .(hereinafter "the Contractor"), of the other part:

WHEREAS the Employer desires that the Works known as . . . . . [name of the Contract]. . . . .should be executed by the Contractor, and has accepted a Bid by the Contractor for the execution and completion of these Works and the remedying of any defects therein,

The Employer and the Contractor agree as follows:

1. In this Agreement words and expressions shall have the same meanings as are respectively assigned to them In the Contract documents referred to.
2. The following documents shall be deemed to form and be read and construed as part of this Agreement. This Agreement shall prevail over all other Contract documents.

(i) This Contract Agreement
(ii) The Letter of Award
(iii) The Contractor's Bid Including completed schedules and priced bill of quantities,
(iv) The addenda Nos. _____ (if any)
(v) The Particular Conditions
(vi) The General Conditions of Contract, Including appendix;
(vii) The Specification
(viii) The drawings(
(ix) Construction Program, Methodology, Quality Assurance Program and Environmental and Social Management Plan
(x) Any other document listed In the PCC as forming part of the Contract.

3. In consideration of the payments to be made by the Employer to the Contractor as specified in this Agreement, the Contractor hereby covenants with the Employer to execute the Works and to remedy defects therein In conformity In all respects with the provisions of the Contract.
4. The Employer hereby covenants to pay the Contractor In consideration of the execution and completion of the Works and the remedying of defects therein, the Contract Price or such other sum as may become payable under the provisions of the Contract at the times and In the manner prescribed by the Contract.

IN WITNESS whereof the parties hereto have caused this Agreement to be executed In accordance with the laws of India. . . . .on the day, month and year specified above.

Signed by:	Signed by:
for and on behalf of the Employer	for and on behalf the Contractor
In the presence of:	In the presence of:
Witness, Name, Signature, Address, Date	Witness, Name, Signature, Address, Date

Performance Bank Guarantee

[Guarantor letterhead or SWIFT identifier code]

Performance Guarantee No……. ***[Insert guarantee reference number]***
Date……. ***[Insert date of issue of the guarantee]***

To:
Chief Executive Officer
Dehradun Smart City Limited
777, Saatvik Tower Kaulagarh Road,
Rajendra Nagar, Dehradun, Uttarakhand

In consideration of CEO, Dehradun Smart City limited (hereinafter as the "Employer", which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators and assigns) awarding to _____ ***(Name of the contractor)*** having its registered office at _____ (hereinafter referred as the "Contractor", which expression shall, unless repugnant to the context or meaning thereof, include its successors, administrators and assigns), vide letter no. _____ ***(LOA No.)*** dated _____ valued at INR _____ ***(Amount in figures and words)*** (herein after referred to as the "Contract value") the work for _____ ***(Name of the work)***. The Contractor _____ having agreed to furnish a Bank Guarantee amounting _____ ***(Amount in figures and words)*** to the Employer for Performance Security of the said Agreement.

We, the _____ ***(Name of the Bank)***, at a company constituted under the companies Act 1956 and deemed to be a banking company under the Banking Regulation Act 1949 having one of its branch office at _____ ***(Branch Office Address)*** and having its Registered Office at _____ ***(Registered Office Address)*** (herein after referred to as 'The Bank') at the request of the employer do hereby pay to the employer an amount not exceeding _____ ***(Performance Bank Guarantee Value in figures and words)*** against any loss or damage caused to or suffered or would be caused to or suffered by the Employer by reason of any breach by the said Contractor of any of the terms or conditions contained in the said Agreement.

We, _____ ***(Bank Name)*** hereby affirm that we are the Guarantor and responsible to Employer, on behalf of the Contractor, up to a total of _____ ***(Performance Bank Guarantee Value in figures and words)***, such sum being payable in the types of currencies in which the Contract Price is payable, and we undertake to pay you, upon your first written demand to "the bank" or any other branch of _____ ***(Name of Bank)*** without cavil or argument, any sum or sums within the limits of _____ ***(Performance Bank Guarantee Value in figures and words)*** as aforesaid without needing to prove or to show grounds or reasons for demand for the sum specified therein however, such demand shall be made within the claim expiry date i.e. _____.

We, _____ ***(Name of Bank)*** undertake to pay to the employer any money so demanded notwithstanding any dispute or disputes raised by the Contractor in any suit or proceeding pending before any court or tribunal relating thereto, our liability under this present being absolute irrevocable and unequivocal. The payment so made by us under this bond shall be a valid discharge of our liability for payment there under and the Contractor shall have no claim against us for making such payment.

We, further agree that no change or addition to or other modification of the terms of the Contract or related Services to be supplied there under or of any of the Contract documents which may be made between employer 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.

We, the _____ ***(Name of Bank)*** further agree with the Employer that the employer shall have the fullest liberty without our consent and without affecting in any manner our obligations hereunder to vary any of the terms and conditions of the said Agreement or to extend time of performance by the said consultant from time to time or to postpone for any time or from time to time any of the powers exercisable by the employer against the said Contractor and to forbear or enforce any of the terms and conditions relating to the said agreement and we shall not be relieved from our liability by reason of any such variation, or extension being granted to the said Contractor or for any forbearance, act or omission on the part of the employer or any indulgence by the employer to the said Contractor or any such matter or thing whatsoever which under the law relating to sureties would, but for this provision, have the effect of so relieving us.

This guarantee will not be discharged due to the change in the constitution of the bank or the Contractor.

We, _____ ***(Name of Bank)*** lastly undertake not to revoke this guarantee during its currency except with the previous consent of employer in writing.

This guarantee shall be valid until _____ MONTHS (i.e.) 60 days following the Completion date of the Contract i.e. till _____including any warranty/Operation and Maintenance obligations, and any demand for payment under it must be received by us at this office on or before that date.

NOTWITHSTANDING ANYTHING CONTAINED HEREIN ABOVE:

(a) The Bank's liability under this guarantee shall not exceed the Guaranteed Amount i.e., _____ ***(Performance Bank Guarantee Value in figures and words)***

(b) This guarantee shall be valid up to the Expiry Date i.e._____ and

(c) The Bank is liable to pay the Guaranteed Amount or any part thereof under this Bank Guarantee only and only if a demand is made in writing on the Bank at any branch on or before the Claim Expiry Date i.e. _____, else all rights of the beneficiary under this Guarantee shall be forfeited and we shall be relieved and discharged from all liabilities there under.

Signature and seal of the guarantor _____

Name of Bank -

Address -

Date -

Note: All italicized text (including footnotes) is for use in preparing this form and shall be deleted from the final product.

SECTION IX
Bill of Quantities (BOQ)

Bill of Quantities (BOQ)

"The Price Bid BOQ is documented separately and can be downloaded from e-procurement portal http://uktenders.gov.in along with the RFP document. The price bid BOQ in EXCEL FORMAT which is available on http://uktenders.gov.in website should be completely filled and should be uploaded as a part of the bid without which the bid shall be treated as NON-RESPONSIVE." The bidder has to quote the prices ***EXCLUSIVE OF GST***.