

**DELAWARE DEPARTMENT OF TRANSPORTATION  
REQUEST FOR PROPOSALS**



**Delaware Department  
of Transportation**

**CONTRACT No: 1616-1619**

**STORM DRAIN VIDEO INSPECTION &  
INVENTORY SERVICES**

**DELAWARE DEPARTMENT OF TRANSPORTATION**

**PROPOSAL DUE DATE/TIME: Tuesday, July 10, 2012 - 2:00 P.M.**

Request for Proposals are to be delivered to Contract Administration, Delaware Department of Transportation, 800 Bay Road, Dover, Delaware 19903 by **2:00 p.m.** (Local time) on proposal due date shown above.

Issued: June 12, 2012

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## **Glossary of Terms**

<b>TERM</b>	<b>DEFINITION</b>
AADT	Annual Average Daily Traffic
ADA	Americans with Disabilities Act
CCTV	Closed Circuit Television
CD	Compact Disc
CD-ROM	Compact Disc – Read Only Memory
DBE	Disadvantaged Business Enterprise
DDOJ	Delaware Department of Justice
DelDOT	Delaware Department of Transportation
DVD	Digital Video Disc
ESRI GIS	Environmental Systems Research Institute Geographic Information System
FHWA	Federal Highway Administration
GPS	Global Positioning System
MPEG2	Motion Picture Experts Group
MUTCD	Manual on Uniform Traffic Control Devices
NAD 83	The North American Datum of 1983
NPDES	National Pollutant Discharge Elimination System
NTP	Notice to Proceed
OSHA	Occupational Safety and Health Act
RFP	Request for Proposal
SOW	Scope of Work
TTC	Temporary Traffic Control

# **REQUEST FOR PROPOSALS**

## **STORM DRAIN VIDEO INSPECTION SERVICES**

### **1. OVERVIEW AND AUTHORITY**

#### **1.1 Purpose**

The Delaware Department of Transportation (hereinafter designated as ‘Department’) has issued this Request for Proposal for the purpose of selecting up to four (4) firms to provide Storm Drain Video Inspection Services. At least two (2) of the selected firms shall be capable of performing Service Level I pipe installation inspections. It is anticipated that the contract will begin upon successful execution of the document and be effective for a term of three (3) years.

This document contains general information relating to performance requirements and proposer characteristics and procedural requirements in the preparation of proposals to the Department which must be met in order for a proposal to receive consideration.

#### **1.2 Intent**

The intent of this proposal request is to secure qualified firms that have proven ability to perform the services described herein. The selected firm must provide the necessary materials, labor, and equipment to perform pipe video inspections and reporting in accordance with the *2008 Storm Sewer CCTV Manual for Storm Sewer Assessment and Acceptance*, and other incidentals including visual inspection, deflection testing, and measurement of crack widths and lengths, joint gaps and defects on a statewide basis in accordance with the location, notes, and details, provided by and as directed by the Department. Selection is not based solely on price.

#### **1.3 Scope**

Selected firms will provide post-installation inspection of newly placed and existing storm drainage pipes statewide. These post-installation inspections will be classified in two categories; 1) Service Level I installations which include installations under interstates, expressways, and arterials and 2) Service Level II-IV installations which are pipes installed outside of the roadway and under roads of classification collector and under.

##### **1.3.1 Service Level I installations**

Services shall require video inspection and laser deflection testing for flexible pipes and precise measuring of cracks and joint openings for rigid pipes.

Successful firm(s) shall have the capabilities to perform deflection testing using either a projected laser ring or a rotating head measurement device and shall be

capable of measuring defects using a non-contact video micrometer in accordance with the specifications in this proposal. These higher accuracy devices will be utilized to inspect Service Level I pipe installations, which include pipes that are either under the road, or may later be under the road, for roadway classifications of arterial, expressway or interstate.

Firms are not required to have the capabilities to inspect Service Level I installations to respond to this request.

Detailed information regarding Service Level I Installations can be found in Appendix B of this document under Bid Item Descriptions.

### **1.3.2 Service Level II-IV installations**

These inspections will require a video inspection and scale measurements in accordance with our *2008 Storm Drain CCTV Inspection Manual*.

Selected firms will be responsible for identifying deficient areas and highlighting them for action by the construction inspection staff. The selected firms will be responsible for delivering all videos and notes to the Department's Construction personnel for review. The Department retains the right to utilize outside companies for video inspection when needed.

Selected firm(s) should be aware that during the life of this contract the quantity of Storm Drain Video Inspection may be added or deleted from the tasks based on initiation or completion of design projects, adjustments to the work program, or at the Department's discretion.

Detailed information regarding Service Level II-IV Installations can be found in Appendix B of this document under Bid Item Descriptions

## **1.4 Authority**

This Request for Proposals is issued pursuant to 29 Del. C. §§6981 and 6982.

## **1.5 Inquiries**

All requests, questions, or other communications about this RFP shall be made in writing. Address all communications to the person listed below; communications made to other State of Delaware personnel or attempting to ask questions by phone or in person will not be allowed or recognized as valid and may disqualify the firm. The

Firms should rely only on written statements issued by the RFP designated contact.

All inquiries concerning this RFP should be emailed and must be submitted to:

Wendy B. Henry, Contract Administration  
Delaware Department of Transportation  
[wendy.henry@state.de.us](mailto:wendy.henry@state.de.us)

To ensure that written requests are received and answered in a timely manner, electronic mail (e-mail) correspondence is acceptable, but other forms of delivery, such as postal and courier services can also be used.

All questions will be consolidated into a single set of responses and posted as an addendum on the State's website at [www.bids.delaware.gov](http://www.bids.delaware.gov). Firms' names will be removed from questions in the responses released. Questions should be submitted in the following format.

- Section number
- Paragraph number
- Page number
- Text of passage being questioned
- Question

### **1.6 *Right to Amend***

The Department reserves the right to amend or supplement this RFP, giving equal information and cooperation by way of an issued addendum to all firms as a result of any such amendment.

### **1.7 *Liability for Errors***

While the Department has used considerable efforts to ensure an accurate representation of information in this RFP, the information contained in the RFP is supplied solely as a guideline for all firms submitting responses.

The information is not guaranteed or warranted to be accurate by the Department nor is it necessarily comprehensive or exhaustive.

Firms acknowledge and understand that it is their responsibility to obtain clarifications concerning this RFP through the Questions and Answers process prior to the date listed in Section 1.14, and that failure to understand the terms of the RFP will not be considered a valid reason for any resulting non-compliant rating.

### **1.8 *Use of the RFP***

The RFP document or any portion thereof, may not be reproduced or used for any purpose other than the preparation of proposal submissions by the firm.

### **1.9 *Firm's Expenses***

Firms shall be solely responsible for any liability or expenses they incur in preparing, delivering, or presenting a response to this RFP, and for subsequent negotiations with the Department, if any. All Firms shall fully bear the costs associated with pre-contract activities including but not limited to proposal preparation, negotiations, and/or proposed contracts.

## 1.10 **Timeline**

Provided below is a list of critical dates and actions. These dates are subject to change. Notice of changes will be posted of the State of Delaware Bid Solicitation Directory at [www.bids.delaware.gov](http://www.bids.delaware.gov) under this RFP number. It is the responsibility of all interested firms to monitor this site for any changing information prior to submitting your proposal.

<b>Action/Location</b>	<b>Date</b>	<b>Local Time</b>
<b>RFP Advertisement</b>	<b>06/12/2012</b>	<b>8:00 a.m.</b>
<b>Final Date to Submit Questions</b>	<b>07/03/2012</b>	<b>4:30 p.m.</b>
<b>RFP Submissions Due</b>	<b>07/10/ 2012</b>	<b>2:00 p.m.</b>
<b>Anticipated Award</b>	<b>07/ 31/ 2012</b>	<b>4:30 p.m.</b>

## 1.11 **General Terms and Conditions**

Submission of a proposal in response to this RFP indicates acceptance of all of the terms and conditions contained herein.

- The proposal submitted by the selected firm shall become a part of the contract. The proposal must be valid for a minimum of one-hundred-twenty (120) days from the RFP due date.
- By submitting a proposal, the proposing firm agrees that in the event it is awarded a contract, it will indemnify and otherwise hold harmless the State of Delaware, its agents and any employees from any and all liability, suits, actions, or claims, together with all costs, expenses for attorney's fees, arising out of the firm's, its agents' and employees' performance of work or services in connection with the contract, regardless of whether such suits, actions, claims, or liabilities are based upon acts or failures to act attributable, in whole or in part, to the State, its employees or agents.
- The selected firm or firms will be expected to enter negotiations with the State of Delaware, which will result in a formal contract between parties. Procurement will be in accordance with subsequent contracted agreement. This RFP and the selected firm's response to this RFP will be incorporated as part of any formal contract.
- The successful firm is not to begin any service prior to receipt of a Notice To Proceed (NTP) from the Department's Contract Administration Section.
- If the firm to whom the award is made fails to enter into the agreement as herein provided, the award will be annulled, and an award may be made to another firm. Such firm shall fulfill every stipulation embraced herein as if they were the party to whom the first award was made.

- **Insurance-** The firm recognizes that it is operating as an independent contractor and that it is liable for any and all losses, penalties, damages, expenses, attorney’s fees, judgments, and/or settlements incurred by reason of injury to or death of any and all persons, or injury to any and all property, of any nature, arising out of the firm’s negligent performance under this contract, and particularly without limiting the foregoing, caused by, resulting from, or arising out of any act of omission on the part of the firm in their negligent performance under this contract.
- The firm shall maintain such insurance as will protect against claims under Worker’s Compensation Act and from any other claims for damages for personal injury, including death, which may arise from operations under this contract. The firm and its officers, employees, or agents are independent contractors and are not an employees of the State of Delaware.
- The selected firm shall secure and furnish the Department a certificate of insurance evidencing regular Liability, Property Damage, Worker’s Compensation, and Automobile insurance coverage from an insurance company authorized to do business in the State of Delaware. The State of Delaware- Department of Transportation shall be named a certificate holder on the certificates of insurance. The insurance agency shall provide the Department with 30 days notice in the event the policy is canceled or not renewed.

During the term of this contract, the firm shall, at its own expense, carry insurance minimum limits as follows:

a.	Comprehensive General Liability	\$1,000,000
b.	Medical or Professional Liability	\$1,000,000/\$3,000,000
c.	Misc. Error & Omissions	\$1,000,000/\$3,000,000
d.	Product Liability	\$1,000,000/\$3,000,000

**The successful firm(s) must carry (a) and at least one of (b), (c), or (d) listed above, depending on the type of service or product being delivered.**

If the contractual service requires the transportation of Departmental clients or staff, the successful firm(s) shall, in addition to the above coverages, secure at its own expense the following coverage:

If the contractual service requires the transportation of departmental clients or staff, the firm shall, in addition to the above coverages, secure at its own expense the following coverage:

e.	Automotive Liability (Bodily Injury)	\$100,000/\$300,000
f.	Automotive Property Damage (to others)	\$ 25,000

The firm shall provide a certificate of insurance as proof that the firm has the required insurance.

Notwithstanding the information contained above, the successful firm(s) shall indemnify and hold harmless the State of Delaware, the DDOJ, and its employees from contingent liability to others for damages because of bodily injury, including death, that may result from the successful firm(s)'s negligent performance under this contract, and any other liability for damages for which the successful firm(s) is required to indemnify the State, the DDOJ and its employees under any provision of this contract.

- **Performance Requirements-** The selected firm will warrant that it possesses, or has arranged through subcontractors, all capital and other equipment, labor, materials, and licenses necessary to carry out and complete the work hereunder in compliance with any and all Federal and State laws, and County and local ordinances, regulations and codes.
- This RFP (including any written questions and Department responses), the executed contract between the successful firm and the Department, and the successful firm's proposal, shall constitute the Contract between the Department and the firm. In the event there is any discrepancy between any of these contract documents, the following order of documents govern so that the former prevails over the latter: Contract, RFP (including written questions and answers), any addendum to the RFP, and then the selected firm's proposal. No other documents shall be considered. These documents contain the entire contract between the Department and the firm.
- The laws of the State of Delaware shall apply, except where Federal Law has precedence. The selected firm consents to jurisdiction and venue in the State of Delaware.
- The selected firm must have a valid Delaware business license in order to receive payment for services.
- In performing the services subject to this RFP, the firm agrees that it will not discriminate against any employee or applicant for employment because of race, creed, color, sex, or national origin. The successful firm shall comply with all federal and state laws and policies pertaining to the prevention of discriminatory employment practices. Failure to perform under this provision constitutes a material breach of contract.
- With respect to work provided to or conducted for the State by a firm, the firm shall be responsible for the professional quality, technical accuracy, timely completion, and coordination of all services furnished to the State by the selected firm, or any of its subcontractors.
- The selected firm shall follow practices consistent with generally accepted professional and technical standards.
- The selected firm shall be responsible for ensuring that all services, products and deliverables furnished to the State are coordinated with the Department

and are consistent with practices utilized by, or standards promulgated by State of Delaware.

- If any service, product or deliverable furnished by the selected firm does not conform to Department standards or general practices, the firm shall, at its expense and option either (1) replace it with a conforming equivalent or (2) modify it to conform to Department standards or practices
- The successful firm certifies that it has not employed or retained any company or person other than a bona fide employee working for the successful firm, to solicit or secure the contract and that he has not paid or agreed to pay any company or person other than a bona fide employee, any fee, commission, percentage, brokerage fee, gift, or any other consideration, contingent upon or resulting from the award or making this contract.
- For breach or violation of this warranty, the Department shall have the right to annul this contract without liability or in its discretion to deduct from the contract price or consideration, or otherwise recover, the full amount of such fee, commission, percentage, brokerage fee, gift, or contingent fee. Notwithstanding anything in the errors and omissions policy to the contrary, the standard of performance with which the successful firm must comply is the degree of care and skill ordinarily exercised under similar conditions by other like firms currently practicing in this state.
- The selected firm is prohibited from divulging any information attained during the work activities for the Department.
- Should the selected firm fail to furnish any item or items, or fail to complete the required work included in the contract, the Department reserves the right to withdraw such items or required work from the operation of the contract without incurring further liabilities on the part of the Department.

### **1.12 *Debarment or Suspension***

Any individual, business, organization, corporation, consortium, partnership, joint venture, or any other entity including subcontractors currently debarred or suspended is ineligible to bid. Any entity ineligible to conduct business in the State of Delaware for any reason is ineligible to respond to the RFP.

## **2. PROJECT REQUIREMENTS**

### **2.1 Location and Work Area Conditions**

Selected firm(s) shall perform Storm Drain Video Inventory and Inspection in locations statewide and in any terrain. The work may be located within construction zones, in high traffic areas, or in remote areas.

### **2.2 Specifications and Additional Reference Materials**

The selected firm(s) shall perform the duties associated with Storm Drain Video Inspection services in accordance with the specifications entitled “Delaware Standard Specifications, for Road and Bridge Construction, August, 2001” (hereinafter referred to as the Standard Specifications) Sections 715.07, 715.08, 715.09, *2008 Storm Drain CCTV Inspection Manual*, Supplemental Specifications, the Special Provisions, notes on the plans, or any addenda thereto shall govern the work to be performed under this agreement unless otherwise specified within this document or as directed by the Engineer. These Specifications can be purchased, or are available on the Department’s internet site at:

[http://www.deldot.gov/information/pubs\\_forms/manuals/standard\\_specifications/index.shtml](http://www.deldot.gov/information/pubs_forms/manuals/standard_specifications/index.shtml)

### **2.3 Additional Consultant Services Required**

In addition to the services aforementioned in this RFP, duties to be performed by the selected firm(s) shall also include, but are not limited to, the following:

- Providing Temporary Traffic Control (TTC) in accordance with Department rules, regulations, and policies when needed.
- Cleaning the existing storm drain system of debris and silt (use high pressure jetting and commercial vacuum services to desilt drainage pipes and structures) (dispose of debris).
- Conducting inspection of culvert interior.
- Documenting findings of damaged culverts including pipe cracks and joint gaps, and leaky joints.
- Photographing all areas of damage observed. When a pipe segment or structure is inaccessible for video recording, the Department’s Project Manager shall be contacted.
- Compile a field verified inventory of the DelDOT owned drainage structures within the limits of construction.
- Compilation of the inventory data shall consider all relevant sources of existing data including existing agreements and the Department’s features inventory or

roadways, ramps, suburban developments, and municipal streets. Department as-built drawings shall be evaluated for use in developing the inventory.

- Locate the drainage system using Global Positioning System (GPS) techniques, with sub-meter accuracy.
- Submit inventory data in a format compatible with the existing ESRI GIS database format.

The selected firm(s) will be furnish all labor, transportation, equipment, temporary traffic control, and incidentals required in order to perform any of the tasks listed in this Request for Proposal in accordance with Standard Specifications.

## **2.4 Pipe Video Inspection**

- 2.4.1** Pipe video inspection will include videoing of newly installed and existing roadway drainage. The selected firm(s) must have capabilities of videoing pipes ranging in size from 15” to 48” in diameter. Additional videoing of repaired areas may also be required.

## **2.5 Video Requirements**

The color television camera used for the inspection shall be one specifically designed and constructed for such inspection. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions. The camera, television monitor, and other components of the video system shall be capable of producing picture quality to the satisfaction of the Department’s Representative and if unsatisfactory, equipment shall be removed and the pipe section re-televised. The televising of the pipe shall be recorded at the “Standard Play” speed.

The camera must move through the pipe at a speed not greater than 30 feet per minute. The video shall indicate the distance along the pipe. The distance shall have an accuracy of one foot per 100 feet. Film the entire circumference at each joint. Stop the camera and pan when necessary to document defects.

The selected firm(s) shall provide a high quality Digital Video Disc (DVD) in a Motion Picture Experts Group (MPEG2) format video with a standard resolution of 720 x 480. Use a camera with lighting suitable to allow a clear picture of the entire periphery of the pipe. Center the camera in the pipe both vertically and horizontally and be able to pan and tilt to a 90 degree angle with the axis of the pipe and rotating 360 degrees. Use equipment to move the camera through the pipe that will not obstruct the camera’s view or interfere with proper documentation of the pipe’s condition.

The video image shall be clear, focused, and relatively free from roll, static, or other image distortion qualities that would prevent the reviewer from evaluating the condition of the pipe. The video will include identification before each section of pipe filmed. The identification will include the project number, the structure number corresponding to the structure number on the set of plans for the project, size of pipe, the date and time, and indicate which pipe is being filmed if multiple pipes are connected to the structure. Notes should be taken during the video recording process.

## **2.6 Reporting Requirements**

### **Service Level I**

The selected firm(s) shall have the capability to provide the Department a DVD and report using low barrel distortion video equipment with laser profile technology, non-contact video micrometer, and associated software that provides:

1. Actual recorded length and width measurements of all cracks within the pipe.
2. Actual recorded separation measurement of all pipe joints.
3. Pipe ovality report.
4. Deflection measurements and graphical diameter analysis report in terms of x and y axis.
5. Flat analysis report.
6. Representative diameter of the pipe.
7. Pipe deformation measurements, leaks, debris, or other damage or defects.
8. Deviation in pipe line and grade, joint gaps, and joint misalignment. Laser profiling and measurement technology must be certified by the company performing the work to be in compliance with the manufacturers calibration procedures.

### **Service Level II-IV**

The selected firm(s) shall have the capability to provide the Department a DVD and report using low barrel distortion video equipment and associated software with calibration procedures that provide:

1. Documentation of all cracks within the pipe along with length and width measurements.
2. Documentation of separation of all pipe joints along with measurements of joint gaps.
3. Documentation of observed deflection in flexible pipes.
4. Pipe deformation measurements, leaks, debris, or other damage or defects.
5. Deviation in pipe line and grade, joint gaps, and joint misalignment.

#### **2.6.1 Video Inspection Report Sheet**

The selected firm(s) will be responsible for providing the Video Inspection Report Sheet that must include the following information:

1. Session information: project name, project number, segment run number, date, time, location, and operator.
2. Pipe information: Pipe size, type, length and existing conditions (comments and notes).
3. Structure information: (from structure to structure) include structure number, type, depth, owner (DelDOT, City, other), and existing conditions (comments and notes).

## **2.6.2 Storm Drain Video Inspection and Drainage Assessment Report**

The report is to be prepared in order to provide the Department with a subsurface inspection and condition of the existing culverts within a specified project limit. This work effort also includes an evaluation of the existing storm sewer pipe culverts ranging in size for structural and functional integrity.

The Storm Drain Video Inspection data documentation shall include a “Storm Drain Video Inspection and Drainage Assessment Report” with the following:

1. Table of Contents
2. Introduction (Project Description and Purpose)
3. Schematic Plans (Include plan sheets)
4. Discussion (Discuss inspection report criteria for repair applications)
5. Summary (Recommended storm drain system repairs, include a comprehensive “Storm Drain Assessment Summary” spreadsheet – (possible example)
6. Inspection Reports (Include video inspection report sheets, photo logs, and line inspection reports)

A sample Storm Drain Video Inspection and Drainage Assessment Report is attached as Appendix C

The Vendor shall submit the Storm Drain Video Inspection and Drainage Assessment Report to the Department for review and approval.

## **2.7 Storm Sewer Cleaning**

Although the responsibility for cleaning pipes in new construction prior to videoing is the responsibility of the Contractor, there may be occasions where the Department requests that the selected vendor clean the pipe run. The Department will designate the cleaning to be utilized on a task order basis.

## **2.8 Typical Schedule**

The completion time for a pipe video inspection varies depending upon the conditions and the scope of work. The steps that occur are as follows:

1. The firm is notified of work, initial field meeting.
2. The selected firm will work with the Contractor for times that least impacts his construction schedule.
3. Completion of the project will take approximately 7 days from the initial contact, to the videoing with the final report and video dropped off within 7 days of the inspection.
4. Any areas of concern shall be reported to the Department immediately (i.e. within 24 hours) so that plans for remediation can be made.

## **2.9 Temporary Traffic Control**

The selected firm(s) shall be responsible for arranging Temporary Traffic Control (TTC) as needed upon request from the Department. Temporary Traffic Control shall be arranged in accordance “Delaware Manual on Uniform Traffic Control Devices”, hereafter referred to as the “DE MUTCD”, including all revisions as of the date of the work on this Request for Proposal. Definitions for various TTC can be found in Appendix C of this document. The exact locations will dictate which type of TTC set-up is necessary. TTC plans shall be reviewed and approved by the DelDOT Safety Section. Pricing for designated TTC situations is required as part of this RFP. Additional TTC configurations may arise during the course of the contract and are to be provided by the selected vendor(s) at a negotiated price and that specific TTC case will be added to the contract. If outsourcing, there is no markup allowed.

## **2.10 Skill Set, Experience, and Special Equipment**

Consideration will be given to those that have experienced staff and specialized equipment required for this agreement. Staff should have experience in videoing pipe and recording data for state DOTs. Additional experience is desired for specifically videoing for DelDOT and familiarity with the *2008 Storm Sewer CCTV Manual for Storm Sewer Assessment and Acceptance*. Staff described in the proposal are expected to be available for this contract.

The successful firms are expected to provide all equipment as needed to complete the work.

## **2.11 Special Situations**

There may, on occasion, be locations or types of work not reflected in this RFP or the submission pricing, in which case the successful firms and the Department will negotiate the pricing for those instances.

## **2.12 Start Date**

The Department anticipates a start date as soon as possible after Notice of Award.

### **3. PROPOSAL REQUIREMENTS**

#### ***3.1 Proposal Documents***

By responding to this Request for Proposal, the firm hereby grants DelDOT a license to distribute, copy, print, or translate the submission for the purposes of the evaluation and any subsequent contract. Any attempt to limit DelDOT's right in this area may result in rejection of the submission.

#### ***3.2 Submission of Proposals***

The Department will receive sealed proposals in response to this RFP until the date and time indicated in Section 3.4. Proposals must be delivered and addressed as indicated. It is the responsibility of each Firm to have proposals received at the location identified in this section by the date and time specified. Proposals will be opened and submitting firm names publicly read on the date and time indicated. Facsimile or email responses to this Request for Proposal are not acceptable.

**Proposals must be delivered in sealed envelopes and be clearly marked on the outside:**

**'Storm Drain Video Pipe Inspection & Inventory Services, RFP No. 1616-1619'** and delivered to:

Department of Transportation  
Contract Administration  
Bidder's Room (Room B1.11.01)  
800 Bay Road  
P.O. Box 778  
Dover, DE 19903

It is the firm's obligation to make sure proposals arrive on time. Our time is the official time. Late proposals will be returned.

#### ***3.3 Changes to Initial Proposal***

The firm may change a previously submitted initial proposal by withdrawal, amendment, or submission of a replacement if done prior to the RFP due date and time. The information or request should be submitted in writing on company letterhead or equivalent and contain the signature(s) of the person(s) who submitted the original proposal. Firms must indicate on the outside of the envelope that the proposal contained within replaces and takes the place of a previously submitted proposal or part thereof. Firms shall clearly indicate that it is their intent is to withdraw a previously submitted proposal prior to the RFP closing. Requests to withdraw a proposal may require a confirmation email or facsimile.

### **3.4 Proposal Due Date/Time – 2:00 p.m. Tuesday, July 10, 2012 (local time)**

Responses to this Request for Proposals are to be delivered to the address indicated in Section 3.2 by this date and time. The Department’s time shall be the official time.

### **3.5 Extensions**

The Department may extend the time and place for the receipt and opening of proposals on not less than two (2) calendar days notice by electronic means on the State of Delaware Bid Solicitation Directory.

### **3.6 Delaware’s Freedom of Information Act**

In order to comply with the State of Delaware’s Freedom of Information Act, firms responding to this Request for Proposal are *encouraged* to prepare one (1) electronic copy of their Expression of Interest on CD with any proprietary or confidential information redacted. . This copy should be clearly marked as “Redacted Copy”. Copies of each proposal may be kept as part of the agency file and open to inspection by any person permitted by law. Firms should review Delaware’s Freedom of Information Regulations, section 6, Requests for Confidentiality, on the DelDOT Website:

<http://regulations.delaware.gov/AdminCode/title2/2000/2100/2101.shtml#TopOfPage> and Section 10002(g) “Public Record” of the Delaware Code, <http://delcode.delaware.gov/title29/c100/index.shtml> to determine what information may be considered proprietary or confidential and may be redacted from the proposal.

### **3.7 Submitted Copies**

An original and five copies of the firm’s response to this Request for Proposal must be submitted. An original and one (1) copy of the Price Proposal must be submitted in a separate, sealed envelope per section 3.2 of this document. An authorized representative of the company submitting a proposal must sign the proposal. Notification of the proposal award and all communications will be made by e-mail.

Along with the originals, please submit two (2) CDs in standard Office format. Each CD should contain one of the following and indicate as such:

- **The Technical Proposal**
- **The Technical Proposal with any confidential information redacted**

### **3.8 Proposal Rejection**

Failure to follow instructions contained in this document may be cause for rejection of submitted proposals. A proposal may be rejected by the Selection Committee for one or more of the following reasons:

- The firm is determined to be non-responsive or non-responsible,
- The proposal is unacceptable,
- The proposed price is unreasonable, or,
- The proposal is not advantageous to the State.

### **3.9 Disadvantaged Business Information**

DBE Goals will be established by the DBE Program Office on federally funded tasks issued under this contract. Tasks will be evaluated independently for potential DBE participation. DBE firms must be certified through DelDOT's DBE Program in order to qualify towards meeting the goal. Candidate firms should become familiar with the Department's [DBE Program Plan](#).

### **3.10 Proposal Submission Details**

Proposals should be prepared simply and economically, providing a straightforward, concise description of proposer capabilities to satisfy the requirements of this proposal. To be considered, all proposals must be submitted in writing and respond to the items outlined in this RFP using the requested format. Emphasis should be on completeness and clarity of contents.

Evaluation of proposals is made easier and more efficient when firms respond in a similar format. The following is the format and sequence the Department recommends to be followed in order to provide consistency in firms' responses and to ensure proposals receive full and equal consideration.

- 3.10.1** The firm shall submit an "original" (so marked) and five (5) hard copies of the response to this Request for Proposal. In addition to the hard copies of the proposal, the firm shall submit one complete and exact copy of the entire proposal on CD-ROM.
- 3.10.2** All pages of a submission should be consecutively numbered. All proposals must be bound with documents 8.5"x11" with the name and address of the firm and the RFP number clearly written on the face of the binder. There are no limitations on the number of pages, with the exception of resumes, which should be limited to two (2) pages for each individual resume.
- 3.10.3** The firm or its authorized representative may withdraw its proposal in person prior to the exact hour and date set for proposal receipt, provided the withdrawing person provides appropriate identification and signs a receipt for the proposal. A firm may modify its submitted proposal prior to the exact hour and date set for proposal receipt only by submitting a new sealed proposal or sealed modification which complies with the RFP requirements.
- 3.10.4** The RFP responses will be expected to address the following areas, and should be tabbed and collated in the following order:
- **Table of Contents** - Table of Contents including Section Numbers with page numbers.
  - **Cover Page** – The proposal must contain a Cover Page, showing the RFP number, firm's name and address, the contact person, title, contact person's telephone number, fax, and email. The Cover page (one page) will serve as a letter of introduction and should identify the firm.

- **Experience** – Two pages maximum -The firm shall submit information demonstrating company experience in pipe video inspection services. The proposer's business history and number of years in operation is to be included.
- **Company Facilities** - Number of offices on a national, state, or local level and the address and name of each. Also, the number of employees located at each office must be included.
- **Section 2- Team Qualifications** – Provide an organizational chart and a description of your project team. This should include a description of each key person including the project manager. The proposing firm shall summarize the firm's qualifications, experience of key employees, and list the number of employees by job title. Indicate where each key staff member is physically located, their responsibility on this project and how long each person has been with your company. In addition, the firm must submit a description of each staff member's experience.

The Firm must clearly identify all subconsultants including the company name, address, staff assigned to the project, and their individual roles. Indicate the percentage of work you anticipate the subconsultant will complete in terms of dollars and percentage based on your proposed price.

- **Company Equipment** - A listing and total number of major field and auxiliary equipment owned or leased by the company that will be available under this contract. This is to include only equipment that the company controls on a daily basis (not rented equipment). If renting equipment for this contract, include a statement on the type of equipment to be rented, and the availability of rented equipment that indicates your ability to provide needed equipment for all projects.
- **Written Log and DVD:** - Each Vendor shall submit a completed sample written television log along with a sample CCTV video inspection recording on a DVD to demonstrate their company's work product and knowledge of the industry. The video inspection and written log shall be in compliance with the *DelDOT 2008 Storm Sewer CCTV Manual for Storm Sewer Assessment and Acceptance*.
- **References** – List three (3) references, company names, contact names and phone numbers to document the firm's experience on similar projects including type of services provided, locations, and references. References should not be older than 5 years from the date of completion. Please provide a list of the key staff members that worked on each project and their role. By providing such information, the Vendor grants the Department permission to contact these individuals.
- **Stipulations / Exceptions** – A listing of any and all stipulations or exceptions taken to any item in this proposal. The Department reserves the right to reject any stipulations and/or exceptions taken.

- **Contractual Expectations** – List any contractual provisions which the proposer expects the Department to agree. NOTE: The Department will issue the contract covering this work.
- **Bid Pages** - All Vendors who wish to perform services on this contract shall submit all Bid Pages attached to this RFP. All pricing on all pages must be provided. A description of each Bid Item is included in Section V that describes what is to be included in the price submitted. Prices submitted shall be for the full three year period of this contract.
- **Temporary Traffic Control**– A description of each TTC Bid Item is included in Section VI that describes what is to be included in the price submitted. Submit pricing on the Bid Pages for TTC for the first year's price. Vendor's bid price may be adjusted once per year after the first year, not to exceed the change in the Consumer Price Index, All Urban Consumers, Philadelphia-Wilmington-Atlantic City index for the same time period. If TTC services are subcontracted, identify who will supply the TTC. No markup to the sub contractor's pricing is allowed.
- **Submission Form** – Complete and attach the Submission Form from Appendix A located at the end of this RFP to the original proposal submission.
- **Certification** – The Certification form included in Appendix A located at the end of this RFP must be filled out, signed, attested, notarized, sealed, and attached to the original proposal submission.

The Department reserves the right to reject unqualified firms. Failure to follow instructions contained in this document may be cause for rejection of submitted proposals. The Department may request additional clarification in making its determination.

## **4. SELECTION AND AWARD**

### **4.1 Selection**

The Selection Committee shall be comprised of State employees and their identity shall remain confidential. Proposing firms are reminded that contact with any Department employee regarding this RFP, other than as indicated in Section 1, may result in firm disqualification.

To be eligible for selection, a proposal must be received prior to the deadline and properly signed by an individual authorized to commit the company to the conditions and costs associated with the response.

### **4.2 RFP Evaluation**

The Selection Committee shall determine the firms that meet the minimum requirements pursuant to criteria of the RFP. Only those that meet the minimum requirements will be scored. The Committee may, at its discretion, contact submitting firms for clarification of their proposals. The Committee shall review all proposals and may review in-depth only those proposals found to be most reasonably likely to be selected for award. The Committee may negotiate with responsible Offerors who submit proposals found to be reasonably likely to be selected for award.

The proposals must contain all the essential information in which the award decision shall be made. The information that is required to be submitted in response to this RFP has been determined by the Department to be essential for use by the Committee in the evaluation and award process. Therefore, all instructions contained in this RFP shall be met in order to qualify as a responsive and responsible proposer and participate in the Selection Committee's consideration for award. Proposals that do not meet or comply with instructions of this RFP may be considered non-conforming and deemed non-responsive and subject to disqualification at the sole discretion of the Committee.

The Committee shall make a recommendation to the Division Director, to award a contract to the successful firm(s) in the best interests of the State of Delaware. The Selection Committee reserves the right to contact other jurisdictions and industry sources that may be able to verify statements made in the proposal submission.

The Selection Committee may, at its discretion, terminate negotiations with any or all firms. The Committee may request best and final offers from one or more firms, and proposals may be amended before award for this purpose.

### **4.3 Evaluation Criteria**

- 4.3.1** The Selection Committee shall score each accepted proposal and assign up to the maximum number of points as stated in this Section for each Evaluation Item to each of the accepted proposing firms. All assignments of points shall be at the sole discretion of the Selection Committee members.
- 4.3.2** All accepted proposals shall be evaluated using the same criteria and scoring process. The following criteria shall be used by the Committee to evaluate proposals:

<b><u>Evaluation Item</u></b>	<b><u>Maximum Points</u></b>
Vendor Bid Page Pricing	40
Experience of Contractor	20
Skill and Experience of Employees	20
Equipment List, Access to Equipment when needed	10
Completeness of Submitted Sample Video and Inspection Log Form	<u>10</u>
<b>Total Points</b>	<b>100</b>

**4.3.3** Scoring will take place after any requested negotiations, and after receipt of any Best and Final Offers.

**4.3.4** The Department reserves the right to enter into negotiations and/or entertain the option of requesting a Best and Final Offer from vendors in order to reach a final selection. If a Best and Final Offer is requested, vendors will be given at least three (3) business days to develop this response and provide it in writing to the Department.

**4.3.5** Each Selection committee member will score each firm as provided on the Score sheet. The total scores of each proposal from each Selection Committee member will be ranked from highest to lowest (highest score receives ranking of 1).

The conclusion of ranking by the Selection Committee, a preliminary list will be compiled, in the order of ranking, of the most responsive and responsible proposals. This will be the Committee's recommendation for award.

#### **4.4 Award**

The Department intends to award the contract to the most responsive and responsible vendor(s). The Department, within 90 days from date of receipt of proposals, shall make this award in writing and for the selected vendor(s). If a successful vendor cannot be chosen, all proposals will be rejected in this same time period.

#### **4.5 Department Rights**

The Department reserves the right to:

- Select for contract or for negotiations a proposal other than that with the lowest costs.
- Reject any and all proposals received in response to this RFP,
- Make no award,
- Issue a new RFP,
- Waive any informalities, irregularities, or inconsistency in proposals received.
- Request modification to proposals from any or all proposers during the review and negotiation.
- Negotiate any aspect of the proposal with any firm and negotiate with more than one firm at the same time.
- Make partial awards,
- Increase or decrease quantities,
- Reject any request that shows any omission, alterations of forms, additions not called for, conditions, or alternate proposals,
- Deny any and all exceptions to the RFP requirements,
- Reject any non-responsive or non-conforming proposals,
- Make any such award as is deemed to be in the best interest of the State of Delaware.

## **4.6 Disputes**

In the event of any disputes during this procurement process, the SECRETARY of the Delaware Department of Transportation (or his/her designee) shall hear all arguments and render a final decision on the controversy that shall be binding on all parties concerned.

## **5. Contract Terms and Conditions**

- 5.1.1** The contract award shall be for a period of three years from the date of execution of the contract. The contract must be executed with the successful firms within 20 days after award. The Department may terminate the contract at any time upon written notice to the firm. No firm is to begin any service prior to receipt of a Notice To Proceed (NTP) from the Department's Contract Administration Section.
- 5.1.2** DBE Goals will be established by the DBE Program Office on federally funded tasks issued under this contract as indicated in Section 3.9 of this Request for Proposal.
- 5.1.3** If the scope of any provision of this Contract is too broad in any respect whatsoever to permit enforcement to its full extent, then such provision shall be enforced to the maximum extent permitted by law, and the parties hereto consent and agree that such scope may be judicially modified accordingly and that the whole of such provisions of the Contract shall not hereby fail, but the scope of such provisions shall be curtailed only to the extent necessary to conform to law.
- 5.1.4** The Department reserves the right to annul any contract if, in its opinion, there is a failure at any time to perform adequately the stipulations of this invitation to respond, and the general conditions and specifications which are part of these proposals, or in any case of any attempt to impose upon the Department services of an unacceptable quality. Any action taken in pursuance of this latter stipulation shall not affect or impair any rights or claim of the Department to damages for the breach of any covenants of the contract by the contractor.
- 5.1.5 Termination for Cause.**

If for any reasons, or through any cause, the firm fails to fulfil in timely and proper manner his obligations under the contract, or if the firm violates any of the covenants, agreements or stipulations of the contract, the State of Delaware shall thereupon have the right to terminate the contract by giving written notice to the firm of such termination and specifying the effective date thereof, at least twenty (20) days before the effective date of such termination, In that event, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports or other material prepared by the firm under the contract shall, at the option of the State of Delaware, become its property, and the firm shall be entitled to receive just and equitable compensation for any satisfactory work completed on such documents and other materials which is useable to the State of Delaware.

### **5.1.6 Termination for Convenience**

The State of Delaware may terminate the contract at any time by giving written notice of such termination and specifying the effective date thereof, at least twenty (20) days before the effective date of such termination. In that event, all finished or unfinished documents, data, studies, surveys, drawings, maps, models, photographs and reports or other material prepared by the firm under the contract shall, at the option of the State of Delaware, become its property, and the Vendor shall be entitled to compensation for any satisfactory work completed on such documents and other materials which is useable to the State of Delaware. If the contract is terminated by the State of Delaware as so provided, the firm will be paid an amount which bears the same ratio to the total compensation as the services actually performed bear to the total services of the firm as covered by the contract, less payments of compensation previously made. Provided however, that if less than 60 percent of the services covered by the contract have been performed upon the effective date of termination, the firm shall be reimbursed (in addition to the above payment) for that portion of actual out of pocket expenses (not otherwise reimbursed under the contract) incurred by the firm during the contract period which are directly attributable to the uncompleted portion of the services covered by the contract.

## **6. Applicable Documents**

### ***6.1 Reference Documents***

All work performed and equipment supplied shall be in conformance with the following reference documents, codes and standards:

- DelDOT Standard Specifications for Road & Bridge Construction (2001)
- DelDOT Manual of Uniform Traffic Control Devices (MUTCD)
- DelDOT Storm Sewer CCTV Manual
- Occupational Safety and Health Act (OSHA)

**Appendix A REQUIRED FORMS**

The following completed forms are required to be returned with each proposal:

- **SUBMISSION FORM**
- **CERTIFICATION FORM**
- **BID PRICING PAGES**

**Appendix B BID ITEM DESCRIPTIONS**

Refer to this section prior to completing the Bid Pages for a description of what is included in the Bid Price for each Item.

**Appendix C. TEMPORARY TRAFFIC CONTROL (TTC) DESCRIPTIONS**

Refer to this section prior to completing the TTC Bid Page for a description of what is included in the Price for each Item.

**Appendix D. SAMPLE INSPECTION REPORT**

**APPENDIX A**

**BID PROPOSAL FORMS**

**CONTRACT No. 1616-1619**

# SUBMISSION FORM

## Department of Transportation Request for Proposal 1616-1619 – Storm Drain Video Pipe Inspection

**Attention:** Wendy B. Henry, Contract Administration  
Delaware Department of Transportation  
800 Bay Road  
Dover, DE 19901

We have read Request for Proposal number 1616-1919 and fully understand the intent of the proposal as stated, certify that we have adequate personnel and knowledge to fulfill the requirements thereof, and agree to furnish such services in accordance with the contract documents as indicated should we be awarded the contract.

**Non-Collusion:** Proposals are made without any previous understanding, contract, or with any person, firm, or corporation making a proposal for the same services, or supplies, or equipment, and is without collusion or fraud.

**Date:** \_\_\_\_\_ **Submitted By:** \_\_\_\_\_

**Firm:** \_\_\_\_\_

**Address:** \_\_\_\_\_

**Designated Contact Person:** \_\_\_\_\_

**E-Mail:** \_\_\_\_\_ **Phone No.:** \_\_\_\_\_

**Signature of Firm Authorized Person:** \_\_\_\_\_

**Title of Authorized Person:** \_\_\_\_\_

**Printed Name of Authorized Person:** \_\_\_\_\_

**Federal E.I. No.:** \_\_\_\_\_

**State of DE Business License No.:** \_\_\_\_\_

**Proposer is a [state whether Sole Proprietor, Partnership, Corporation, other]:** \_\_\_\_\_

**CERTIFICATION**  
**Request for Proposal No. 1616-1619**

The undersigned bidder \_\_\_\_\_ whose address is \_\_\_\_\_ and telephone number is \_\_\_\_\_ hereby certifies the following:

I/We have carefully examined the Request for Proposal and will be bound, upon award of this contract by the Department of Transportation, to execute in accordance with such award, a contract to provide all services necessary, and to do all the work and to furnish all the services necessary to perform and complete the said contract within the time and as required in accordance with the requirements of the Department of Transportation, and at the unit prices for the various items as listed on the preceding pages.

The foregoing quantities are considered to be approximate only and are given as the basis for comparison of bids. The Department of Transportation may increase or decrease the amount of any item or portion of the work as may be deemed necessary or expedient. Any such increase or decrease in the quantity for any item will not be regarded as a sufficient ground for an increase or decrease in the unit prices, nor in the time allowed for the completion of the work, except as provided in the contract.

I/We are licensed, or have initiated the license application as required by Section 2502, Chapter 25, Title 30, of the Delaware Code.

By submission of this proposal, each Firm and each person signing on behalf of any Firm, certifies as to its own organization, under penalty of perjury, that to the best of each signer's knowledge and belief:

1. The prices in this proposal have been arrived at independently without collusion, consultation, communication, or agreement with any other Firm or with any competitor for the purpose of restricting competition.
2. Unless required by law, the prices which have been quoted in this proposal have not been knowingly disclosed and will not knowingly be disclosed by the Firm, directly or indirectly, to any other Firm or competitor prior to the opening of proposals.
3. No attempt has been made or will be made by the Firm to induce any other person, partnership, or corporation to submit or not to submit a proposal for the purpose of restricting competition.

I/We acknowledge receipt and incorporation of addenda to this proposal as follows:

Sealed and dated this \_\_\_\_\_ day of \_\_\_\_\_, 20 \_\_\_\_.

		Name of Bidder (Organization)
Corporate Seal	By:	Authorized Signature
Attest _____		Title

SWORN TO AND SUBSCRIBED

Notary Seal	Notary
----------------	--------

# **BID PRICING PAGES**

**RFP No. 1616-1619**

**BID PAGE 1 of 2**  
**VIDEO PIPE INSPECTION**  
**RFP 1616-1619**

ITEM NO.	QUANTITY	DESCRIPTION	PRICE / UNIT
612552	1	PIPE VIDEO INSPECTION, SERVICE LEVEL 1 RIGID >250 LF	\$ _____ Linear Foot
612553	1	PIPE VIDEO INSPECTION, SERVICE LEVEL 1 RIGID <250 LF	\$ _____ Linear Foot
612554	1	PIPE VIDEO INSPECTION, SERVICE LEVEL 1 FLEXIBLE >250 LF	\$ _____ Linear Foot
612555	1	PIPE VIDEO INSPECTION, SERVICE LEVEL 1 FLEXIBLE <250 LF	\$ _____ Linear Foot
612556	1	PIPE VIDEO INSPECTION, SERVICE LEVEL II THRU IV >250 LF	\$ _____ Linear Foot
612557	1	PIPE VIDEO INSPECTION, SERVICE LEVEL II THRU IV <250 LF	\$ _____ Linear Foot
612535	1	CLEANING DRAINAGE PIPE, 15" - 24" DIA.	\$ _____ Linear Foot
612536	1	CLEANING DRAINAGE PIPE, GREATER THAN 24" DIA.	\$ _____ Linear Foot

Proposer Name: \_\_\_\_\_

**BID PAGE 2 of 2**  
**VIDEO PIPE INSPECTION- TTC**  
**RFP 1616-1619**

ITEM NO.	QUANTITY	DESCRIPTION	PRICE / UNIT
763605	1	TEMPORARY TRAFFIC CONTROL, TWO LANE, TWO WAY WITH SHOULDER CLOSURE	\$ _____ Each
763606	1	TEMPORARY TRAFFIC CONTROL, TWO LANE, TWO WAY WITH LANE CLOSURE	\$ _____ Each
763607	1	TEMPORARY TRAFFIC CONTROL, MULTILANE, DIVIDED HIGHWAY WITH SHOULDER CLOSURE	\$ _____ Each
763608	1	TEMPORARY TRAFFIC CONTROL, MULTILANE, DIVIDED HIGHWAY WITH LANE CLOSURE	\$ _____ Each
763609	1	TEMPORARY TRAFFIC CONTROL, MULTILANE LIMITED CONTROL FOR INTERSTATES AND HIGHWAYS WITH SHOULDER CLOSURE	\$ _____ Each
763610	1	TEMPORARY TRAFFIC CONTROL, MULTILANE LIMITED CONTROL FOR INTERSTATES AND HIGHWAYS WITH ONE LANE CLOSURE	\$ _____ Each
763611	1	TEMPORARY TRAFFIC CONTROL, MULTILANE LIMITED CONTROL FOR INTERSTATES AND HIGHWAYS WITH MULTIPLE LANE CLOSURES	\$ _____ Each

**NAME OF TTC  
SUBCONTRACTOR:** \_\_\_\_\_

Proposer Name: \_\_\_\_\_

**APPENDIX B**

**BID ITEM DESCRIPTIONS**

**RFP No. 1616-1619**

## **Bid Item Description**

**612552 - PIPE VIDEO INSPECTION, SERVICE LEVEL I- RIGID >250 LF**

**612553 - PIPE VIDEO INSPECTION, SERVICE LEVEL I RIGID- <250 LF**

**612554 - PIPE VIDEO INSPECTION, SERVICE LEVEL I FLEXIBLE >250 LF**

**612555 - PIPE VIDEO INSPECTION, SERVICE LEVEL I FLEXIBLE <250 LF**

### **Description:**

This work consists of the video inspection of the storm drain systems, and/or sanitary sewer systems (all pipe sizes included) in accordance with the *2008 Storm Sewer CCTV Manual for Storm Sewer Assessment and Acceptance*, these Specifications, and the details and locations shown on the Plans and by the Engineer. For flexible pipes, it also consists of using either a projected laser ring or a rotating head measurement device for deflection testing, as well as the measurement of crack widths and lengths, joint gaps, defects, debris or other irregularities using a calibrated on-screen device or non-contact video micrometer for all pipe types.

### **Construction Methods:**

The entire system(s) involved shall be numbered and then inspected by means of a closed-circuit television. The inspection will be done one section at a time in the presence of the Department's inspector. This work shall not be performed until just prior to the placement of the final pavement surface in case repairs need to be done. But, shall be done no sooner than thirty days from the date of pipe placement.

The television camera used for the inspection shall be specifically designed and constructed for such inspection, capable of producing color video. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions. The camera shall be equipped with Pan and Tilt, capable of scanning 360E to view the entire joint. The camera, television monitor, and other components of the video system shall be capable of producing quality to the satisfaction of the Department. If unsatisfactory, the equipment shall be removed and replaced.

The condition of the entire pipe run shall be documented by moving the camera through the pipe in either direction. At each joint the camera shall stop and pan the entire circumference of the joint. Between joints, the camera shall move at a nominal speed of 10 to 15 feet (3 to 4.5 m) per minute never exceeding 30 feet (9 m) per minute. Manual winches, power winches, television cable and power rewinds or other devices shall not obstruct the camera view or interfere with proper documentation of the pipe condition.

The technician operating the camera shall be experienced and qualified in conducting video pipe inspections. The technician shall have the capability of controlling the movement of the television camera, adjusting the brightness of the built-in lighting system and focusing the television camera by remote control. The importance of accurate distance measurements is emphasized. A distance meter and location indicator shall appear on the monitor and video indicating the exact location of the camera in the pipe between (2) structures.

The view scanned by the television camera shall be transmitted to a color monitor of not less than 12 in. (300 mm), measured diagonally across the screen. The monitor shall be located such that the State inspector has full visual access.

Deflection testing shall be performed on flexible pipes using either a projected laser ring or a rotating head measurement device. Equipment must be capable of producing a pipe profile along the longitudinal length of the pipe and a report of pipe deflection along the pipe. Accuracy of deflection measurements must be 0.5% or better and repeatability of 0.12% or better for pipes from a minimum diameter of 15" to a maximum diameter of 48".

Measurement of crack widths and lengths, joint gaps, defects, debris or other irregularities either directly or through a calibrated on-screen device or non-contact video micrometer. Measurements may be performed with a laser or other suitable measurement device. Where measurements are taken through a calibrated on-screen device or non-contact video micrometer, the measurement must be corrected for spherical lens distortion where applicable. Accuracy of the device shall be 1/32" for defects 1" or less in size and 1/8" for defects larger than 3".

**Documentation:**

Television Inspection Logs: Typed reports shall be submitted to the Department for each location clearly showing the relation to the video meter at each problem point observed during inspection. In addition, other points of significance such as locations of catch basins, junction boxes, manholes, open joints, areas of settlement, misaligned pipe, unplugged lift holes, unusual conditions such as a change of pipe size or type within a run, roots, laterals, storm sewer connections, broken or spalled pipe, presence of scale or corrosion and other discernible features shall be recorded and a copy of such records shall be supplied to the Department.

For the purposes of documentation of a storm drain system, the following criteria shall be used to determine if a joint shall be considered an open joint:

**ALL PIPE TYPES MAXIMUM JOINT OPENING ALLOWED**

12-36" (300 - 900 mm) ROUND      0.75" (19 mm)

42" (1050 mm) & LARGER    1.25" (32 mm)

ALL ELLIPTICAL              1.50" (38 mm)

DVD Recordings: The Contractor shall supply a visual and audio record of the drainage and/or sanitary system that may be replayed. A minimum of one video shall be submitted for each location but separate locations shall not be combined on the same DVD. Video recording playback shall be at the same speed that it was recorded. Good quality labeled DVDs in a hard plastic case shall be submitted and become the property of The Delaware Department of Transportation.

The separate typed report shall list the Delaware State Plane NA D 83 Coordinates for each structure within the drainage system including catch basins, manholes and all inlet and outlet ends of pipes. This record shall be listed by structure number and record each structure's Northing and Easting coordinates along with street address. This report is to be forwarded to the Department's NPDES after review by the construction staff.

**Method of Measurement:**

The quantity of pipe video inspection will be measured by the linear feet (linear meter) as indicated on the video monitor and verified by the Engineer.

**Basis of Payment:**

The quantity of pipe video inspection will be paid for at the Contract unit price per linear foot (linear meter). Price and payment will constitute full compensation for furnishing all materials and equipment, obtaining coordinate and elevations, performing all deflection testing and measurements of defects, typed reports, DVD recordings, safety equipment, and for all labor, tools and incidentals necessary to complete the work.

8/13/07

## **Bid Item Description**

### **612556 - PIPE VIDEO INSPECTION, SERVICE LEVEL II THRU IV- >250**

### **612557 - PIPE VIDEO INSPECTION, SERVICE LEVEL II THRU IV<250**

#### **Description:**

This work consists of the video inspection of the storm drain systems, and/or sanitary sewer systems (all pipe sizes included) in accordance with these Specifications, and the details and locations shown on the Plans and by the Engineer.

#### **Construction Methods:**

The entire system(s) involved shall be numbered and then inspected by means of a closed-circuit television. The inspection will be done one section at a time in the presence of the Department's inspector. This work shall not be performed until just prior to the placement of the final pavement surface in case repairs need to be done. But, shall be done no sooner than thirty days from the date of pipe placement.

The television camera used for the inspection shall be specifically designed and constructed for such inspection, capable of producing color video. Lighting for the camera shall be suitable to allow a clear picture of the entire periphery of the pipe. The camera shall be operative in 100% humidity conditions. The camera shall be equipped with Pan and Tilt, capable of scanning 360E to view the entire joint. The camera, television monitor, and other components of the video system shall be capable of producing quality to the satisfaction of the Department. If unsatisfactory, the equipment shall be removed and replaced.

The condition of the entire pipe run shall be documented by moving the camera through the pipe in either direction. At each joint the camera shall stop and pan the entire circumference of the joint. Between joints, the camera shall move at a nominal speed of 10 to 15 feet (3 to 4.5 m) per minute never exceeding 30 feet (9 m) per minute. Manual winches, power winches, television cable and power rewinds or other devices shall not obstruct the camera view or interfere with proper documentation of the pipe condition.

The technician operating the camera shall be experienced and qualified in conducting video pipe inspections. The technician shall have the capability of controlling the movement of the television camera, adjusting the brightness of the built-in lighting system and focusing the television camera by remote control. The importance of accurate distance measurements is emphasized. A distance meter and location indicator shall appear on the monitor and video indicating the exact location of the camera in the pipe between (2) structures.

The view scanned by the television camera shall be transmitted to a color monitor of not less than 12 in. (300 mm), measured diagonally across the screen. The monitor shall be located such that the State inspector has full visual access.

**Documentation:**

Television Inspection Logs: Typed reports shall be submitted to the Department for each location clearly showing the relation to the video meter at each problem point observed during inspection. In addition, other points of significance such as locations of catch basins, junction boxes, manholes, open joints, areas of settlement, misaligned pipe, unplugged lift holes, unusual conditions such as a change of pipe size or type within a run, roots, laterals, storm sewer connections, broken or spalled pipe, presence of scale or corrosion and other discernible features shall be recorded and a copy of such records shall be supplied to the Department.

For the purposes of documentation of a storm drain system, the following criteria shall be used to determine if a joint shall be considered an open joint:

**ALL PIPE TYPES MAXIMUM JOINT OPENING ALLOWED**

12-36" (300 - 900 mm) ROUND      0.75" (19 mm)

42" (1050 mm) & LARGER    1.25" (32 mm)

ALL ELLIPTICAL                      1.50" (38 mm)

DVD Recordings: The Contractor shall supply a visual and audio record of the drainage and/or sanitary system that may be replayed. A minimum of one video shall be submitted for each location but separate locations shall not be combined on the same DVD. Video recording playback shall be at the same speed that it was recorded. Good quality labeled DVDs in a hard plastic case shall be submitted and become the property of The Delaware Department of Transportation.

The separate typed report shall list the Delaware State Plane NAD 83 Coordinates for each structure within the drainage system including catch basins, manholes and all inlet and outlet ends of pipes. This record shall be listed by structure number and record each structure's Northing and Easting coordinates along with street address. This report is to be forwarded to the Department's NPDES after review by the construction staff.

**Method of Measurement:**

The quantity of pipe video inspection will be measured by the linear feet (linear meter) as indicated on the video monitor and verified by the Engineer.

**Basis of Payment:**

The quantity of pipe video inspection will be paid for at the Contract unit price per linear foot (linear meter). Price and payment will constitute full compensation for furnishing all materials and equipment, obtaining coordinate and elevations, typed reports, DVD recordings, safety equipment, and for all labor, tools and incidentals necessary to complete the work.

8/13/07

## **Bid Item Description**

### **612535 - CLEANING DRAINAGE PIPE, 15" – 24" DIA.**

### **612536 - CLEANING DRAINAGE PIPE, GREATER THAN 24" DIA.**

#### **Description:**

This work consists of cleaning existing drainage pipe. It is the intent that equipment and cleaning methods used to perform this work conform to *2008 Storm Sewer CCTV Manual for Storm Sewer Assessment and Acceptance*.

#### **Materials and Construction Methods:**

Water used for cleaning shall be safe for all downstream environments. The source for the cleaning water shall be approved by the Engineer. Equipment and construction methods shall be in accordance with the requirements under Section 2.4 of the 2008 Storm Sewer CCTV Manual for Storm Sewer Assessment and Acceptance

Equipment shall be operated in accordance with the manufacturer's instructions. The cleaning operation shall consist of up to three passes of the hydro cleaning equipment. If three passes do not adequately clean the pipe, the Engineer may direct the Contractor to use other procedures covered by other item(s) of work. Material removed during the pipe cleaning operation shall be disposed of at a site approved by the Engineer.

#### **Method of Measurement:**

The quantity of drainage pipe cleaned will be measured as the actual number of linear feet (linearmeters) of pipe cleaned and accepted measured from end to end.

#### **Basis of Payment:**

The quantity of pipe cleaned will be paid for at the Contract unit price per linear foot (linear meter). Price and payment will constitute full compensation for furnishing equipment and water, and for all labor, equipment, tools and incidentals to complete the work.

9/25/02

**APPENDIX C**

**TEMPORARY TRAFFIC CONTROL  
DESCRIPTIONS**

**RFP No. 1616-1619**

### Temporary Traffic Control (TTC) Descriptions

- 763605 - TEMPORARY TRAFFIC CONTROL–TWO-LANE, TWO-WAY TRAFFIC SHOULDER CLOSURE (DE MUTCD CASE 2)**
- 763606 - TEMPORARY TRAFFIC CONTROL – TWO-LANE, TWO-WAY TRAFFIC LANE CLOSURE (DE MUTCD CASE 6)**
- 763607 - TEMPORARY TRAFFIC CONTROL –MULTILANE, DIVIDED, NON ACCESS CONTROLLED HIGHWAYS – SHOULDER CLOSURE (DE MUTCD CASE 3)**
- 763608 - TEMPORARY TRAFFIC CONTROL – MULTILANE, DIVIDED HIGHWAYS AND INTERSTATES – LANE CLOSURE (DE MUTCD CASE 7)**
- 763609 - TEMPORARY TRAFFIC CONTROL – MULTILANE, ACCESS CONTROLLED HIGHWAYS AND INTERSTATES SHOULDER WORK – OFF SHOULDER (DE MUTCD CASE 4)**
- 763610 - TEMPORARY TRAFFIC CONTROL – MULTILANE, ACCESS CONTROLLED HIGHWAYS AND INTERSTATES SHOULDER WORK – ON SHOULDER (DE MUTCD CASE 5)**
- 763611 - TEMPORARY TRAFFIC CONTROL – MULTILANE DIVIDED HIGHWAYS – DOUBLE LANE CLOSURE (DE MUTCD CASE 9)**

#### **Description:**

*This work shall consist of all work performed by the Contractor to maintain vehicular, bicycle and pedestrian traffic through the location's work zone, including, but not limited to, the passage through the area of persons with disabilities in accordance with the Americans with Disabilities Act of 1990 (ADA) Title II, paragraph 35.130, to ensure the safe passage of all roadway users through the work zone. All work and temporary traffic control devices shall be performed in a manner that will reasonably provide the least practicable obstruction to all road users, including vehicular traffic, bicycle traffic and pedestrian traffic. All temporary traffic control and temporary traffic control devices shall comply with the contract documents and with the latest edition of the manual titled "Delaware Manual on Uniform Traffic Control Devices (MUTCD)," hereafter referred to as the "DE MUTCD", including all revisions as of the date of advertisement of this Contract.*

*Prior to the beginning of any work in a particular location, the Contractor shall first place temporary traffic control devices so as to effectively close that area to the passage of unauthorized vehicles, pedestrians or bicycles, and protect the work and personnel until the area is ready for public use.*

The safety measures outlined herein the DE MUTCD shall be considered as elementary only, and not necessarily sufficient in every instance to guarantee the protection of the traveling public. The final responsibility for the installation of adequate safety precautions and for the protection of the traveling public, and its own personnel shall rest with the Contractor.

The Contractor shall be responsible for all temporary traffic control devices if specified in the job order. The Department reserves the right to set up and maintain traffic if indicated in the job order or as specified by the Engineer.

## Temporary Traffic Control (TTC) Descriptions

### **Schedule and Construction Control:**

*A temporary traffic control plan and construction schedule shall be required for all operations affecting the flow of traffic on all roadways where work is to be performed. The temporary traffic control plan shall be submitted to the engineer seven days in advance of the proposed work for approval. The plan must show all methods and devices the Contractor proposes for temporary traffic control.*

*The contractor shall plan the work such that no lanes of traffic are closed from Friday 3PM until Monday 9AM, with the exception of any weekend work to be allowed on Saturday and Sunday with prior approval from the Engineer. The contractor shall plan his work such that no lane closure occurs without approval during the following periods:*

1. December 24 through December 27 (Christmas Day)
2. December 31 through January 3 (New Years Day)
3. Friday prior to Easter through Easter Sunday
4. Thursday prior to Memorial Day through the Tuesday following Memorial Day
5. Dover International Speedway Race Weekends (Thursday prior to the race event through the day after the race event)
6. July 3 through July 5 (Independence Day)
7. Thursday prior to Labor Day through the Tuesday following Labor Day
8. Wednesday prior to Thanksgiving Day through Monday following Thanksgiving Day.
9. Exceptions to these restrictions can be made on a case by case basis with the approval of the Traffic Engineer and Chief Engineer.

No lane closures shall be allowed on multilane roadways between 6:00 AM and 7:00 PM on standard weekdays, i.e. Monday through Friday without prior permission from the Engineer. Consideration must be given to the duration of the closure, the number of lanes on the highway, the number of lanes affected by the closure and the conditions created by the closure. When prior permission is granted, the contractor shall ensure that lane closures are removed prior to peak periods on the roadway, typically from 6:00 AM to 9:00 A.M. and from 3:00 PM to 7:00 P.M. No lane closure on Two-lane roadways with AADT greater than or equal to 5000 vehicles shall occur between 6:00 AM to 9:00 A.M. and/or 3:00 PM to 7:00 P.M. on a standard weekday, i.e. Monday through Friday without prior permission from the Engineer. For Two-lane roadways with AADT less than 5000 vehicles per day lane closures typically will be allowed at any time. The contractor shall ensure that disruption to traffic is minimized at all times in all cases. Summer weekend operations may occur on non-beach route roadways subject to determination by the Engineer, but no summer weekend work shall take place on major beach routes. Nighttime work may occur on congested major roadway corridors and/or at locations as determined by the Engineer where day time lane closures will cause excessive disruption to traffic flow. Questions regarding the timing of lane closures on a particular roadway shall be directed to the DeIDOT District Safety Officer. It shall be noted that the provisions above are for general guidance and that the Department can be more restrictive at its discretion.

### **Materials:**

The contractor shall supply all temporary traffic control devices as necessary to protect the work area as provided for in the DE MUTCD

**Construction Methods:**

The method of installation shall be as prescribed in the DE MUTCD. The Temporary Traffic Control shall be distinguished based on the following roadway types and closures:

1. Two Lane, Two Way Shoulder Closure Within 10 Feet of Travelway
2. Two Lane, Two Way Lane Closure
3. Multilane, Divided, Non Access Controlled Highways – Shoulder Closure
4. Multilane, Access Controlled Highways and Interstates – Shoulder Work – Off Shoulder
5. Multilane, Access Controlled Highways and Interstates – Shoulder Work – On Shoulder
6. Multilane, Divided Highways and Interstates – Lane Closure
7. Multilane, Divided Highways and Interstates – Double Lane Closure

For Two Lane, Two Way roadways with Shoulder Closures, Case number 2—from the DE MUTCD shall be used for the temporary traffic control operations under this contract.

For Two Lane, Two Way roadways with Lane Closures, Case 6 from the DE MUTCD shall be used for the temporary traffic control operations under this contract.

For Multilane, Divided, Non-Access Controlled Highways with Shoulder Closures, Case 3 from the DE MUTCD shall be used for the temporary traffic control operations under this contract.

For Multilane Access Controlled Highways and Interstates with Shoulder Work that occurs off of the shoulder, Case 4 from the DE MUTCD shall be used for the temporary traffic control operations under this contract.

*For Multilane, Access Controlled Highways and Interstates with Shoulder Work that occurs on the shoulder, Case 5 from the DE MUTCD shall be used for the temporary traffic control operations under this contract.*

For a single lane closure on all Multilane, Divided Highways, including Interstates and Access Controlled Highways, Case 7 from the DE MUTCD shall be used for the temporary traffic control operations under this contract.

For double lane closures on all Multilane, Divided Highways, including Interstates and Access Controlled Highways, Case 9 from the DE MUTCD shall be used for the temporary traffic control operations under this contract.

Interior lane closures using Case 8 from the DE MUTCD shall not be allowed at any time for this contract.

**Method of Measurement:**

The quantity for Temporary Traffic Control shall be measured per Each for each case described in the DE MUTCD.

The Temporary Traffic Control shall be distinguished based on the following roadway types and closures:

1. Two Lane, Two Way Shoulder Closure – Within 10 Feet of Travelway
2. Two Lane, Two Way Lane Closure
3. Multilane, Divided, Non Access Controlled Highways – Shoulder Closure
4. Multilane, Access Controlled Highways and Interstates – Shoulder Work – Off Shoulder
5. Multilane, Access Controlled Highways and Interstates – Shoulder Work – On Shoulder
6. Multilane, Divided Highways and Interstates – Lane Closure
7. Multilane, Divided Highways and Interstates – Double Lane Closure

**Basis of Payment:**

The quantity for Temporary Traffic Control will be paid for at the Contract unit price per each. Price payment will constitute full compensation for set up, removal, furnishing and placing all material, labor, flaggers, flagger's equipment, tools, appurtenances, drums, resetting of drums if required, signs, arrow panels and all incidentals necessary to complete the work. Each temporary traffic control item for the seven types of installations will be paid per one set up-take down cycle and shall cover all temporary traffic control required by the DE MUTCD. Each job order will indicate the number of allowable set up-take down cycles.

The Basis of Payment is applicable to the following types of installations:

1. Two Lane, Two Way Shoulder Closure – Within 10 Feet of Travelway
2. Two Lane, Two Way Lane Closure
3. Multilane, Divided, Non Access Controlled Highways – Shoulder Closure
4. Multilane, Access Controlled Highways and Interstates – Shoulder Work – Off Shoulder
5. Multilane, Access Controlled Highways and Interstates – Shoulder Work – On Shoulder
6. Multilane, Divided Highways and Interstates – Lane Closure
7. Multilane, Divided Highways and Interstates – Double Lane Closure

Each of the above items shall include payment for the following:

1. Providing, transporting, locating, setting up, and maintaining of all necessary temporary traffic control devices as prescribed above.
2. Removal and transporting of all devices back to the storage yard upon completion of the job task.

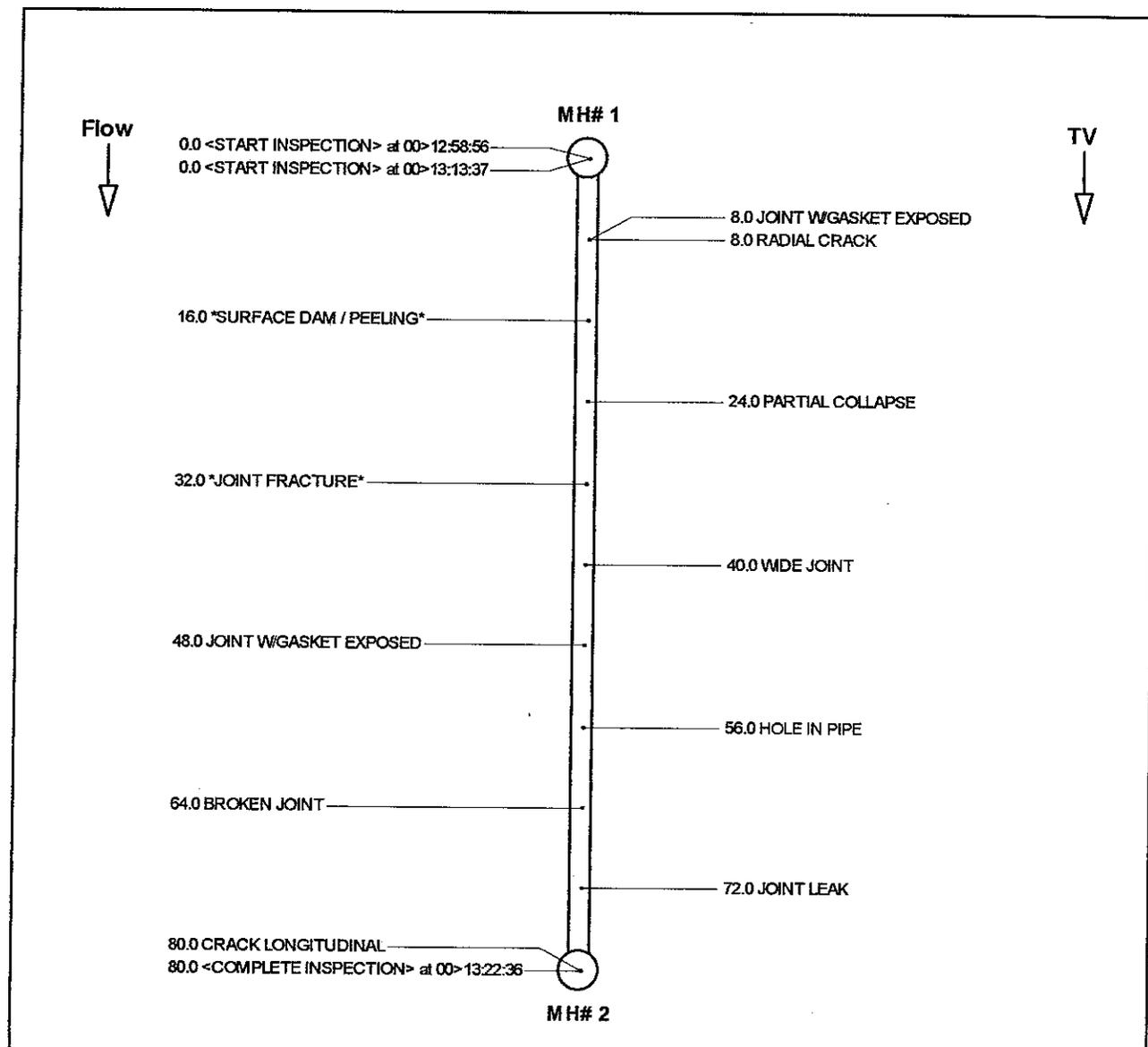
**APPENDIX D**

**SAMPLE**

**STORM DRAIN VIDEO INSPECTION  
& DRAINAGE ASSESSMENT  
REPORT**

**RFP No. 1616-1619**

# DEL DOT

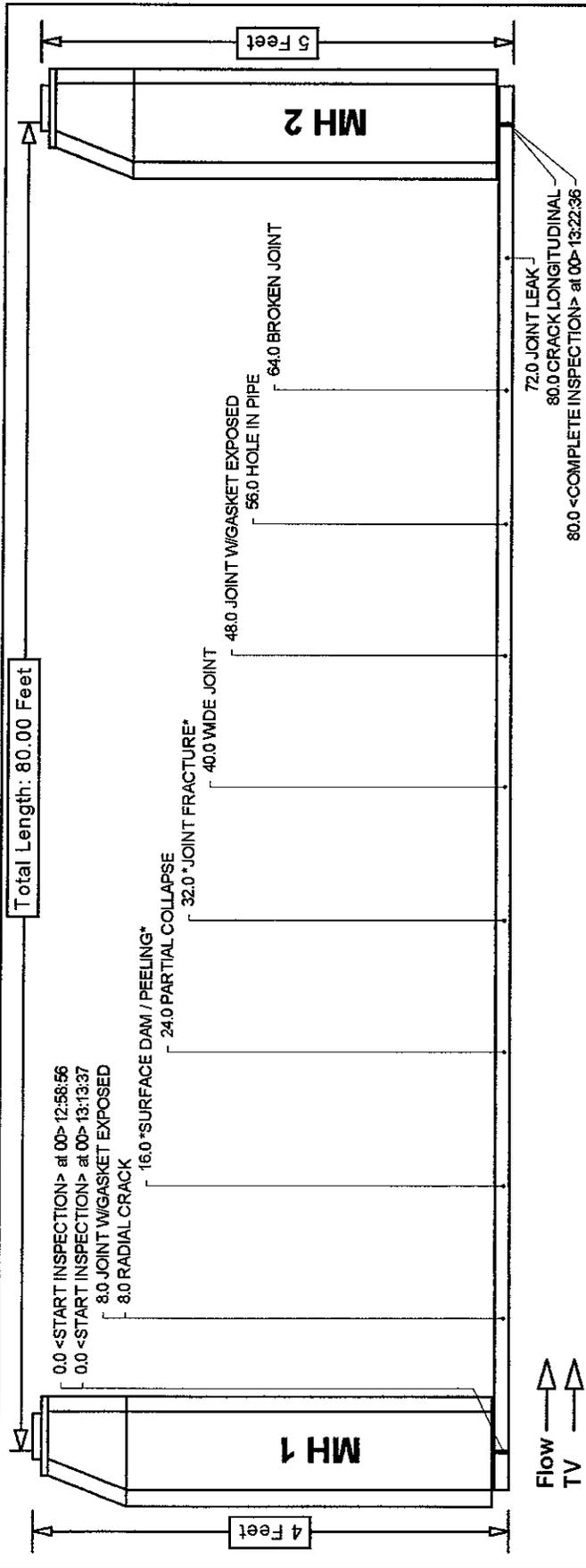


<b>Address:</b> ANY STREET	<b>Owner:</b> DELDOT
<b>MH:</b> 1 to 2	

<b>Contractor:</b>	<b>Type:</b> RCP
<b>WO #:</b> 1234	<b>Size:</b> 18IN
<b>Date:</b> 5/2/2006	<b>Status:</b> COMP
<b>Length:</b> 80.00 Feet	<input type="checkbox"/> =Image Attached
<b>Direction:</b> DOWNSTREAM	<input checked="" type="checkbox"/> =Video Clip Attached
<b>Comp:</b> S/B	
<b>Insp/Oper:</b> JOHN DOE, BILL SMITH	
<b>Truck:</b> 24	
<b>Vcr/Start:</b> /0000	
<b>Comment 1:</b> TEST FOR MANUAL	

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For Information Call 1-800-443-3761

**DEL DOT**



<b>Address:</b> ANY STREET		<b>Owner:</b> DELDOT		<b>MH:</b> 1 to 2	
<b>Contractor:</b>		<input type="checkbox"/> =Image Attached	<input checked="" type="checkbox"/> =Video Clip Attached		
<b>WO #:</b> 1234					
<b>Date:</b> 5/2/2006					
<b>Length:</b> 80.00 Feet					
<b>Truck:</b> 24					
<b>Vcr/Start:</b> /0000					
<b>Comment 1:</b> TEST FOR MANUAL					
		<b>Type:</b> RCP			
		<b>Size:</b> 18IN			
		<b>Direction:</b> DOWNSTREAM			
		<b>Comp:</b> S/B			
		<b>Insp/Oper:</b> JOHN DOE, BILL SMITH			
		<b>Status:</b> COMP			
Cobra Information Management System © 2003 Optical Robotics, LLC. For information Call 1-800-443-3761					

# TV Inspection Report

## DEL DOT

MH 1 to MH 2  
Inspected on Tuesday, May 2, 2006

WO #: 1234	Date: 5/2/2006	Status: COMP
Contractor:	Contract:	
Address: ANY STREET		
Owner: DELDOT		
Inspector: JOHN DOE		Type: RCP
Operator: BILL SMITH	Direction: DOWNSTREAM	
System:	Sub. Syst.:	JTL: 8
Log:	Truck: 24	Size: 18IN
		Comp: S/B
		Pipe Length: 80.0
Up Stream: 1	Up Dp: 4	
Down Stream: 2	Dwn Dp: 5	
Video Volume:		Start: 0000
Video File:		
Vcr:		
Comment 1: TEST FOR MANUAL		
Comment 2:		
Comment 3:		

Footage	SF	WRC	Observation	Modifier	Image File	Struct	O&M
0.0		ST	<START INSPECTION>	00>12:58:56			
8.0		GO	"JOINT W/GASKET EXPOSED"				
0.0		ST	<START INSPECTION>	00>13:13:37			
8.0		GO	"RADIAL CRACK"				
16.0		GO	"SURFACE DAM / PEELING"				
24.0		GO	"PARTIAL COLLAPSE"				
32.0		GO	"JOINT FRACTURE"				
40.0		GO	"WIDE JOINT"				
48.0		GO	"JOINT W/GASKET EXPOSED"				
56.0		GO	"HOLE IN PIPE"				
64.0		GO	"BROKEN JOINT"				
72.0		GO	"JOINT LEAK"				
80.0		GO	"CRACK LONGITUDINAL"				
80.0		FH	<COMPLETE INSPECTION>	00>13:22:36			

Total Length of Line	80.0
Total Length Inspected	80.0
Total Upstream Footage	0.0
Total Downstream Footage	80.0
Number of Observations	14

DI #	GPS Coords (DSP)		Top of Grate Elevations (FT)	Invert Elevation (FT)	Depth (FT)
	Northing	Easting			
1	580515.98	528393.3	47.22	41.65	5.57
1A	580479.48	528311.07	47.42	41.04	6.38
1B	580393.30	528116.94	48.01	40.45	7.56
1C	580409.47	528014.86	48.10	39.85	8.25
2	579684.02	526825.37	46.83	34.52	12.31
3	579912.18	527937.85	43.74	33.86	9.88
4	580042.40	527840.35	40.19	29.86	10.33
5	580223.87	527696.63	41.38	28.62	12.76
6	580239.83	527569.70	38.28	27.47	10.81
7	580088.61	527357.90	38.64	25.82	12.82
8	579915.16	527132.54	37.52	24.62	12.90
9	579811.68	527001.45	32.97	23.29	9.68
10	579928.92	526575.17	27.14	20.12	7.02
11	580286.67	526359.41	30.36	22.93	7.43
12	580589.06	527599.69	36.15	30.60	5.55
13	580643.21	527706.54	21.85	14.29	7.56
14	580569.50	527467.25	23.01	7.62	15.39
15	580458.18	527268.58	43.62	37.66	5.96
16	580287.86	527051.55	46.37	39.91	6.46
17	580105.54	526809.49	45.64	38.53	7.11
18	580759.14	527744.81	44.32	36.81	7.51
19	580851.73	527728.97	42.82	34.07	8.75
20	580974.79	527644.86	31.56	20.67	10.89
21	581035.70	527501.04	29.06	19.57	9.49
22	581022.30	527206.06	27.58	17.01	10.57
23	580952.85	527108.55	26.78	15.76	11.02
24	580742.08	527061.01	33.77	23.45	10.32
25	580639.78	526930.59	30.62	22.15	8.47
26	580461.57	526702.78	28.65	21.40	7.25
27	580368.34	526544.30	27.14	20.80	6.34
28	580953.05	526564.42	25.75	20.20	5.55
29	580830.54	526769.23	24.05	17.40	6.65
30	581517.94	526990.12	16.24	4.72	11.52
31	581371.72	526825.53	46.94	41.61	5.33
32	581231.71	526699.06	48.01	40.31	7.70
33	581621.91	527108.15	49.12	39.11	10.01
34	581499.45	527217.67	47.77	34.35	13.42
35	581442.20	527342.05	45.37	33.32	12.05
36	581428.27	527503.77	44.16	32.82	11.34
37	581403.43	527784.68	42.97	32.32	10.65