Request for Proposals
Borough of Naugatuck

Sealed Proposals will be received by the Purchasing Agent, Town Hall, 229 Church Street, Naugatuck, CT for supplying the Borough of Naugatuck with the following services:

Contract No. 18-34 Storm Sewer Cured In Place Pipe Lining, Naugatuck, CT

The Information for Request for proposal and related documents may be examined at the Office of the Purchasing Agent, Town Hall, 229 Church Street, Naugatuck, CT 06770.

Copies of the specifications may be obtained at the Office of the Purchasing Agent upon submission of a non-refundable plan deposit in the form of a check or money order payable to the Borough of Naugatuck in the amount of **$150.00** per set. Specifications can also be obtained at no cost from the Borough of Naugatuck web site http://www.naugatuck-ct.gov

All firms obtaining plans and specifications must submit contact information by e-mail to whozer@naugatuck-ct.gov Contact information must be submitted three days in advance of the bid opening to be considered.

Addenda if required shall be posted on the http://www.naugatuck-ct.gov web site. It is the bidder's responsibility to check the Town web site in advance of the bid opening to determine if any addenda have been issued.

Sealed proposals will be received by the Purchasing Office, Borough of Naugatuck, 229 Church Street, Naugatuck, CT 06770 until **Monday, August 20, 2018 at 11:00 A.M local time**. Immediately following, the bids will be publicly opened and read.

The Borough of Naugatuck reserves the right to waive any informalities or to reject any or all proposals.

The Borough of Naugatuck is an affirmative action/equal opportunity employer, MBE's, WBE's and SBE's are encouraged to apply.

Borough of Naugatuck
Request for Proposals

Contract No. 18-34 Storm Sewer Cured In Place Pipe Lining, Naugatuck, CT

TABLE OF CONTENTS

Borough of Naugatuck
REQUEST FOR PROPOSALS

Contract No. 18-34 Storm Sewer Cured In Place Pipe Lining, Naugatuck, CT

Section 1: General Information and Requirements

1.1 General Information and Intent

The Borough of Naugatuck is seeking proposals from qualified Contractors to relocate existing athletic field lighting equipment from the Naugatuck High School and install the equipment at the Osborn Road/Wisteria Drive park site.

1.2 Pre-Bid Meeting

The Borough of Naugatuck will not have a formal pre bid meeting. Bidders are encouraged to visit and familiarize themselves with the site.

1.3 Questions

All questions and inquiries shall be directed to:

James R. Stewart
Director of Public Works
246 Rubber Ave
Naugatuck, CT 06468
jstewart@naugatuck-ct.gov
203-720-7072

1.4 Qualified Bidders

In order for a Contractor's proposal to be accepted they must provide evidence of the successful completion of at least five similar projects with in the last three years.

1.5 Project description.

It is expected that all proposals shall include the following minimum work:

1. Video inspection of existing storm sewer line
2. Storm sewer lining of approximately 517' of 27" to 24" Storm drain on Maple Street, Naugatuck meeting the meeting the required specification as attached.
3. Required Traffic Control (Police service is required for the project, the Borough will reimburse the cost of police service plus 5%)
4. Bypass pumping as required.

5. Cutting out pipe connections
6. Point Repairs as required
7. Manhole Repairs as required.
8. Video inpection of completed project
9. All required work to complete the project.

1.6 Pipe Lining

All proposed lining work shall comply with the attached Cured-In-Place specification.

1.7 Negotiation

The Borough of Naugatuck reserves the right to negotiate with the contractors submitting proposals

1.8 Equal Opportunity Clause

The Borough of Naugatuck is an affirmative action/equal opportunity employer.

(1) The vendor will not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. The vendor will take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. Such action shall include, but not be limited to the following: Employment, upgrading, demotion, or transfer, recruitment or recruitment advertising; layoff or termination; rates of pay or other forms of compensation; and selection for training, including apprenticeship. The vendor agrees to post in conspicuous places, available to employees and applicants for employment, notices to be provided by the contracting officer setting forth the provisions of this nondiscrimination clause.

(2) The vendor will, in all solicitations or advertisements for employees placed by or on behalf of the vendor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

3) The vendor will send to each labor union or representative of workers with which he has a collective bargaining agreement or other contract or understanding, a notice to be provided by the agency contracting officer, advising the labor union or workers' representative of the vendor's commitments under section 202 of Executive Order 11246 of September 24, 1965, and shall post copies of the notice in conspicuous places available to employees and applicants for employment.

(4) The vendor will comply with all provisions of Executive Order 11246 of September 24, 1965, and of the rules, regulations, and relevant orders of the Secretary of Labor.

(5) The vendor will furnish all information and reports required by Executive Order 11246 of September 24, 1965, and by the rules, regulations, and orders of the Secretary of Labor, or pursuant thereto, and will permit access to his books, records, and accounts by the contracting agency and the Secretary of Labor for purposes of investigation to ascertain compliance with such rules, regulations, and orders.

(6) In the event of the vendor's non-compliance with the nondiscrimination clauses of this contract or with any of such rules, regulations, or orders, this contract may be canceled, terminated or suspended in whole or in part and the vendor may be declared ineligible for further Government contracts in accordance with procedures authorized in Executive Order 11246 of September 24, 1965, and such other sanctions may be imposed and remedies invoked as provided in Executive Order 11246 of September 24, 1965, or by rule, regulation, or order of the Secretary of Labor, or as otherwise provided by law.

(7) the vendor will include the provisions of paragraphs (1) through (7) in every sub contract or purchase order unless exempted by rules, regulations, or orders of the Secretary of Labor issued pursuant to section 204 of Executive Order 11246 of September 24, 1965, so that such provisions will be binding upon each subvendor or bidder. The vendor will take such action with respect to any sub contract or purchase order as may be directed by the Secretary of Labor as a means of enforcing such provisions including sanctions for noncompliance: Provided, however, that in the event the vendor becomes involved in, or is threatened with, litigation with a subvendor or bidder as a result of such direction, the vendor may request the United States to enter into such litigation to protect the interests of the United States.

1.8.1 Submission of Proposals

Proposals will be accepted until 11:00 AM on August 20, 2018. All proposals must be clearly marked on one (1) large envelope entitled: **Contract No. 18-34 Storm Sewer Cured In Place Pipe Lining, Naugatuck, CT**

Proposals shall be mailed or delivered to:

James R. Stewart
Director of Public Works
246 Rubber Ave
Naugatuck, CT 06468
203-720-7072

Late submissions will not be accepted

1.8.2 Evaluations and Selection Criteria

Bidders will be selected with the following criteria (not listed in order of importance):

a) Past company experience within the region, with the same type of work.
b) Cost for all services combined, as determined by the Borough.
c) Quality liner proposed, Warrantee provided.
d) Completion schedule of proposed project.
e) Expertise in design and construction.
f) Company must have all necessary permits and licenses to operate in the State of Connecticut for the term of the bid.

g) Other criteria as determined by the Borough, weighting criteria will be determined by the Borough.
h) The Borough reserves the right to negotiate with the successful bidder on the terms of their proposed Contract before signing, if it is in the best interest of the Borough.
i) If the Borough cannot negotiate a contract with the selected Contractor the Borough may choose to negotiate with the next ranked vendor.

1.8.3 Borough of Naugatuck's Reservation of Rights

The Borough of Naugatuck reserves the right to waive any informality or to reject any or all proposals or to accept any proposals, should it deem it to be in the best interest of the Borough. The Borough reserves the right to reject any proposals if they show any omission, alteration of form, additions not called for, conditional bids, or irregularities of any kind.

1.8.4 Reimbursement for Costs

It is the responsibility of the Bidder's respondents to pay for all costs associated with submitting proposals. The Borough of Naugatuck shall not reimburse any costs.

1.8.5 Insurance Requirements

Before execution of the Contract, and before each Contract year, the Bidder will be required to file with the Borough of Naugatuck a certificate of insurance. The certificate shall be executed by an insurance company in good standing with the State of Connecticut and shall name the Borough of Naugatuck and the State as additional insured parties on the form furnished with these specifications. The "Certificate of Insurance" shall state that at a minimum, with respect to the Contract, the Bidder carries insurance in accordance with the requirements and stipulations listed below.
Unless requested otherwise by the Borough of Naugatuck, the Bidder and its insurer shall not assert the defense of governmental immunity in the adjustment of claims or in the defense of any claim or suit brought against the Borough and the State. The Bidder shall assume and pay all costs and billing for premiums and audit charges earned and payable under the required insurance. Any deductibles are the sole responsibility of the Contractor, including claim handling and legal expenses.
A. Workmen's Compensation Insurance: With respect to all operations the Bidder performs and all those performed for it by subbidders, the Bidder shall carry worker's compensation insurance in accordance with the requirements and the laws of the State of CT.
B. Contractor's Public Liability and Property Damage Insurance: With respect to the Project operations the Bidder performs and also those performed for it by subbidders, the Bidder shall carry regular Contractor's Public Liability Insurance. The insurance shall provide coverage for each accident or occurrence in the amount of $2,000,000 for all damages resulting from (1) bodily injury to, or death of, persons and/or (2) injury to or destruction of property. Subject to that limit per accident or occurrence, the policy shall

provide a total or aggregate coverage of $5,000,000 for all damages during the policy period.
C. Automobile Liability Insurance: The operation of all motor vehicles, including those hired or borrowed shall be covered by Automobile Liability Insurance. The insurance shall provide coverage for each accident or occurrence in the amount of $2,000,000 for all damages resulting from (1) bodily injury to, or death of, persons and/or (2) injury to or destruction of property. If an insurance policy shows an aggregate limit as part of the automobile liability coverage, the aggregate limit must be at least $2,000.000.
D. With respect to the operations the Bidder performs and also those performed for it by subbidders, the Bidder shall carry for and on behalf of the Borough of Naugatuck and State, insurance which shall provide coverage for each accident or occurrence in the amount of $2,000,000 for all damages resulting from (1) bodily injury to or death of person and/or (2) injury to or destruction of property. Subject to that limit per accident or occurrence, the policy shall provide a total or aggregate coverage of $5,000,000 for all damages during the policy period.
E. Termination or change of Insurance: Each insurance policy shall be endorsed to provide that the insurance company shall notify the Borough of Naugatuck by certified mail at least thirty (30) days in advance of termination, or any change in the policy.
F. Claims: Each insurance policy shall state that the insurance company shall agree to investigate and defend the Borough of Naugatuck and State against all damages, even if groundless.
G. Compensation: There shall be no direct compensation allowed the Bidder on account of any premium or other change necessary to take out and keep in effect all insurance or bonds, but the cost thereof shall be considered included in the general cost of the work.

1.8.6 Signature Requirements

Proposals must be signed by a duly authorized official of the Company. Consortiums, joint ventures, or teams submitting proposals will not be considered, unless it is established that all contractual responsibility rests solely with one Contractor or one legal entity, which shall not be a subsidiary or affiliate with limited resources. Each proposal should indicate the entity responsible for execution on behalf of the proposal team.

1.10 Safety

All practices, materials and equipment shall comply with the Federal Occupational Safety and Health Act, as well as any pertinent State and/or local safety and environmental codes.

1.11 Observance of Laws

The Contractor shall, at all times, observe and comply with all Federal, State and Borough laws, ordinances and regulations in any manner affecting the conduct of the work.

1.12 Attachments

The following attachments shall be made part of this RFP:

A. Certificate of Non-Collusion Form (CCM RFQ.)
B. Site plan.
C. Cured-In-place Specification
D. Sewer photos and Video inspections

1.13 Transferability of CONTRACT

No assignment of the contract or any right accruing under this contract shall be made in whole or in part by the Contractor without the express written consent of the Borough, which consent will not be unreasonably withheld. In the event of any assignment, the assignee shall assume all of the liability of the Contractor.

1.14 CONTRACT Documents

The Request for Proposal and it's attachments, Insurance Certificates, Performance Bonds, the executed contract and any addenda to the foregoing shall constitute the Contract Documents.

1.15 Indemnity

The Contractor shall indemnify, hold harmless, and exempt the Borough, its agents, servants and employees from and against all legal proceedings, claims and associated costs and Attorney's fees incident to any work done in the performance of this CONTRACT arising out of a willful or negligent act or omission of the Contractor, its agents, servants or employees.

1.16 Performance and Payment Bond

The Contractor shall, prior to the signing a contract with the Borough, furnish a Performance Bond and Payment Bond in a form acceptable to the Borough, for one hundred percent (100%) of the bid price for services provided. These bonds shall be issued from a surety company either licensed or approved by the State of Connecticut Insurance Commissioner and which has an A.M. Best's rating of A-VII or better. Any certified check shall be issued by a bank located in the State of Connecticut.

1.17 Default

If the Contractor fails to perform this contract in accordance with its terms, the Borough shall have the right, in addition to all other remedies it may have, to declare the Contractor in default, and to resubmit the contract for further bid. In that event, the Contractor shall pay to the Borough, as liquidated damages, the amount of any excess of the new contract price over the Contract price herein provided for, both prorated to the period of time covered by the unexpired term of the Contract at the time of default.

Section 2: Items Required With Bid Response Packet

The following items are required to be included with your bid response packet:

2.1 Letter of Interest

The Contractor shall submit a signed letter of interest on company letter head detailing the proposed project and the company's experience and any assumptions, conditions or important information needed in order to properly review the proposal.

2.2 Price Proposal

The proposal shall include the following minimum items:

1. Detailed Price proposal including itemized costs for each task and phase of the project including:
    a. Lump sum price to Line approximately 517' 27" to 24" Storm drain
    b. Deduct from the lump sum to eliminate section c 335' of 24' Pipe from the project.
    c. Traffic Control (Police service is required for the project, the Borough will reimburse the cost of police service plus 5%)
    d. Bypass Pumping as required.
    e. Cutting out service trenches
    f. Point Repair cost if required to repair pipe prior to lining.
    g. Manhole repair costs if required to repair/ rehabilitate Manholes affected by the project.
    h. Insurance, Bonding and Mobilization costs.
    i. Other cost as appropriate
2. List of materials that will be used in the project
3. List of additional equipment and supplies that will be purchases.
4. Cut Sheets of proposed material and equipment.
5. Proposed Warrantees
6. List of any subContractors that are to be utilized for the project.

2.3 Schedule of Work

The Contractor shall submit a detailed schedule of project work (based on days commencing upon Contract signing.)

It is expected that the project will be completed during the 2018 construction season.

2.4 Insurance Certificate

The Contractor shall submit an insurance certificate showing the Contractor's current applicable insurance coverage.

2.5 References

The CONTRACTOR shall provide a minimum of three (3) references, preferably municipalities in Connecticut or New England), where they have performed the type of work listed in this RFP.

Contract No. 18-34

Storm Sewer Cured In Place Pipe Lining, Naugatuck, CT

CERTIFICATE OF NON-COLLUSION

The undersigned certifies under penalties of perjury that this bid or proposal has been made and submitted in good faith and without collusion or fraud with any other person. As used in this certification, the word "person" shall mean any natural person, business, partnership, corporation, union, committee, club, or other organization, entity, or group of individuals.

_____ _____/_____/_____
Signature Date

_____
Printed Name of Person Signing Proposal

_____
Name of Business

CIPP Lining Specification

SECTION 02957
Cured-In-Place Pipe (CIPP)

PART 1. GENERAL

1.01 WORK SPECIFIED

The reconstruction of pipelines and conduits by the installation of a resin-impregnated flexible tube, which is tightly formed to the original conduit. The resin is cured using either hot water under hydrostatic pressure or steam pressure within the tube. The Cured-In-Place Pipe (CIPP) will be continuous and tight fitting. Systems that use ultraviolet light for curing will also be acceptable. Manufacturers of these systems shall submit appropriate data and engineering calculations to show that the system is equivalent to the requirements established within this specification, as appropriate, for the technology proposed.

1.02 RELATED WORK SPECIFIED ELSEWHERE

02602 Storm Sewer Work (HDPE Stormwater Pipe)
02615 Ductile Iron Pipe
02621 HDPE Pipe
02955 Temporary Bypass Pumping

1.03 REFERENCES

ASTM F1216 – Rehabilitation of Existing Pipelines and Conduits by the Inversion and Curing of a Resin-Impregnated Tube
ASTM F1743 – Rehabilitation of Existing Pipelines and Conduits by Pull-In-Place Installation of Cured-In-Place Thermosetting resin Pipe (CIPP)
ASTM D1743 – Cured-In-Place Thermosetting Resin Sewer Pipe
ASTM D790 – Test Methods for Flexural Properties of Un-reinforced and Reinforced Plastics and Electrical Insulating Materials
ASTM D2990 – Tensile, Compressive, and Flexural Creep and Creep-Rupture of Plastics

1.04 SUBMITTALS

Test reports, certifications, manufacturer's technical data, installation instructions, and shop drawings are required for approval prior to installation.

PART 2. MATERIALS

2.01 TUBE – The sewn Tube shall consist of one or more layers of absorbent non-woven felt fabric and shall meet the requirements of ASTM F1216, Section 5.1 or ASTM F1743, Section 5.2.1 or ASTM D5813, Section 5 and 6. The tube shall be constructed to withstand installation pressures, have sufficient strength to bridge missing pipe, and stretch to fit irregular pipe sections.

A. The wet out Tube shall have a relatively uniform thickness that when compressed at installation pressures will equal or exceed the calculated minimum design CIPP wall thickness.

B. The Tube shall be manufactured to a size that when installed will tightly fit the internal circumference and length of the original pipe. Allowance should be made for circumferential stretching during installation.

C. The outside layer of the Tube shall be coated with an impermeable, flexible membrane that will contain the resin and allow the resin impregnation (wet out) procedure to be monitored.

D. The Tube shall contain no intermediate or encapsulated elastomeric layers. No material shall be included in the Tube that may cause delamination in the cured CIPP. No dry or unsaturated layers shall be evident.

E. The wall color of the interior pipe surface of CIPP after installation shall be a relatively light reflective color so that a clear detailed examination with closed circuit television inspection equipment may be made.

F. Seams in the Tube shall be stronger than the non-seamed felt material.

G. The Tube shall be marked for distance at regular intervals along its entire length, not to exceed 5 ft. Such markings shall include the Manufacturers name or identifying symbol. The tubes shall be manufactured in the USA.

2.02 RESIN – The resin system shall be a corrosion resistant polyester or vinyl ester system including all required catalysts, initiators that when cured within the tube create a composite that satisfies the requirements of ASTM F1216, ASTM D5813 and ASTM F1743, the physical properties herein, and those which are to be utilized in the submitted and approved design of the CIPP for this project. The resin shall produce a CIPP that will comply with the structural and chemical resistance requirements of this specification.

2.03 STRUCTURAL REQUIREMENTS

A. The CIPP shall be designed as per ASTM F1216, Appendix X.1. The CIPP design shall assume no bonding to the original pipe wall.

B. The Contractor shall have performed long-term testing for flexural creep of the CIPP pipe material installed by their company. Such testing results are to be used to determine the long-term, time dependant flexural modulus to be utilized in the product design. This is the performance test of the materials (Tube and Resin) and general workmanship of the installation and curing as defined within the relevant ASTM standard. A percentage of the instantaneous flexural modulus value (as measured by ASTM D790 testing) will be used in design calculations for external buckling. The percentage, or the long-term creep retention value utilized, will be verified by this testing. Retention values exceeding 50% of the short-term test results shall not be applied unless substantiated by qualified third party test data to the Engineer's satisfaction. The materials utilized for the contracted project shall be of a quality equal to or better than the materials used in the long-term test with respect to the initial flexural modulus used in the CIPP design.

C. The Enhancement Factor 'K' to be used in 'Partially Deteriorated' Design conditions shall be assigned a value of 7.

D. The layers of the cured CIPP shall be uniformly bonded. It shall not be possible to separate any two layers with a probe or point of a knife blade so that the layers separate cleanly or the probe or knife blade moves freely between the layers. If the layers separate

during the field sample testing, new samples will be required to be obtained from the installed pipe. Any reoccurrence may cause rejection of the work.

E. The cured pipe material (CIPP) shall conform to the structural properties, as listed below.

MINIMUM CIPP PHYSICAL PROPERTIES

Property	Test Method	Cured Polyester Composite min per ASTM F1216	Enhanced Resin
Modulus of Elasticity	ASTM D790	250,000 psi	400,000 psi
Flexural Stress	ASTM D790	4,500 psi	4,500 psi

F. The required structural CIPP wall thickness shall be based as a minimum, on the physical properties in Section 2.03E or greater values if substantiated by independent lab testing and in accordance with the design equations in the Appendix X1. Design Considerations of ASTM F1216, and consideration for ovality, groundwater depth and soil depth shall be provided for areas with partially or fully deteriorated pipe. In addition, the following design criteria will be provided with all calculations.

Design Safety Factor (Typical valve) = 2.0

Retention Factor for Long-Term Flexural Modulus = 50% - 75%
(Determined by long-term tests described
in section 5.2 and approved by Owner)

Soil Modulus* = psi

Soil Density* = pcf

Live Load* = H20 Highway

* Denotes information that will be required by the Contractor for fully deteriorated design conditions.

G. Any layers of the tube that are not saturated with resin prior to insertion into the existing pipe shall not be included in the structural CIPP wall thickness computation.

2.04 TESTING REQUIREMENTS

A. Chemical Resistance – The CIPP shall meet the chemical resistance requirements of ASTM F1216, Appendix X2. CIPP samples for testing shall be of tube and resin system similar to that proposed for actual construction. It is required that CIPP samples with and without plastic coating meet these chemical-testing requirements.

B. Hydraulic Capacity – Overall, the hydraulic cross-section shall be maintained as large as possible. The CIPP shall have a minimum of the full flow capacity of the original pipe before rehabilitation. Calculated capacities may be derived using a commonly accepted roughness coefficient for the existing pipe material taking into consideration its age and condition.

C. CIPP Field Samples – When requested by Owner, the Contractor shall submit test results from field installations of the same resin system and tube materials as proposed for the actual installation. These test results must verify that the CIPP physical properties specified in Section 2.03E have been achieved in pervious field applications. Samples for this project shall be made and tested as described in Section 3.04A.

PART 3. EXECUTION

3.01 INSTALLATION RESPONSIBILITIES FOR INCIDENTAL ITEMS

A. The Owner shall provide free access to water hydrants for cleaning, installation, and other process related work items requiring water.

B. Cleaning of Sewer Lines – The Contractor shall remove all internal debris out of the sewer line prior to the installation of CIPP.

C. Bypassing Sewage – The Contractor shall provide for the flow of sewage around the section or sections of pipe designated for repair. Plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system shall make the bypass. The pump(s) and bypass line(s) shall be of adequate capacity to accommodate the sewage flow. The Contractor shall submit a detailed bypass plan prior to the installation of the CIPP.

D. Inspection of Pipelines – Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles, and service connections using close circuit television (CCTV) inspection techniques. The pipeline interior shall be carefully inspected to determine the location of any conditions that may prevent proper installation of CIPP. These shall be noted and corrected.

E. Line Obstructions – The Contractor shall be responsible for clearing the line of obstructions such as solids and roots that will prevent the insertion of CIPP. If pre-installation inspection reveals an obstruction such as dropped joint, or a collapse that will prevent the installation process, that can not be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove/repair the obstruction. Such excavation shall be approved in writing by the Engineer prior to the commencement of the work. Protruding service connections shall

be cut from within the pipe without excavation, utilizing a remotely controlled cutting device monitored by a CCTV. This work will be paid under a separate pay item.

F. Public Notification – The Contractor shall make every effort to maintain sewer service usage throughout the duration of the project. In the event that a connection shall be out of service, the longest period of no service shall be 8 hrs. A public notification program shall be implemented, and shall as a minimum, require the Contractor to be responsible for contacting each home or business connected to the sanitary sewer and informing them of work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the following:

1. Written notice to be delivered to each home or business 48 hrs prior to the beginning of work being conducted on the section, and a local telephone number of the Contractor they can call to discuss the project or any potential problems.

2. Personal contact with any home or business, which can not be reconnected within the time stated in the written notice.

G. The Contractor shall be responsible for confirming the locations of all branch service connections prior to installing the CIPP.

3.02 INSTALLATION

A. CIPP installation shall be in accordance with ASTM F1216, Section 7, or ASTM F1743, Section 6, with the following modifications:

1. Resin Impregnation – The quantity of resin used for tube impregnation shall be sufficient to fill the volume of air voids in the tube with additional allowances for polymerization shrinkage and the potential loss of resin during installation through cracks and irregularities in the original pipe wall, as applicable.

2. Tube Insertion – The wet out tube shall be positioned in the pipeline using either inversion or a pull-in method as defined within relevant ASTM standards previously stipulated. If pulled into place, a power winch or its equivalent should be utilized and care should be exercised not to damage the tube as a result of pull-in friction. The tube should be pulled-in or inverted through an existing manhole or approved access point and fully extend to the next designated manhole or termination point.

3. Temperature gauges shall be placed between the tube and the host pipe's invert position to monitor the temperatures during the cure cycle.

4. Curing shall be accomplished by utilizing hot water under hydrostatic pressure or steam pressure in accordance with the manufacturer's recommended cure schedule. A cool down process shall be conducted that complies with the resin manufacturer's specification.

3.03 REINSTATEMENT OF BRANCH CONNECTIONS

A. The Contractor shall be responsible for re-opening all branch connections without excavation, utilizing a remotely controlled cutting device, monitored by a CCTV. The Contractor shall certify a minimum of two complete functional cutters plus key spare components are on the job site before each installation or are in the immediate area of the jobsite and can be quickly obtained. Unless otherwise directed by the Engineer, all laterals will be reinstated. No additional payment will be made for excavations for the purpose of re-opening connections and the Contractor will be responsible for all cost and liability associated with such excavation and restoration work.

3.04 INSPECTION

A. CIPP samples shall be prepared for each installation designated by the Engineer or approximately 20% of the project's installations. Pipe physical properties will be tested in accordance with ASTM F1216 or ASTM F1743, Section 8, using either method proposed. The flexural properties must meet or exceed the values listed in the table on page 4 of this specification, Table 1 of ASTM F1216 or the values submitted to the Engineer by the Contractor for this project's CIPP wall design, whichever is greater.

B. Wall thickness samples shall be determined as described in paragraph 8.1.6 of ASTM F1743. The minimum wall thickness at any point shall not be less than 87.5% of the submitted minimum design wall thickness as calculated in paragraph 2.03F of this document.

C. Visual inspection of the CIPP shall be in accordance with ASTM F1743, Section 8.6.

3.05 CLEAN UP

A. Upon acceptance of the installation work and testing, the Contractor shall restore the project area affected by the operations to a condition at least equal to that existing prior to the work.

END OF SECTION

Site Map

Section A 120 ft. 27 in. pipe

Section B 62 ft. 24 in. pipe

Section C 335 ft. 24 in. pipe

MAPLE ST. & HILL ST.

SCALE, 1 inch = 40 ft.

Built in 1907

NORTH MAIN STREET

SOUTH MAIN STREET

OAK ST.

MAPLE STREET

CENTRAL AVE.

CARROLL ST.

HIGH ST.

MAPLE TERRACE

PLAN SHOWING LOCATION OF FIRE AND CONDUITS WHITTEMORE MEMORIAL BRIDGE NAUGATUCK, CONN. 1914

PLAN OF MAPLE STREET SEWER. 1905

#1850

N

0 25 50 100 Feet

1 inch = 30 feet

Sewer line Photos


Street: high
VSMH: 5
DSMH: 6
Tap Factory Made Capped
0042.2 F
09/15/15 06:04a


Street: high
VSMH: 5
DSMH: 6
Tap Factory Made Active
0076.3 F
09/15/15
06:05a


Street: high
VSMH: 5
DSMH: 6
Repair Point Defective
offset pvc
0028.0 F
09/15/15 06:02a


Street: high
VSMH: 5
DSMH: 6
Water Level
0000.0 F
09/15/15 05:59a


Street: high
VSMH: 5
DSMH: 6
General Photo
0106.9 F
09/15/15 06:10a


Street: high
VSMH: 5
DSMH: 6
Crack Multiple
0097.1 F
09/15/15 06:07a


Street: high
VSMH: 5
DSMH: 6
Crack Multiple
0037.2 F
09/15/15 06:03a


Street: high
VSMH: 5
DSMH: 6
Crack Multiple
0023.1 F
09/15/15 06:00a


Street: high
VSMH: 5
DSMH: 6
Crack Longitudinal
0085.7 F
09/15/15 06:06a


Street: high
VSMH: 5
DSMH: 6
Crack Longitudinal
0050.1 F
09/15/15 06:04a


Street: high
VSMH: 5
DSMH: 6
Crack Longitudinal
0044.8 F
09/15/15 06:04a


Street: high
VSMH: 5
DSMH: 6
Crack Longitudinal
0017.9 F
09/15/15 06:00a

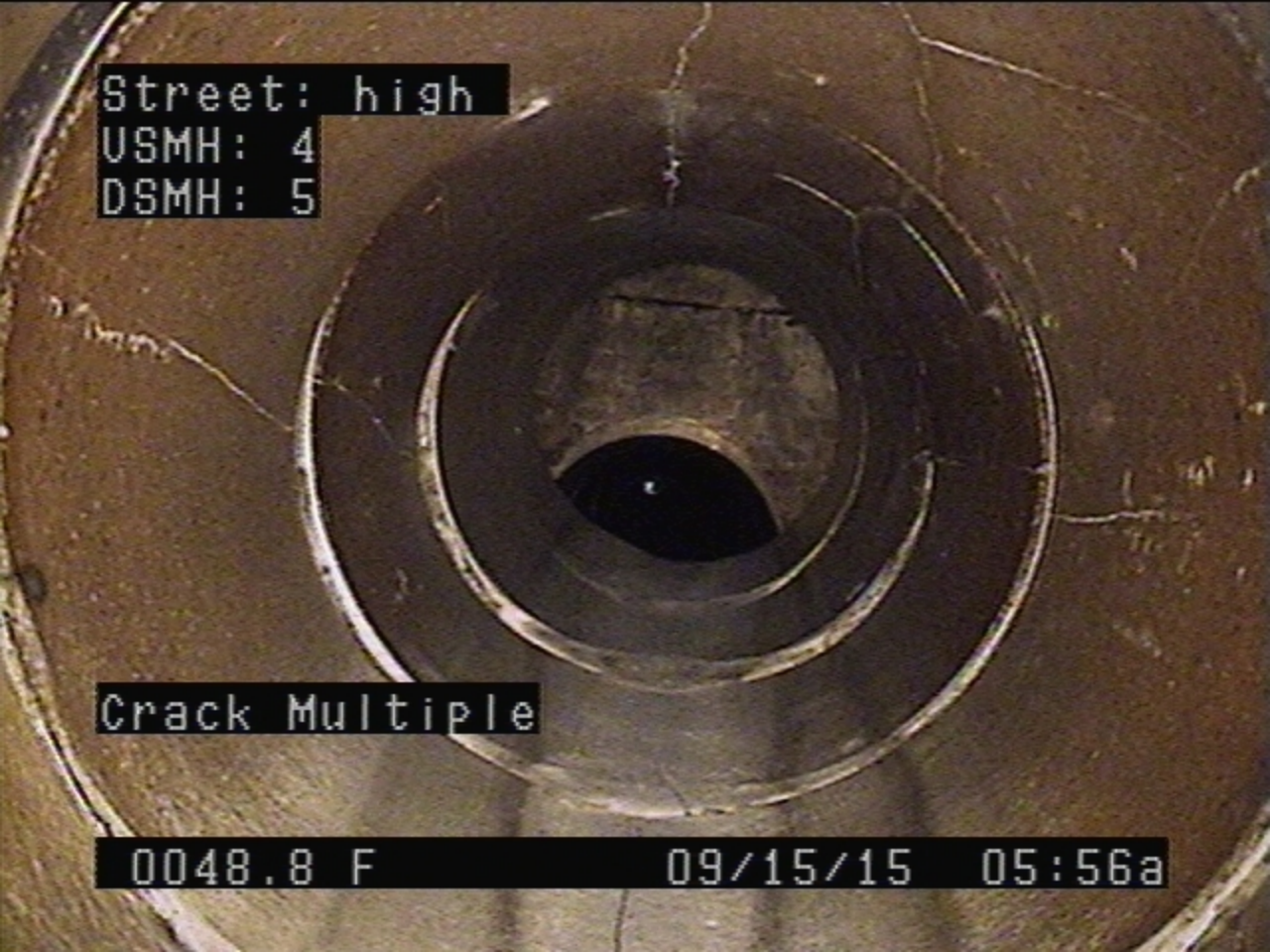

Street: high
VSMH: 5
DSMH: 6
Broken Pipe Soil Visible
0028.0 F
09/15/15 06:02a


Street: high
VSMH: 5
DSMH: 6
Access Point Manhole
outfall under bridge
0115.7 F
09/15/15 06:09a


Street: high
VSMH: 5
DSMH: 6
Access Point Manhole
5
0000.0 F
09/15/15 05:59a


Street: high
VSMH: 4
DSMH: 5
Water Level
0000.0 F
09/15/15 05:53a


Street: high
VSMH: 4
DSMH: 5
Fracture Circumferential
0003.7 F
09/15/15 05:53a

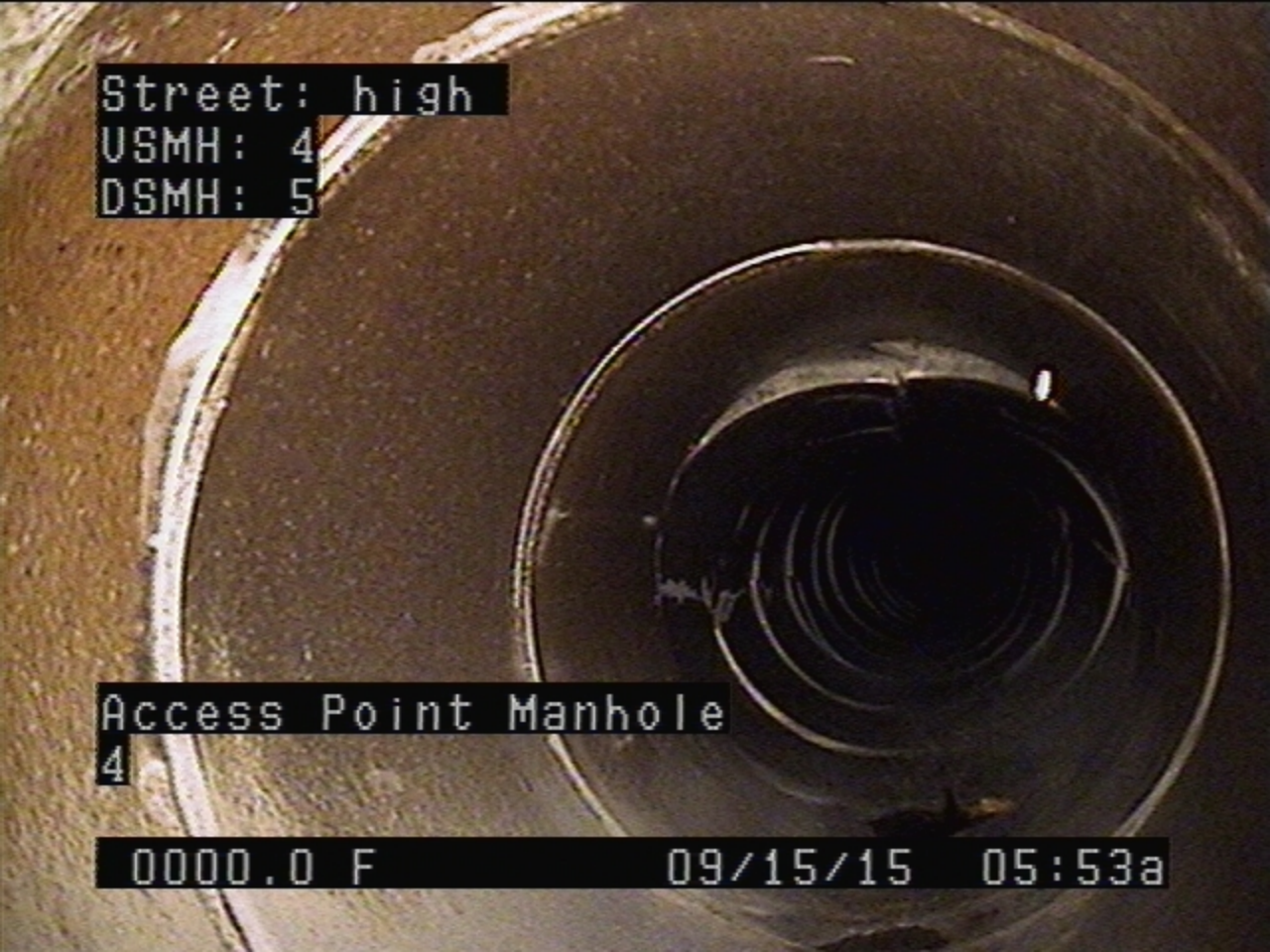

Street: high
VSMH: 4
DSMH: 5
Crack Multiple
0048.8 F
09/15/15 05:56a


Street: high
VSMH: 4
DSMH: 5
Crack Multiple
0043.4 F
09/15/15 05:56a


Street: high
VSMH: 4
DSMH: 5
Crack Multiple
0017.9 F
09/15/15 05:54a


Street: high
VSMH: 4
DSMH: 5
Crack Longitudinal
0040.7 F
09/15/15 05:55a


Street: high
VSMH: 4
DSMH: 5
Access Point Manhole
5
0058.6 F
09/15/15 05:57a


Street: high
VSMH: 4
DSMH: 5
Access Point Manhole
4
0000.0 F
09/15/15 05:53a


Street: high
VSMH: 3
DSMH: 4
Tap Factory Made Active
0279.3 F
09/15/15 05:48a


Street: high
VSMH: 3
DSMH: 4
Tap Factory Made Active
0259.8 F 09/15/15 05:46a


Street: high
VSMH: 3
DSMH: 4
Tap Factory Made Active
0247.9 F
09/15/15 05:45a

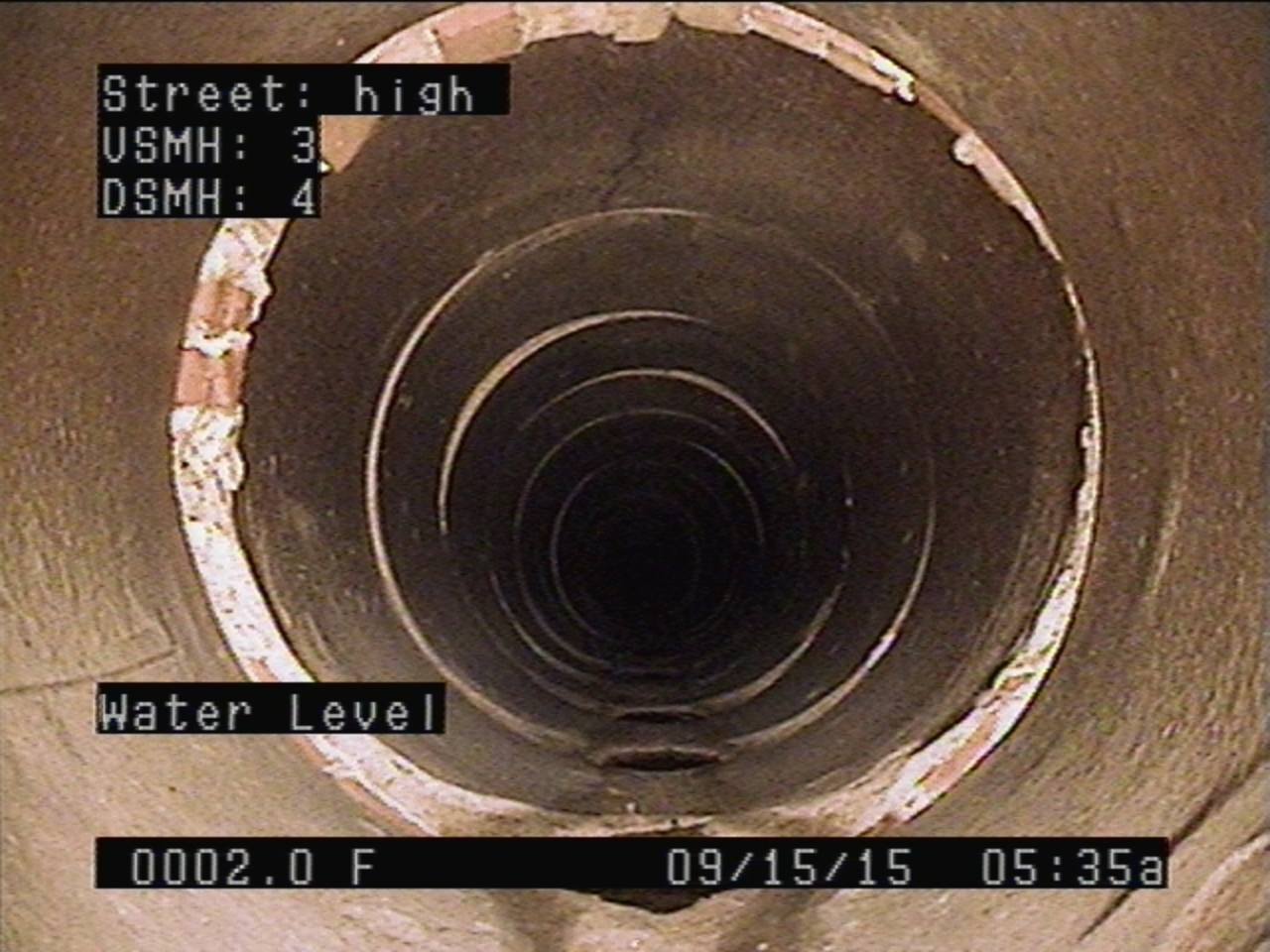

Street: high
VSMH: 3
DSMH: 4
Tap Factory Made Active
0228.1 F
09/15/15 05:44a


Street: high
VSMH: 3
DSMH: 4
Tap Factory Made Active
0213.6 F
09/15/15 05:43a


Street: high
VSMH: 3
DSMH: 4
Tap Factory Made Active
0201.4 F
09/15/15 05:43a


Street: high
VSMH: 3
DSMH: 4
Tap Factory Made Active
0150.1 F 09/15/15 05:41a


Street: high
VSMH: 3
DSMH: 4
Tap Factory Made Active
0036.7 F
09/15/15 05:36a


Street: high
VSMH: 3
DSMH: 4
Water Level
0002.0 F
09/15/15 05:35a


Street: high
VSMH: 3
DSMH: 4
Crack Multiple
0182.6 F
09/15/15 05:42a


Street: high
VSMH: 3
DSMH: 4
Crack Multiple
0173.4 F
09/15/15 05:41a


Street: high
VSMH: 3
DSMH: 4
Crack Multiple
0098.3 F
09/15/15 05:39a


Street: high
VSMH: 3
DSMH: 4
Crack Multiple
0091.8 F
09/15/15 05:38a


Street: high
VSMH: 3
DSMH: 4
Crack Longitudinal
0238.8 F
09/15/15 05:45a


Street: high
VSMH: 3
DSMH: 4
Crack Circumferential
0085.1 F
09/15/15 05:38a

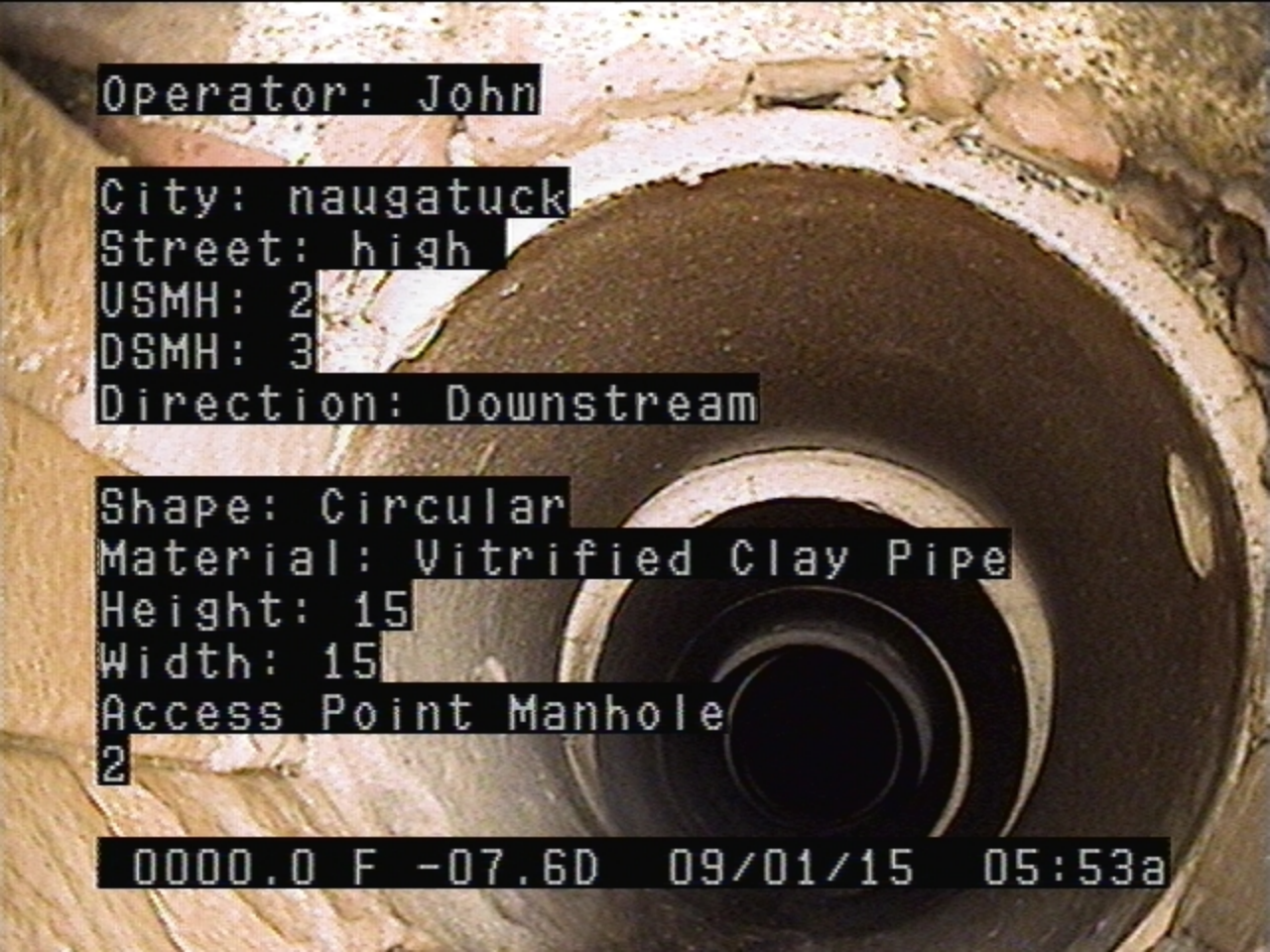

Street: high
VSMH: 3
DSMH: 4
Access Point Manhole
4
0331.1 F
09/15/15 05:50a


Street: high
VSMH: 3
DSMH: 4
Access Point Manhole
3
0002.0 F
09/15/15 05:35a


Street: high
VSMH: 2
DSMH: 3
Water Level
0033.6 F -07.6D 09/01/15 05:55a


Street: high
VSMH: 2
DSMH: 3
Survey Abandoned
broken pipe
0034.9 F -07.6D 09/01/15 05:56a


Street: high
VSMH: 2
DSMH: 3
Broken Pipe Void Visible
0033.6 F -07.6D 09/01/15 05:55a


Operator: John
City: naugatuck
Street: high
VSMH: 2
DSMH: 3
Direction: Downstream
Shape: Circular
Material: Vitrified Clay Pipe
Height: 15
Width: 15
Access Point Manhole
2
0000.0 F -07.6D 09/01/15 05:53a


Street: high @ maple
VSMH: 1
DSMH: 2
Water Level
0001.5 F -07.6D 09/01/15 05:45a

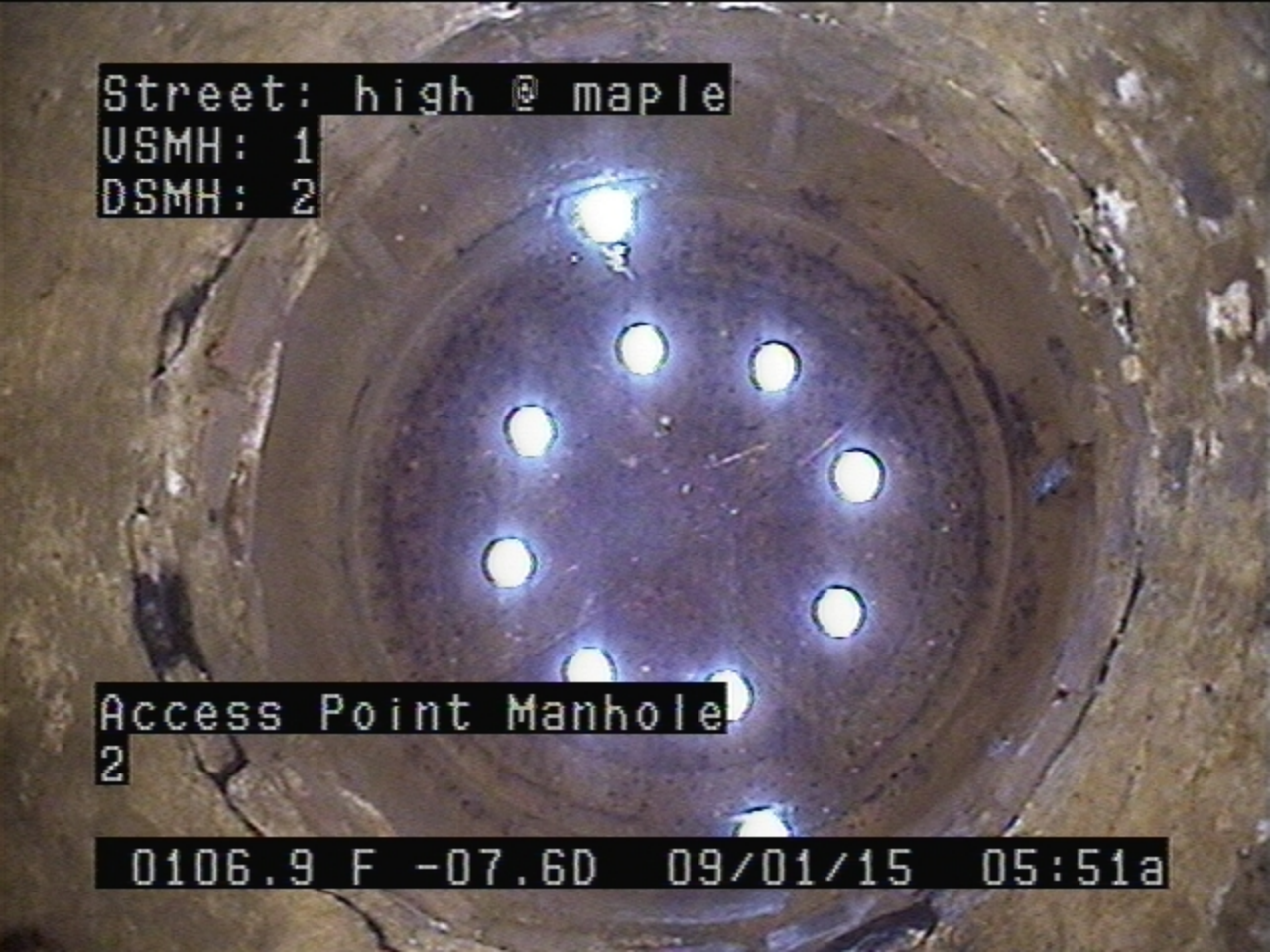

Street: high @ maple
VSMH: 1
DSMH: 2
Joint Offset Large
0017.1 F -07.6D 09/01/15 05:48a


Street: high @ maple
VSMH: 1
DSMH: 2
Crack Longitudinal
0006.7 F -07.6D 09/01/15 05:47a


Street: high @ maple
VSMH: 1
DSMH: 2
Broken Pipe Void Visible
0055.5 F -07.6D 09/01/15 05:50a


Street: high @ maple
VSMH: 1
DSMH: 2
Broken Pipe Void Visible
0011.3 F -07.6D 09/01/15 05:48a


Street: high @ maple
VSMH: 1
DSMH: 2
Broken Pipe Void Visible
0002.2 F -07.6D 09/01/15 05:47a


Street: high @ maple
VSMH: 1
DSMH: 2
Access Point Manhole
2
0106.9 F -07.6D 09/01/15 05:51a


Street: high @ maple
VSMH: 1
DSMH: 2
Access Point Manhole
1
0001.5 F -07.6D 09/01/15 05:44a

Sewer Video Inspection