



CITY OF DALLAS

Water/Wastewater Availability Application Guide

This guide contains the minimum required information to process your Water/Wastewater (W/WW) Engineering Services requests. Please note that all applications, forms and results shall be submitted to the attention of **W/WW Engineering** at **320 E. Jefferson, Blvd. Room 200** unless otherwise stated. Submittals to any other location will not be processed.

Water Flow/Pressure Test

- Fill out Application for Water/Wastewater Availability
- A base GIS Water map may be obtained from OCMC Room 215
- Include annotated Water Map identifying:
 - Project Site location (including legible street names for point of reference)
 - Static Fire Hydrant (closest to your site)
 - Residual Fire Hydrant (second closest to your site, within the same pressure plane and system)
 - Mapsco and W-Map Number
- Be prepared to pay fee (\$200)

Water Availability for Size on Size Connection

- Requires water flow/pressure data. Water Flow/Pressure Test may be applied for concurrently.
- Fill out Application for Water/Wastewater Availability
- Provide Demand Rate on top right corner of Application (**proposed GPM and PSI is required**)
- Proposed utility plan clearly labelling ex. and prop. water main sizes and connection in question
- No fee is required for the size on size analysis, however a \$200 fee associated with the water flow/pressure test may be required if the data has yet to be obtained.

Wastewater Capacity Analysis – By City

- Fill out Application for Water/Wastewater Availability
- A base GIS Wastewater map may be obtained from OCMC Room 215
- Include annotated Wastewater Map identifying:
 - Project Site location (including legible street names for point of reference)
 - WWMH to be tested (incl. flow direction – i.e. 8" Flow Out? 6" Flow In (N)? 8" Flow In (E), etc)
 - DWU Assigned MH number
 - Mapsco and WW-Map Number
- Be prepared to pay fee (separate \$2,500 fee for each WWMH to be tested)
- Note that flow monitoring by the City will take an average of **6-8 weeks minimum** for results.

Wastewater Capacity Analysis – By 3rd Party (Private)

- Complete and submit Application for Water/Wastewater Availability; and
- Complete and submit Supplemental Form for Private WW Services
- A base GIS Water map may be obtained from OCMC Room 215
- Include annotated Wastewater Map Identifying:
 - Project Site location (including legible street names for point of reference)
 - WWMH to be tested (incl. flow direction – i.e. 8” Flow Out? 6” Flow In (N)? 8” Flow In (E), etc)
 - DWU Assigned MH number
 - Mapsco and WW-Map Number
- Ensure that you and your service contractor read and understand the DWU Specifications for Flow Monitoring
- **Requires DWU Wastewater Collections (WWC) Inspector on-site prior to removal of WWMH lid.**
- **Inspector available M-Th (i.e. no investigation to be scheduled on Friday)**

Deliverables:

- None directly to the City. Flow monitoring results should be submitted to the developer’s design engineer for their analysis and incorporation into their formal wastewater capacity engineering report.

Wastewater Condition Check – By 3rd Party (Private)

- Complete and submit Application for Water/Wastewater Availability; and
- Complete and submit Supplemental Form for Private WW Services
- Include Wastewater Map Identifying:
 - Project Site location (including legible street names for point of reference)
 - Limits, size and material of WW main to be televised. Include DWU sheet number
 - Highlight length of main to be investigated
 - Mapsco and WW-Map Number
- Ensure that you and your service contractor read and understand the DWU Specifications for CCTV.
- Requires notification to DWU via submitted Application and Form (to 320 E Jefferson, Room 200), **but DOES NOT require DWU WWC Inspector present.**

Deliverables:

- DVD containing video survey (should contain pipe information and stationing)
- Printed pipe condition report, including stationing and itemized defects that correlate to video, and recommended PACP rating. A digital copy of this report should also be contained within the DVD.

Supplemental Form for Private WW Services

Sustainable Development and Construction-Water

Attn: W/WW Engineering – Permits Only Group

320 East Jefferson Boulevard - Room 200

Dallas, Texas 75203

Phone: 214-948-(4536) or (4523) or (4257)

1. Service Company Name: _____

Mailing Address: _____

City _____ State _____ Zip _____

Primary Point of Contact: _____

Telephone () _____ - _____

Email: _____

2. Service Type

Private Wastewater Flow Monitor (**Requires DWU WWC Inspector present prior to start***)

Private Wastewater Condition Check (CCTV)

3. Proposed Time and Date of Work*: _____

Estimated Completion Date/Time: _____

Project Location: _____

Project Limits: _____

* You will be contacted by DWU WWC if there is a conflict with your proposed time/date (**M-Th only – No Fridays**), and a new time/date will be coordinated. If you are not contacted, it is assumed a DWU WWC Inspector will be on site at the specified time/date. If an inspector is not present, please contact Marilyn Hayes (214) 670-8282 for further instructions. Do not open any WWMH lid/commence work without an inspector present or otherwise authorized by WWC.

By my signature below, I certify that I have reviewed and will comply with the DWU specifications for the respective work proposed.

Signed: _____ Date: _____

DWU Flow Monitor Specifications

DWU Flow Monitor Specifications

PUBLIC INFORMATION: Parties acknowledge that City cannot guarantee that any information received will be kept confidential, and this Confidentiality Agreement is not a basis for accepting information from required public disclosure under the Public Information Act, Texas Government Code, Chapter 552 (the "Act"). The Act provides that all information in the possession of a governmental body is generally available to the public, and if the governmental body wishes to withhold information from a member of the public, it must show that the requested information is within one of the exceptions to required public disclosure.

Should someone make an open records request, then the City will notify the vendor in writing within 10 business days after receiving the request for the information. The vendor bears the burden of demonstrating to the satisfaction of the Texas Attorney General's Office that the information relates to a trade secret or is commercial or financial information that, based on specific factual evidence, the disclosure of such would cause substantial competitive harm to the person from whom the information was obtained or is otherwise not subject to disclosure under the Act.

SCOPE OF WORK: This soliciting is for the installation and monitoring of up to 80 Wastewater Flow meters, (currently 53 flow meters are in place), within the wastewater collection and conveyance system. The Contractor will be responsible for monitoring flow conditions, the investigation of inflow and infiltration (I&I), and establish warning tools in case of main surcharging or sanitary sewer overflows (SSO). The awarded contractor will be responsible for providing and installing the meters at the beginning of the contract, monitoring and maintaining the meters for the term of the contract and responsible for removing all of the meters at the end of the contract unless agreed upon otherwise.

The services shall also include level sensor and rain gauge installation, monitoring and maintenance, online historical data access with FlowWorks© data analysis website or approved equal. In request by the City for termination of the flow monitoring service contract, the awarded contractor shall be responsible for the immediate removal of the entire contractor owned equipment.

All services shall be all inclusive and shall provide all flow meters, level sensors, rain gauges, required equipment, materials, parts and labor.

EQUIPMENT REQUIREMENTS

Part 1 Equipment

1.01.1 Data Collection

Flow meters and level-sensors shall be capable of collecting and recording data at five (5) minute intervals. Data shall be transmitted, either through telemetry or some other accepted means. To prevent loss of data, the device shall store all readings for a period of at least thirty (30) days.

Rain gauges shall be capable of collecting and recording data from local rain events at fifteen (15) minute intervals. Data shall be transmitted, either through telemetry or some other accepted means. To prevent loss of data, the device shall store all readings for a period of at least thirty (30) days.

Flow meters, level-sensors and rain gauges shall be fully owned by the Contractor and provided for use, as described in this document.

- Exception: Up to five (5) City owned permanent flowmeters shall be monitored, maintained and serviced under this contract.

1.01.2 Desired Accuracies

Flow metering devices shall be capable of recording wastewater flow depth (level) to an accuracy of ± 0.2 inch and wastewater velocity to an accuracy of ± 0.2 foot per second. The equipment shall remain able to record data and maintain accuracy of flow measurement during surcharge conditions.

Additionally, the overall accuracy of the equipment implemented to measure flow based on the continuity equation shall not be greater than $\pm 5\%$ accuracy.

The measurement of wastewater velocity shall be achieved using Doppler, electromagnetic or non-contact velocity sensors. Wastewater depth shall be measured with ultra-sonic sensors, pressure transducers or laser technologies to record the full range flow depth including surcharge. The range (span) of the device(s) used to measure water level shall be capable of measuring at least 32 feet of water depth measured from the bottom of the pipe for each location.

Rain gauges shall be capable of measuring to an accuracy of 1/10 inch or smaller increments.

1.01.3 Dependability

DEFINITIONS

Meter up-time is defined as the meter working properly and consistently logging accurate and repeatable sewer flow data in the flowmeter. All accurate data delivered to the City is meter up-time.

Meter down-time is defined as corrupt data, inaccurate data, or no data being downloaded, or otherwise acquired from the flowmeter.

Rain gauge equipment shall have 100% up-time and must include all rain events in the calendar month in order to be invoiced to the City. The City will NOT be charged for faulty rain gauges that provide inaccurate or missing rain data during the calendar month.

Flow and level measurement equipment shall have a guaranteed 100% up-time of 24 hours per day (12:00am-11:59pm), 7 days a week for the entire term of this Master Agreement.

1.01.4 Penalty for Meter Downtime

There shall be no charge to the City for ANY "full days" (12:00am-11:59pm) of meter downtime or days with down-time exceeding 12 hours. Additionally, the City shall not be charged for missing or faulty flowmeters under any circumstances.

After two (2) days of meter down-time, concurrent or non-concurrent, per calendar month, a calculated daily penalty shall be credited to the City per down-time meter or level-sensor per day. The penalty will be calculated as follows: DAILY PENALTY = DAILY CHARGE for the FLOWMETER or other INSTRUMENT per Master Agreement line item.

For example, if the charge to the City for the meter or level sensor equipment is \$15/day, then the penalty credited to the City shall be \$15/day. This means that, after two (2) full days of down-time per month, under penalty, the Contractor will pay the City for down-time leased equipment the same amount that the City normally pays the Contractor for up-time leased equipment. This will continue until up-time is restored.

The daily penalty shall be applied and, additionally, the City shall not be charged for the meter for that day. The penalty will apply only to "full days" of down-time for Contractor owned (leased) flowmeters, level sensor loggers, and rain gauges.

The City shall not be charged for FULL DAYS of down-time or days with down-time exceeding 12 hours under any circumstances.

The Contractor shall be required to review the data from each meter, level sensor and rain gauge on a daily basis in order to determine equipment up-time and down-time.

Daily down-time penalties assessed shall be credited on the current or the following month's invoice to the City.

Editing of Data - Editing of raw or missing data will not be allowed in order to achieve meter, level sensor or rain gauge up-time. Raw data is defined as the actual recorded data from the meter, level sensor, or rain gauge.

1.01.5 Exceptions/Delays to the DAILY PENALTY for the Contractor

Exceptions:

1. The meter requiring repair is inaccessible due to surcharged sewer line
2. The manhole is inaccessible due to surcharged creek
3. The equipment is owned by the City
4. The City has ordered removal of contractor equipment. In this case, the City will be charged for equipment removal.

When the City orders reinstallation of the equipment, the City shall be charged for the installation. The daily charge to the City shall begin with the first FULL DAY of up-time after the installation is completed.

Once any exceptions are resolved the Contractor shall resume scheduled monitoring, maintenance and servicing.

INSTALLATION AND REMOVAL OF EQUIPMENT

The Contractor shall include a narrative of the installation process with the proposal submittal. The Contractor shall list personnel who will be installing the equipment and, where appropriate, provide evidence of current confined space entry training and certifications. All work will be performed in accordance with OSHA confined space entry requirements.

1.02.1 Site Investigation

The Contractor shall perform a field review of the monitoring sites designated by Dallas Water Utilities (DWU), confirm the adequacy of the site from a hydraulic feasibility standpoint, document the investigation and provide the investigation results to DWU

within 7 days (1 week). Should the Contractor determine that a site is inadequate because of poor hydraulic flow, or other conditions, DWU will research alternate site(s) to be investigated.

The City will be responsible for obtaining Right of Entry (ROE) and Right of Way (ROW) use permits for initial investigation and installation. The Contractor is expected to comply with all stipulations listed within the ROE/ROW permits and shall be held liable for any fees, fines or complaints due to non-compliance. Permits for additional site visits (regardless of cause) shall be obtained by the Contractor at no additional cost to the City. All additional permits not mentioned in this document shall be obtained by the Contractor at no cost to DWU.

1.02.2 **Site Conditions**

Flowmeters

The Contractor shall be prepared to install metering devices and/or optional rain gauges at site with conditions ranging from busy streets and state highways to isolated creek beds. Because paved roads may not be nearby all metering and rain gauge locations, the Contractor shall be prepared to either carry or drive the equipment off-road and possibly remove small amounts of debris and/or sediment from around the manhole. The Contractor shall locate a secured location to install rain gauges in order to prevent vandalism and theft of the rain gauge equipment.

The Contractor will be expected to remove small amounts of debris or sediment in the manhole. Sediment and debris should be removed so as not to interfere with the accurate determination of wastewater flows. Large amounts (anything requiring heavy equipment or more than thirty-minutes to remove) of debris and/or sediment located in or around the manhole shall be removed by DWU upon request of the Contractor. If sediment and/or debris removal is not practical, DWU will designate alternative sites to be investigated.

Caution shall be taken at sites located within creek beds and/or designated floodplains whenever moving water is encountered or precipitation is anticipated.

In the event a lock has been placed on a manhole with metering equipment within, the Contractor shall obtain the key from DWU. These keys will be made available to the Contractor throughout the term of the contract. In the event that DWU places a lock on a City facility with rain gauge equipment within, DWU crews shall be notified to unlock the facility for the Contractor as needed throughout the term of the contract. Currently, there are no such events.

If the Contractor has to install any permanent objects within the regulatory floodplain, the object must be approved by DWU prior to installation. The Contractor will be responsible for coordinating the installation of permanent objects within the floodplain (outside of manholes) with the local floodplain administrator, in accordance with local (Unified Development Code, or UDC) and federal (National Flood Insurance Program, or NFIP) floodplain regulations. No additional funding shall be granted for floodplain coordination activities.

An exhibit showing the preliminary meter locations is attached with this proposal.
(See Attachment 2)

1.02.3 **Deliverables**

The Contractor shall provide the following documents to DWU within ten (10) business days after all devices have been installed in accordance with manufacturer specifications.

- Site Report: Documenting pre- and post-installation site conditions. This report shall include site pictures, device serial numbers, device accuracy test results, manhole numbers, GPS coordinates (NAD83) of manhole (to within five foot horizontal and vertical accuracy), site names (if any) and any additional information deemed pertinent by the Contractor.
- Emergency Maintenance Guidelines: The Contractor shall provide a brief narrative directing DWU maintenance crews how to remove the metering devices, should it become necessary during an emergency situation.

The Contractor shall be required to monitor, inspect and maintain the measurement equipment, including rain gauges, on a daily basis. If for some reason the Contractor is unable to monitor, inspect and maintain any of the measurement equipment in place, they are to notify the Wastewater Collection Division management immediately.

The Contractor shall provide a verbal explanation followed up by a written explanation of why the service could not be completed for any meter downtime and a plan of action to correct the problem.

1.03 Acceptance of Equipment

DWU shall accept the installations once all reports are submitted and site visits to each location (verifying appropriate installation) has been completed within 30 days.

1.04 Removal of Equipment

When the contract period ends, the Contractor shall have thirty (30) days to remove all wastewater flowmeters, level sensors and rain gauges installed under this contract unless otherwise agreed upon. The Contractor shall be held responsible for any damage inflicted upon the manholes, pipes or general site vicinity that is attributed to Contractor activities.

DWU will accept site conditions within thirty (30) days of all meters and rain gauges being removed to ensure compliance.

1.05 Damage to Equipment

The City is not responsible for loss or damage to equipment installed under this contract.

Part 2 **Data Delivery**

2.01 Description

Flowmeters

Flow data shall be made available to DWU within fifteen (15) minutes of recording via an internet-based interface. The flow data shall include:

- Meter Name
- Date and Time

- Velocity (feet per second)
- Flow Depth (inches)
- GPM Flow (gallons per minute)* and MGD Flow (million gallons per day)*
- Totalized flow in gallons

*Flow shall be calculated either through the Continuity or Manning's Equation and designated either with a "C" or an "M" to represent the equation used, respectively.

All flow and level data collected shall be made available through the internet-based software (Available online 24/7) as soon as it is collected from the data loggers for at least the entire term of the contract. Additionally, data shall be available for authorized users to download from the internet-based software. The electronic format of the downloaded data shall be in an Excel® compatible format i.e. (.xls, .xlsx) or comma delimited text (.csv).

A sample of downloadable data delivery format follows:

Location: WR020FOaks33

Date Time, Depth (in), Velocity (fps), Flow (mgd), Equation
 06/1/2009, 17:00, 4.4, 0.92, 0.1119, C
 06/1/2009, 17:05, 4.3, 0.89, 0.1084, C
 06/1/2009, 17:10, 4.3, 0.87, 0.1066, C

Rain Gauges (optional)*

Rainfall data shall be made available to DWU within fifteen (15) minutes of recording via an internet-based interface. The flow data shall include:

- Rain Gauge Name
- Date and Time of Rain Event
- Rainfall depth per Rain Gauge (inches)

*Option of the City: The City may request the service of rain gauges to be placed if deemed necessary.

A sample of downloadable data delivery format follows:

Location: EB002Slocum60

Date, Time, Inches
 06/1/2009, 2:00, 0.55
 06/1/2009, 2:05, 1.20
 06/1/2009, 2:10, 0.75

All rainfall data collected shall be made available through the internet-based software (Available online 24/7) as soon as it is collected from the rain gauge for at least the entire term of the contract. Additionally, data shall be available for authorized users to download from the internet-based software. The electronic format of the downloaded data shall be in an Excel® compatible format i.e. (.xls, .xlsx) or comma delimited text (.csv).

All data should be verified by the Contractor as accurate to within the limits stated in this RFCSP upon each delivery of data.

DWU CCTV Specifications

DWU CCTV Specifications

- Contractor shall reseal all manholes encountered that were sealed for the control of odors or entry of extraneous water.
- Contractor shall notify and request the City of Dallas for assistance, if needed, in connection with removal, dismantling, and replacements of any special equipment such as flow monitoring devices within the manhole (MH) structures.
- Contractor shall not remove any trees, plants, shrubs, or ornamental vegetation without the prior written consent of the City of Dallas.
- Contractor shall obtain all necessary permits and observe all standard rules of safety for pedestrian and traffic control in accordance with local laws and accepted practice. Additionally, the contractor shall demonstrate knowledge of current safety requirements for confined space entry.
- Contractor shall comply with all Federal, State, and Local safety regulations and OSHA requirements.
- Contractor shall progress with the work in an orderly manner at appropriate times not to interfere excessively with the normal routine of the neighborhood. A schedule of work shall be submitted to the City of Dallas for review and approval prior to setting up for work.
- Contractor shall be in full charge and be responsible for the job site, the scope of work of this Contract, and subject to the directions of the City of Dallas Project Manager or City of Dallas staff in charge.
- Contractor shall have the ability to communicate with its crew at all times (i.e. cellular phone, radio, etc.)
- Contractor shall have replacement equipment available within twenty-four (24) hours in the event of equipment breakdown.
- Contractor shall observe and comply with all Federal, State, and local laws, ordinances, codes, orders, and regulations, which in any manner affect the conduct of work, specifically as it relates to sewage spills.

B. **TECHNIQUES AND PROCEDURES:**

- Contractor will be required to conduct television inspection that utilizes a closed-circuit color television camera to observe the interior conditions in the sewer lines. The CCTV inspection work must be completed by certified National Association of Sewer Service Companies (NASSCO) Pipeline Assessment and Certification Program (PACP) trained operator(s), using the **PipeTech** software or any other comparable PACP compliant sewer inspection software. If other software is used, the Contractor should provide at least two (2) views and editing license of such software to be used by the City Management Department.
- Contractor shall provide video identifying the pipe segment by manhole number and the street location. The narration shall identify all connections, general conditions of the sewer, problem areas, location of all connections or problem areas by linear footage, and observations concerning the condition of the pipe joints. Records of the daily work, inspection, logs and the video records (including but is not limited to: Thumb Drive or Hard Drive) shall be prepared and forwarded to the City of Dallas on a weekly basis. Acceptable electronic video formats shall be capable of playing on a computer running the 'Microsoft Windows operating system and Microsoft Office, without requiring the City of Dallas to purchase additional software. All computers (Windows 7 based computer) shall be prepared and forwarded to the City of Dallas on a weekly basis. The video records, devices, and data records submitted to the City of Dallas become property of the City of Dallas.
- Upon the request of the City of Dallas Management (by work order) all sewer mains to be inspected shall be sufficiently cleaned by the Contractor, at no additional cost to the City of Dallas, prior to CCTV inspection to provide clear examination of the pipe's interior and to

provide sufficient opening for the camera to pass through the pipe. The Contractor shall be careful not to damage any pipes, including the plastic liners.

- The cameras shall have Pan-and-Tilt capabilities, and shall have a minimum of **360 x 270 degree rotation**.
- During CCTV inspection, lighting intensity shall be adjusted to minimize glare. Lighting and picture quality shall be adjusted to provide a clear, in-focus picture of the entire periphery of the pipeline.
- The illumination sensitivity shall be three lux or less and provide a minimum of 460 lines of resolution. The focal distance shall be adjustable through a range from 25 mm (1 inch) to infinity.
- All camera systems shall be able to navigate around minor objects, roots, and debris.
- The system used to move the camera through the pipe shall not obstruct the camera's view or interfere with proper documentation of the sewer conditions.
- The camera lens shall be kept clear of condensation and debris during the CCTV inspection.
- During the CCTV inspection, the camera shall stop at all defects and significant observations to ensure a clear and focused view of the pipe condition and shall rotate the camera head at the defect to allow for adequate evaluation at a later time.
- As many **pictures** as necessary shall be taken to give an adequate **view of the defect**. JPEG files shall be created and saved with the observation information for all defects.
- If a pipe is blocked and the survey cannot be continued, the code for survey abandons SA shall be used. A new survey (**Reverse Setup**) shall be started from the ending manhole and the pipe shall be surveyed as close as possible to the point where previously abandoned. These two surveys shall be viewed as one survey in the tabular and pipe graphic report.
- **If an undocumented manhole** is discovered during the inspection, then a separate inspection shall be started for the additional pipe segment. The City of Dallas will provide the Contractor with an ID for the undocumented manhole.
- All pipe defect locations and description entered on the inspection log must correspond with the pipe footage and counter displayed on the videotape. **Major pipe blockages and defects requiring repair shall be located by transmitting sonde and receiver**, and be marked in the field by the Contractor utilizing a water soluble paint or flag.
- All audio data shall be clearly spoken and intelligible on the Thumb Drive or Hard Drive and recorded in English of each observation recorded. As a minimum the video file shall display manhole numbers, footage, pipe size and pipe material at all times.
- The distance shall be measured between the exit of the start manhole and the entrance of the finish manhole for a true measurement of the length of the pipe segment, as required by PACP. It shall be recorded in standard units and the video display readout shall display units to one-tenth of a foot.
- The Contractor shall make a continuous color digital video recording of the inspection view, as it appears on the television monitor, in **MPEG-1** format for each pipe segment inspected, unless specified by City of Dallas. All video files shall have a **minimum resolution of 352 x 240 pixels** and an interlaced frame rate at a minimum of 24 frames per second. Video inspection will not exceed a traverse rate of 30 feet per minute.
- For each television inspection recording provide a completed Line Inspection Report in both hardcopy and digital formats. The Vendor shall provide the data in a format that can be exported out of their system and into the Wastewater Collection Work Order Management System by providing The City of Dallas with the latest NASSCO PACP export database in a 2002-2003 MS Access Database format along with all associated videos, pictures, etc. The Vendor shall be responsible for any errors in the data which must be corrected.
- Final acceptance of the work will not be issued until the cleaning and inspection data has been

properly uploaded and secured.

C. LODGED EQUIPMENT

If, at any time **equipment becomes lodged** in the sewer mainline the Contractor shall notify City of Dallas Management immediately. If excavation is required to retrieve the equipment, the contractor may seek City of Dallas assistance two (2) times during the contract period free of charge. Thereafter, if City of Dallas assistance is required to retrieve equipment by excavation, the contractor will be charged for the cost of labor, material, and equipment, at 63% overhead charge. Contractor shall notify the City of Dallas as to the nature of the problem and the exact location of lodgment and the City of Dallas will retrieve the lodged equipment. City of Dallas shall not be responsible for damages to the equipment that might occur during retrieval.

D. EXCESSIVE DEPTH OF FLOW

- Maximum depth of flow for CCTV inspections shall be 20 percent of the pipe diameter for 6" - 10" Pipe, and 25% of pipe's diameter for 12" and larger Pipe. If the depth of flow is greater than the maximum allowable for television inspection, then the Contractor shall use a flow-controlling mechanism to control the flow to allowable levels by temporarily plugging or blocking the flow, bypass pumping, or perform the CCTV inspection during the low flow periods between the hours of 10:00 p.m. to 6:00 a.m.
- The Contractor shall pay special attention to all local jurisdiction rules and regulations, especially regarding activities during off-peak hours.
- The Contractor shall include the original inspection in the final submittal even with high flow conditions.
- If the Contractor encounters a surcharging manhole (whereas the flow at the manhole is within **3 feet**. from the rim of the manhole), then the Contractor shall immediately notify the Wastewater Collection Emergency Response Maintenance at (214) 670-8337.

E. EQUIPMENT:

- The Contractor shall at all times have as a minimum the following equipment with each television crew:
- Van with color TV inspection equipment
- 2000' of TV Cable
- Electronic footage counter
- Data view with minimum of twelve lines header information
- FM 2-way Radio
- Safety Cones and signs
- First Aid Kit
- Fire Extinguisher

F. ADDITIONAL EQUIPMENT:

- Metal Detector (Manhole Locators)
- Transmitting Sondes and Receivers
- Air Mover with Hose
- Various size Plugs with Hose and Ropes
- Safety Harness with Rope