



उत्तराखण्ड पेयजल संसाधन विकास एवं निर्माण निगम  
कार्यालय : अधीक्षण अभियन्ता, निर्माण मण्डल,  
स्ट्रीट नं. 11 राजेन्द्र नगर, देहरादून।

पत्रांक 6267 / निर्माण / 378 दिनांक 16 / 10 / 2018

### ई-शुद्धिपत्र

अधीक्षण अभियन्ता, निर्माण मण्डल, उत्तराखण्ड पेयजल निगम, देहरादून के कार्यालय पत्रांक 6186 / निविदा / 372 दिनांक 09.10.2018 द्वारा **EOI for water supply and sanitation sector for the improvement and revamping of the existing water supply system and underground sewerage system of Dehradun city** आमंत्रित की गयी है जो वेबसाइट <http://peyjal.uk.gov.in> के माध्यम से दिनांक 11.10.2018 को अपलोड की गयी थी, को आंशिक संशोधित कर संशोधित Scope and T.O.R. पुनः उक्त वेबसाइट पर आज दिनांक 16.10.2018 सायं 5:00 बजे तक अपलोड कर दिया जायेगा। संशोधित T.O.R. के अनुसार ही BID मान्य होगी। अन्य शर्तें पूर्ववत् रहेंगी।

६०-

(एल०एम०कर्नाटक)  
अधीक्षण अभियन्ता

पृ०सं० एवं दिनांक यथोपरी।

प्रतिलिपि निम्नलिखित को सादर सूचनार्थ प्रेषित।

1. मुख्य अभियन्ता (मु०), प्रधान कार्यालय, उत्तराखण्ड पेयजल निगम, देहरादून।
2. मुख्य अभियन्ता (गढ़०), उत्तराखण्ड पेयजल निगम, पौड़ी।
3. अधिशासी अभियन्ता, (मु०), प्रधान कार्यालय, उत्तराखण्ड पेयजल निगम, देहरादून को इस आशय से प्रेषित की उक्त वेबसाइट पर अपलोड कराने का कष्ट करें।
4. अधिशासी अभियन्ता, देहरादून शाखा, उत्तराखण्ड पेयजल निगम, देहरादून।

*Lwdk*  
16.10.18

अधीक्षण अभियन्ता



**OFFICE OF THE SUPERINTENDING ENGINEER, CONSTRUCTION CIRCLE,  
UTTARAKHAND PEYJAL SANSADHAN VIKAS EVAM NIRMAN NIGAM  
Street No.-11 Rajendra Nagar,Dehradun-248001 (Uttarakhand).**

## **Expression of Interest**

Proposal / EOI are invited from experienced consultancy firms in water supply and sanitation sector for the improvement and revamping of the existing water supply system and underground sewerage system of Dehradun city by carrying out the following work in an integrated manner:-

- A. GIS based survey using a high-end Differential GPS (DGPS with RTK) for capturing existing water supply system and existing sewerage system, Advance Drone survey technology, GIS mapping with house to house consumer survey and topographical survey
- B. GIS based hydraulic modeling for converting existing water supply system of Dehradun city to continuous 24X7 water supply system, Planning and designing of new water supply system and also planning and designing of source augmentation from the proposed Saung Dam situated at Saung River in Raipur Block of Dehradun District as alternative proposal. Preparation of detailed project report (DPR) along with Design, technical drawings, GIS maps and financial estimates.
- C. GIS based sewerage modeling of the existing sewerage system along with planning of new sewerage system for the Dehradun city. Preparation of detailed project report (DPR) along with design, technical drawings, GIS maps and financial estimates.

Experienced consultants in water supply sector and sanitation sector shall have experience of similar nature of works of GIS mapping, carrying out point of interest survey for water supply system and sewerage system, DGPS survey with real time kinematics, Drone survey for generation of high resolution or the image and contours, GIS mapping along with house to house survey, GIS based hydraulic modeling, GIS based sewerage modeling, Design and preparation of detailed project report with GIS maps, working drawings and financial estimates etc as per the direction of Engineer in charge.

The proposed project is for the Dehradun City (Municipal Area) covering an area of approximate 64.88 Sq. Kms. with 60 ward's and a population of 5.69 Lakhs (as per census 2011) and with a Population Density of 1,900 persons /km<sup>2</sup>. The average elevation of Dehradun city is 635 m above MSL. The existing water supply system is approx. 700 Km and 400 Km new water supply network is planned for the city. The existing sewerage network is approx. 403 Kms and about 200 Km new sewer network planned for the city to increase the coverage. The details of the existing system for Dehradun city are as under:

<b>Sr. No.</b>	<b>Description</b>	<b>Quantity</b>
1	Area of Dehradun City ( Municipal Area )	64.88 Sq. Km.
2	Population of City ( Census 2011 )	5.69 Lakhs
3	Number of Wards	60 Ward
4	Length of Road network in the city	700 Km (Approx)
5	Number of sources of water	150 TW & 5 Surface Water Sources
6	Number of Water treatment plants	3 Nos.
7	Length of existing pipe line network – Raw Water	700 Kms.
8	Length of existing pipe line network – Pure Water transmission line.	41.25 Kms.
9	Number of ESR/GSR	71/14
10	Number of Water Supply Zones	46 Zones & 5 Sub Zones
11	Number of properties	1.5 Lakhs (Approx)
12	Number of Water connections	1.0 Lakhs (Approx)
13	Length of existing Sewer network	404.00 Km.
14	Number of sewerage treatment plants	7 Nos. & capacity 115.13 MLD
15	Number of Sewerage pumping stations	4 Nos.
16	Number of sewer zones	13 Nos.
17	Number of Manholes	13,433 Nos.
18	Average Elevation above MSL	635 m

Interested consultants may collect the EOI documents from office of Superintending Engineer, Construction Circle, Uttarakhand Peyjal Nigam, Dehradun from 11/10/2018 and submit EOI with relevant documents by registered A.D. Post / hand delivery / Speed Post /courier only to office of Superintending Engineer, Construction Circle, Uttarakhand Peyjal Nigam, Dehradun on / before Date 31/10/2018 , up to 3.00 P.M. (IST). (Department will not be responsible for postal delay and tender will be rejected).

Signature of Applicant:

Name:

Company's seal:

Date:

## **Short Description of the Project**

The project includes GIS based surveying and mapping of the existing water supply and sewerage system of the Dehradun city using a high-end Differential GPS with real time kinematics (DGPS with RTK), GIS based Drone survey for generation of high resolution or the image and contours for Dehradun city, GIS based door to door consumer survey / Household survey for identifying the demand for water by different beneficiaries (Residential / Non-Residential / Institutional etc..).

Based on the data available after carrying out above survey, the work of GIS based hydraulic modeling for simulation and analyzing the existing system, Planning and designing of new water supply system, also planning and designing of source augmentation from the proposed Saung Dam situated at Saung River in Raipur Block of Dehradun District as alternative proposal and converting the existing system to 24X7 water supply systems, Preparation of detailed project report with working drawings and maps along with financial estimates shall be carried out.

Based on data generated, the work also includes designing of the sewerage system in an integrated manner with existing sewerage system for Dehradun city. It further includes preparation of DPR for sewerage system with working drawings and financial estimates. All the assets of the water supply system and the sewerage system need to be mapped on GIS platform and the design needs to be carried out in an integrated manner for both the water supply and the sewerage system. All the necessary actions like planning for new system along with remedial measures for improvisation and revamping of the existing system needs to be carried out from time to time as per the priorities of Dehradun city and as per the directions of Engineer in charge.

Signature of Applicant:

Name:

Company's seal:

Date:

## **Abstract of the Proposal**

Proposal is for the consultancy services having experience in water supply and sewerage sector for carrying out GIS survey work, GIS based hydraulic modeling and GIS based sewerage modeling for the improvement and revamping of the existing water supply system and sewerage system for Dehradun city. It also includes preparation of detailed project report (DPR) for water supply ( including planning and designing of source augmentation from the proposed Saung Dam situated at Saung River in Raipur Block of Dehradun District as alternative proposal.) and sewerage system in an integrated manner considering current requirements and future requirements of Dehradun city.

Envelope	Serial No/ Section	Particular
A	1	Notice for Inviting Expression of Interest (EOI)
	2	Water supply in Dehradun City and Uttarakhand Peyjal Nigam
	3	Objective and Scope of Service
	4	Pre-Qualification criteria
B	5	Financial Proposal

### **Envelope –A**

#### **1 – Notice for Inviting Expression of Interest (EOI)**

**Subject:** Proposal / EOI are invited from the experienced consultants in water supply and sanitation sector for the improvement and revamping of the existing water supply system and underground sewerage system of Dehradun city by carrying out the following work in an integrated manner :-

- A. GIS based survey using a high-end Differential GPS (DGPS with RTK) for capturing existing water supply system and existing sewerage system, Advance Drone survey technology, GIS mapping with house to house consumer survey and topographical survey.
- B. GIS based hydraulic modeling for converting the existing water supply system of Dehradun city to continuous 24X7 water supply system, Planning and designing of new water supply system and also planning and designing of source augmentation from the proposed Saung Dam situated at Saung River in Raipur Block of Dehradun District as alternative proposal. Preparation of detailed project report (DPR) along with design, technical drawings, GIS maps and financial estimates.

C. GIS based sewerage modeling of the existing sewerage system along with planning of new sewerage system for the Dehradun city. Preparation of detailed project report (DPR) along with design, technical drawings, GIS maps and financial estimates

1. UTTARAKHAND PEYJAL NIGAM invites proposal for Expression of Interest (EOI) from consultants who have experience of similar nature of work for carrying out the work of GIS based survey, GIS based hydraulic modeling and GIS based sewerage modeling for existing water supply and sewerage system within the limits of Dehradun city and simultaneously planning for new systems ( including planning and designing of source augmentation from the proposed Saung Dam situated at Saung River in Raipur Block of Dehradun District as alternative proposal )
2. Uttarakhand Peyjal Nigam intends to improve and revamp the existing water supply system and sewerage system of Dehradun city simultaneously through undertaking Necessary studies including survey, GIS mapping, GIS based hydraulic model, Identification of visible leakages and suggesting strategy to reduce NRW, and designing for up gradation of the existing system and converting it to 24X7 water supply system along with up gradation of existing sewerage system through GIS based sewerage modeling. The consultant needs to submit Detailed Project Report (DPR) for water supply and sewerage system considering current and future requirements of Dehradun city.
3. This Expression of Interest has been invited exclusively for the proposed work and acceptance or rejection of offer of any interested consultant or consulting firm is valid for the said project only.
4. Interested consulting firm shall have to attach the documents with the EOI as mentioned in the checklist of the documents to be submitted with EOI. One set of proposal for EOI documents duly completed in all respects shall be submitted, duly marked as “Original “ on the envelopes, as described further, so as to reach before 15.00 Hrs. on or before Dt. 31/10/2018 at the office of Superintending Engineer, Construction Circle, Uttarakhand Peyjal Nigam, Dehradun:
5. Interested consulting firm shall clearly state in the forwarding letter, to be enclosed with the EOI documents, the deviations, if any, from the general terms and conditions, with cross references. If, no such letter is received, it shall be presumed that the firm, submitting EOI, agrees entirely with the Terms and Conditions specified in the document.
6. Proposal for EOI received from the interested consultant or consulting firm, shall be opened in the presence of the representative of interested consultant or consulting firm, who choose to remain present at office of Superintending Engineer, Construction Circle, Uttarakhand Peyjal Nigam, Dehradun on date and time of opening.
7. EOI received without all the required documents shall be considered as non- responsive and shall be rejected outright.
8. Interested consulting firm’s proposal shall provide accurate information on the litigation or arbitration history, resulting from contracts completed or under execution by it. This shall also include such cases, which are in process/progress. If, any case of litigation or arbitration comes to the notice of the Authority, whose information has not been provided, the Proposal shall be liable for rejection.

9. If interested consulting firm has any litigation history or case or has not completed any work on this account and the same is not reflected in the information submitted by it, Uttarakhand Peyjal Nigam reserves the right to disqualify the interested consulting firm without giving any reasons.
10. The conditional EOI shall not be accepted and shall be rejected outright, unless, the nature of condition(s) put forth by the interested consulting firm is acceptable.
11. Uttarakhand Peyjal Nigam reserves the right to reject all or any of the EOI, which in the judgment of Uttarakhand Peyjal Nigam, does not appear to be in its best interest for which the interested consultant or consulting firm shall have no cause of action or claim against the Uttarakhand Peyjal Nigam or its officers, employees, successors for assignees, for rejection of its EOI.
12. The Superintending Engineer, Construction Circle, Uttarakhand Peyjal Nigam, Dehradun does not bind himself to accept any EOI. EOI documents are not transferable.
13. Interested consulting firm shall carefully read the eligibility criteria, furnish the details and satisfy the same; otherwise the EOI shall be rejected without assigning any reason.
14. EOI should be bound properly and with page no. and references on front index for evaluation purpose and this index page shall be duly signed by interested consulting firm. Separate page without binding in EOI shall not be entertained. If the EOI document is submitted without binding properly, Uttarakhand Peyjal Nigam may out right reject the EOI at the time of opening.
15. Interested consulting firm may obtain further information and clarification on any matter relating to the EOI documents from the office of the office of Superintending Engineer, Construction Circle, Uttarakhand Peyjal Nigam, Dehradun, Uttarakhand.
16. The Terms and conditions of EOI notice published in newspaper shall form part of the EOI.

Signature of Applicant:

Name:

Company's seal:

Date:

## **2 – Introduction to Water Supply Dehradun City and Role of Uttarakhand Peyjal Nigam**

### **Dehradun City**

Dehradun or Dehra Dun is the interim capital city of Uttarakhand, a state in the northern part of India. Located in the Garhwal region, it lies 236 kilo meters north of India's capital New Delhi and 168 kilo meters from Chandigarh. It is one of the "Counter Magnets" of the National Capital Region (NCR) being developed as an alternative centre of growth to help ease the migration and population explosion in the Delhi metropolitan area and to establish a smart city at Dehradun. During the days of British Raj, the official name of the town was Dehra.

### **Dehradun as Educational Hub and Tourist Destination**

Dehradun is a world known educational hub. Premier research institute based in Dehradun are the Forest Research Institute, Indian Institute of Remote Sensing, Indian Institute of Petroleum, Wildlife Institute of India, Instruments Research and Development Establishment and Wadia Institute of Himalayan Geology. State and private universities located in Dehradun are Doon University, Uttarakhand Technical University Uttaranchal University, ICFAI University, Dehradun, Graphic Era University, University of Petroleum and Energy Studies. The Forest Research Institute campus hosts the Indira Gandhi National Forest Academy (IGNFA), the staff college that trains officers selected for the Indian Forest Service (IFS). Wildlife Institute of India (WII) is an autonomous institution under the Ministry of Environment Forest and Climate change, Government of India which carries out wildlife research.

### **Local Administration**

Dehradun Municipal Corporation is locally known as Nagar Nigam Dehradun. Other urban entities involved in civic services and city governance and management include Mussoorie Dehradun Development Authority (MDDA), Special Area Development Authority (SADA), Jal Nigam and Jal Sansthan among others.

### **Uttarakhand Peyjal Nigam:-**

The major objective behind the establishment of the Nigam was to have a responsible body for supplying water in the state of Uttarakhand. The major function or work performed by the Nigam is supplying water to the people residing in the state of Uttarakhand.

Uttarakhand Peyjal Nigam has its Headquarter at 11, Mohini Road Dehradun. The Nigam is responsible for planning, survey, design and execution of urban as well as rural water supply and sewage schemes in the state of Uttarakhand. In addition to above the Nigam has also been authorized as a construction agency.



The proposed project is for the Dehradun City (Municipal Area) covering an area of approximate 64.88 Sq. Kms. with 60 Wards and having a Population of 5.69 Lakhs (as per census 2011) with a Population Density of 1,900 /Km<sup>2</sup>. The Average Elevation of Dehradun City is 635 m above MSL. The Existing Water Supply System is approx 700 Km and 400 Km new Water Supply

Network is planned for the city. The Existing Sewerage Network is approx 400 Km and 100 Km New Sewer Network planned for the city to increase the Coverage. The details of the Existing System for Dehradun city are –

The City Details are –

<b>Sr. No.</b>	<b>Description</b>	<b>Quantity</b>
1	Area of Dehradun City ( Municipal Area )	64.88 Sq. Km.
2	Population of City ( Census 2011 )	5.69 Lakhs
3	Number of Wards	60 Ward
4	Length of Road network in the city	700 Km (Approx)
5	Number of sources of water	150 TW & 5 Surface Water Sources
6	Number of Water treatment plants	3 Nos.
7	Length of existing pipe line network – Raw Water	700 Kms.
8	Length of existing pipe line network – Pure Water transmission line.	41.25 Kms.
9	Number of ESR/GSR	71/14
10	Number of Water Supply Zones	46 Zones & 5 Sub Zones
11	Number of properties	1.5 Lakhs (Approx)
12	Number of Water connections	1.0 Lakhs (Approx)
13	Length of existing Sewer network	403.15 Kms.
14	Number of sewerage treatment plants	7 Nos. & capacity 115.15 MLD
15	Number of Sewerage pumping stations	3 Nos.
16	Number of sewer zones	13 Nos.
17	Number of Manholes	13,433 Nos.
18	Average Elevation above MSL	635 m

Signature of Applicant:

Name:

Company's seal:

Date:

### 3 – Objectives and Scope of Services

The broad objective of the consulting service is to carry out survey and do GIS mapping And geo tagging of all the assets of the existing water supply system and sewerage system of Dehradun city (More than 1145.00 Kms. network), Verification of network and collection of all the necessary information as required for building a GIS based hydraulic model and GIS based sewerage model Then, carrying out simulation of the same for identifying the problems with existing water supply system and sewerage system. To carrying out planning for new network for both water supply and sewerage, re designing and suggesting remedial measures for the improvisation and revamping of the existing system. GIS mapping of all the existing Tube wells (More than 150) in Dehradun city and developing a plan for converting existing intermittent water supply to continuous 24X7 water supply system along with a plan for water crisis management of Dehradun city with GIS technology. Survey, identification of leakages as on major lines and assisting in developing a strategy for NRW reduction. All the work for GIS based survey, water supply system and sewerage system needs to be carried out in an integrated manner.

The objective of this work is to prepare a detailed working plan in the form of detailed project report (DPR) for –

1. Water Supply Projects:- Improvisation and revamping of the existing water supply system of Dehradun city and converting it to 24X7 continuous water supply system using advance technologies of GIS and hydraulic modeling, also planning & designing of source augmentation from the proposed Saung Dam situated at Saung River in Raipur Block of Dehradun District as alternative proposal. and
2. Sewerage Projects :- Planning of new sewerage system in an integrated manner with existing sewerage system for Dehradun city using GIS based sewerage modeling

For the same, the scope of work can be broadly classified into following 3 parts / activities–

- A. GIS based survey for generation of baseline data
- B. GIS based hydraulic modeling and DPR for water supply projects
- C. GIS based sewerage modeling and DPR for sewerage projects

The detailed scope of work for each of the above activity are listed below –			
A. GIS based survey for Dehradun city			
Sr. No	Activity	Sub Activity	Output Expected
1	Drone survey	<p>Carrying out Drone missions at appropriate altitudes with ultra high definition camera for capturing very high-resolution images</p> <p>Processing the data with international standard software's with GIS compatibility and generating very high resolution seamless geo-referenced or the image for the defined area</p> <p>Preparation of 3D models digital surface model, digital elevation model, digital terrain model and extraction of contours with 1m and 3m intervals</p>	<p>High resolution or the image</p> <p>1m contours and 3m contours</p> <p>Digital elevation model</p> <p>Slope and aspect maps</p> <p>3D model</p>
2	GIS base map	Digitization on high resolution or the image and extraction of features like – Building footprints, road centerline, road edges, railway lines, rivers, water bodies, parking places, open plots, playgrounds, slum areas etc.	<p>Digital GIS map for planning of water supply and sewer lines</p> <p>Number of properties</p> <p>Road length etc</p>
3	Scanning and geo-referencing of existing maps for water Supply and sewerage system	<p>Data collection from department, scanning existing water supply maps, geo-referencing, digitization of existing drawings, maps etc</p> <p>Data collection from department, scanning existing sewerage system maps, geo-referencing, digitization of existing drawings, maps etc</p> <p>City development plan (DP map), Ward boundaries etc..</p>	<p>GIS maps of existing water supply system with all details</p> <p>GIS maps of existing sewerage system with all details</p> <p>GIS based DP map and ward boundaries</p>
4	DGPS-RTK survey for the existing Water supply system	<p>Detailed DGPS – RTK survey for capturing all the details of the existing water supply system with the help of field persons (Technicians, valve man, plumber etc) along with verification of existing Drawings.</p> <p>All the details related to sources, WTP, ESR/GSR, raw water and pure water transmission lines and distribution lines, valves, pumps etc. needs to be surveyed and mapped on GIS system with attributes</p>	<p>Verified and updated GIS maps for existing water supply system</p> <p>GIS data as required for hydraulic modeling and analysis</p>

5	DGPS-RTK survey for the existing sewerage system of Dehradun city	Detailed DGPS – RTK survey for capturing all the details of the existing sewerage system with the help of field persons, Technicians along with Verification of existing drawings. All the details related to manholes, STP, conduits, wet wells, pumping stations etc. needs to be surveyed and mapped on GIS system with attributes	Verified and updated GIS maps for existing sewerage system GIS Data as required for sewerage modeling and analysis
6	Consumer Survey	Grid formation for Dehradun city Unique GIS ID generation for each of the property on GIS system Detailed GIS based door to door household survey for collecting the information as required by Dept. Data entry of the surveyed data into Excel File / mdb file  GIS Map updating after consumer survey Linking of consumer survey data with GIS maps Classification and identification of residential and non residential demand Analysis and report as required by the Dept.	Consumer survey data linked with GIS maps Consumer mapping and indexing Identification of water used by different beneficiaries Identification of Population and point demand as required for Hydraulic Modeling and sewerage modeling
7	Conditional assessment of the existing Water supply Network system	Taking trial pits of various sizes 1mX1mX2m in depth to 4mX1mX2m in depth at a distance of 500m for existing 800 kms of water supply network Capturing the details of the pipeline network GPS location with photograph Map updating	Updated GIS maps with trial pits results & identification of the condition Of the pipeline as good, ok or bad (needs Replacement). Capturing details as required for hydraulic modeling
8	Conditional assessment of the existing Sewer network system	Identification of location of each manhole Capturing the details of the conduits & invert level at each manhole GPS location with photograph Map updating with conduit & manhole details	Updated GIS maps with manholes & conduit details as Required for sewer modeling

**B. GIS based Hydraulic Modeling and DPR for Water Supply Projects**

Sr. No	Activity	Sub Activity	Output Expected
1	GIS based hydraulic modeling for the existing and new water supply system, (including also planning and designing of source augmentation from the proposed Saung Dam situated at Saung River in Raipur Block of Dehradun District as alternative proposal)	<p>Creation of GIS based hydraulic model                      Demand forecasting and assigning demand to the model based on GIS based consumer survey/ Land use                      Assigning levels to various nodes using GIS based digital elevation model (DEM)                      Simulation and analysis of the various elements of the existing water supply system (Source, WTP, ESR/GSR, Pumps, Pipelines, etc.)                      Steady state and extended period simulation over 24 hours to study the behavior of the existing system                      Identification of problems in the existing system (low pressure areas etc)</p> <p>Remedial measures to overcome the problems in the system                      Design of optimum operational zones so that tanks shall not remain empty or overflowing                      Formation of DMAs / Redesigning of zones / DMAs                      Location and sizing of isolation valves                      Pressure management that leads to equitable distribution of flow and pressure                      Refurbishment of pipelines                      Analysis and report</p>	<p>GIS based hydraulic model as required for planning, designing, operation and maintenance, including the scenarios for remedial measures for Improvisation of water supply system</p> <p>Design report with drawings and maps</p>
2	Preparation Of Detailed Project report (DPR) for Water Supply Project	<p>Detailed Project Report (DPR)                      Design along with results for pipe and Junctions, ESR , Pumps etc                      Working drawings and GIS maps                      Financial estimate</p>	<p>Detailed Project Report (DPR) as required for submission to State Govt / Central Govt</p>

C. GIS based Sewerage Modeling and DPR for Sewerage Projects			
Sr. No	Activity	Sub Activity	Output Expected
1	GIS Based modeling of the sewerage System for the existing and new System and planning in an integrated manner	Creation of GIS based sewerage model for usable existing network and planning / designing of new network Demand forecasting and assigning demand to the model based on GIS based consumer survey/ Land use Assigning levels to various manholes using GIS based digital elevation model (DEM) Simulation and analysis of the various elements of the existing sewerage system (Conduits, Manholes, STP, Pumping Stations, Wet Wells etc.) Formation of sewer zones/sewer districts Identification of problems in the existing system Remedial measures to overcome the problems in the system Analysis and report	GIS based sewerage model as required for planning, designing, operation and maintenance etc  Remedial measures for improvisation of existing Sewer system in accordance with panning for new sewer system  Analysis and report with working drawings and maps
2	Preparation of detailed project report (DPR) for sewerage project	Detailed Project Report (DPR) Design along with results for Conduits and Manholes, Pumping Station, Wet wells etc Working drawings and GIS maps Financial estimate	Detailed Project Report (DPR) as required for submission to State Govt / Central Govt

In general, the scope of the services to be undertaken shall cover, but not be limited to, the activities mentioned above. The scope of work and priorities may change as per the site conditions and as per the Directions of Engineer in Charge.

The study should identify shortfalls in the system; suggest suitable measures/works to be undertaken; finalize priority of improvement/ augmentation work to be under taken along with an implementation plan to achieve the desired target, in a phased manner and as per the Directions of the Engineer in Charge.

Signature of Applicant:

Name:

Company's seal:

Date:

#### 4- Pre-Qualification Criteria

The expression of interest **must include** the following information that would form criteria for pre-qualification and short listing:

1. Background of the consultant.
2. The specific capability statement of the consultant in the field of water supply and distribution, with particular reference to GIS, hydraulic modeling, and design of transmission and distribution pipes and sewer zoning, sewer districts etc.
3. Consultants are not allowed to associate with other Consultants or form a joint venture to enhance their qualifications.

Sr. No.	Qualification Conditions
1	The company should have a Certificate of Registration from Government of India in case of a Partnership firm / Private Ltd firm/Joint Venture etc.
2	The firm should be in consulting business at least for the last 5 years (either as a firm or Joint Venture).
3	The firm shall have more than 4 years of experience in preparation of GIS Database and GIS based survey specifically for the water supply and sewerage projects for the Urban Local Bodies / Govt Departments.
4	The company should have experience of working on water supply / sewerage projects for at least 3 Urban Local Bodies / Govt Department and should have prepared or contributed in the work of preparation of detailed project report (DPR) using advance Technologies of GIS & Hydraulic Modeling / GIS & Sewer Modeling.
5	The company should have prepared GIS data for the DPR of water supply scheme costing not less than INR 60 crore in a single work.
6	The company should have experience of carrying out Drone Survey, DGPS-RTK Survey, Total Station Survey, GPS Survey, Water Network Survey, Point of Interest Survey for Residential & Non Residential Demand etc for a city with population not less than 2,00,000 and for pipeline network of not less than 150 kilometers in a single work.
7	The company should have worked on similar kind of assignment of not less than INR 90 lakh in a single work.
8	The company should have experience of working on international standard software of Arc GIS and Bentley Water Gems/Sewer Gems.
9	The company should have achieved a financial turnover of at least INR 75 lakh in any one of the last 3 financial years.
10	The company should have qualified Project Manager with minimum 30 years of experience in water supply projects not below the ranking of Superintendent Engineer / Chief Engineer in water supply dept, GIS Manager with minimum 12 years of experience in GIS field. Civil Engineers, GIS Engineers and Total Station & Consumer Surveyors with minimum 3 Years of relevant experience.
11	The company should have own relevant machineries, survey instruments, Software etc as required for GIS based survey activities.

Uttarakhand Peyjal Nigam invites eligible applicants to indicate their interest in providing the services. Interested consulting firm may obtain further information and clarification on any matter relating to the EOI document from the office of office of Superintending Engineer, Construction Circle, Uttarakhand Peyjal Nigam, Dehradun

Signature of Applicant:

Name:

Company's seal:

Date:



## Envelop-B

### 5- Financial Proposal (Costing)

#### 1. GIS WORK

Sr. No	Item Description	Rate	Quantity	Amount (Rs)
1	GIS based Drone Survey for 60 wards of Dehradun city		30000 Hectares (300 Sqkm)	
	High Resolution Ortho Image			
	High end computer, drones and software (Part loading)			
	1m Contour Intervals after Processing			
	Digital Surface Model / Digital Elevation Model			
	Differential GPS Points (Minimum 1500) across the area for calibrating drone contours with establishing Ground Control Points (GCPs) and Bench Marks (BMs)			
	Collecting details of existing administrative boundaries, Ward boundaries, Zones etc.			
2	Digitization & preparation of GIS Base map (Building footprints, Roads, Rivers, Railways etc..) on very high resolution Image (Drone) and generating seamless data.		30000 Hectares (300 Sqkm)	
3	Door to Door consumer survey (GIS based survey with geotagging of consumers), Data entry, map updation, linking of consumer survey data with GIS maps, Streamlining billing data, consumer Indexing etc..		2,00,000	
			HH	
4	DGPS survey of existing water supply system along with Scanning, geo referencing & digitization of the existing maps of water supply system with attribution		800	
5	DGPS survey of existing sewer system along with scanning, geo referencing & digitization of the existing maps of sewer network system with attribution		700	
6	Condition Assessment (water supply) by taking trial pits of sizes 1mx1mx2m to 4mx1mx2m at 500m intervals through the system at appropriate locations and capturing relevant details and updating GIS maps		800	
7	Condition Assessment (sewerage), locating manholes & capturing invert level and conduit details and updating GIS maps		700	
	GST / Service charges if applicable			
		<b>Total Amount (in figure)</b>		
		<b>In words</b>		

## 2. Water Supply

SN	Design and Network Analysis	Quantity	Unit	Rate (Rs/km)	Amount
1	Preparation of Hydraulic Model for Existing Pipelines & Analysis	800 kms	Lump sum		
2	Preparation of Hydraulic Model for Designing New Pipelines				
3	Preparation of Hydraulic Model for combined existing and New Pipelines				
4	Data elevations to the nodes using TREX of the Water Gems.				
5	Demand to all the nodes using a Load Builder of the Water Gems.				
6	Preparation of the operational zones of the 22 zones as per Tender Document.				
7	Checking of existing service tanks for adequacy of the storage with a emphasis that the tanks shall not remain empty nor Over flowing.				
8	Creation of the District Metering Areas (DMA)s				
9	Network simulation and Fixing location of the bulk meters at the entry point of each DMA with sizing of the meters.				
10	Working out quantities required for Cost Estimate				
11	Water Gems Software (loading of part cost)				
12	Fixing location and sizing of Isolation Valve				
13	Fixing location and sizing of Scour Valve				
14	Steady State Analysis design for sizing of proposed pipelines				
15	Design of transmission feeder main connecting MBR to various service tanks				
16	Design of duty points of Required pumps				
17	Preparation of network drawings of the operational zones, DMAs and that of the network models using Water GEMS and ArcGIS and presenting hard copies				
18	Training of the five candidates on Water Gems software and hydraulic model.				
19	Travel costs and Boarding & Lodging				
	Sub Total				
	GST				
	Total Amount (In figure) In words				

### 3.Sewerage

SN	Design and Network Analysis	Quantity	Unit	Rate (Rs/km)	Amount				
1	Preparation of Hydraulic Model for Existing Pipelines & Analysis	700 kms	Lump sum						
2	Preparation of Hydraulic Model for Designing New Pipelines								
3	Preparation of Hydraulic Model for combined existing and New Pipelines								
4	Data elevations to the nodes using TREX of the Water Gems.								
5	Demand to all the nodes using a Load Builder of the Water Gems.								
6	Preparation of the operational zones of the zones								
8	Creation of the District Metering Areas (DMA)s								
10	Working out quantities required for Cost Estimate								
11	Water Gems Software (loading of part cost)								
14	Steady State Analysis design for sizing of proposed pipelines								
15	Design of transmission feeder main connecting MBR to various service tanks								
16	Design of duty points of Required pumps								
17	Preparation of DPR including network drawings of the operational zones, DMAs and that of the network models using Water GEMS and Arc GIS and presenting hard copies								
18	Training of five candidates on Water Gems software and hydraulic model.								
19	Travel costs and Boarding & Lodging								
	Subtotal								
	GST								
	Total Amount (In figure)								
	In words								

Note:

- (1) For the works of GIS, water supply and sewerage, it is assumed that GST for water supply and sewerage works is not applicable. However, if it is made applicable it will be paid extra.
- (2) The length of distribution is assumed as 800 kms. If the length is increased then cost shall be proportionally paid extra on per km basis

Signature of Applicant:

Name:

Company's seal:

Date:

## Criteria of the Evaluation

Criteria	Description	Max Score
1	The company should have a Certificate of Registration from Government of India in case of a Partnership firm / Private Ltd firm/Joint Venture etc.	5
2	The firm should be in consulting business at least for the last 5 years (either as a firm or Joint Venture).	5
3	The firm shall have more than 4 years of experience in preparation of GIS Database and GIS based survey specifically for the water supply and Sewerage projects for the Urban Local Bodies / Govt Departments.	10
4	The company should have experience of working on water supply / sewerage projects for at least 3 Urban Local Bodies / Govt Department and should have prepared or contributed in the work of preparation of detailed project report (DPR) using advance Technologies of GIS & Hydraulic Modeling / GIS & Sewer Modeling.	10
5	The company should have prepared GIS data for the DPR of water supply Scheme costing not less than INR 60 crore in a single work.	5
6	The company should have experience of carrying out Drone Survey, DGPS-RTK Survey, Total Station Survey, GPS Survey, Water Network Survey, Point of Interest Survey for Residential & Non Residential Demand etc for a city with population not less than 2,00,000 and for pipeline network of not less than 150 kilometers in a single work.	10
7	The company should have worked on similar kind of assignment of not less than INR 90 lakh in a single work.	5
8	The company should have experience of working on international Standard software of Arc GIS and Bentley Water Gems/Sewer Gems.	5
9	The company should have achieved a financial turnover of at least INR 75 lakh in any one of the last 3 financial years.	10
10	The company should have qualified Project Manager with minimum 30 years of experience in water supply projects not below the ranking of Superintendent Engineer / Chief Engineer in water supply dept, GIS Manager with minimum 12 years of experience in GIS field. Civil Engineers, GIS Engineers and Total Station & Consumer Surveyors with minimum 3 Years of relevant experience.	30
11	The company should have own relevant machineries, survey instruments, Software etc as required for GIS based survey activities.	5
	Total	100

**Note :- Minimum qualifying marks will be 80%**