City of Mt. Pleasant, Michigan

CONTRACT DOCUMENTS

For Construction
of

2016 SEWER RELINING PROJECT

KATHLEEN LING
Mayor

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City Manager

Prepared By:
Division of Public Works

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November 2016

City of Mt. Pleasant, Michigan

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THE CITY OF
MT. PLEASANT, MICHIGAN

CITY HALL
320 W. Broadway St.• 48858-2312
(989) 779-5300
(989) 773-4691 fax

PUBLIC SAFETY
804 E. High • 48858-3595
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PUBLIC WORKS
1303 N. Franklin • 48858-4682
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NOTICE TO BIDDERS

2016 Sewer Relining Project

The City of Mt. Pleasant, Michigan, is requesting sealed bids at the Office of the City Clerk, City Hall, 320 W. Broadway Street, Mt. Pleasant, Michigan 48858, until 1:30 p.m. (local time), on Tuesday, November 29, 2016 at which time and place the bids will be publicly opened and read. All bids shall be submitted in a sealed envelope, plainly marked "2016 Sewer Relining Project – November 29, 2016."

Proposals are solicited on a unit price basis, for the following work:

CIPP Sanitary Sewer	4287 LFT
Reinstate Service Conn.	121 EACH

All bid proposals must be accompanied by a bid bond, bank cashier's check, bank draft, or certified check for not less than five percent (5%) of the bid price, made payable to the City of Mt. Pleasant.

To view and download complete Plans and Specifications at no charge, visit the City of Mt. Pleasant website at www.mt-pleasant.org and navigate to the Bids and Quotes tab.

The City of Mt. Pleasant reserves the right to accept or reject any or all bids, to waive any irregularities in the bids, and to select the bid considered most advantageous to the city.

Jennifer Flachs
Engineering Aide
(989) 779-5406

Jeremy Howard
City Clerk

INSTRUCTIONS TO BIDDERS

1. Proposals

Proposals must be made upon the forms provided therefore, with the Bid amount both written and shown in figures, and all other data required submitted.

The Proposal, bound together with all Proposal Documents, must be enclosed in a sealed envelope marked as specified in the Notice to Bidders for such Bid and clearly indicating the name and address of the Bidder and must be received by the City Clerk, City Hall, 320 West Broadway Street, Mt. Pleasant, Michigan 48858, no later than the time and date specified in the Notice to Bidders. At such specified time, Proposals shall be publicly opened and read aloud.

2. Basis of Proposals

Proposals are solicited on the basis of unit price(s) and/or lump sum(s), as specified on the Proposal form.

The City of Mt. Pleasant (also referred to as "Owner"), reserves the right to accept any Bid, to reject any or all Bids, to waive any irregularities in the Bids, and to select the Bid considered most advantageous to the city.

3. Comparison of Bids

In comparing Bids, consideration shall be given to the time proposed for completion of the Contract, qualifications of Bidder, price differentials, alternate Proposals for the alternate items listed in the Proposal (if applicable), and any other pertinent factors. **The City of Mt. Pleasant grants a preference to businesses located within the Mt. Pleasant City Limits. The preference given is a differential above the low bid if the low bid is not from a City of Mt. Pleasant bidder. The differential allowed is 3% of the total for bids between $5,000 and $9,999 and 2% of the total for bids over $10,000. The maximum credit allowed is $1500.00.** The Owner reserves the right to make an award to the Bidder whose Proposal is deemed to be in the best interest of the Owner.

4. Time

Time is of the essence in the performance of the Contract, and each Bidder, by submitting a Proposal, certifies his/her acceptance of the time allowed by the Contract for the completion of the work specified.

5. Indemnification

The Contractor shall save and hold harmless the city and its employees from and against all claims, damages, losses, or expenses, including attorney's fees, arising out of or resulting from the performance of the work; provided that any such claim, damage, loss or expense is caused in whole or in part by any negligent or willful act of omission of the contractor, subcontractor, employee, or anyone under their direction. The Contractor shall at his/her own expense, defend any and all such actions and shall pay all attorney's fees, costs, and expenses pertaining thereto.

6. **Bid Deposits**

Each Proposal shall be accompanied by a certified check, or a Bid Bond by a recognized Surety Company similar to a U. S. Government Standard Form Bid Bond, in the amount of five percent (5%) of the total amount of the Bid, made payable to the City of Mt. Pleasant, subject to forfeiture to the Owner in the event of failure on the part of the successful Bidder to enter into the attached form of agreement to do the work specified by said Proposal at the price and within the time stated therein. The Bid Deposit of all Bidders, except the three (3) lowest acceptable Bidders, shall be returned within two (2) weeks after opening of bids. The bid deposits of the three (3) lowest acceptable bidders shall be returned within 48 hours after the executed Contract(s) have been finally approved by the Owner.

7. **Liquidated Damages**

A liquidated damage clause, as given in the Contract form, provides that the Contractor shall pay the Owner as liquidated damages, and not as a penalty, the amount as indicated in Section 108.11 of the 2003 MDOT Standard Specifications for Construction for each and every calendar day that the Contractor may be in default of substantial completion of the work required under said Contract.

8. **Insurance and Bonds**

The successful Bidder will be required to execute (2) Bonds, in the form attached hereto, with Surety acceptable to the Owner and insurance, as follows:

a. Bond in the amount of 100% of the Estimated Contract Price running to the City of Mt. Pleasant, Michigan, to insure the completion of the entire work, according to the statues of the State of Michigan in effect at that time.

b. Bond in the amount of 100% of the Estimated Contract Price running to the People of the State of Michigan for the protection of Subcontractors and Labor and Material Men, according to the statutes of the State of Michigan in effect at that time.

c. Insurance in the amounts required by City Ordinance as specified in the Section 1 - General Construction Specifications, attached hereto.

The successful bidder shall be required to furnish for each set of executed Contract Documents, and conformed copies thereof, an original conformed Performance Bond, Labor and Materials Bond, Maintenance Bond, and Insurance Certificates.

9. **Permits and Local Codes**

The Owner shall procure the required permits for municipal sanitary sewer construction, municipal water system construction, and soil erosion control.

The Contractor shall obtain, at his/her expense, all other required local construction permits and shall comply with local building code and inspection requirements.

10. Qualifications of Bidders

It is the intent of the Owner to award the Contract to a Bidder fully capable, both financially and with regard to experience, to perform and complete all work in a satisfactory and timely manner. Evidence of such competency must be furnished on the forms included in the proposal, listing projects of similar difficulty, scope of work, and size, which the Bidder has satisfactorily undertaken and completed.

It is the intention of the City to award the contract to a Contractor whose ability and financial resources are fully equal to the task of performing the work in a satisfactory manner. With this in view, the Proposal calls for at least five (5) references, using specific names of persons to contact concerning the Contractor's ability to do this particular class of work. References from municipalities are preferred. The mere ability to furnish a Performance Bond shall not be accepted as sufficient evidence of responsibility on the part of the Bidder. The Bidder may also be required to furnish evidence of his current financial status.

11. Interpretation of Documents

If any Bidder is in doubt as to the true meaning of any part of the Plans, Specifications or any Contract Document, he/she may submit to the Owner a written request for an interpretation thereof. Any interpretation made in response to such a query shall be made only by Addendum, duly issued, and a copy of such Addendum shall be mailed or duly delivered to each prospective Bidder. The Owner shall not be responsible for any other explanation or interpretation of the Contract Documents. Alternative proposals that are suggested by bidders will be given consideration, if presented before the bid opening. If accepted, an addendum will be issued and sent out to all potential bidders, so that they may bid on the alternatives that have been identified.

12. Execution of Bid Proposal

A Bid Proposal, which is not signed by the individual making it, should have attached thereto a Power of Attorney evidencing authority to sign the Bid Proposal in the name of the person for whom it is signed.

A Bid Proposal, which is signed by a partnership, shall be signed by all of the partners or by an Attorney-in-Fact. If signed by an Attorney-in-Fact, there should be attached to the Bid a Power of Attorney evidencing authority to sign the Bid Proposal in the name of the partnership and such Power of Attorney shall be signed by all partners of the partnership.

A Bid Proposal, which is signed for a corporation, should have the correct corporate name thereof and the signature of the President, or other authorized officer(s) of the corporation, manually written below the corporate name and on the line indicating "By:_____." If such a Bid Proposal is manually signed by an officer other than the President of the corporation, a certified copy of a Resolution of the Board of Directors evidencing the authority of such officer(s) to sign the Bid Proposal should be attached thereto. Such a Bid Proposal should also bear the attested signature of the Secretary of the corporation and an impression of the corporate seal.

13. **Execution of Contract**

The successful Bidder to whom an award is made shall be required to enter into a written agreement, in the form attached hereto, within ten (10) days after receipt of a Notice of Award and copies of the documents to be executed. In the event the successful Bidder fails to comply with this provision, he/she may be considered by the Owner to have abandoned all his/her rights and interests in the award and his/her certified check or amount of the Bid Bond may be declared to be forfeited to the Owner, and the Contract may be awarded to another.

14. **Bidder Responsibility For Conditions of Work and Site**

The Bidder, or his/her representative, shall make personal investigation of the site of work and of existing structures and shall determine to his/her own satisfaction the conditions to be encountered, the nature of the ground, the difficulties involved in making connections to existing structures and pipes, and any and all other factors affecting the work proposed under the Contract.

The Bidder to whom the Contract is awarded shall not be entitled to any additional compensation by reason of conditions being different from those anticipated or by reason of his/her failure to fully acquaint himself/herself with the conditions at the site affecting the work of the Contract.

15. **Changes in Work**

If any change is required to be made in the work of the Contract, a payment adjustment therefore shall be determined as specified in Section 103 of the 2003 MDOT Standard Specifications for Construction.

Revised: March 2011

City of Mt. Pleasant, Michigan

B I D P R O P O S A L

2016 Sewer Relining Project

TO: City Clerk
City Hall
320 W. Broadway Street
Mt. Pleasant, MI 48858

BID DATE: November 29, 2016
TIME: 1:30 p.m.

The undersigned, as Bidder, hereby declares that this bid is made in good faith without fraud or collusion with any person or persons bidding of the same Contract; that he has carefully read and examined the Contract Documents, including the Notice to Bidders, Instructions, Bond Forms, Technical and Detailed Specifications, and Contract Drawings, for the designated work and understands all of the same; that he, or his representative, has made such a personal investigation at the site as is necessary to determine the character and difficulties attending the execution of the proposed work; and he proposes and agrees that if this Proposal is accepted, he will contract with the Owner in the form of the Contract hereto annexed, to provide necessary machinery, tools, apparatus and other means of construction, including utility and transportation services, necessary to do all the work and furnish all the materials and equipment specified or referred to in the Contract Documents, including Addenda No. __, __, and __, in the manner and time therein prescribed, and according to the requirements of the Owner as therein set forth to furnish Contractor Bonds and Insurance required of the Contractor by the Contract Documents, and that he will take in full payment therefore the unit prices set forth in the following Proposal.

The Bidder understands that the Owner reserves the right to reject any or all bids and to waive any irregularities in the bidding.

The Bidder agrees that his bid shall be good and may not be withdrawn for a period of sixty (60) calendar days after the scheduled closing time for receiving the bids.

Upon receipt of a written Notice of Award of the Bid, the Bidder shall execute the formal Contract Agreement attached hereto within ten (10) days and shall deliver to the Owner a Surety Bond or Bonds required. In the event the Contract and Bond are not executed within the time above set forth, the Bid Deposit attached in the sum of five percent (5%) of the Bid Proposal shall become the property of the Owner as liquidated damages for the delay and additional expense to the Owner caused thereby.

The Bidder hereby agrees to commence work under this Contract on or before the date to be specified in the written Notice to Proceed executed by the Owner and to fully complete the project as stipulated in the Special Conditions of these Specifications. The Bidder further agrees to pay as liquidated damages the sum indicated in the Special Conditions for each consecutive calendar day thereafter, until substantial completion, that is when all work items in the proposal are complete and notification of substantial completion of work items and final quantities is given to the Director of Public Works by the contractor.

The below unit prices shall include all labor, materials, overhead, profit, insurance, etc., to cover the finished work of the several kinds specified, and the Bidder agrees to perform all of the work described in the Specifications and/or shown on the Plans for the following unit prices:

ITEM NO.	DESCRIPTION	QTY	UNIT	UNIT COST	TOTAL
1	Sewer/Cured in Place Pipe – 6”	1034	LFT	$_____	$_____
2	Sewer/Cured in Place Pipe – 8”	1382	LFT	$_____	$_____
3	Sewer/Cured in Place Pipe – 10”	877	LFT	$_____	$_____
4	Sewer/Cured in Place Pipe – 18”	994	LFT	$_____	$_____
5	Reinstate Service Connection	121	EA	$_____	$_____
				TOTAL BID	$_____

_____and ____/100 DOLLARS
(written)

RESPECTFULLY SUBMITTED,

Company Name_____

Address_____

City _____ ST_____ ZIP CODE _____

Phone _____ Fax _____

Email _____

Authorized Signature _____

Print or Type Name and Title _____

Date _____

EXPERIENCE QUESTIONNAIRE
TO BE FURNISHED BY BIDDER
CITY OF MOUNT PLEASANT, MICHIGAN

The signatory of this proposal guarantees the truth and accuracy of all statements and of all answers hereinafter made.

1. How many years have you been in business as a contractor under your present name?

_____

2. How many years have you been a principal officer of a firm under a different name?

_____

Name of Firm _____

3. What projects of a similar nature has your organization contracted for within the past five years? (NOTE: Fill out each blank completely.)

	Name of Owner & Location	Name/Address/Phone # of Person in Charge as Reference	Type of Work	Value of Work	Date Completed
1.					
2.					
3.					
4.					
5.					
6.					

City of Mt. Pleasant
SPECIAL PROVISION
FOR

CURED IN PLACE PIPE (CIPP)

A) Description

It is the intent of this specification to provide for the reconstruction of pipelines by the installation of a resin-impregnated flexible tube, which is formed to the original conduit. The resin is cured using hot water or steam within the tube. The Cured-In-Place Pipe (CIPP) will be continuous and tight fitting.

B) Product, Manufacturer/Installer Qualification Requirements

Since sewer products are intended to have a 50 year design life, and in order to minimize the Owner's risk, only proven products with substantial successful long term track records will be approved. All trenchless rehabilitation products and installers should be pre-approved prior to the formal opening of proposals.

Products and Installers seeking approval must meet all of the following criteria to be deemed Commercially Acceptable:

1) For a Product to be considered Commercially Proven, a minimum of 500,000 linear feet or 2,000 manhole-to-manhole line sections of successful wastewater collection system installations in the U.S. must be documented to the satisfaction of the Owner to assure commercial viability. In addition, at least 50,000 linear feet of the product should have been in successful service within the State for a minimum of five years. Upon request, contractor shall provide information, including contact person, to verify compliance with above requirements.

2) For an Installer to be considered as Commercially Proven, the Installer must satisfy all insurance, financial, and bonding requirements of the Owner, and must have had at least 5 (five) years active experience in the commercial installation of the product bid. In addition, the Installer must have successfully installed at least 50,000 feet of the product bid in wastewater collection systems. Acceptable documentation of these minimum installations must be submitted to the Owner.

3) Sewer rehabilitation products submitted for approval must provide Third Party Test Results supporting the long term performance and structural strength of the product and such data shall be satisfactory to the Owner. Test samples shall be prepared so as to simulate installation methods and trauma of the product. No product will be approved without independent third party testing verification.

4) The rehabilitation manufacturing process shall operate under a quality management system which is third-party certified to ISO 9000 or other internationally recognized organization standards. Proof of certification shall be required for approval.

C) Materials

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

i) The wet out Tube shall have a uniform thickness that when compressed at installation pressures will meet or exceed the Design thickness.

ii) The Tube shall be sewn 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 inversion. Overlapped layers of felt in longitudinal seams that cause lumps in the final product shall not be utilized.

iii) The outside layer of the Tube (before wet out) shall be coated with an impermeable, flexible membrane that will contain the resin and facilitate monitoring of resin saturation during the resin impregnation (wet out) procedure.

iv) The Tube shall be homogeneous across the entire wall thickness containing no intermediate or encapsulated elastomeric layers. No material shall be included in the Tube that may cause delamination in the completed CIPP. No dry or unsaturated layers shall be evident.

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

vi) Seams in the Tube shall be stronger than the non-seamed felt.

vii) The outside of 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.

2) Resin - The resin system shall be a corrosion resistant polyester, vinyl ester, or epoxy and catalyst system that when properly cured within the tube composite meets the requirements of ASTM F1216 and ASTM F1743, the physical properties herein, and those which are to be utilized in the Design of the CIPP for this project. The resin shall produce CIPP which will comply with the structural and chemical resistance requirements of this specification.

D) Structural Requirements

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

2) Results from long-term testing for flexural creep of the CIPP pipe material are to be used to determine the Long-term, time dependent flexural modulus to be utilized in the product design. This is a performance test of the materials (Tube and Resin) and general workmanship of the installation and curing. A percentage of the instantaneous flexural modulus value (as measured by ASTM D-790 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. Values in excess of 50% will not be applied unless substantiated by qualified third party test data. 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 Design.

3) The Enhancement Factor 'K' to be used in 'Partially Deteriorated' Design conditions shall be assigned a value of 7. Application of Enhancement (K) Factors in excess of 7 shall be substantiated through independent test data.

4) The layers of the completed 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 separation of the layers occur during testing of field samples, new samples will be cut from the work. Any reoccurrence may cause rejection of the work.

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

MINIMUM PHYSICAL PROPERTIES

Cured Composite

Property	Test Method	min. per ASTM F1216
Modulus of Elasticity	ASTM D-790 (short term)	250,000 psi
Flexural Stress	ASTM D-790	4,500 psi

6) The required structural CIPP wall thickness shall be based as a minimum, on the physical properties in Section 18.05E and in accordance with the Design Equations in the appendix of ASTM F 1216, and the following design parameters:

Design Safety Factor	2.0
Retention Factor for Long-Term Flexural Modulus to be used in Design (*as determined by Long-Term tests described in paragraph 18.05B*)	1% - 60%
Ovality*	2%
Enhancement Factor, k	See Section D.3
Groundwater Depth (above invert)*	See Special Conditions
Soil Depth (above crown)*	See Special Conditions
Soil Modulus**	Psi
Soil Density**	120 pcf
Live Load**	H20 Highway
Design Condition (partially or fully deteriorated)***	***

* Denotes information which can be provided here or in inspection video tapes or project construction plans. Multiple line segments may require a table of values.

** Denotes information required only for fully deteriorated design conditions.

*** Based on review of video logs, conditions of pipeline can be fully or partially deteriorated.

(See ASTM F1216 Appendix) The Owner will be sole judge as to pipe conditions and parameters utilized in Design.

7) Refer to the attached Dimensional Ratio table for specific pipe section requirements, based on the pipe condition, depth, ovality, etc. as computed for the conditions shown, using ASTM F 1216 Design Equations.

8) 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.

E) Testing Requirements

1) 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.

2) Hydraulic Capacity - Overall, the hydraulic profile 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.

3) CIPP Field Samples - When requested by the Owner, the Contractor shall submit test results from field installations in the USA 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 18.05E have been achieved in previous field applications. Samples for this project shall be made and tested as described in Section 18.10A.

F) Installation Responsibilities for Incidental Items

1) It shall be the responsibility of the Owner to locate and designate all manhole access points open and accessible for the work, and provide rights of access to these points. If a street must be closed to traffic because of the orientation of the sewer, the Owner shall institute the actions necessary to do this for the mutually agreed time period. The owner shall also provide free access to water hydrants for cleaning, inversion and other work items requiring water.

2) Cleaning of Sewer Lines - The Contractor, when required, shall remove all internal debris out of the sewer line that will interfere with the installation of CIPP. The Owner shall also provide a dump site for all debris removed from the sewers during the cleaning operation. Unless stated otherwise, it is assumed this site will be at or near the sewage treatment facility to which the debris would have arrived in absence of the cleaning operation. Any hazardous waste material encountered during this project will be considered as a changed condition.

3) Bypassing Sewage - The Contractor, when required, shall provide for the flow of sewage around the section or sections of pipe designated for repair. The bypass shall be made by plugging the line at an existing upstream manhole and pumping the flow into a downstream manhole or adjacent system. The pump and bypass lines shall be of adequate capacity and size to handle the flow. The Owner may require a detail of the bypass plan to be submitted.

4) Inspection of Pipelines - Inspection of pipelines shall be performed by experienced personnel trained in locating breaks, obstacles and service connections by close circuit television. The interior of the pipeline shall be carefully inspected to determine the location of any conditions which may prevent proper installation of CIPP into the pipelines, and it shall be noted so that these conditions can be corrected. A video tape and suitable log shall be kept for later reference by the Owner.

5) Line Obstructions - It shall be the responsibility of the Contractor to clear 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 a protruding service connection, dropped joint, or a collapse that will prevent the inversion process, that was not evident on the pre-bid video and it cannot be removed by conventional sewer cleaning equipment, then the Contractor shall make a point repair excavation to uncover and remove or repair the obstruction. Such excavation shall be approved in writing by the Owner's representative prior to the commencement of the work and shall be considered as a separate pay item.

6) Public Notification - The Contractor shall make every effort to maintain service usage throughout the duration of the project. In the event that a service will be out of service, the maximum amount of time of no service shall be 8 hours for any property served by the sewer. 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 the work to be conducted, and when the sewer will be off-line. The Contractor shall also provide the following:

   i) Written notice to be delivered to each home or business the day 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 problems which could arise.

   ii) Personal contact with any home or business, which cannot be reconnected within the time stated in the written notice.

7) The Contractor shall be responsible for confirming the locations of all branch service connections prior to installing and curing the CIPP.

G) Installation

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

   i) 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 loss of resin through cracks and irregularities in the original pipe wall. A vacuum impregnation process shall be used. To insure thorough resin saturation throughout the length of the felt tube, the point of vacuum shall be no further than 25 feet from the point of initial resin introduction.

   After vacuum in the tube is established, a vacuum point shall be no further than 75 feet from the leading edge of the resin. The leading edge of the resin slug shall be as near to perpendicular as possible. A roller system shall be used to uniformly distribute the resin throughout the tube. If the Installer uses an alternate method of resin impregnation, the method must produce the same results. Any alternate resin impregnation method must be proven.

   ii) Tube Insertion – The wet out tube shall be positioned in the pipeline using either inversion or a pull-in method. If pulled into place, a power winch 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.

   iii) Temperature gauges shall be placed inside the tube at the invert level of each end to monitor the temperatures during the cure cycle.

   iv) Curing shall be accomplished by utilizing hot water or steam in accordance with the manufacturer's recommended cure schedule.

H) Reinstatement of Branch Connections

1) It is the intent of these specifications that branch connections to buildings be reopened without excavation, utilizing a remote controlled cutting device, monitored by a video TV camera. The Contractor shall certify he has a minimum of 2 complete working cutters plus spare key components on the site before each inversion. Unless otherwise directed by the owner or his authorized representative, all laterals will be reinstated to not less than 90 percent capacity and have a smooth edge. No additional payment will be made for excavations for the purpose of reopening connections and the Contractor will be responsible for all costs and liability associated with such excavation and restoration work.

I) Inspection

1) CIPP samples shall be prepared and physical properties tested in accordance with ASTM D5813, Section 7, ASTM F1216 or ASTM F1743, Section 8, using either method proposed. The flexural properties must meet or exceed the values listed in Table 1 of the applicable ASTM.

2) Wall thickness of samples shall be determined as described in paragraph 6.3.3 of ASTM D5813 or paragraph 8.1.6 of ASTM F1743. The minimum wall thickness at any point shall not be less than 87½% of the design thickness as calculated in paragraph 18.05F of this document.

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

J) Clean-Up

1) 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.

K) Measurement and Payment

1) Payment for the work included in this section will be in accordance with the prices set forth in the proposal for the quantity of work performed. Progress payments will be made monthly based on the work performed during that period.

2016 SEWER RELINING PROJECT
SPECIAL CONDITIONS

SCOPE:

This project involves the relining of sanitary sewer mains in accordance with the specifications. All work required to complete the relining, reestablish the services, and return the main to full service shall be included in the unit prices in the proposal.

TIME CONSTRAINT:

The Contractor shall complete this work between December 19, 2016, and February 24, 2017. All work on this project shall be completed by February 24, 2017. Liquidated damages at the rate of $600.00 per day will be assessed for each day the project is not completed beginning on February 25, 2017.

HOLIDAY:

No work shall take place on December 24, December 25, December 31, and January 1.

SCHEDULE:

The Contractor shall notify the City Inspector regarding their schedule for performing the work at least a week prior to the work beginning. The Contractor shall give the Water Supervisor a list of hydrants proposed to be used for the project prior to beginning any portion of the project. Upon completion of the project, the Contractor shall give the Water Department supervisor a list of hydrants actually used during the project.

SEWER SERVICE:

The Contractor shall schedule all activities to minimize the impact of the sewer service interruption.

PIPE THICKNESS:

The minimum pipe thickness (manufactured nominal thickness) for the various pipes shall be:

8” CIPP – 6 mm
10” CIPP – 6.0 mm
12” CIPP – 7.5 mm
15” CIPP – 7.5 mm

STANDARD CONSTRUCTION SPECIFICATIONS:

The City of Mt. Pleasant’s Standard Construction Specifications dated 2007 must be followed for construction on this project. They are available on the City’s webpage at http://www.mt-pleasant.org/docs/dept/engineering/genspec07.pdf

CIPP WALL THICKNESS

PARTIALLY DETERIORATED DESIGN (PD)

		Required DR (D / t)			
		Ei = 250,000 psi		Ei = 400,000 psi	
		Ground Water Depth			
Ovality	**Range of Depth to invert (feet)**	**50% Depth**	**Full Depth**	**50% Depth**	**Full Depth**
2 % *	**4 - 8**	**78**	**62**	**92**	**73**
	8 - 12	**69**	**55**	**80**	**64**
	12 - 16	**62**	**50**	**73**	**58**
	16 - 20	**58**	**46**	**68**	**54**
	20 - 24	**55**	**44**	**64**	**51**
5 %	**4 - 8**	**72**	**57**	**84**	**67**
	8 - 12	**63**	**50**	**73**	**58**
	12 - 16	**57**	**46**	**67**	**53**
	16 - 20	**53**	**42**	**62**	**49**
	20 - 24	**50**	**40**	**58**	**47**
8 %	**4 - 8**	**66**	**52**	**77**	**61**
	8 - 12	**58**	**46**	**67**	**54**
	12 - 16	**52**	**42**	**61**	**49**
	16 - 20	**49**	**39**	**57**	**45**
	20 - 24	**46**	**37**	**54**	**43**

PD wall thickness varies with the height of the groundwater above the invert of the host pipe. The table assumes the height of the groundwater equal to half or fulls depth to the pipe invert. The table represents CIPP pipe wall thickness for a host pipe range of 8 to 48 inches. This is a guideline only. Specific calculations should refer to ASTM F-1216, Appendix X.1.

Design Parameters:

Poisson's Ratio = 0.3

Factor of Safety = 2.0

Enhancement Factor = 7

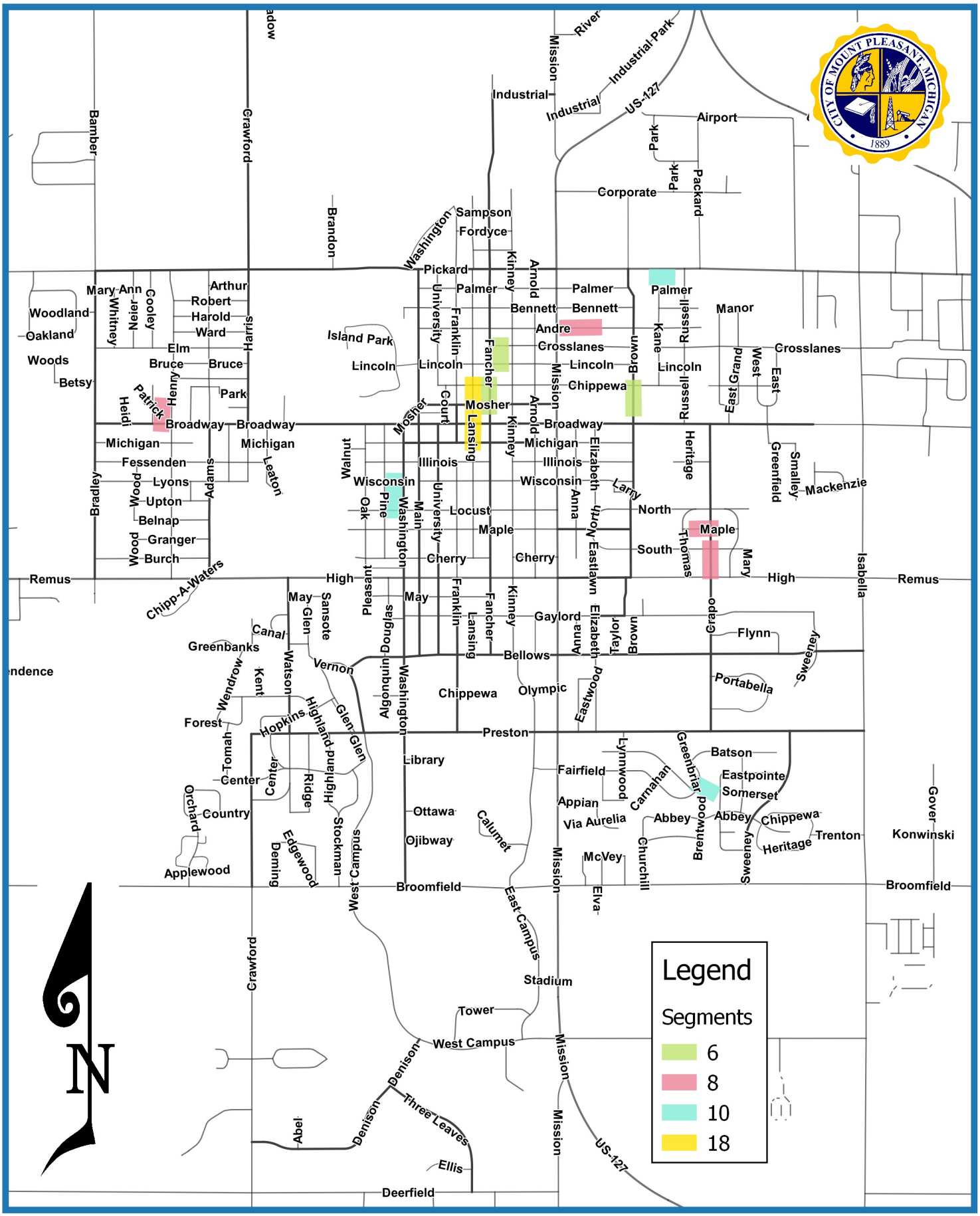
DR = Dimension Ratio = Diameter / thickness $\Rightarrow$ **t = D / DR**

Effective reduction of Ei modulus to approximate effects of creep = 50 %

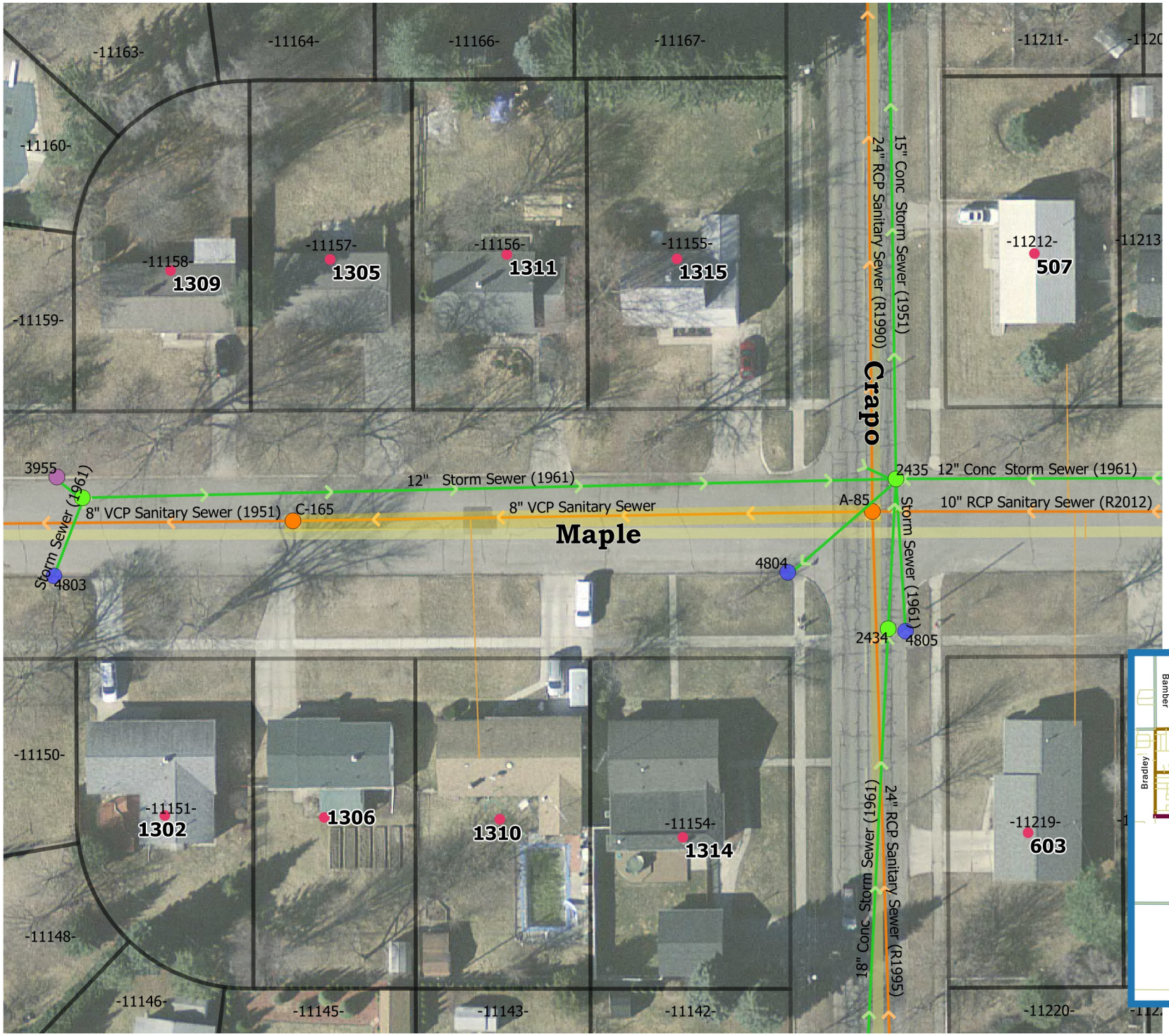
Ovality % = 100 x (Mean Dia. - Minimum Dia.) / Mean Dia.

* 2% ovality is typically assumed when the host pipe measurements have not been field verified.

Sanitary Sewer Relining Overview Map



2016 Sanitary Relining



Legend

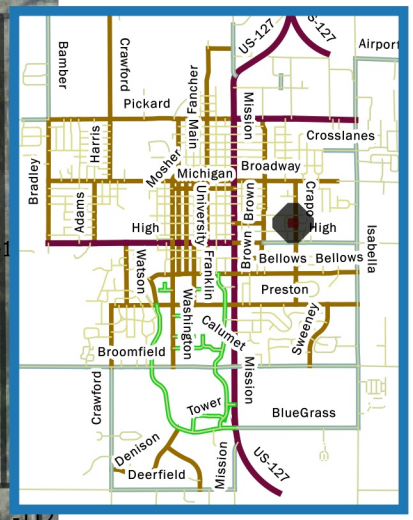
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 232'
Dia: 8" Mat: VCP
Services: 10



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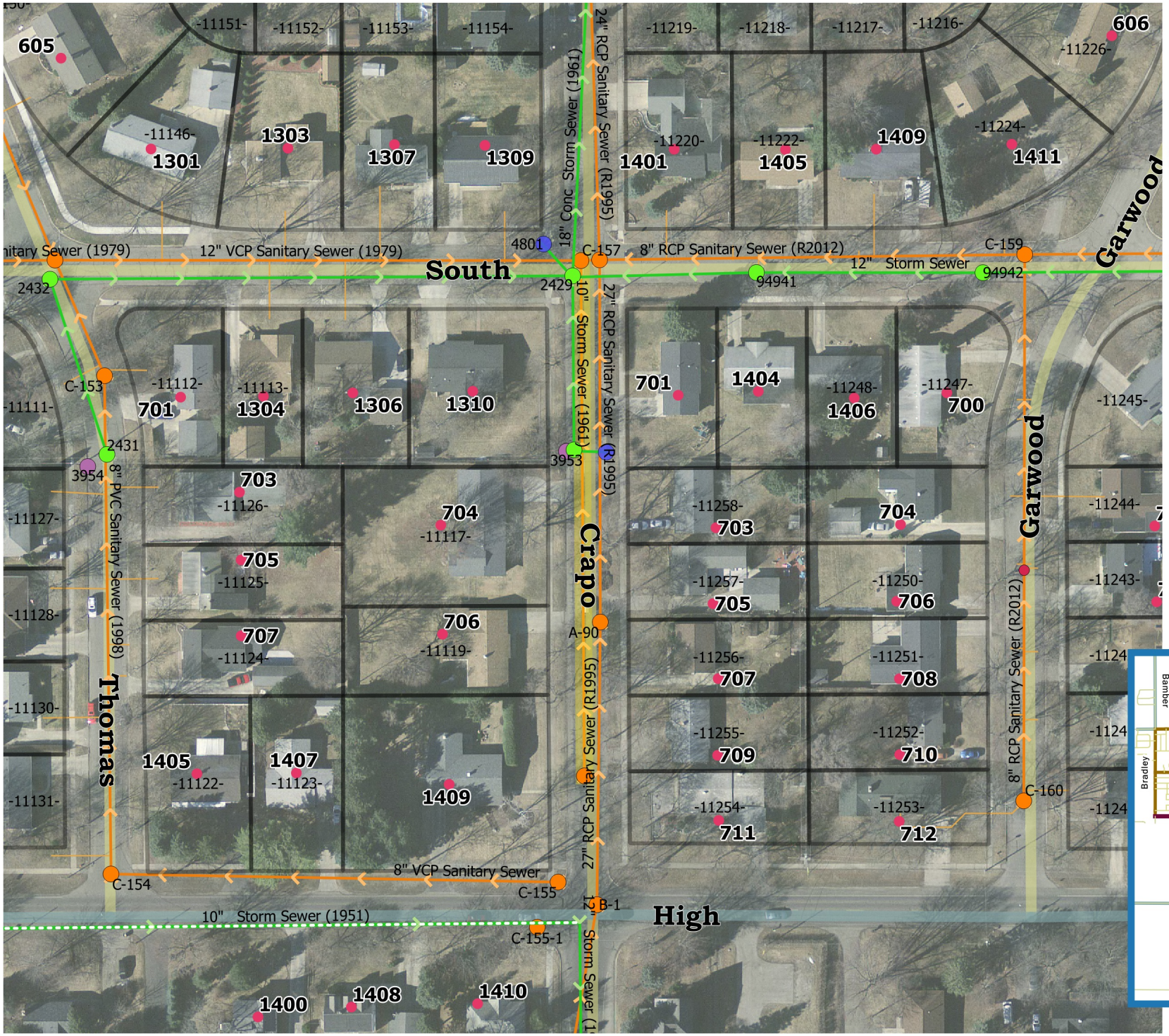
2016 Sanitary Relining



Legend

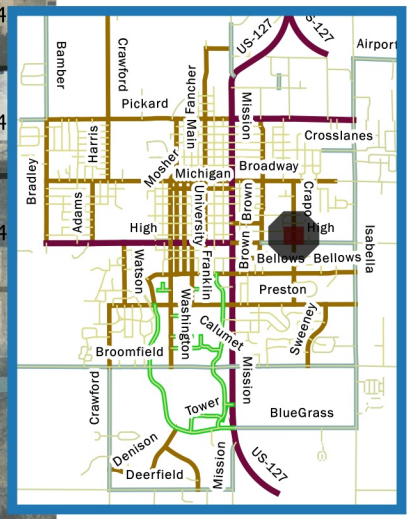
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 388'
Dia: 8" Mat: VCP
Services: 5



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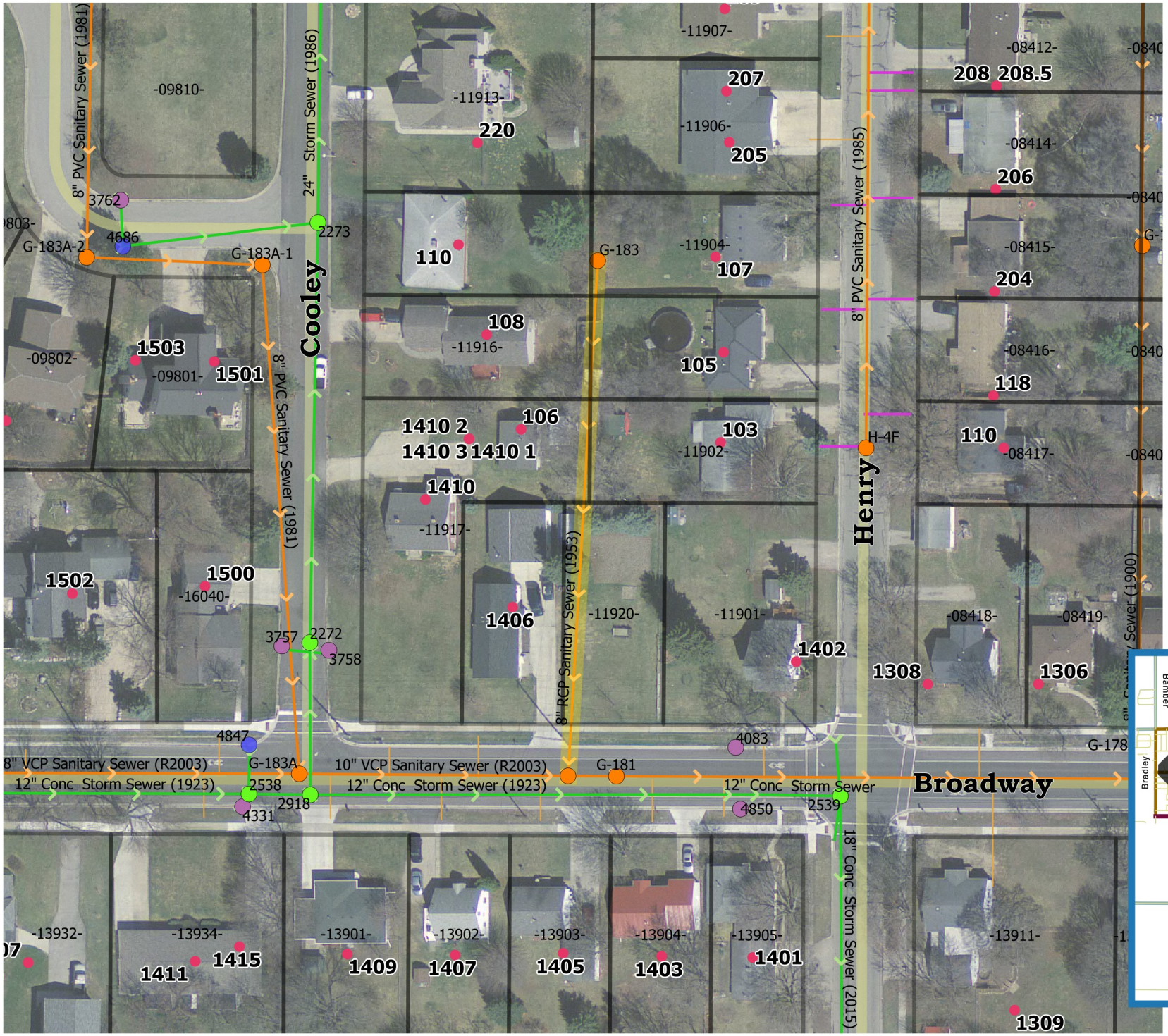
2016 Sanitary Relining



Legend

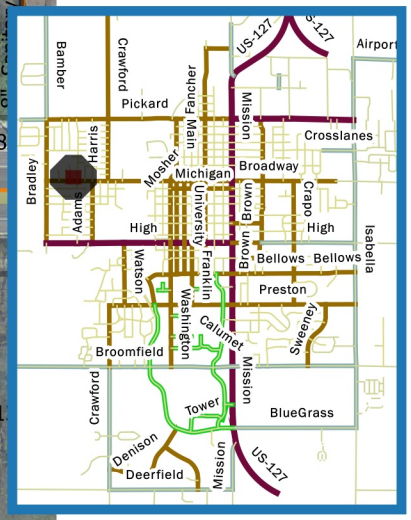
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 307'
Dia: 8" Mat: RCP
Services: 8



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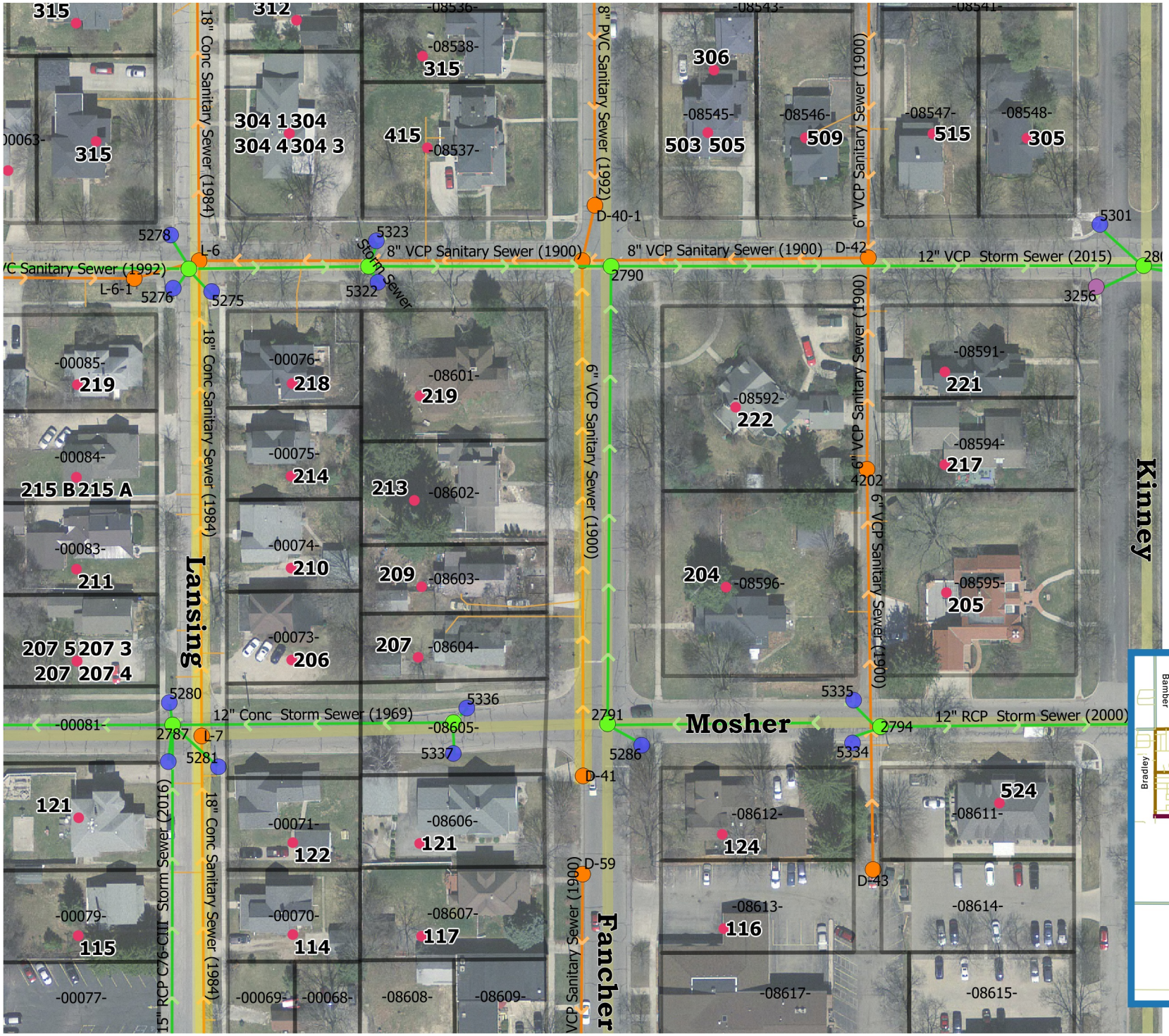
2016 Sanitary Relining



Legend

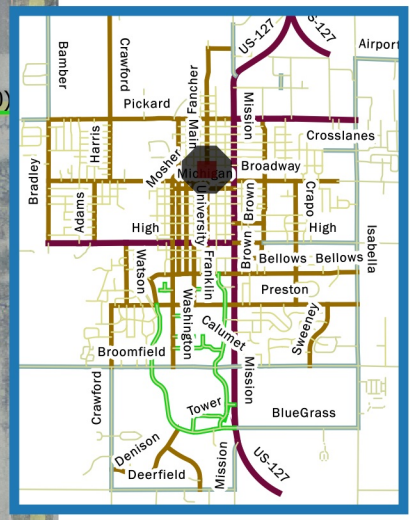
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 370'
Dia: 6" Mat: VCP
Services: 4



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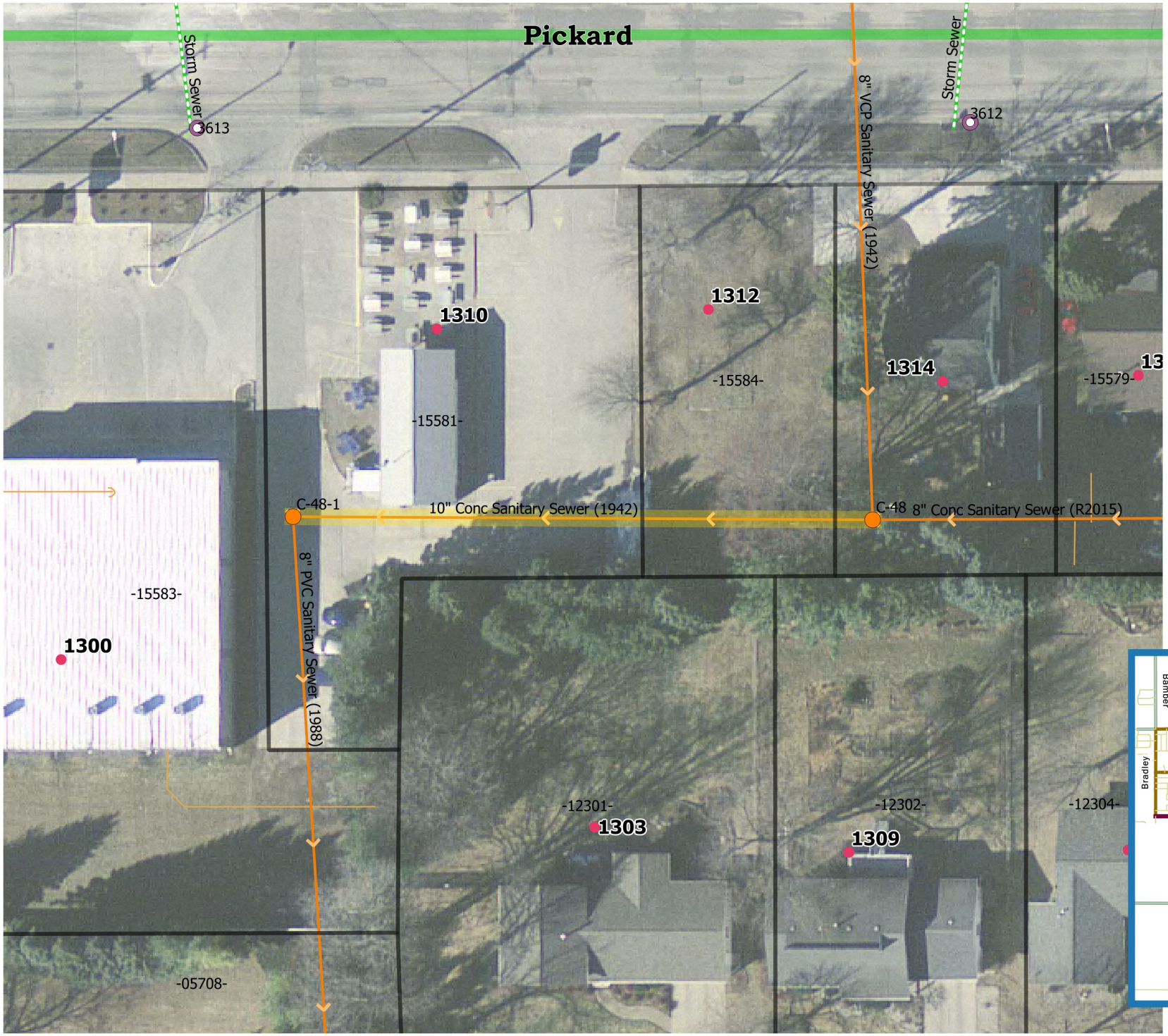
2016 Sanitary Relining



Legend

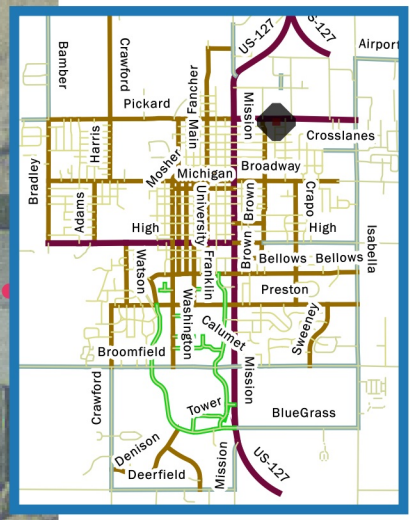
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

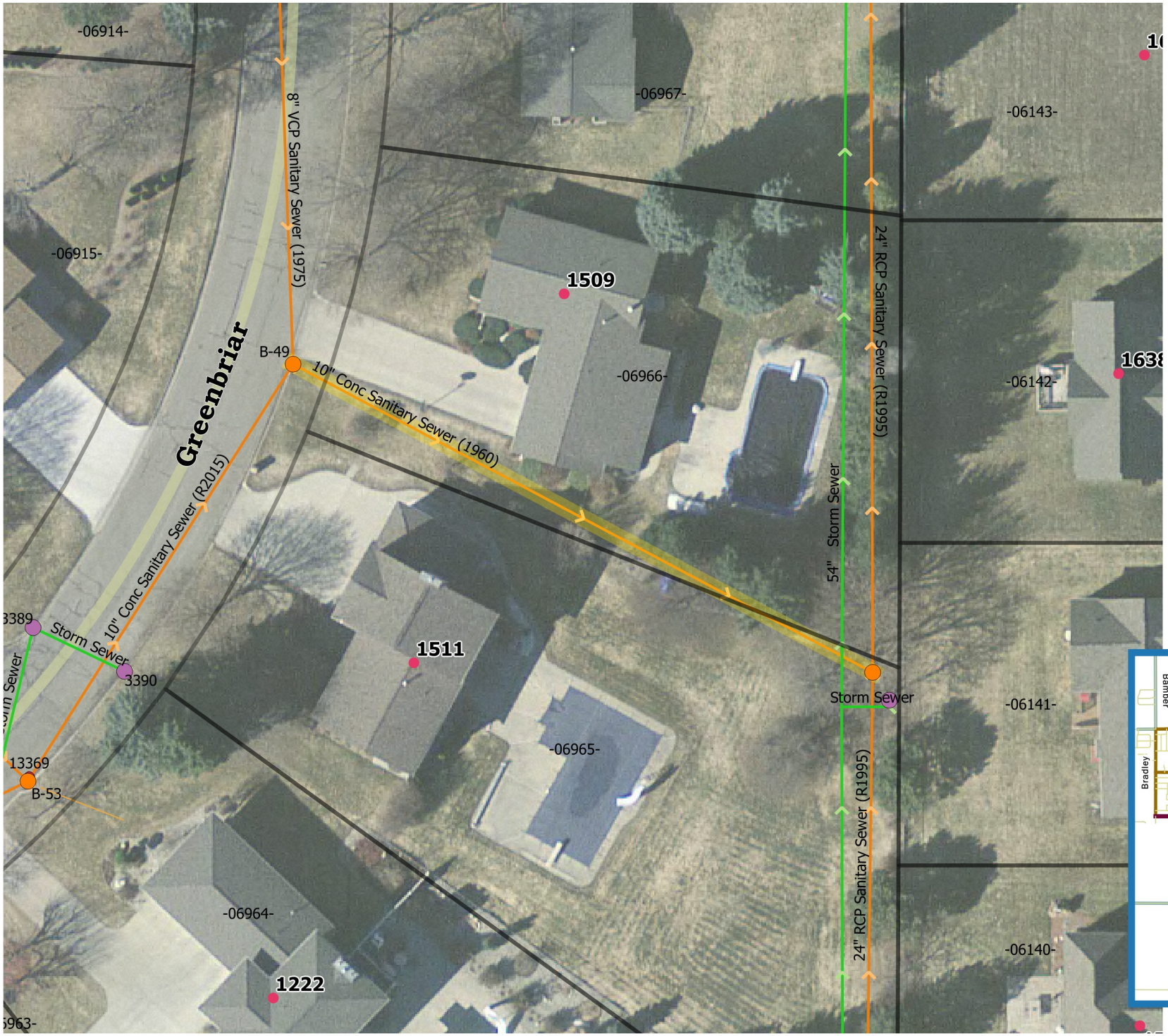
N

Length: 176'
Dia: 10" Mat: Conc
Services: 2



fetID: 6570

2016 Sanitary Relining



Legend

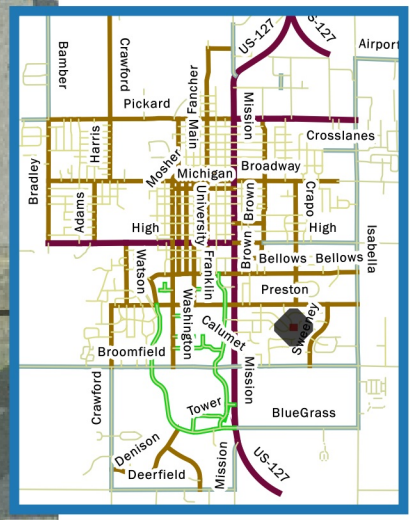
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 199'
Dia: 10" Mat: Conc
Services:



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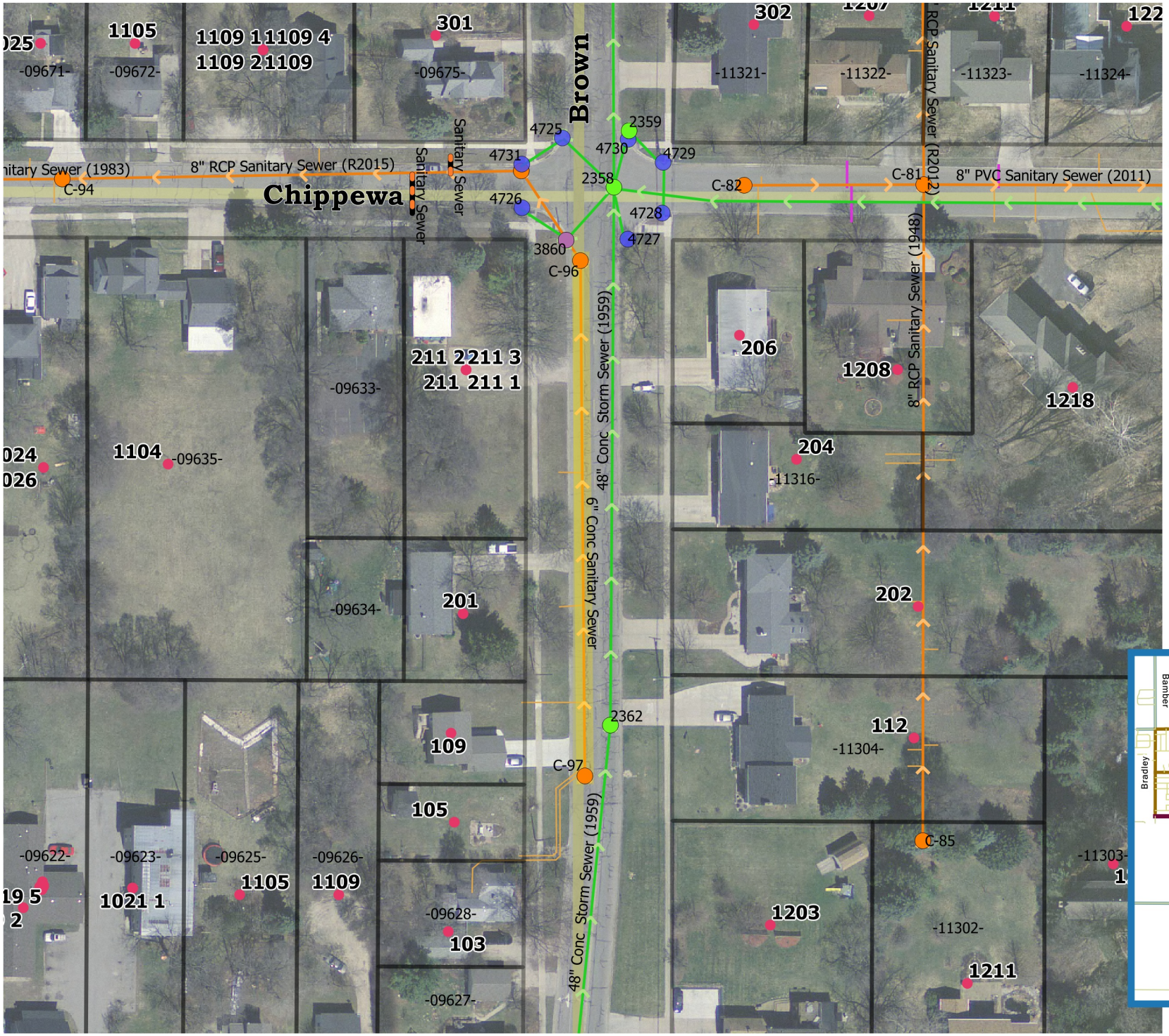
2016 Sanitary Relining



Legend

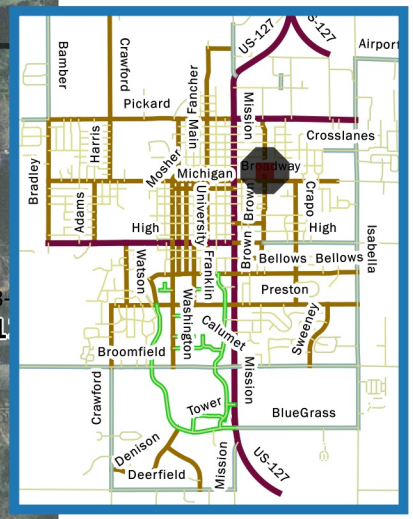
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 350'
Dia: 6" Mat: Conc
Services: 6



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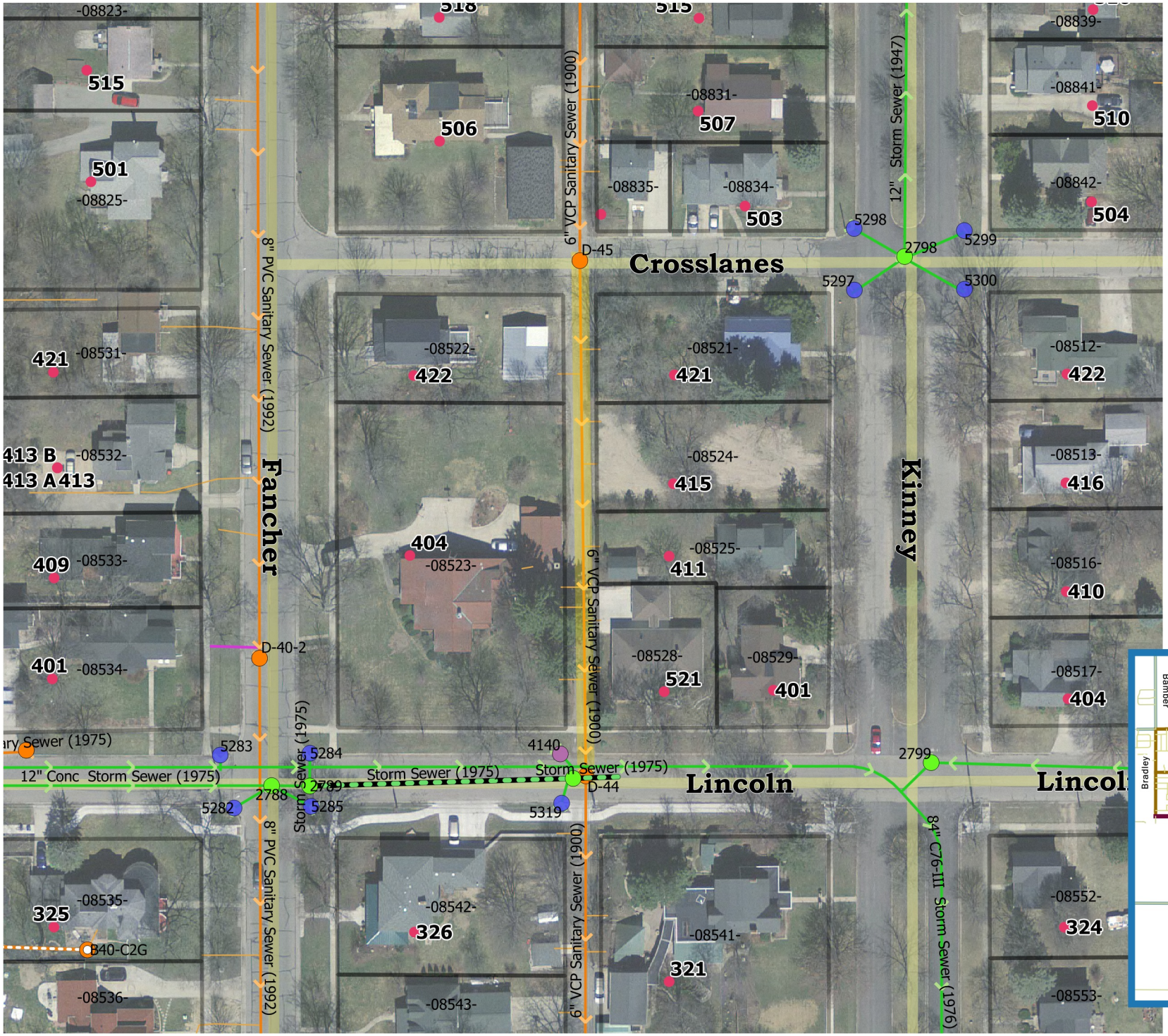
2016 Sanitary Relining



Legend

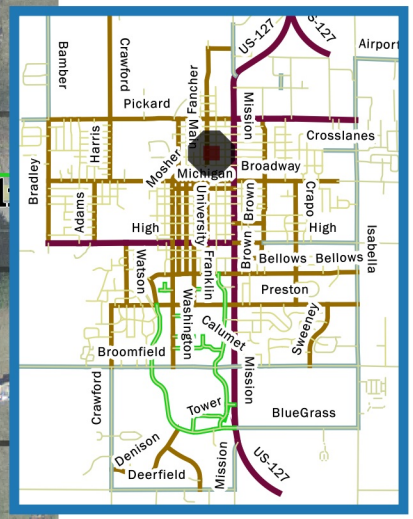
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 314'
Dia: 6" Mat: VCP
Services: 14



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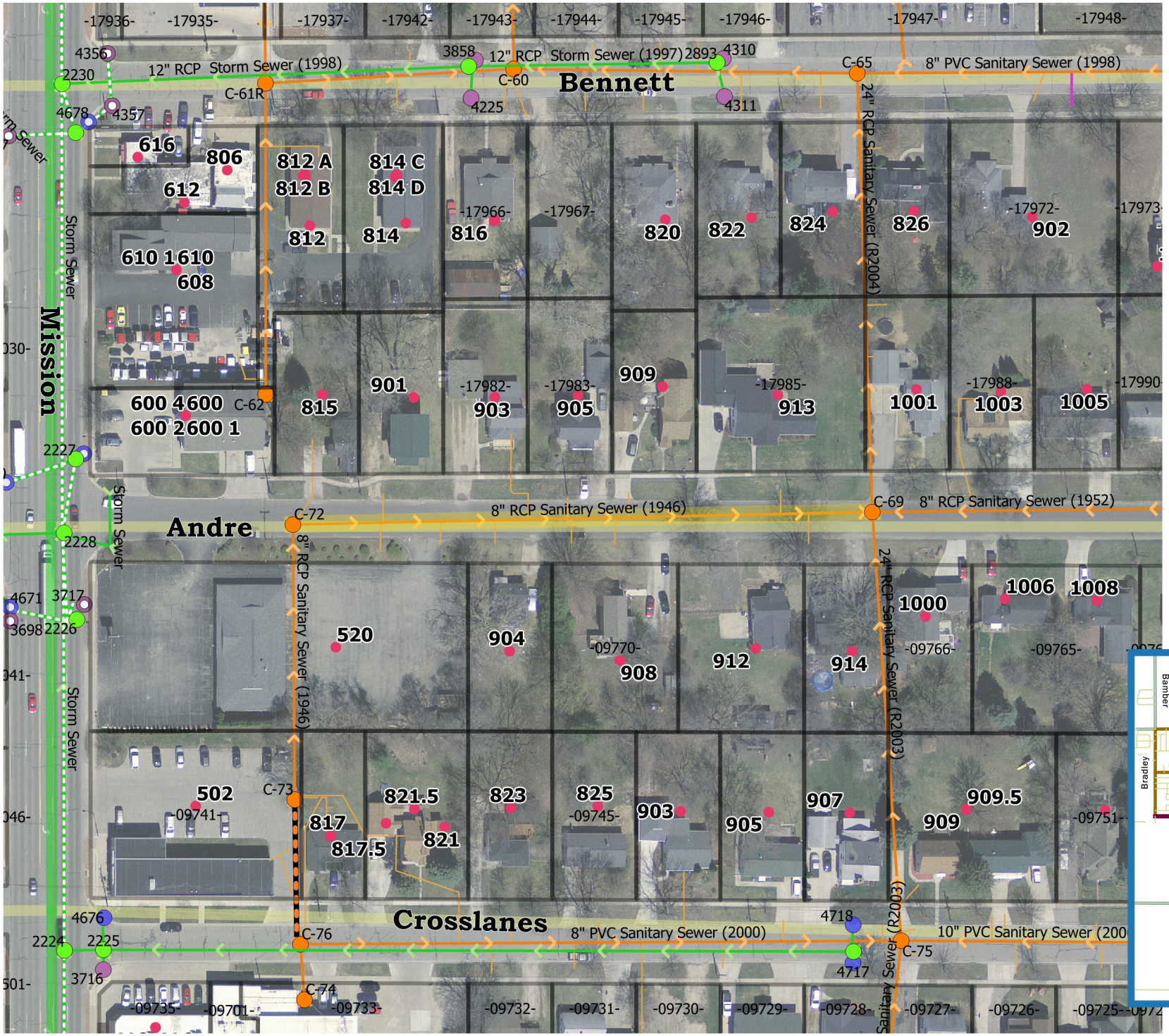
2016 Sanitary Relining



Legend

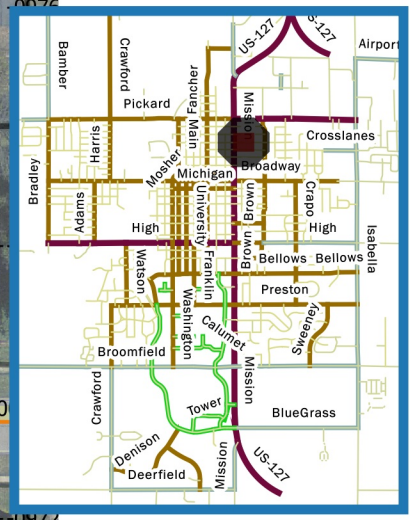
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 455'
Dia: 8" Mat: RCP
Services: 14



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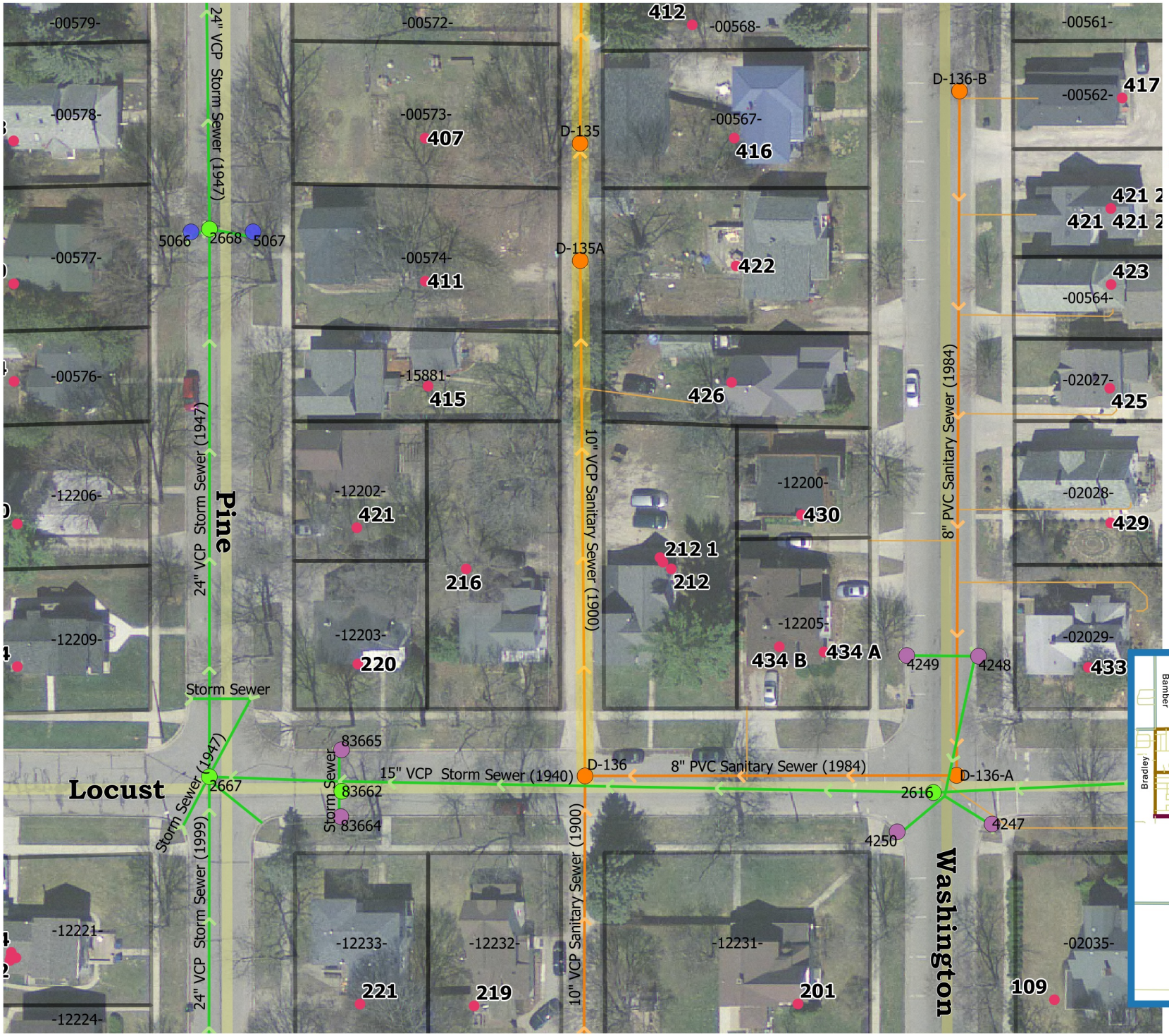
2016 Sanitary Relining



Legend

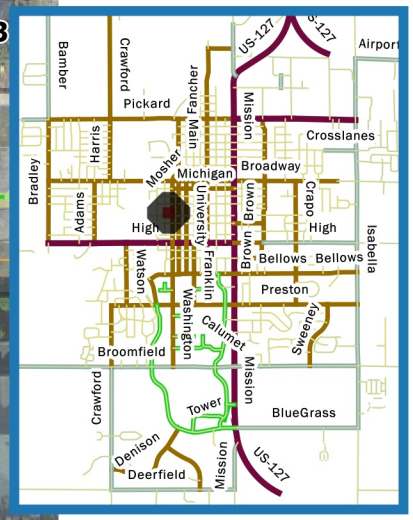
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 236'
Dia: 10" Mat: VCP
Services: 8



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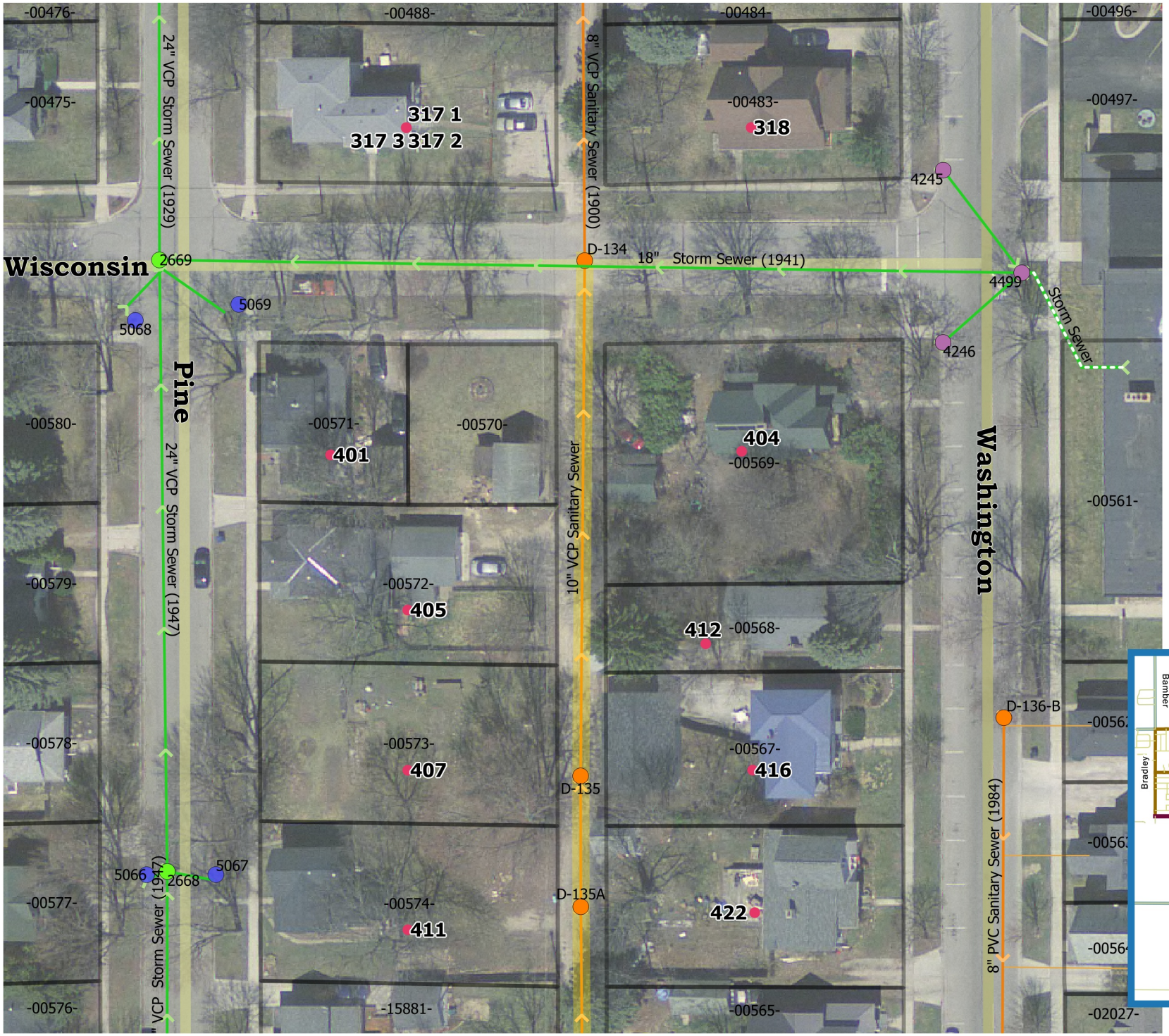
2016 Sanitary Relining



Legend

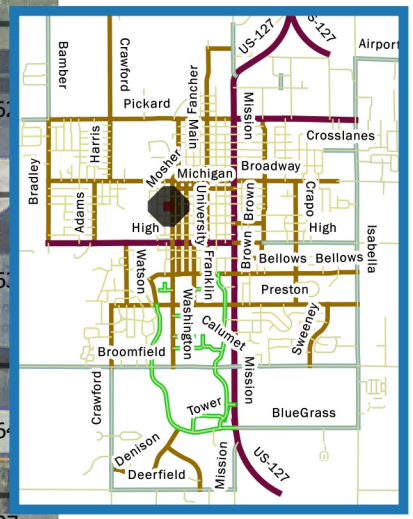
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 212'
Dia: 10" Mat: VCP
Services: 11



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2016 Sanitary Relining

Legend

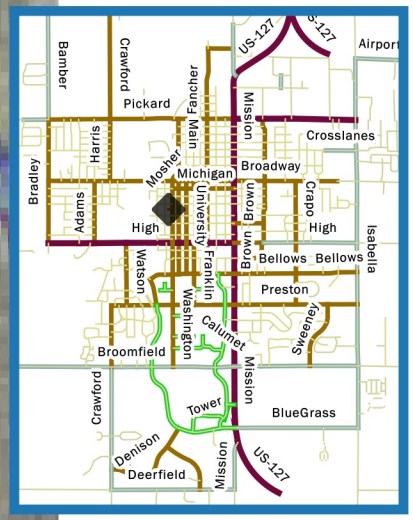
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 54'
Dia: 10" Mat: VCP
Services:



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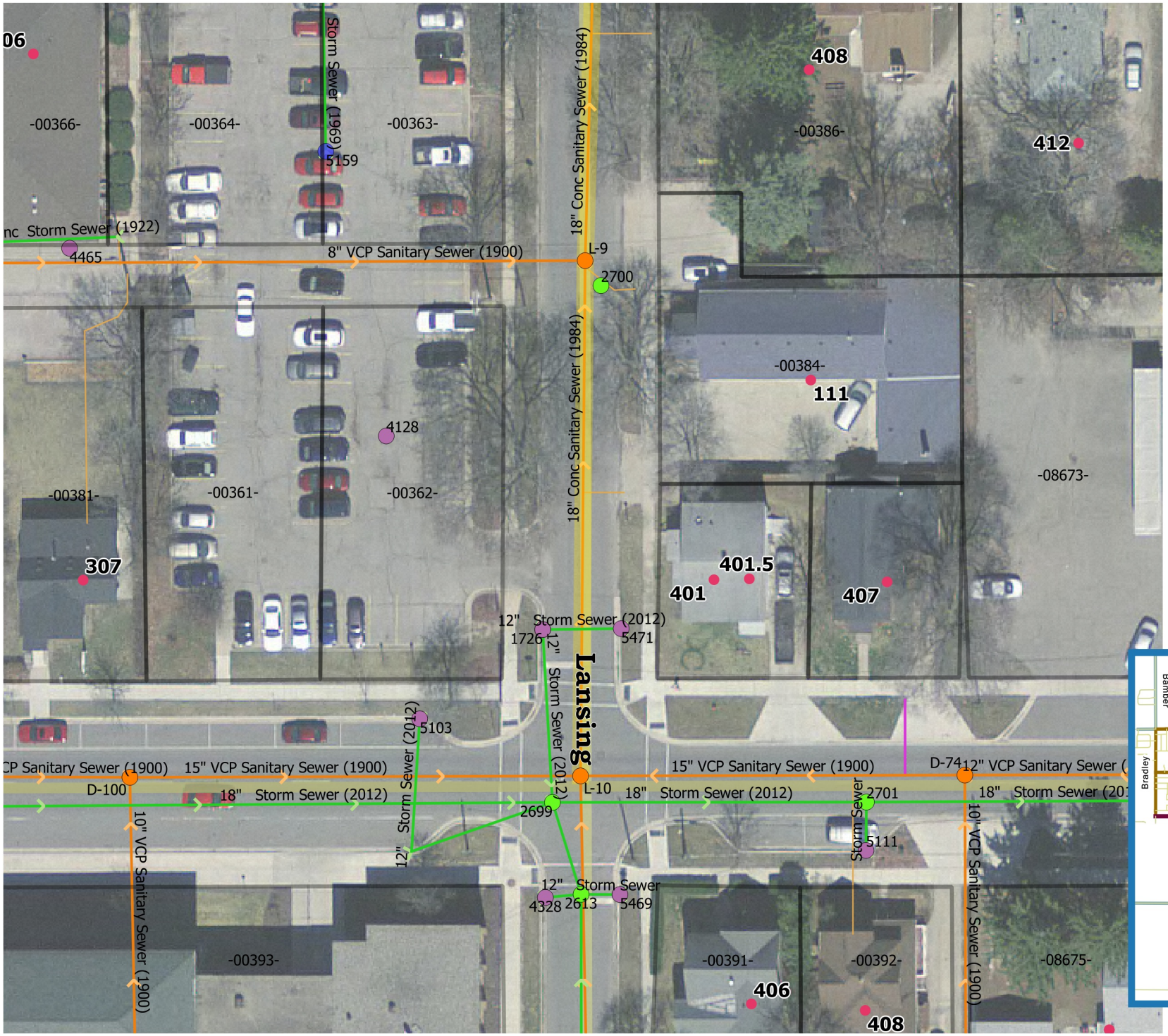
2016 Sanitary Relining



Legend

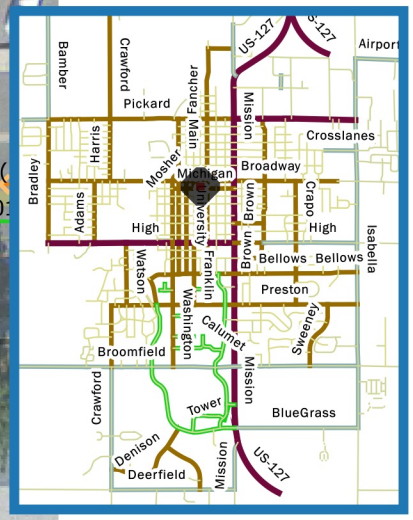
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 164'
Dia: 18" Mat: Conc
Services: 1



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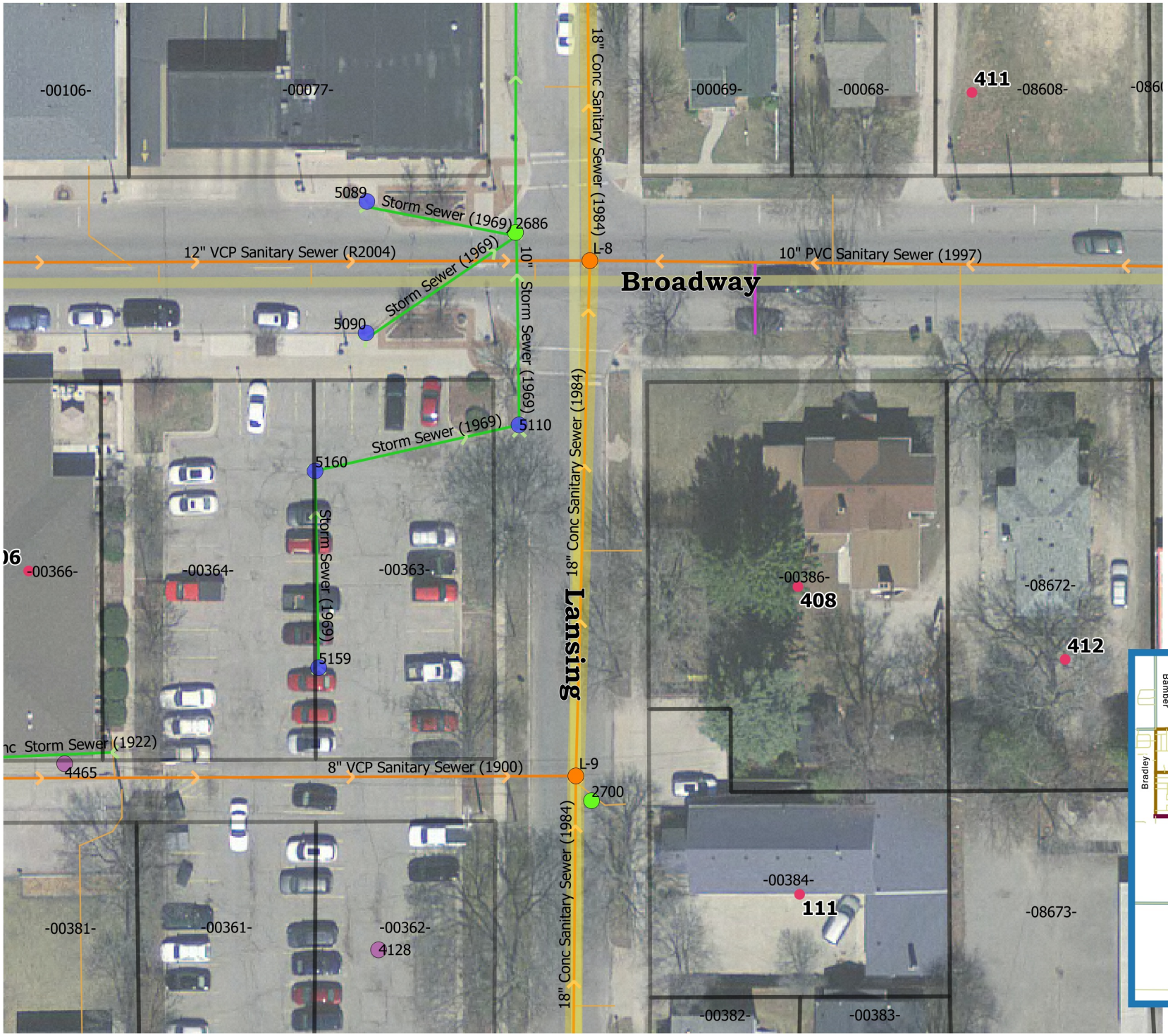
2016 Sanitary Relining



Legend

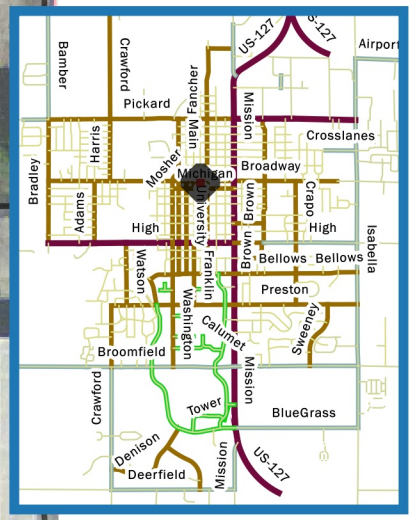
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 166'
Dia: 18" Mat: Conc
Services: 2



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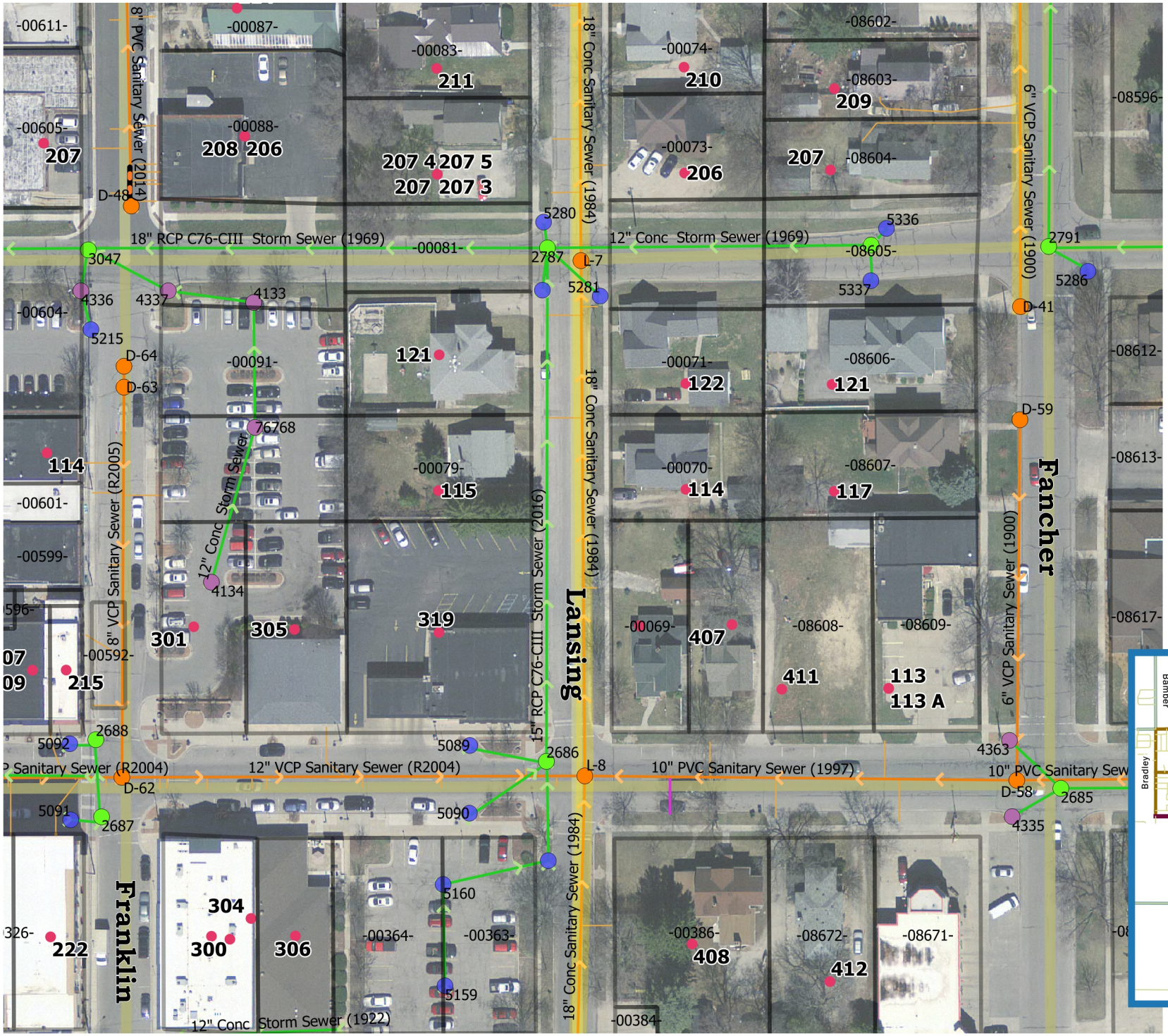

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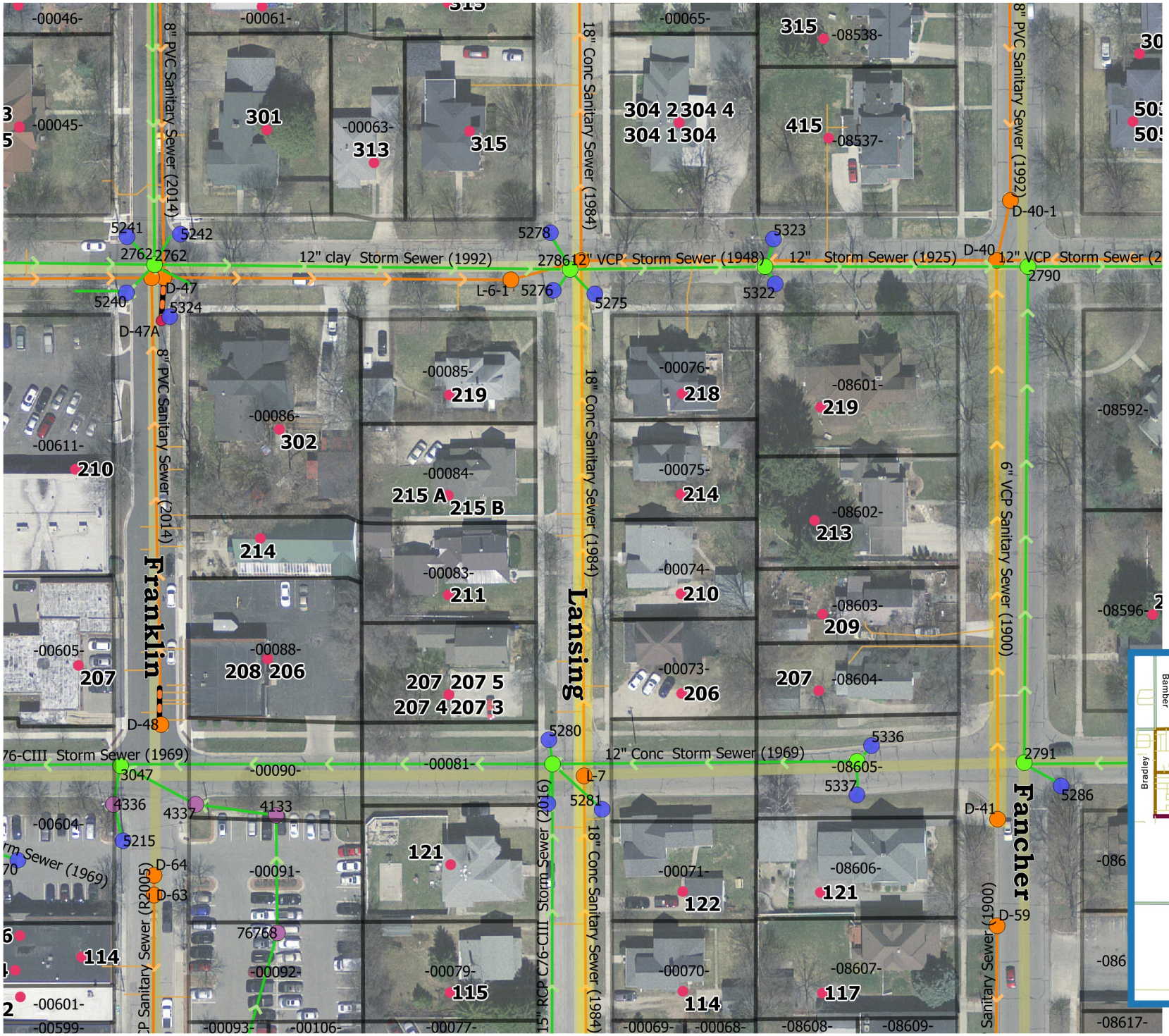
2016 Sanitary Relining



Legend

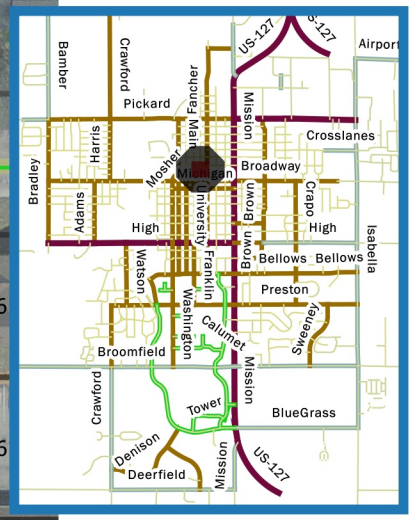
Storm Mains
- Public
- CMU

Sanitary Mains
- Public
- Private

Sanitary MHs
- Public
- Private

N

Length: 342'
Dia: 18" Mat: Conc
Services: 4



fetID: 6142

CUES, Inc.
3600 Rio Vista Avenue
Orlando, FL 32805
Phone: 407-849-0190
Fax: 407-425-1569

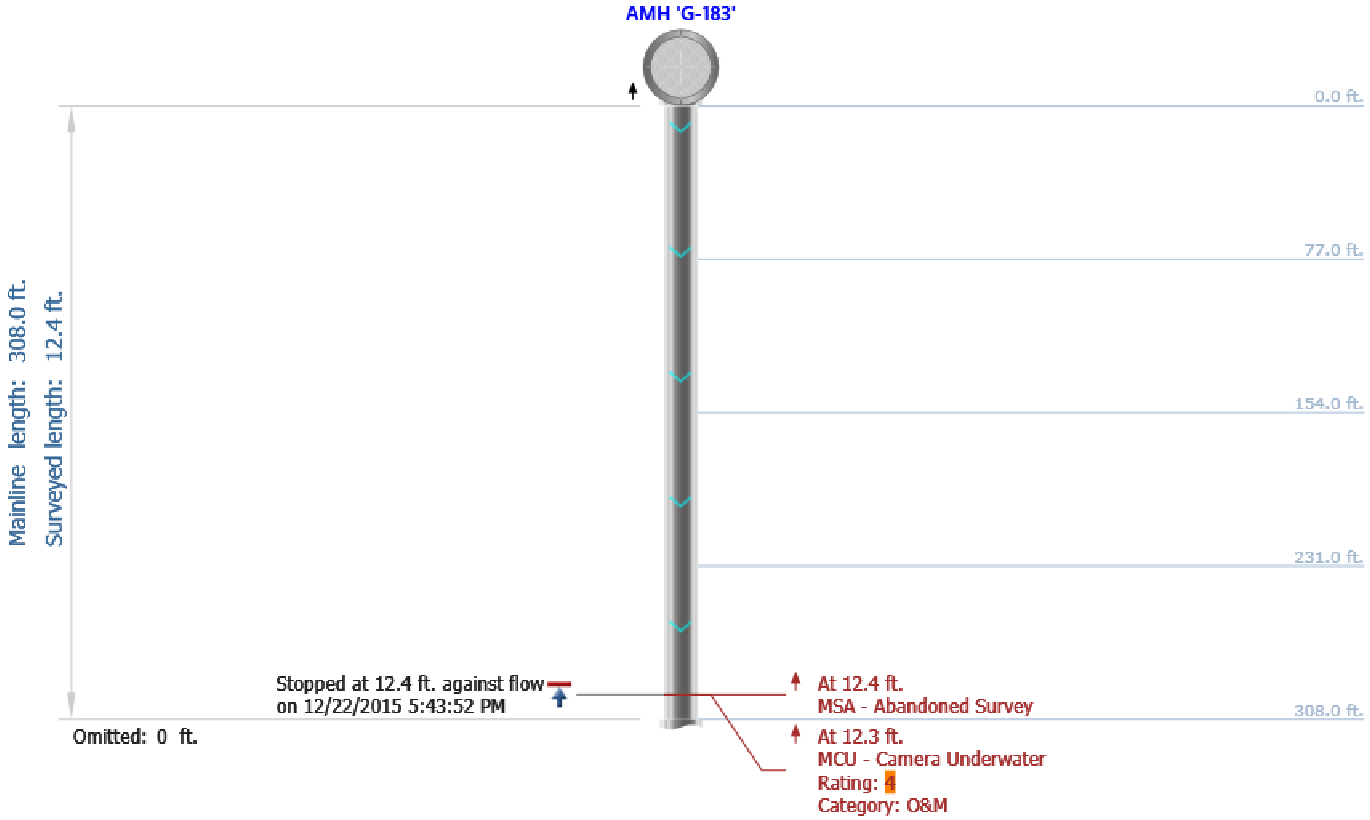
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
MT. PLEASANT SANITARY PACKET 1	**G-183-G-182-5890**	**MT. PLEASANT**	**BROADWAY**
Start date/time:	Direction:	Weather:	Location code:
12/22/2015 5:42 PM	**U**	**1**	**C**
Shape:	Material:	Height:	Width:
C	**RCP**	**8 in.**	

Scores

Calculated at: **1/21/2016 2:30:05 PM**

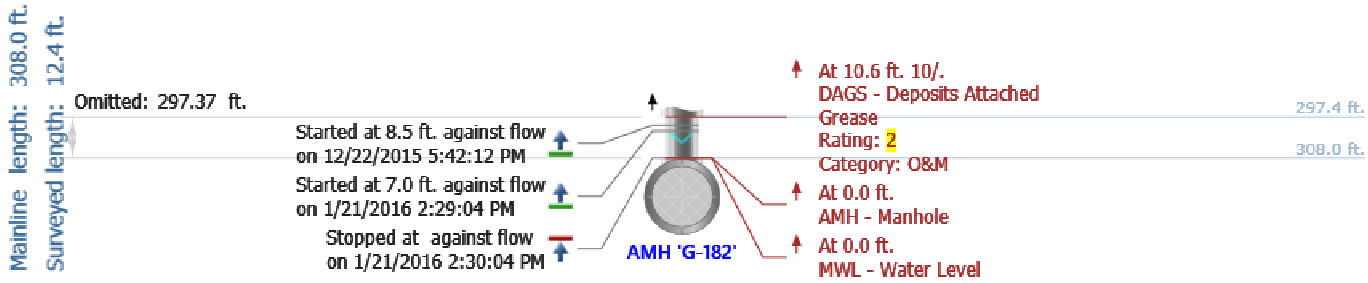
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	0	0	0000	0.00	0	6	4121	3.00	6	3.00
2	0				2					
3	0				0					
4	0				4					
5	0				0					



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 1	**G-183-G-182-5890**	**12/22/2015 5:42 PM**	**U**

Weather:

1



Tabular Report of PLR D45 X for MT PLEASANT

Work Order Number		***Vid Cass*** 4		***Surveyed On*** 04/28/2003	***Setup*** 32
Facility	***Operator*** BILL	***Van Reference*** T-1		***Weather*** Dry	

Road Name KINNEY EASEMENT ***Place Name***

Location type Main road carriageway (road has two lanes in at least one direction)

Surface Hotmix road

Survey purpose Random survey of pipes and things

Pipe Use Sanitary	***Scheduled length*** 316.0 Ft	***From*** D45	***Depth*** Ft
Shape Circular	***Size*** 6 ***by*** ins	***To*** D44	***Depth*** Ft
Material Vitrified clay	***Joint Spacing*** 2.00 Ft	***Direction*** Down	
Lining	***Year laid***	***Pre-clean*** Y	***Last Cleaned*** 04/28/2003

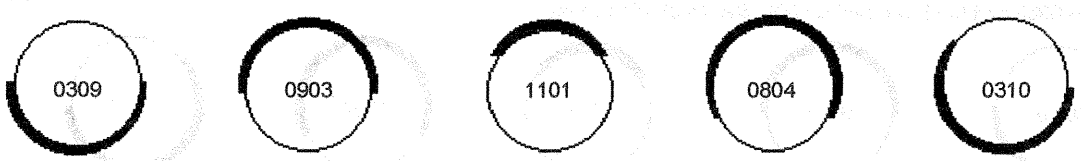
General note POOR GRADE

Location note

Structural Service Constructional Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
12721	0.0		ST	Start of Survey					
	0.0		MH	Manhole/Node					D45
	0.0		WL	Water level				3	
12915	43.0		CM	Cracks multiple	M	02	04		
12955	50.1		CM	Cracks multiple	M	01	03		
13034	53.3		LO	Lateral or connection exists OK					EAST
13110	57.2		LO	Lateral or connection exists OK					WEST BLANKED
13202	67.6		LO	Lateral or connection exists OK					WEST
13348	96.9		LO	Lateral or connection exists OK					EAST
13412	97.0		CL	Crack longitudinal	S	03			
13605	116.9		CM	Cracks multiple	L	03	09		
13620	120.1		MC	Material of sewer changes					VIT TO PVC
13637	121.6		LO	Lateral or connection exists OK					EAST
13708	130.0		MC	Material of sewer changes					PVC TO VIT
13734	131.8		BP	Broken pipe	L	12	03		-
13751	134.5		LO	Lateral or connection exists OK					WEST BLANKED
13809	137.2		MC	Material of sewer changes					VIT TO PVC
13823	140.1		MC	Material of sewer changes					PVC TO VIT
13904	144.4		LO	Lateral or connection exists OK					EAST BLANKED
13952	149.3		CM	Cracks multiple	L	06	12		
14141	172.8		LO	Lateral or connection exists OK					EAST
14402	196.2		MC	Material of sewer changes					VIT TO PVC
14418	197.2		LO	Lateral or connection exists OK					WEST
14513	200.3		MC	Material of sewer changes					PVC TO VIT
14557	210.1		LO	Lateral or connection exists OK					WEST-HEAVY ROOTS
14638	218.1		LO	Lateral or connection exists OK					EAST HEAVY ROOTS
14811	245.9		LO	Lateral or connection exists OK					EAST-HEAVY ROOTS
14842	248.6		LO	Lateral or connection exists OK					EAST
15413	253.8		LO	Lateral or connection exists OK					WEST-HEAVY ROOTS
15738	316.0		MH	Manhole/Node					D44
15738	316.0		FH	Finish of Surveys					

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



Tabular Report of PLR D45 X for MT PLEASANT

Work Order Number	***Vid Cass*** 4	***Surveyed On*** 04/28/2003	***Setup*** 32
Facility	***Operator*** BILL	***Van Reference*** T-1	***Weather*** Dry

Road Name KINNEY EASEMENT ***Place Name***
Location type Main road carriageway (road has two lanes in at least one direction)
Surface Hotmix road
Survey purpose Random survey of pipes and things

Pipe Use Sanitary	***Scheduled length*** 316.0 Ft	***From*** D45 ***Depth*** Ft
Shape Circular	***Size*** 6 ***by*** ins	***To*** D44 ***Depth*** Ft
Material Vitrified clay	***Joint Spacing*** 2.00 Ft	***Direction*** Down
Lining	***Year laid***	***Pre-clean*** Y ***Last Cleaned*** 04/28/2003

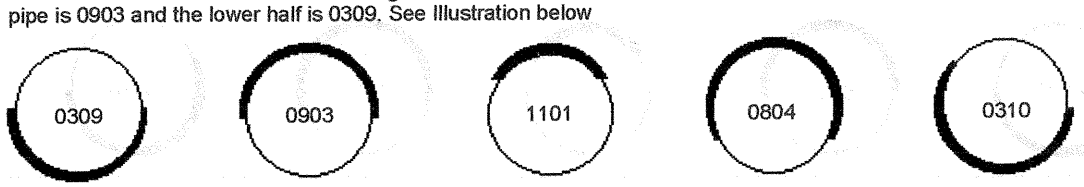
General note POOR GRADE
Location note

Structural Service Constructional
Miscellaneous Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	316.0	Ft	***Total Length Surveyed***					

Note

Clock references: Clock references are given clockwise ie from 10 o'clock to 2 o'clock = 1002. The upper part of a pipe is 0903 and the lower half is 0309. See Illustration below



Pipe Graphic Report of PLR D45 X for MT PLEASANT

Works Order Number		***Cassette*** 4	***Surveyed On*** 04/28/2003 ***Setup*** 32
Facility	***Operator*** BILL	***Van Reference*** T-1	***Weather*** Dry

Road Name KINNEY EASEMENT ***Place Name***
Location type Main road carriageway (road has two lanes in at least one direction)
Surface Hotmix road
Survey purpose Random survey of pipes and things

Pipe Use Sanitary	***Schedule length*** 316.0 ***Ft***	***From*** D45 ***Depth*** ***Ft***
Shape Circular	***Size*** 6 ***by*** ***ins***	***To*** D44 ***Depth*** ***Ft***
Material Vitrified clay	***Joint spacing*** 2.00 ***Ft***	***Direction*** Down
Lining	***Year laid***	***Pre-clean*** Y ***Last cleaned*** 04/28/2003

General note POOR GRADE
Location note

Structural Service Constructional
Miscellaneous Hydraulic

Distance (Ft)	Description (Showing all categories)	Media
316.0	D44 (Downstream. Depth = Ft) Tape end:15738	
253.8	Lateral or connection exists OK [WEST-HEAVY ROOTS]	
248.6	Lateral or connection exists OK [EAST]	
245.9	Lateral or connection exists OK [EAST-HEAVY ROOTS]	
218.1	Lateral or connection exists OK [EAST HEAVY ROOTS]	
210.1	Lateral or connection exists OK [WEST-HEAVY ROOTS]	
200.3	Material of sewer changes [PVC TO VIT]	
197.2	Lateral or connection exists OK [WEST]	
196.2	Material of sewer changes [VIT TO PVC]	
172.8	Lateral or connection exists OK [EAST]	
149.3	Cracks multiple 06/oc	
144.4	Lateral or connection exists OK [EAST BLANKED]	
140.1	Material of sewer changes [PVC TO VIT]	
137.2	Material of sewer changes [VIT TO PVC]	
134.5	Lateral or connection exists OK [WEST BLANKED]	
131.8	Broken pipe 12/oc [-]	
130.0	Material of sewer changes [PVC TO VIT]	
121.6	Lateral or connection exists OK [EAST]	
120.1	Material of sewer changes [VIT TO PVC]	
116.9	Cracks multiple 03/oc	
97.0	Crack longitudinal 03/oc	
96.9	Lateral or connection exists OK [EAST]	
67.6	Lateral or connection exists OK [WEST]	
57.2	Lateral or connection exists OK [WEST BLANKED]	
53.3	Lateral or connection exists OK [EAST]	
50.1	Cracks multiple 01/oc	
43.0	Cracks multiple 02/oc	
0.0	Water level 3	
0.0	D45 (Upstream. Depth = Ft) Tape start:12721	

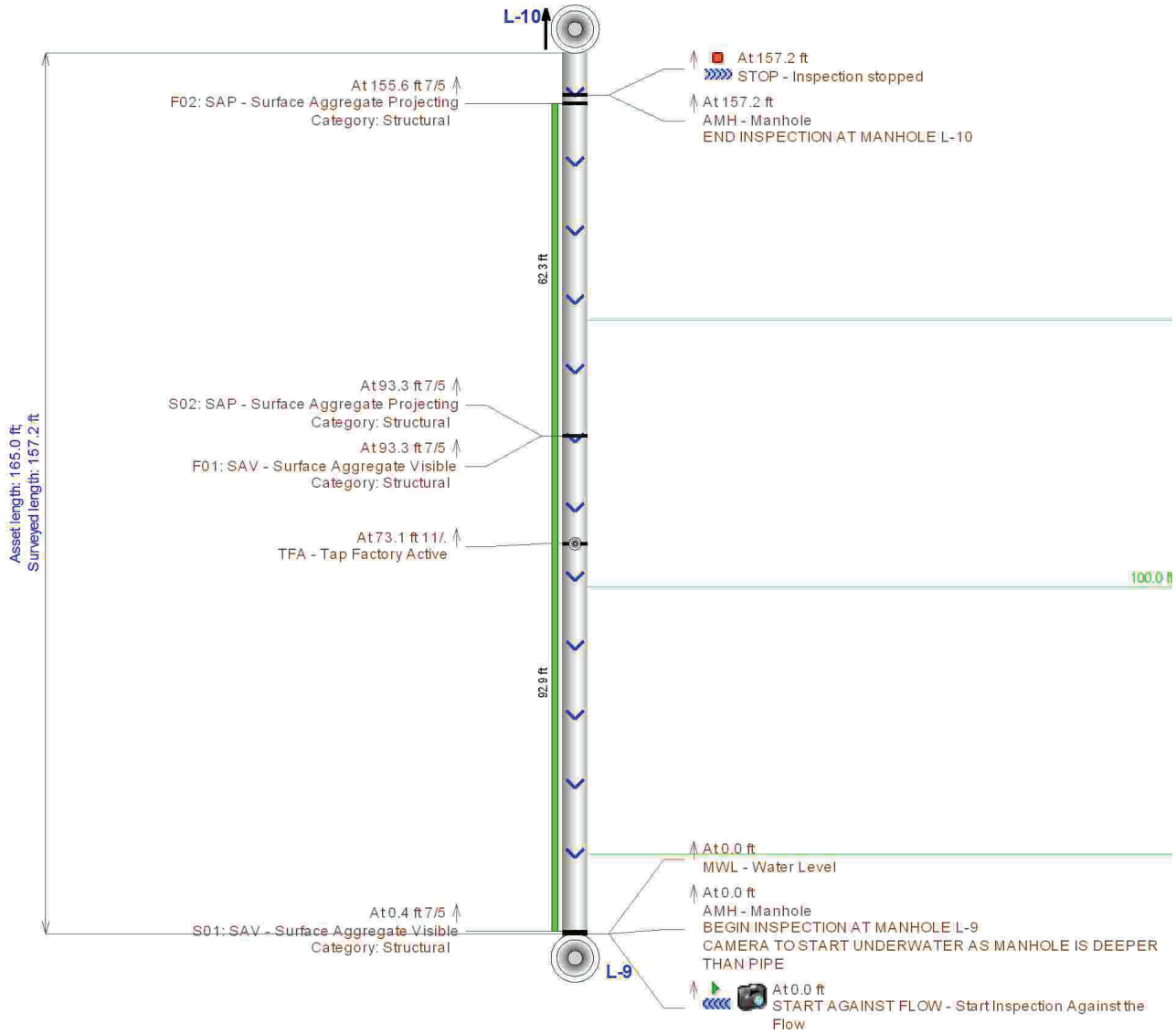
Terra Contracting Services LLC.
5787 Stadium Dr.
Kalamazoo, MI 49009
Ph: (866) 354-8963
Fax: (734) 729-4830

Main Inspection with Pipe-Run Graph

Project Name:	Pipeline segment ref:	City:	Street:
CITY OF MOUNT PLEASANT PUBLIC WORKS	L-10-L-9	MOUNT PLEASANT	LANSING

Start date/time:	Width:	Height:	Material:	Location code:	Weather:
9/5/2014	18	18	CP		1

Direction:	Length surveyed:	Surveyed by:	Additional info:
UPSTREAM	157.2	PATRICK	



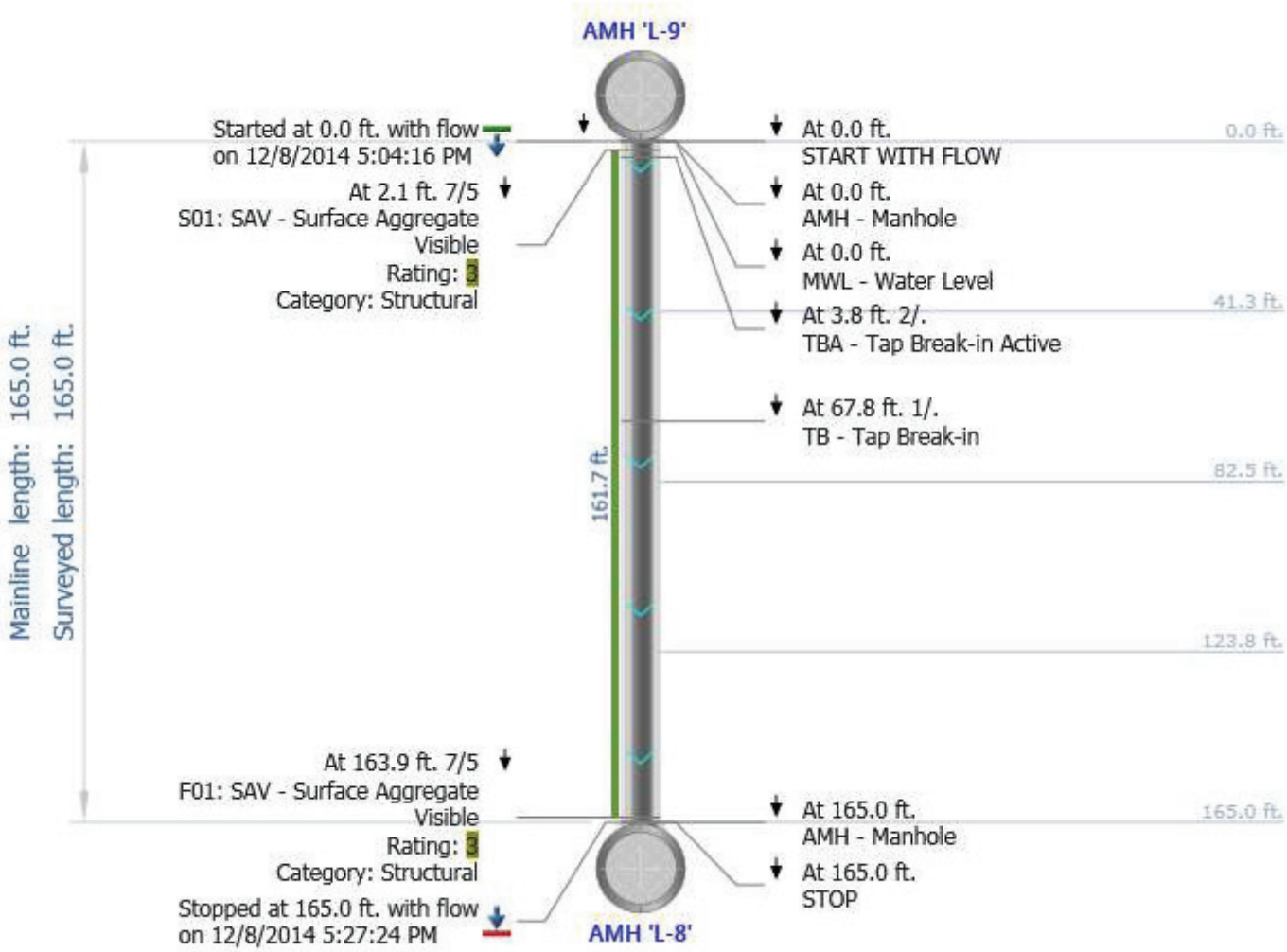
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
HEAVY CLEAN SANITARY MT PLEASANT 2014	**L-9-L-8_1**	**MT PLEASANT**	**LANSING**
Start date/time:	Direction:	Weather:	Location code:
12/8/2014 5:04 PM	**D**	**1**	**C**
Shape:	Material:	Height:	Width:
C	**CP**	**18 in.**	

Scores

Calculated at: **8/18/2015 4:00:38 PM**

Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	0	96	3E00	3.00	0	0	0000	0.00	96	3.00
2	0				0					
3	96				0					
4	0				0					
5	0				0					



Terra Contracting Services LLC.
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Ph: (866) 354-8963
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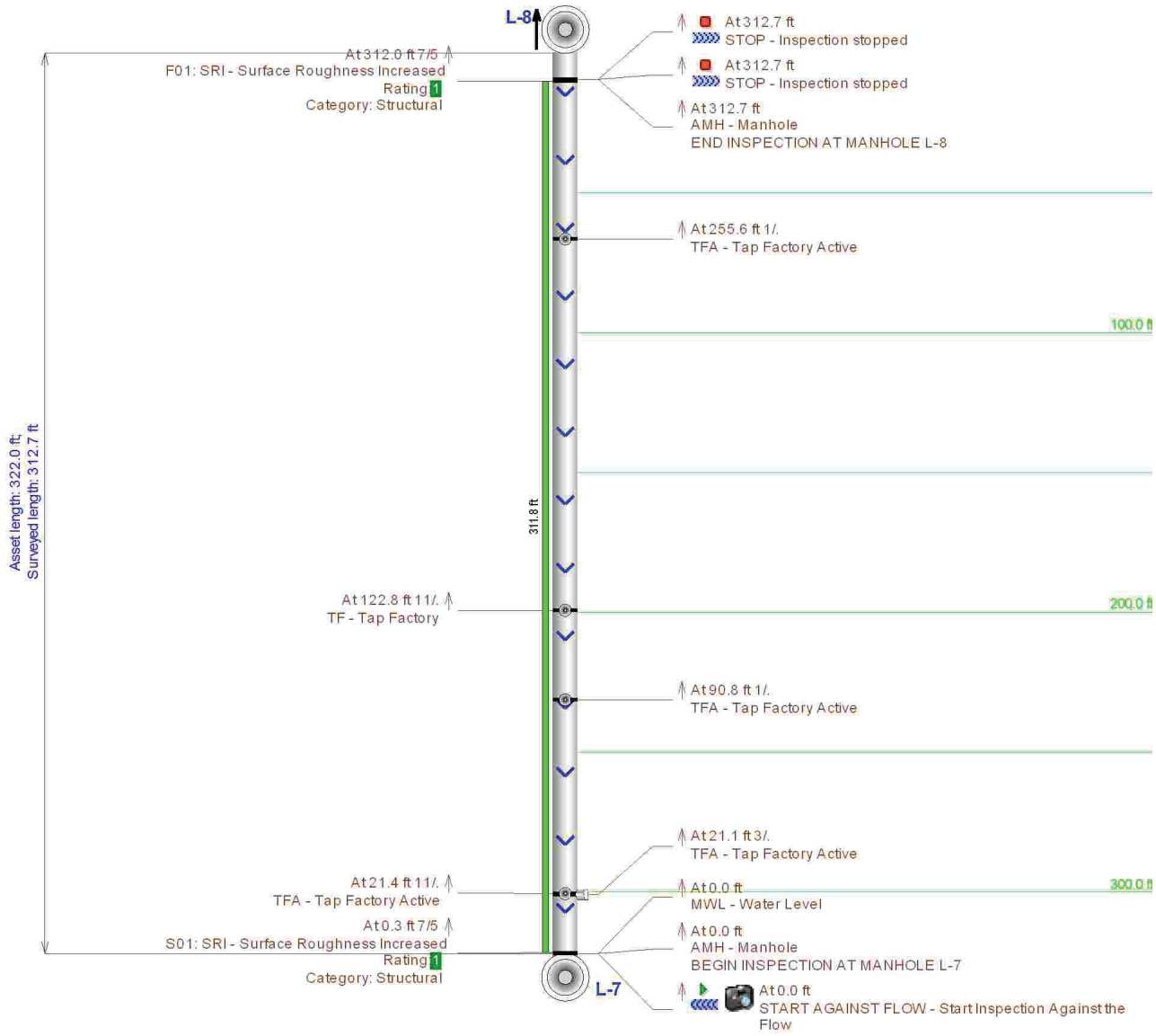
Main Inspection with Pipe-Run Graph

Project Name:	Pipeline segment ref:	City:	Street:
CITY OF MOUNT PLEASANT PUBLIC WORKS	L-8-L-7	MOUNT PLEASANT	LANSING

Start date/time:	Width:	Height:	Material:	Location code:	Weather:
9/8/2014	18	18	CP	B	1

Direction:	Length surveyed:	Surveyed by:	Additional info:
UPSTREAM	312.7	PATRICK	



CUES, Inc.
3600 Rio Vista Avenue
Orlando, FL 32805
Phone: 407-849-0190
Fax: 407-425-1569

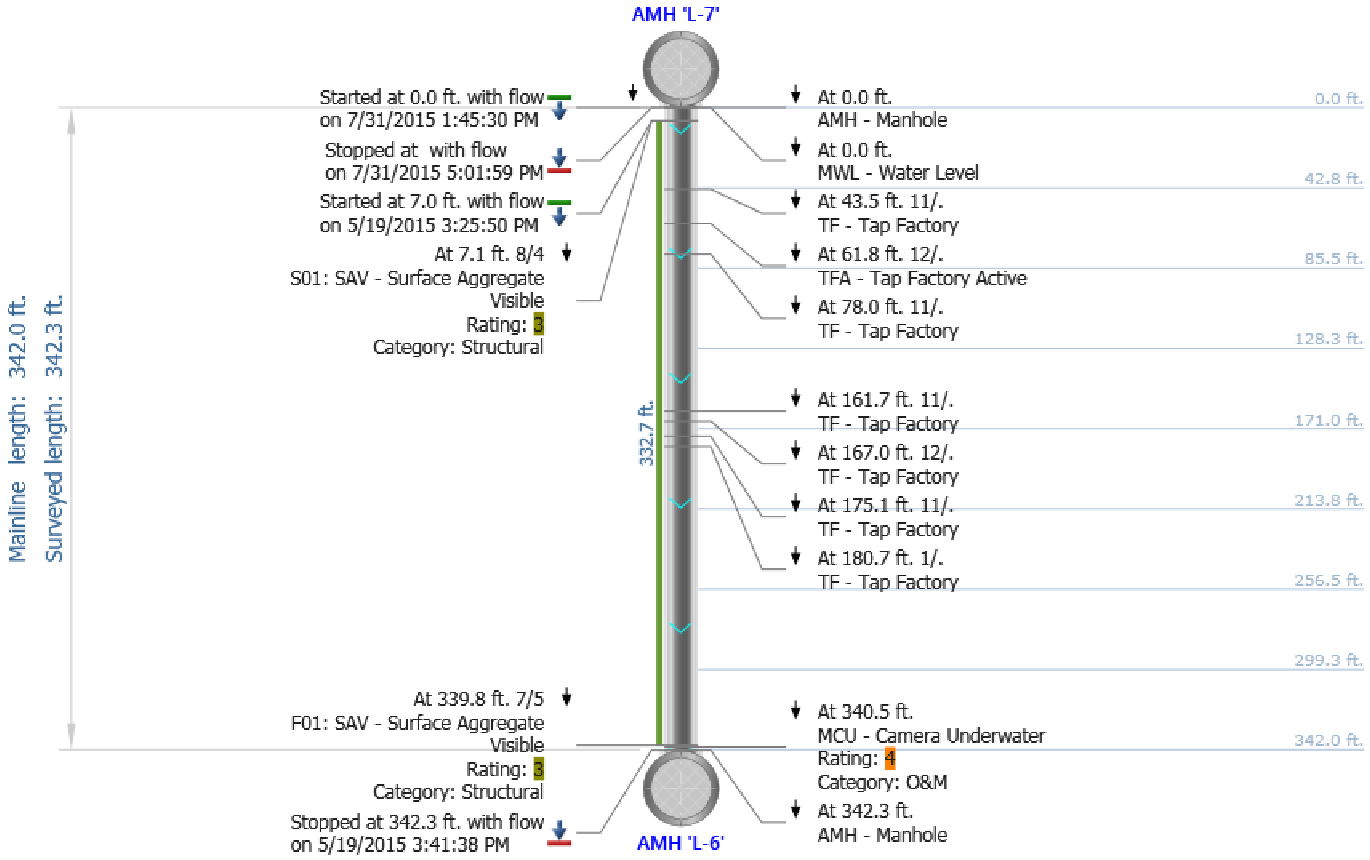
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
PACKET-2 SANITARY	**L-7 - L-6 - 6142**	**MT PLEASANT**	**LANSING**
Start date/time:	Direction:	Weather:	Location code:
5/19/2015 3:25 PM	**D**		**B**
Shape:	Material:	Height:	Width:
C	**RCP**	**18 in.**	

Scores

Calculated at: **7/31/2015 5:02:00 PM**

Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	0	201	3L00	3.00	0	4	4100	4.00	205	3.01
2	0				0					
3	201				0					
4	0				4					
5	0				0					



CUES, Inc.
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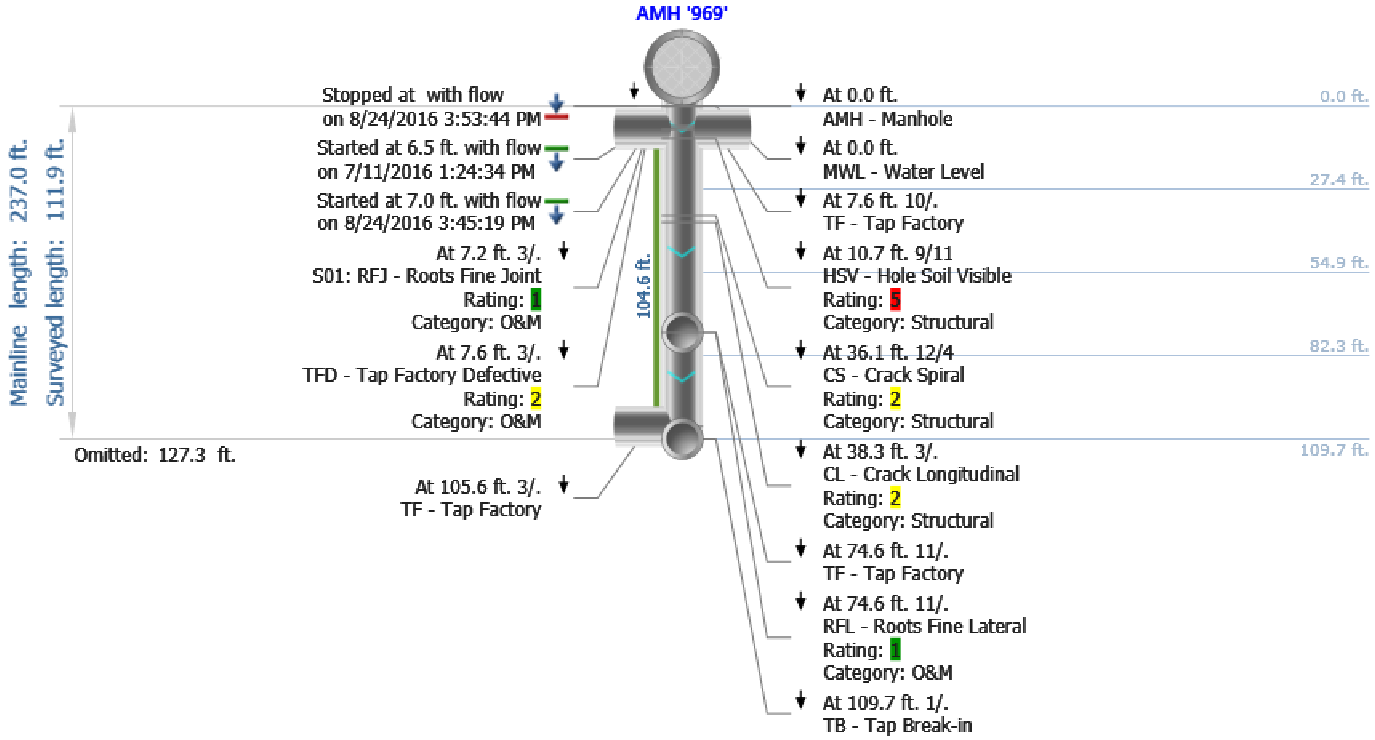
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
MT. PLEASANT SANITARY PACKET 13	**969-76923-6183**	**MT. PLEASANT**	**LOCUST**
Start date/time:	Direction:	Weather:	Location code:
7/11/2016 1:24 PM	**D**	**1**	**C**
Shape:	Material:	Height:	Width:
C	**VCP**	**8 in.**	

Scores

Calculated at: **8/24/2016 3:53:45 PM**

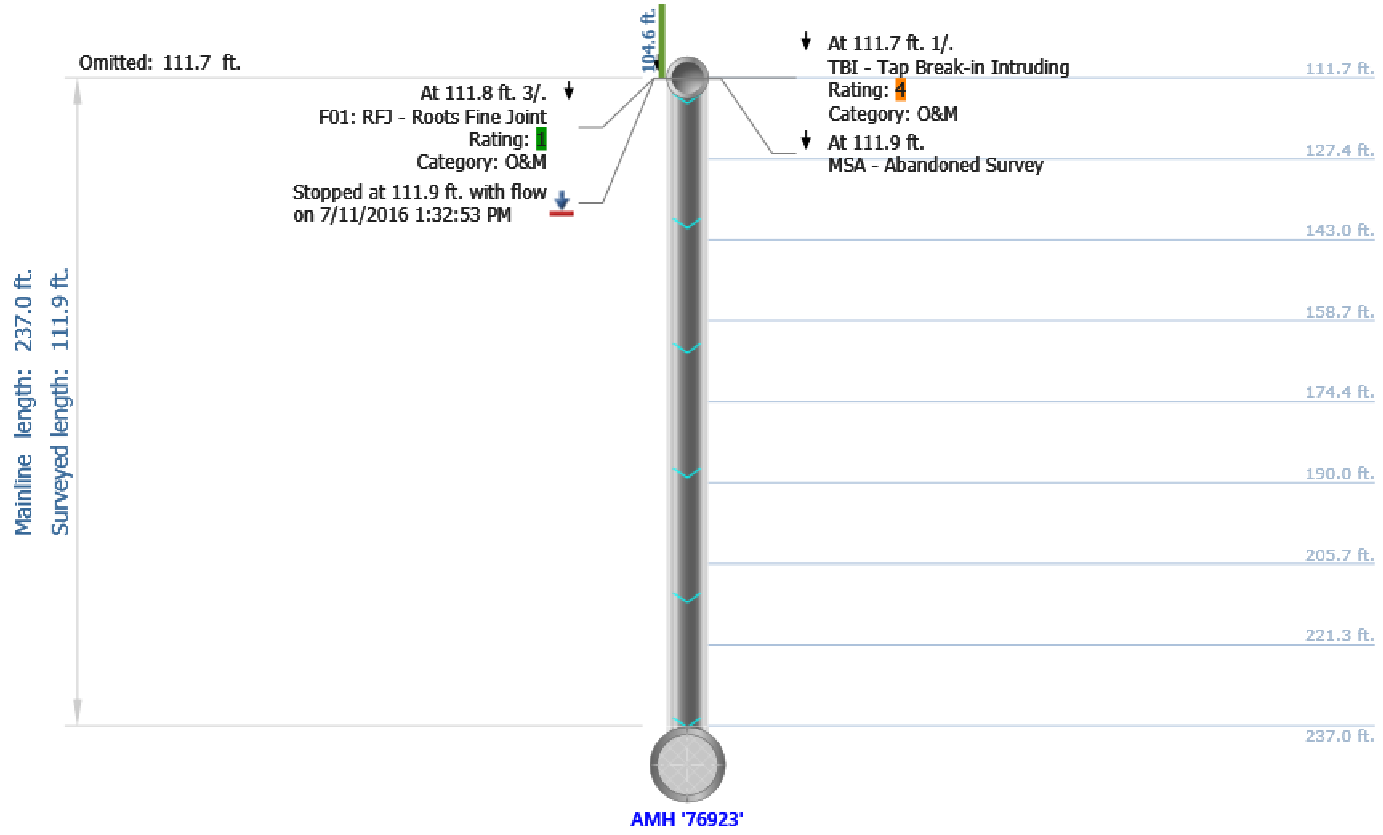
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	0	9	5122	3.00	22	28	4121	1.17	37	1.37
2	4				2					
3	0				0					
4	0				4					
5	5				0					



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 13	**969-76923-6183**	**7/11/2016 1:24 PM**	**D**

Weather:

1



CUES, Inc.
3600 Rio Vista Avenue
Orlando, FL 32805
Phone: 407-849-0190
Fax: 407-425-1569

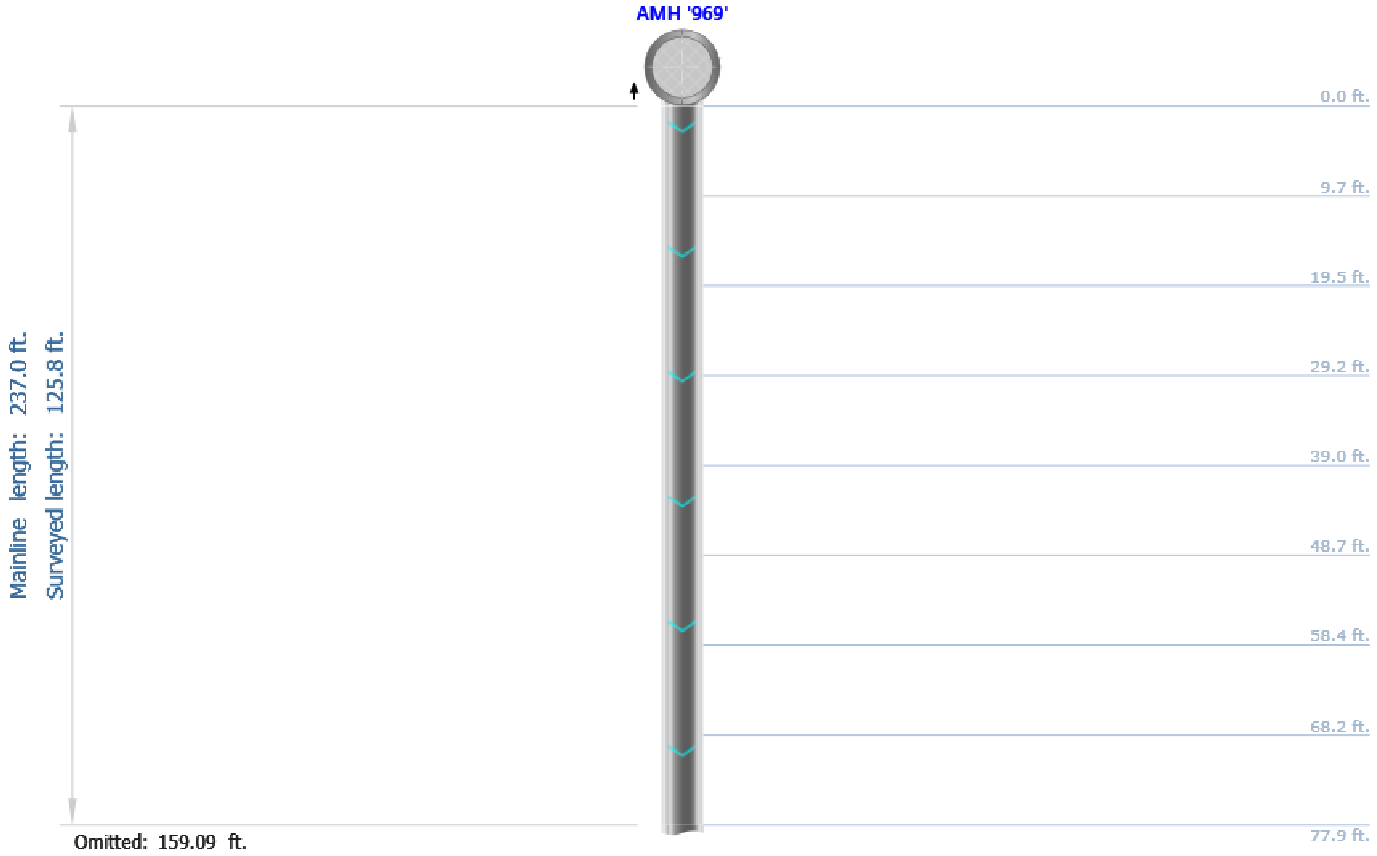
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
MT. PLEASANT SANITARY PACKET 13	**969-76923-6183.**	**MT. PLEASANT**	**N. OF LOCUST**
Start date/time:	Direction:	Weather:	Location code:
7/11/2016 1:16 PM	**U**	**1**	**H**
Shape:	Material:	Height:	Width:
C	**VCP**	**8 in.**	

Scores

Calculated at: **8/24/2016 1:35:30 PM**

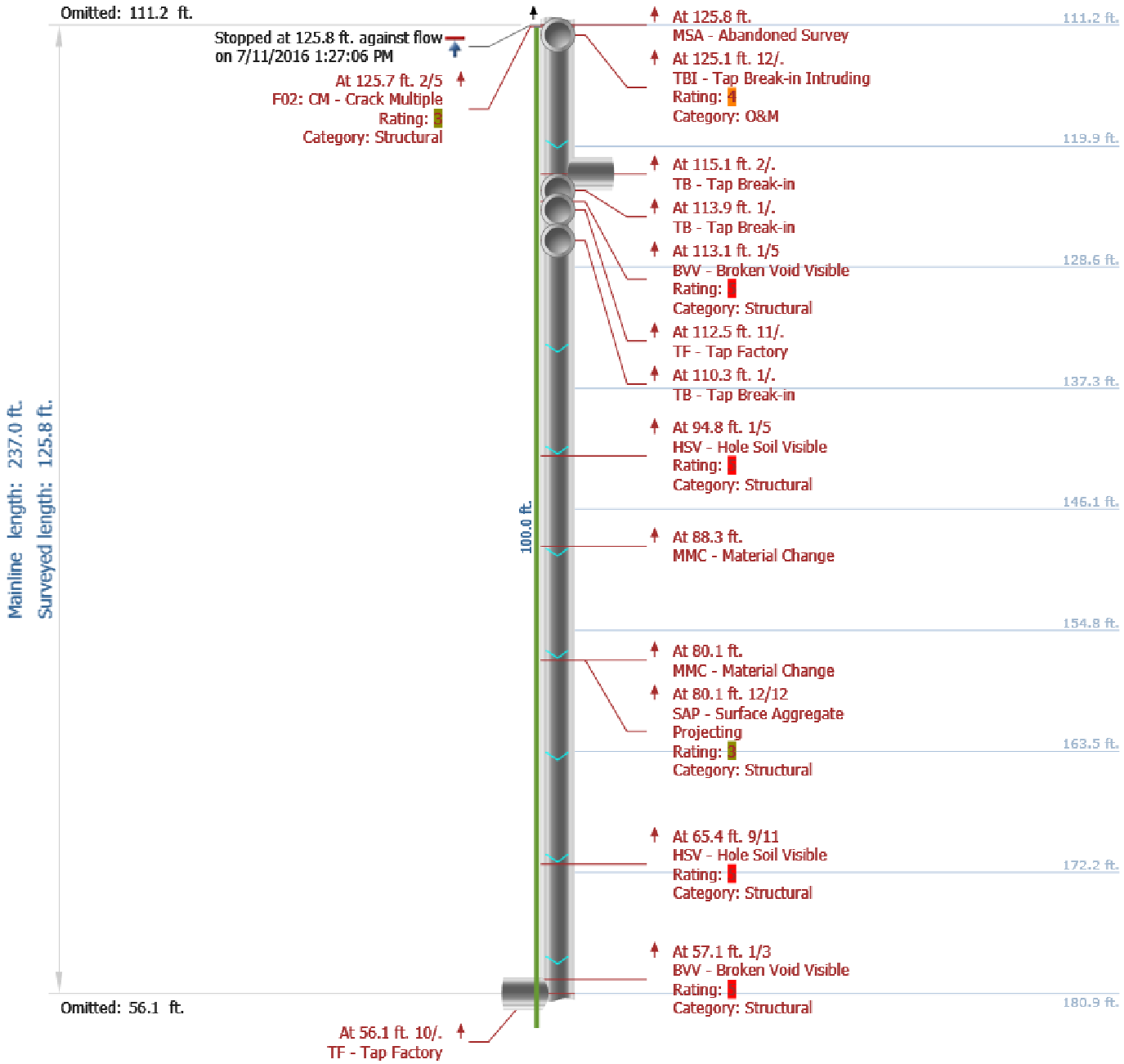
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	0	119	5742	3.40	3	9	4121	1.80	128	3.20
2	4				2					
3	72				0					
4	8				4					
5	35				0					



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 13	**969-76923-6183.**	**7/11/2016 1:16 PM**	**U**

Weather:

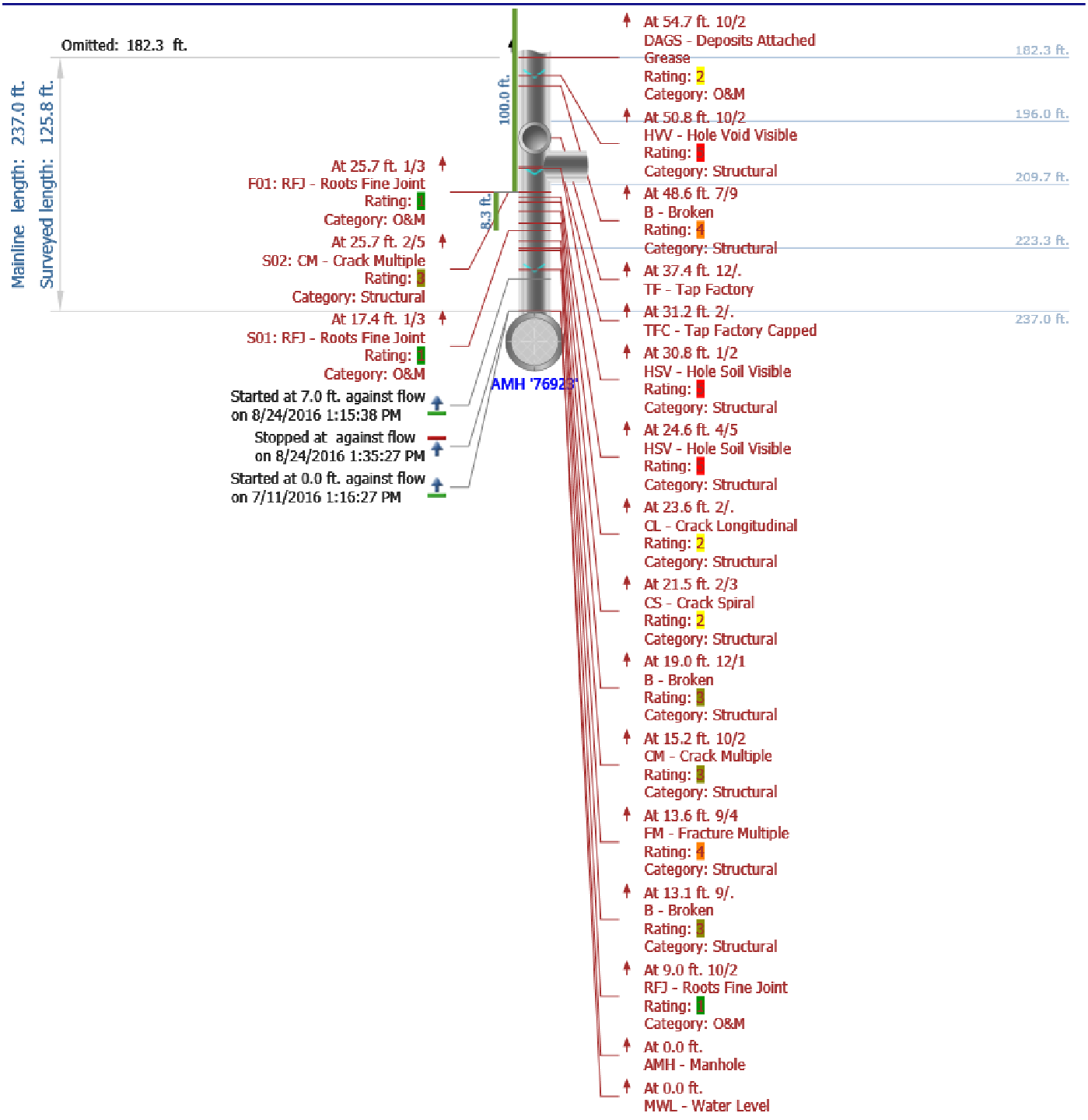
1



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 13	**969-76923-6183.**	**7/11/2016 1:16 PM**	**U**

Weather:

1



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Fax: 407-425-1569

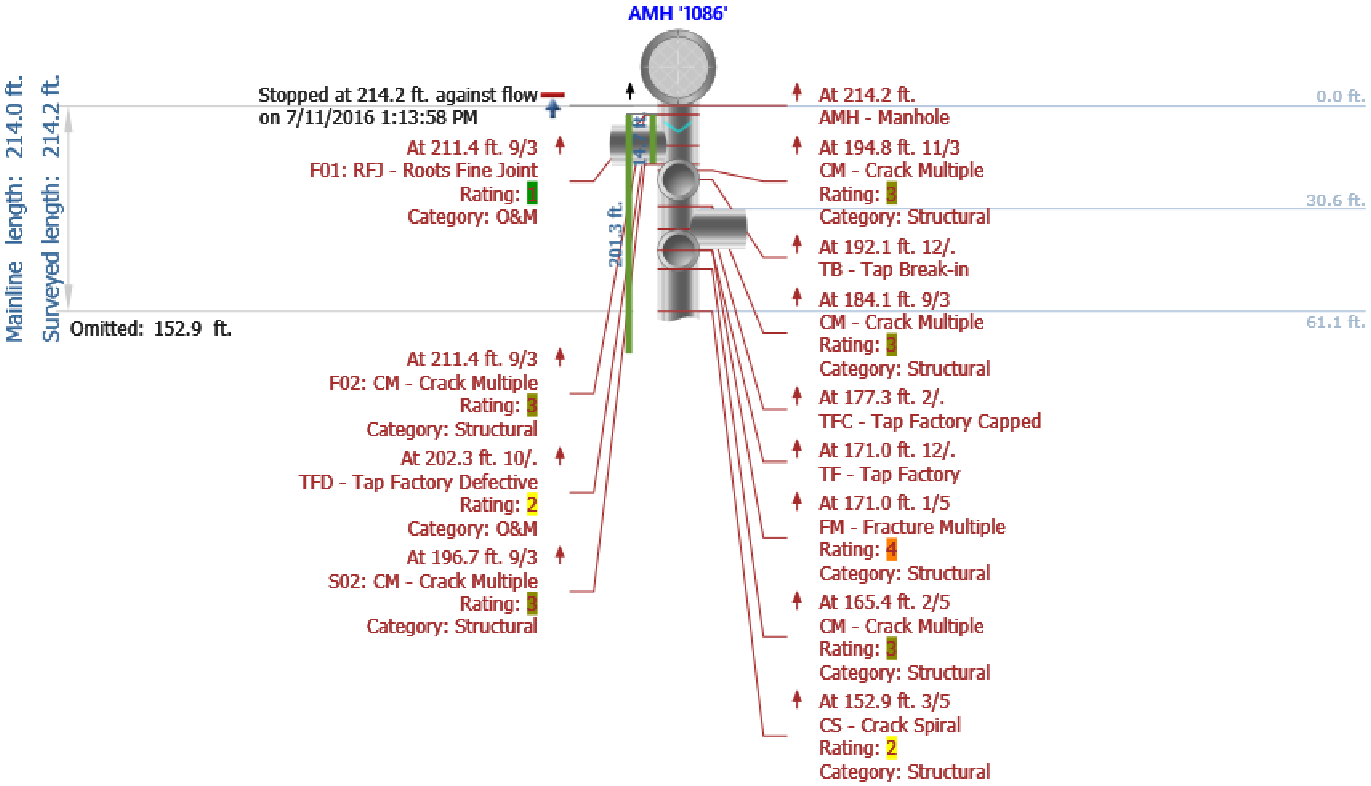
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
MT. PLEASANT SANITARY PACKET 13	**1086-1481-6184**	**MT. PLEASANT**	**WISCONSIN**
Start date/time:	Direction:	Weather:	Location code:
7/11/2016 1:54 PM	**U**	**1**	**C**
Shape:	Material:	Height:	Width:
C	**VCP**	**8 in.**	

Scores

Calculated at: **8/24/2016 12:41:06 PM**

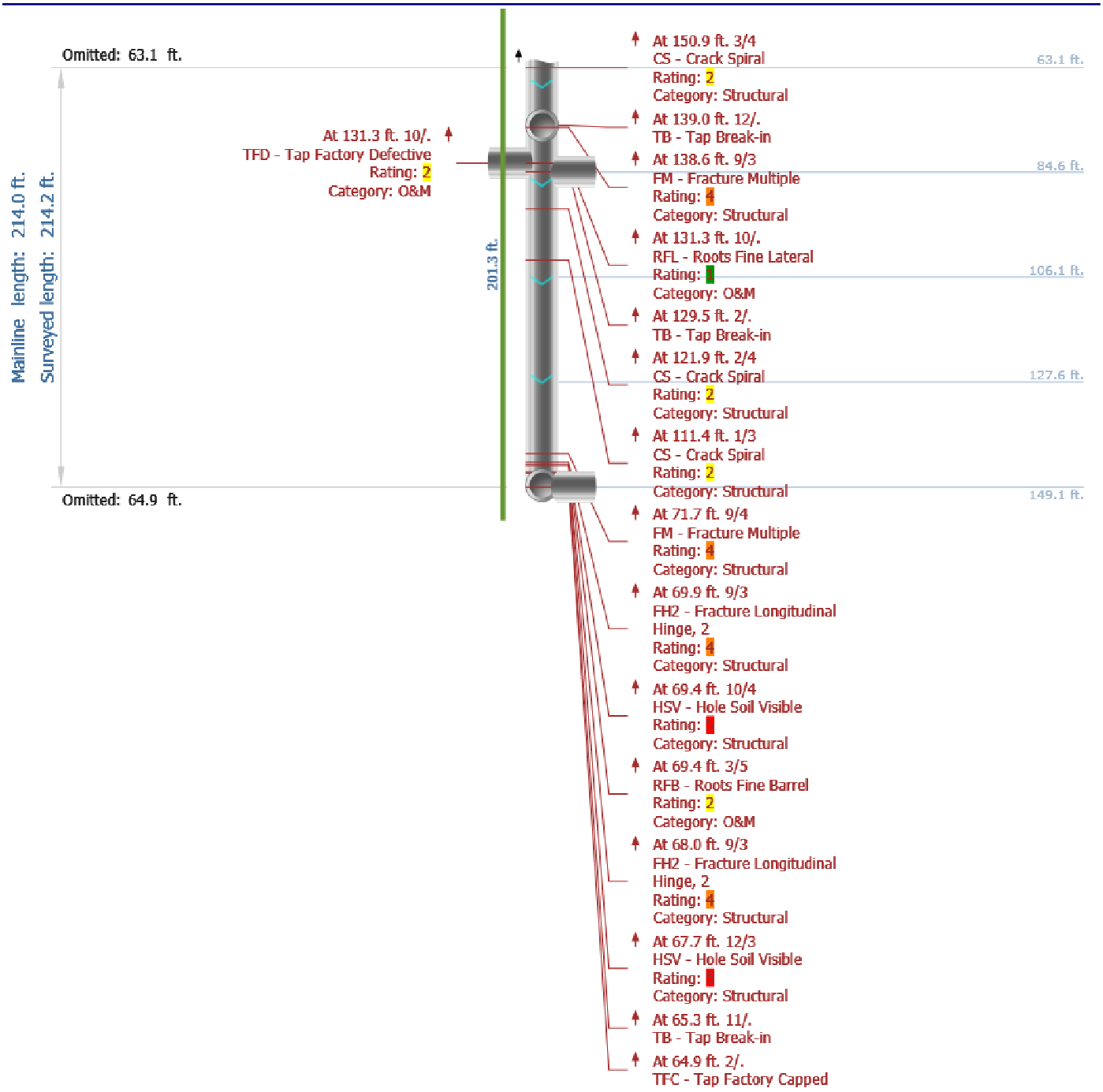
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	0	58	5245	3.22	41	49	241G	1.09	107	1.70
2	10				8					
3	18				0					
4	20				0					
5	10				0					



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 13	**1086-1481-6184**	**7/11/2016 1:54 PM**	**U**

Weather:

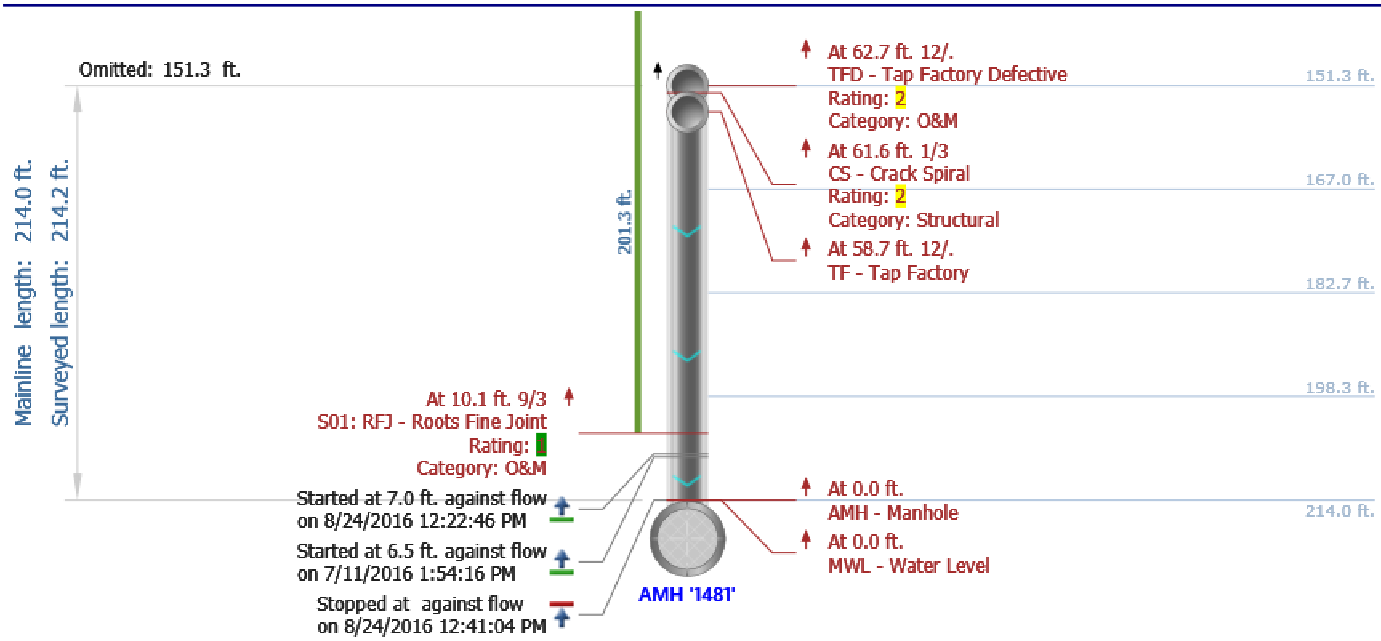
1



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 13	**1086-1481-6184**	**7/11/2016 1:54 PM**	**U**

Weather:

1



CUES, Inc.
3600 Rio Vista Avenue
Orlando, FL 32805
Phone: 407-849-0190
Fax: 407-425-1569

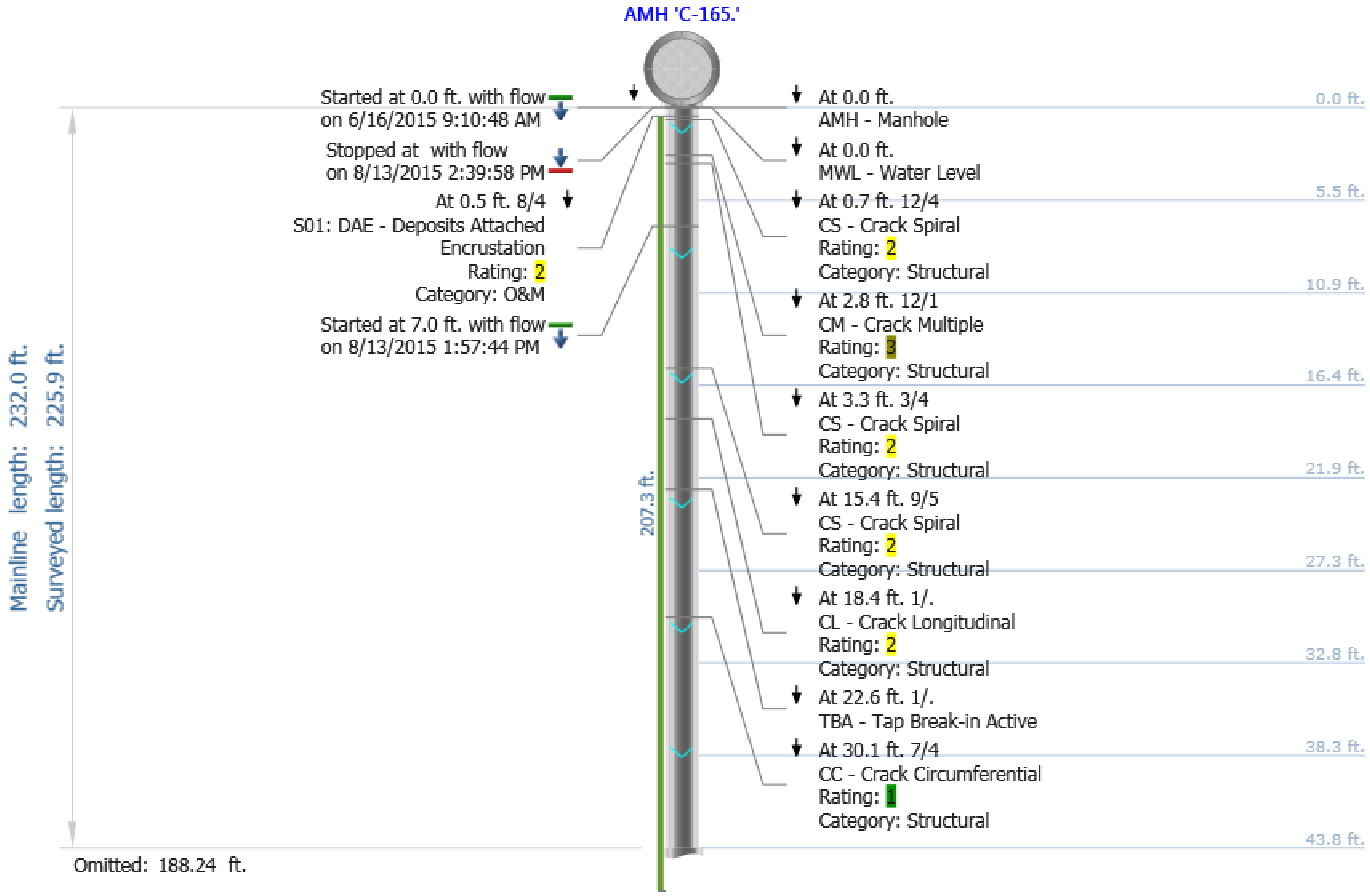
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
PACKET-5 SANITARY	**C-165. - A-85 - 6322**	**MT PLEASANT**	**MAPLE**
Start date/time:	Direction:	Weather:	Location code:
6/16/2015 9:10 AM	**D**	**1**	**B**
Shape:	Material:	Height:	Width:
C	**VCP**	**8 in.**	

Scores

Calculated at: **8/13/2015 2:40:02 PM**

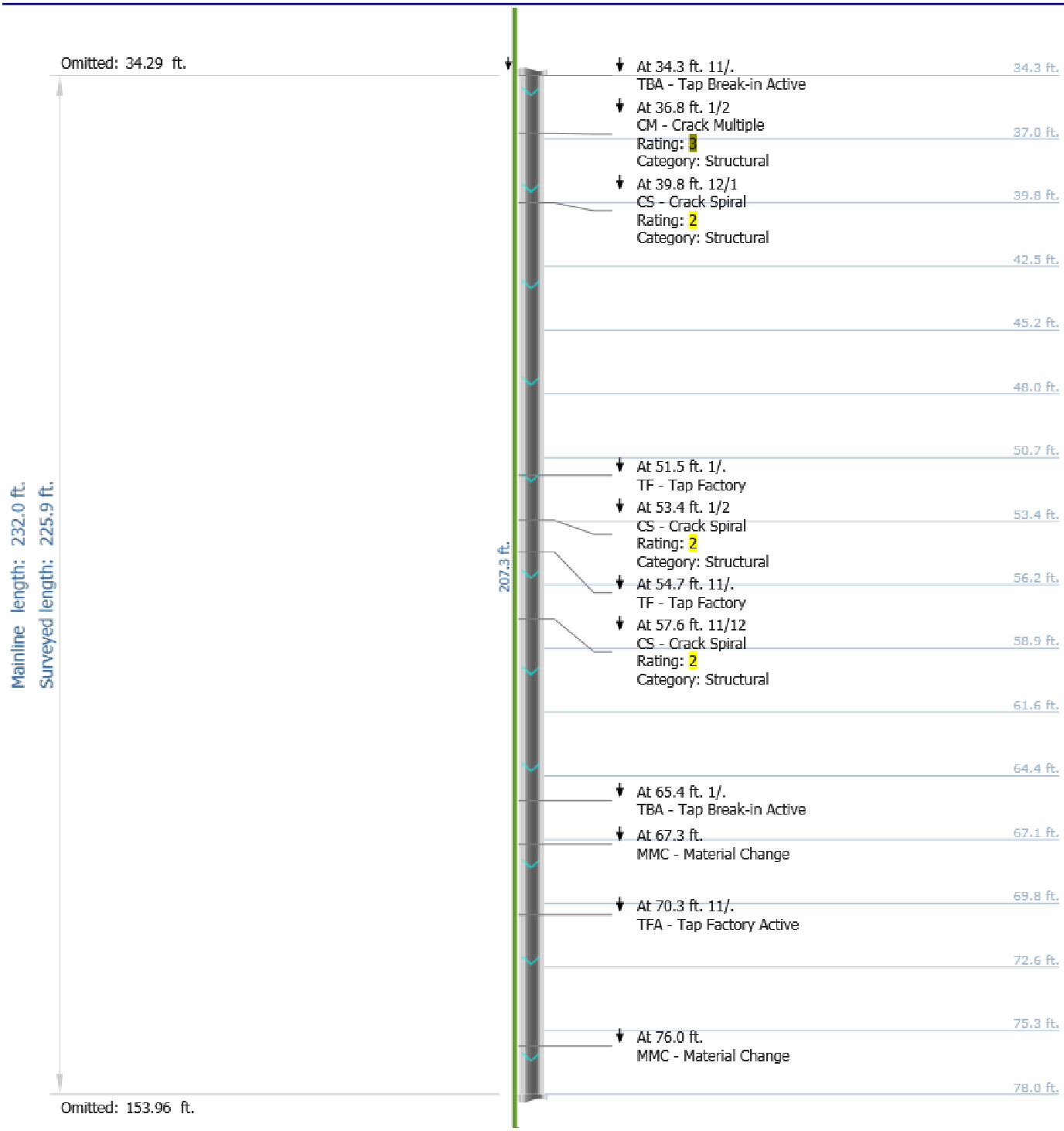
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	2	72	5142	2.48	0	97	312H	2.02	169	2.19
2	30				94					
3	27				3					
4	8				0					
5	5				0					



Project name:	Mainline ID:	Start date/time:	Direction:
PACKET-5 SANITARY	**C-165. - A-85 - 6322**	**6/16/2015 9:10 AM**	**D**

Weather:

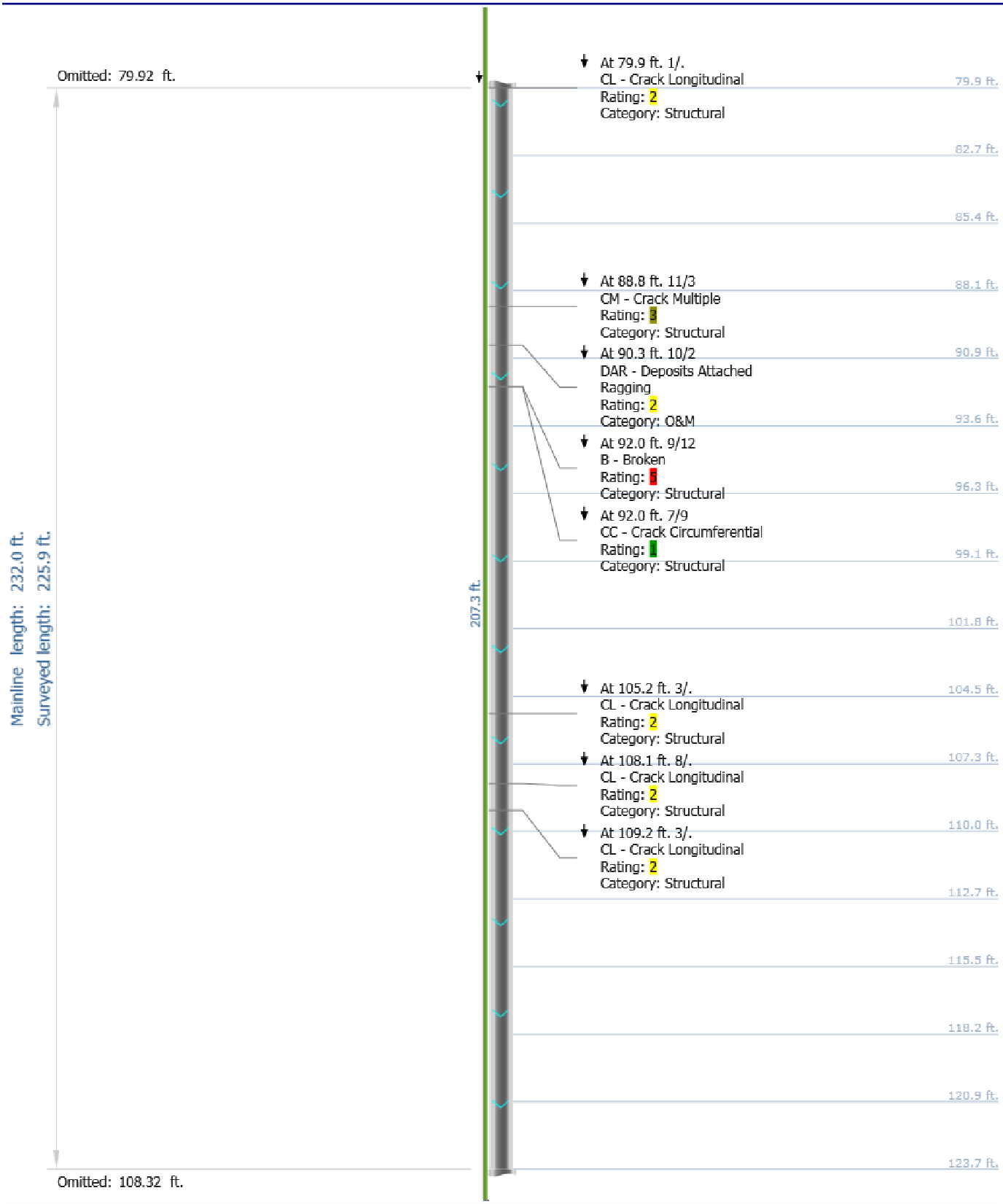
1



Project name:	Mainline ID:	Start date/time:	Direction:
PACKET-5 SANITARY	**C-165. - A-85 - 6322**	**6/16/2015 9:10 AM**	**D**

Weather:

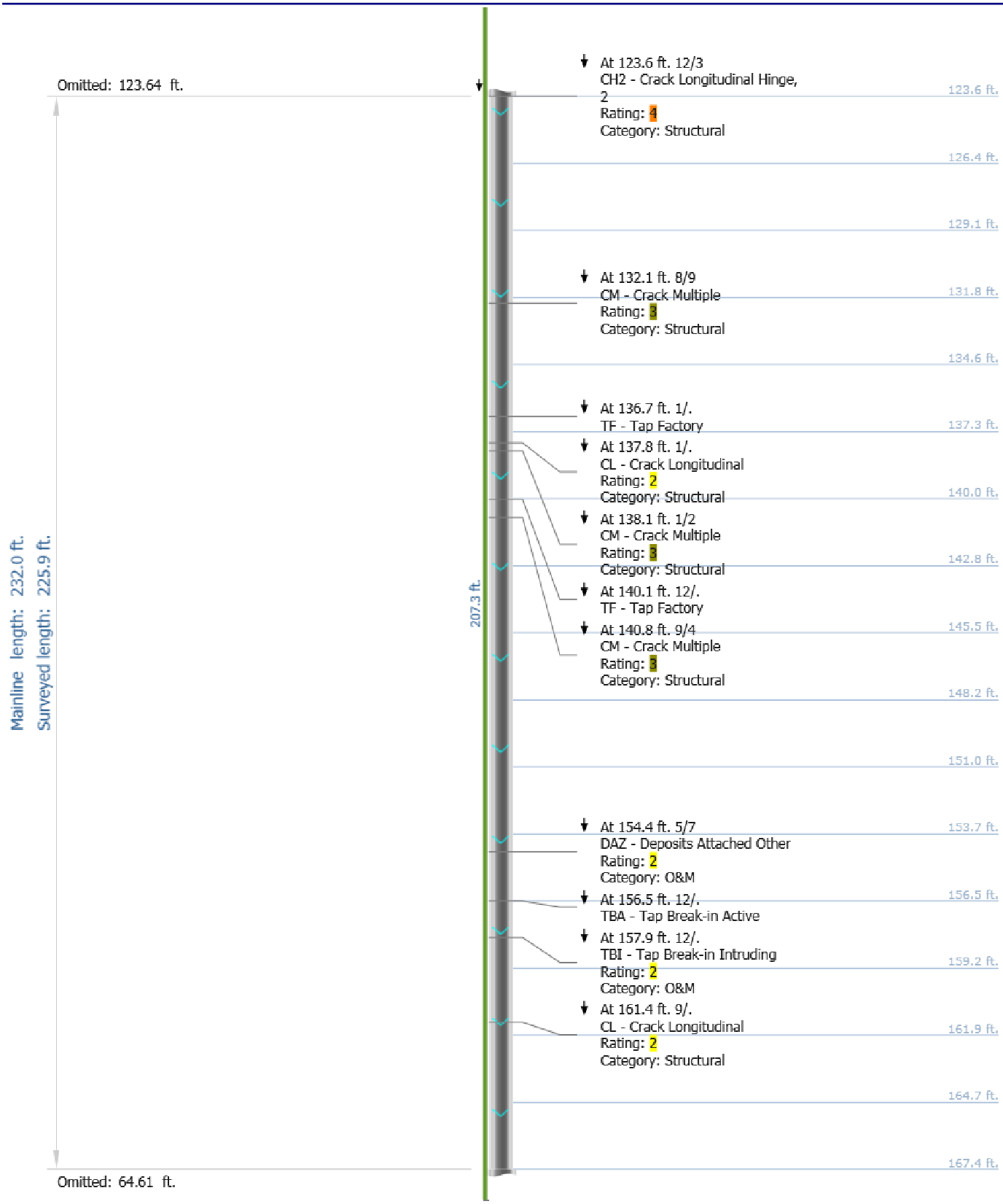
1



Project name:	Mainline ID:	Start date/time:	Direction:
PACKET-5 SANITARY	**C-165. - A-85 - 6322**	**6/16/2015 9:10 AM**	**D**

Weather:

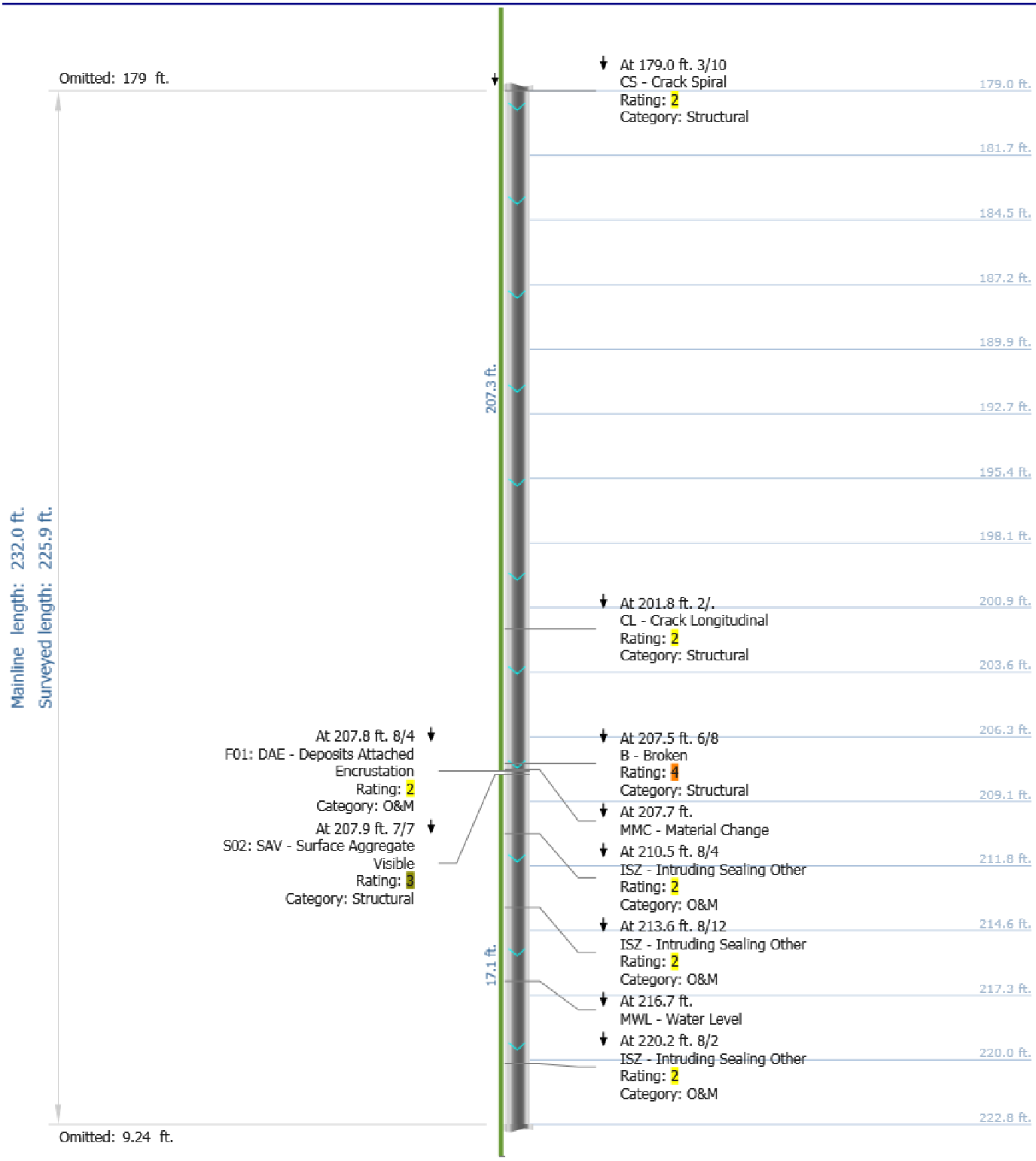
1



Project name:	Mainline ID:	Start date/time:	Direction:
PACKET-5 SANITARY	**C-165. - A-85 - 6322**	**6/16/2015 9:10 AM**	**D**

Weather:

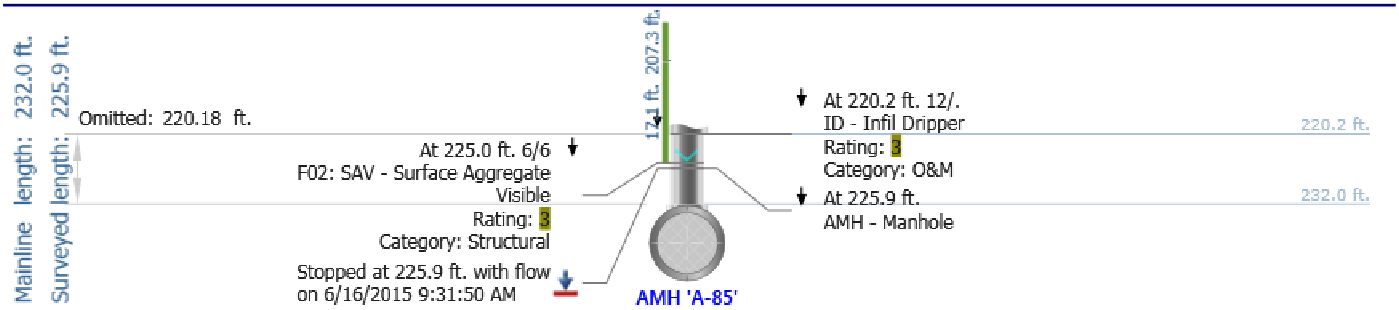
1



Project name:	Mainline ID:	Start date/time:	Direction:
PACKET-5 SANITARY	**C-165. - A-85 - 6322**	**6/16/2015 9:10 AM**	**D**

Weather:

1



CUES, Inc.
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Orlando, FL 32805
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Fax: 407-425-1569

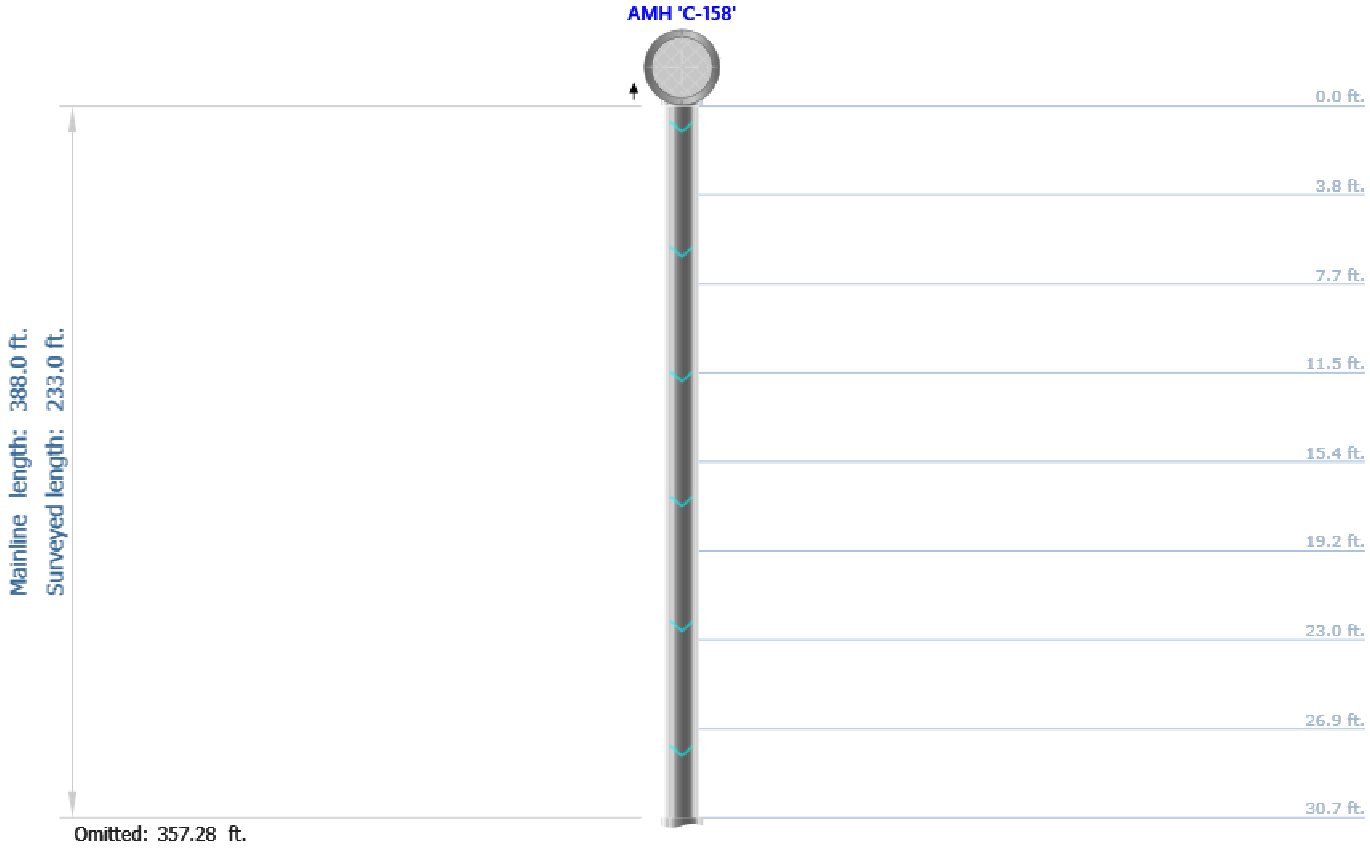
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**MT. PLEASANT**	**CRAPO**
Start date/time:	Direction:	Weather:	Location code:
12/8/2015 2:39 PM	**U**	**1**	**C**
Shape:	Material:	Height:	Width:
C	**VCP**	**8 in.**	

Scores

Calculated at: **1/18/2016 5:09:06 PM**

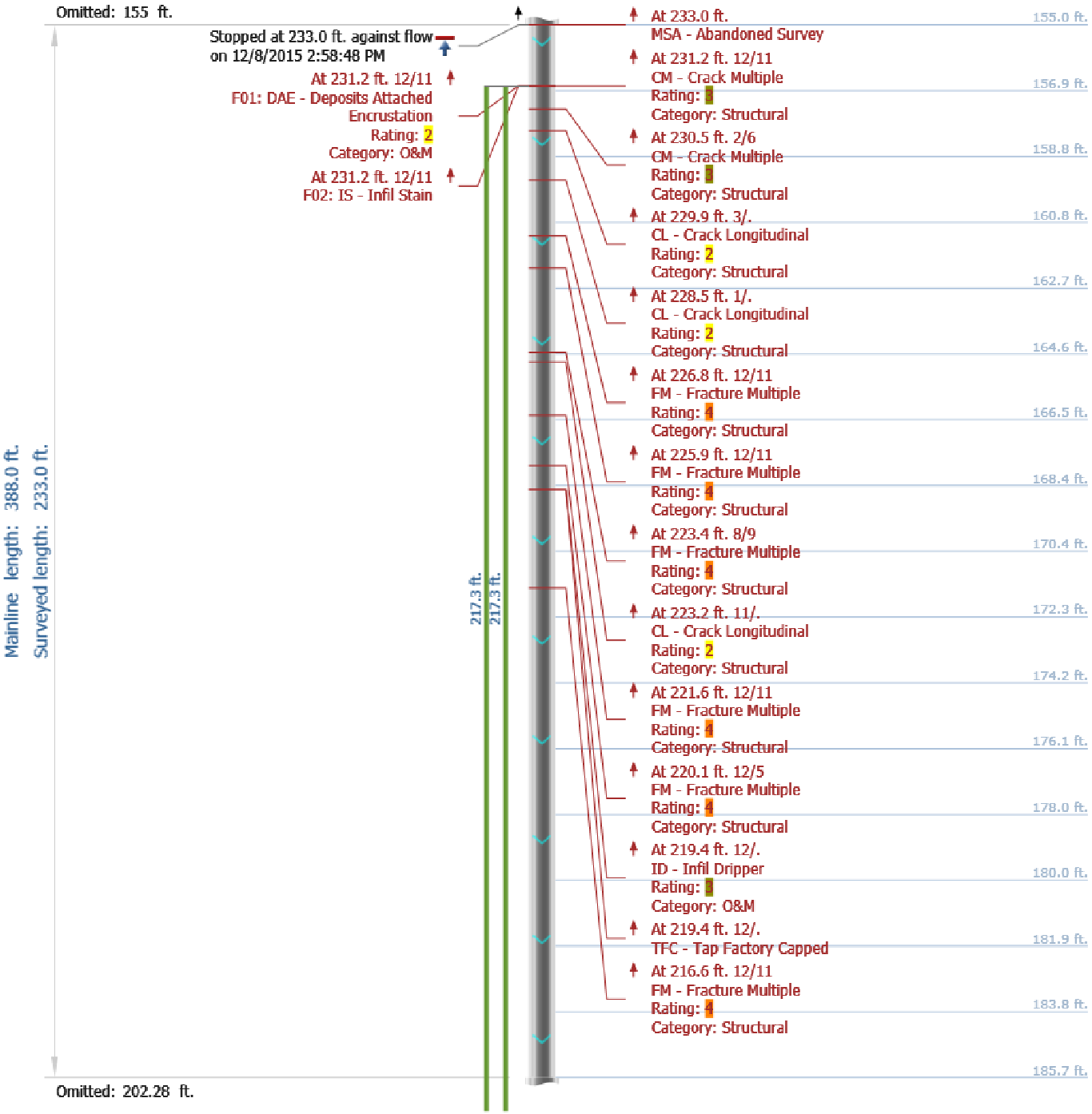
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	7	293	514G	3.18	0	99	332H	2.06	392	2.80
2	22				90					
3	99				9					
4	160				0					
5	5				0					



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**12/8/2015 2:39 PM**	**U**

Weather:

1



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**12/8/2015 2:39 PM**	**U**

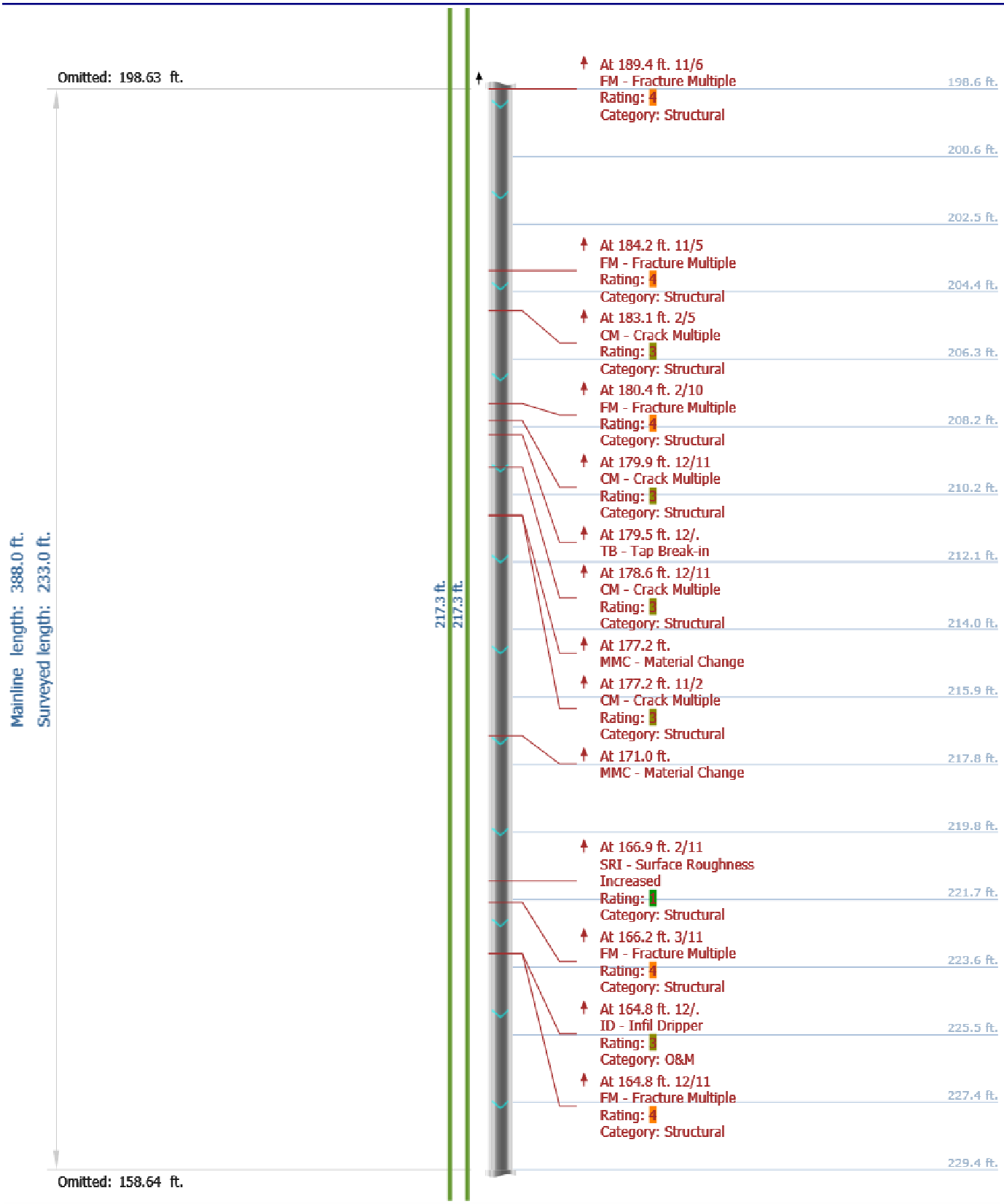
Weather:

1

Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**12/8/2015 2:39 PM**	**U**

Weather:

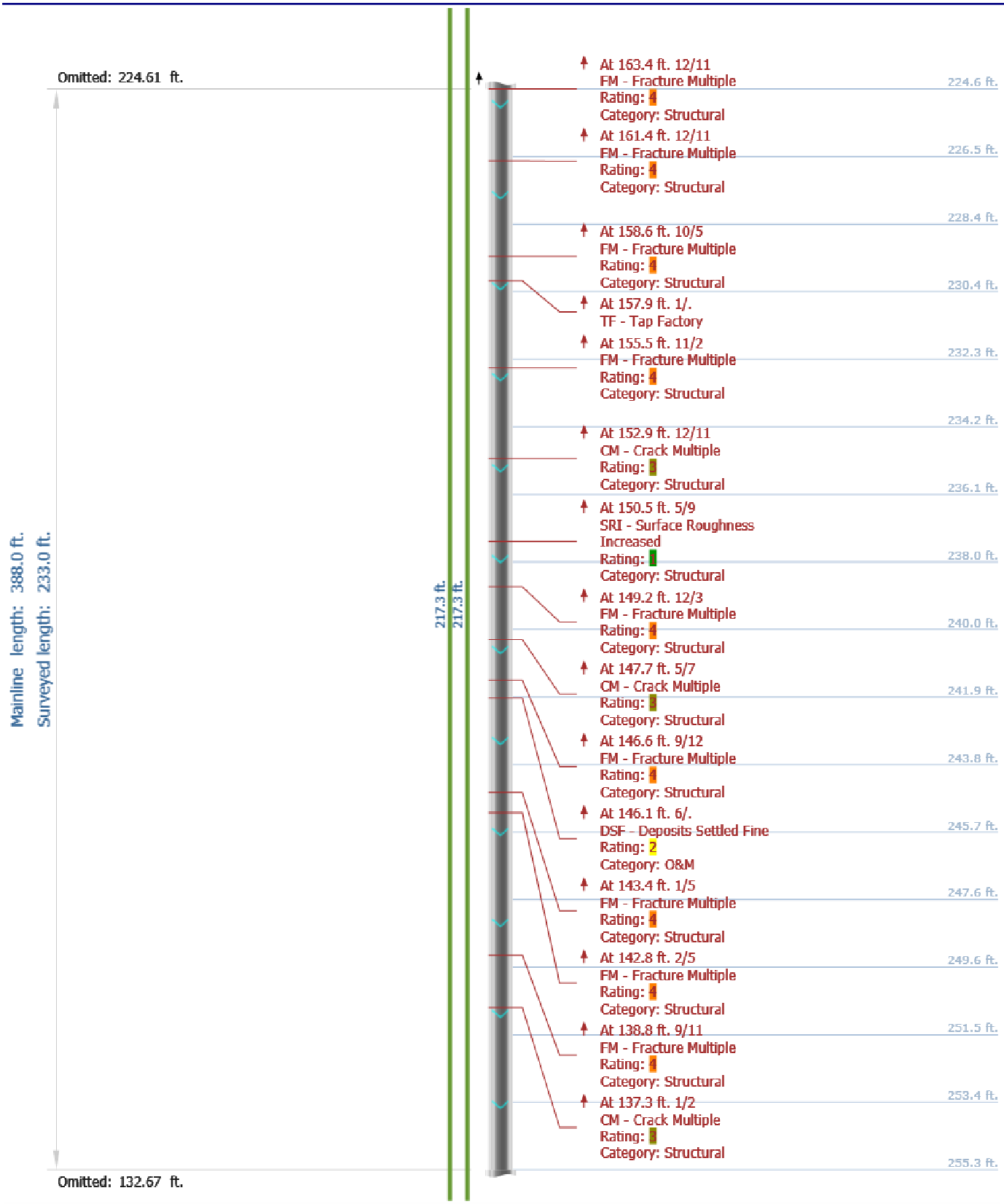
1



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**12/8/2015 2:39 PM**	**U**

Weather:

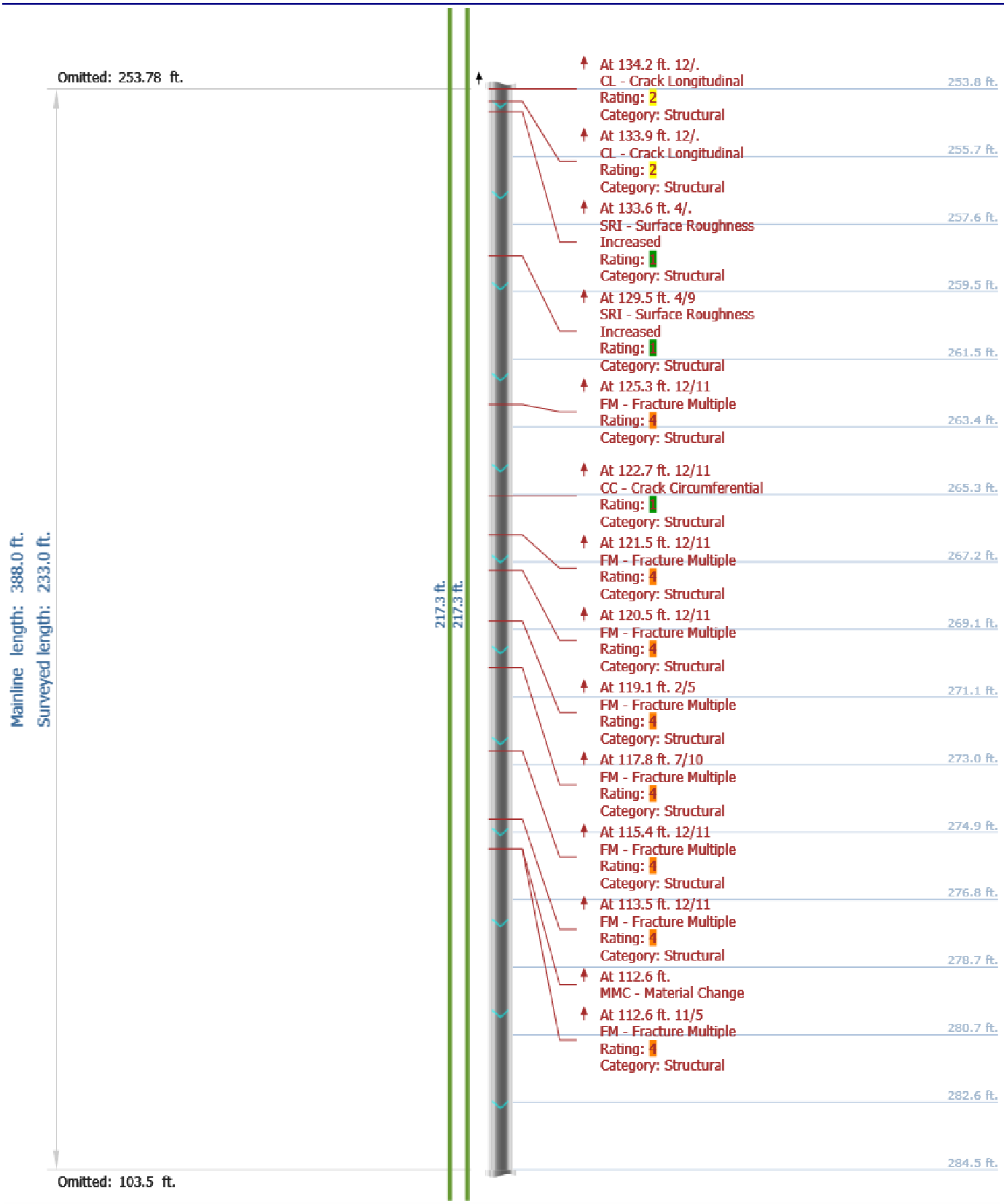
1



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**12/8/2015 2:39 PM**	**U**

Weather:

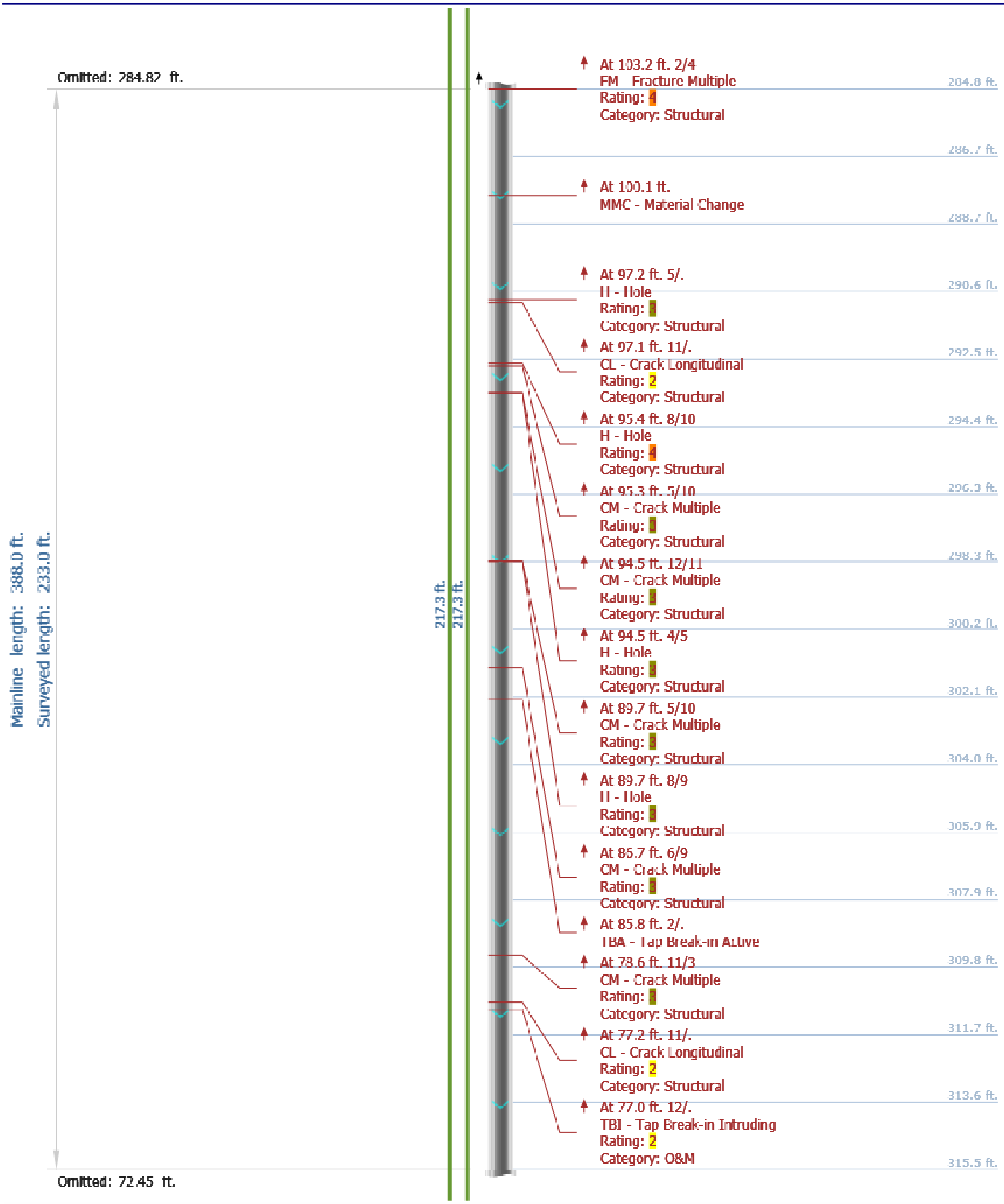
1



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**12/8/2015 2:39 PM**	**U**

Weather:

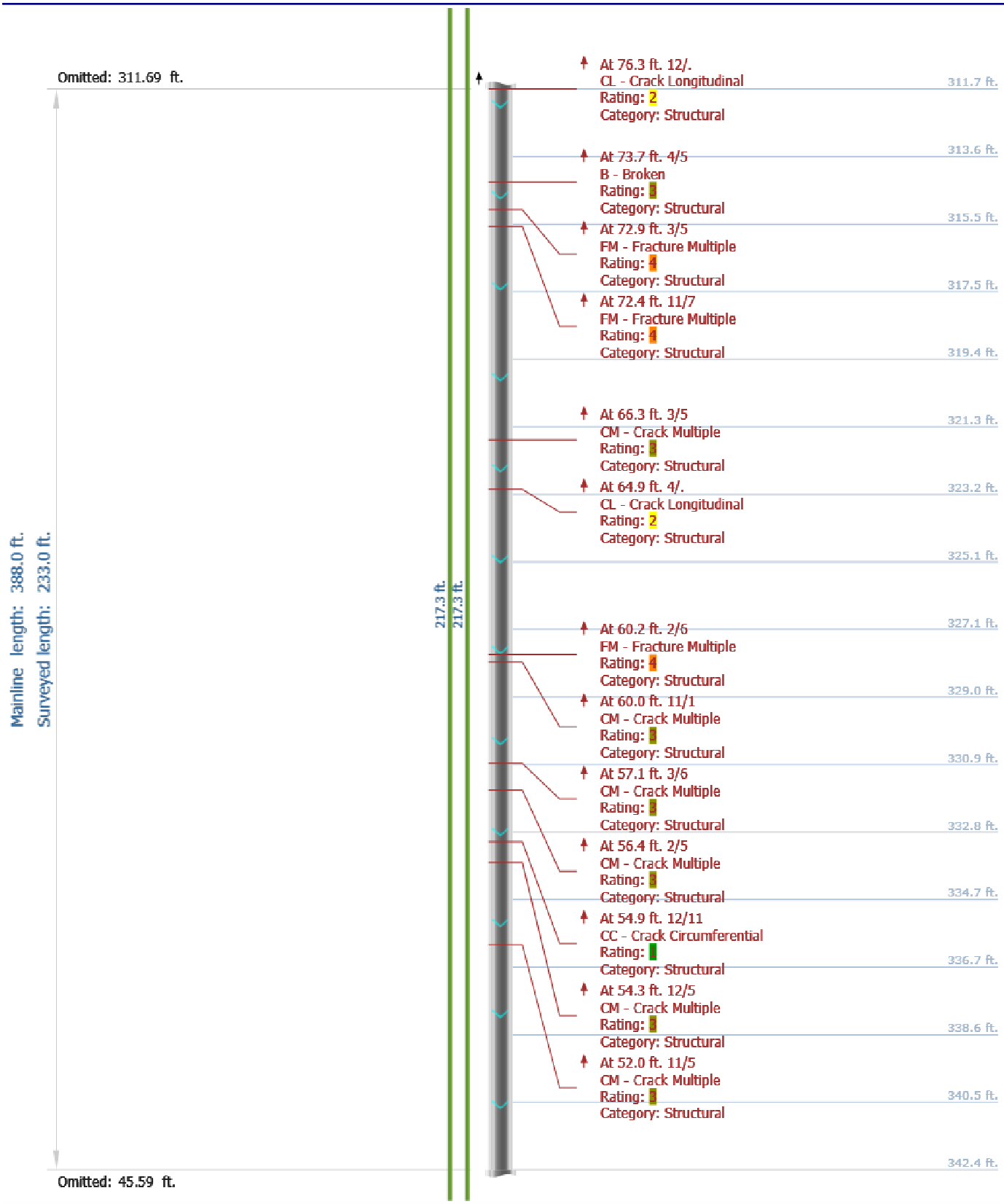
1



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**12/8/2015 2:39 PM**	**U**

Weather:

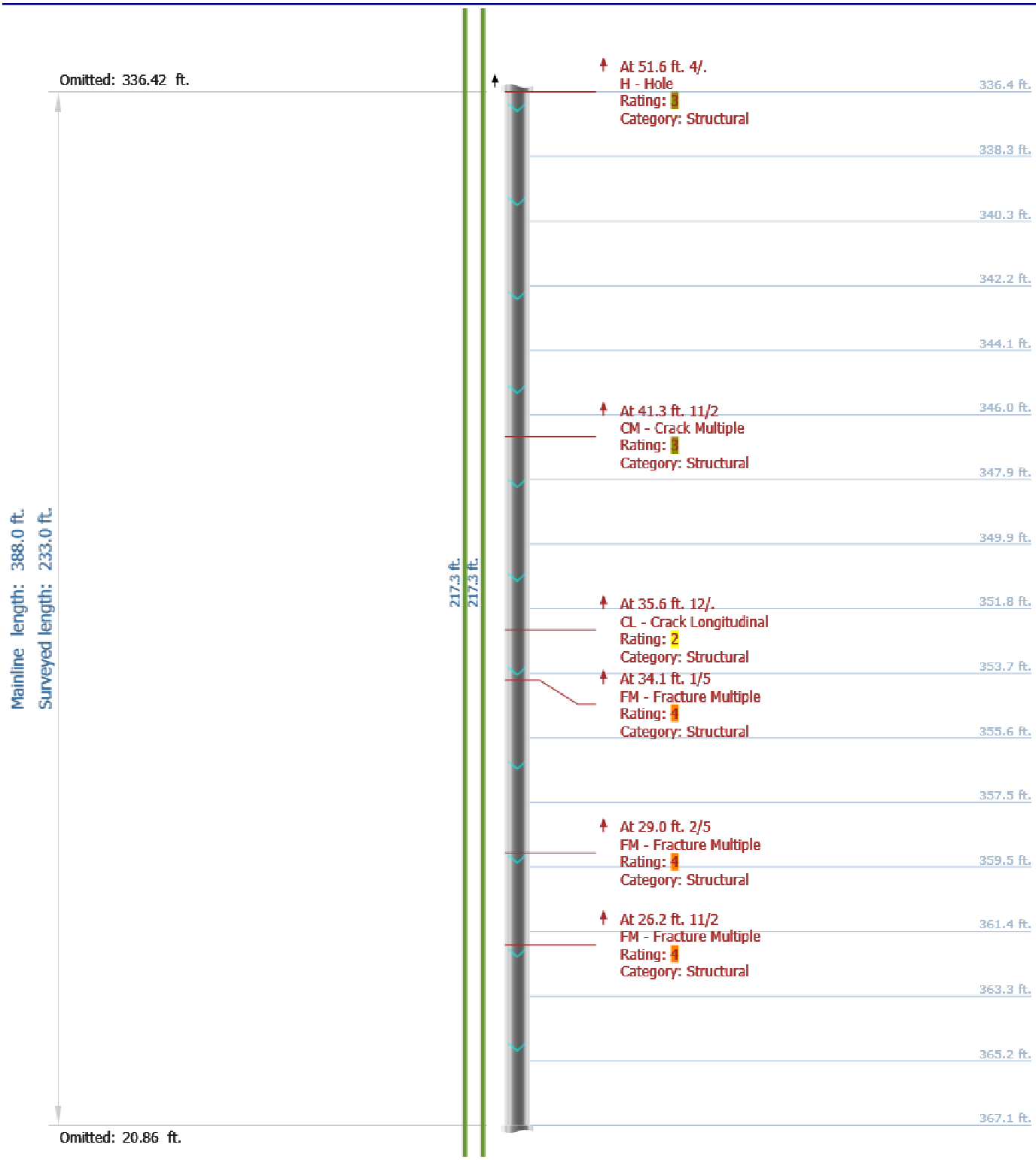
1



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**12/8/2015 2:39 PM**	**U**

Weather:

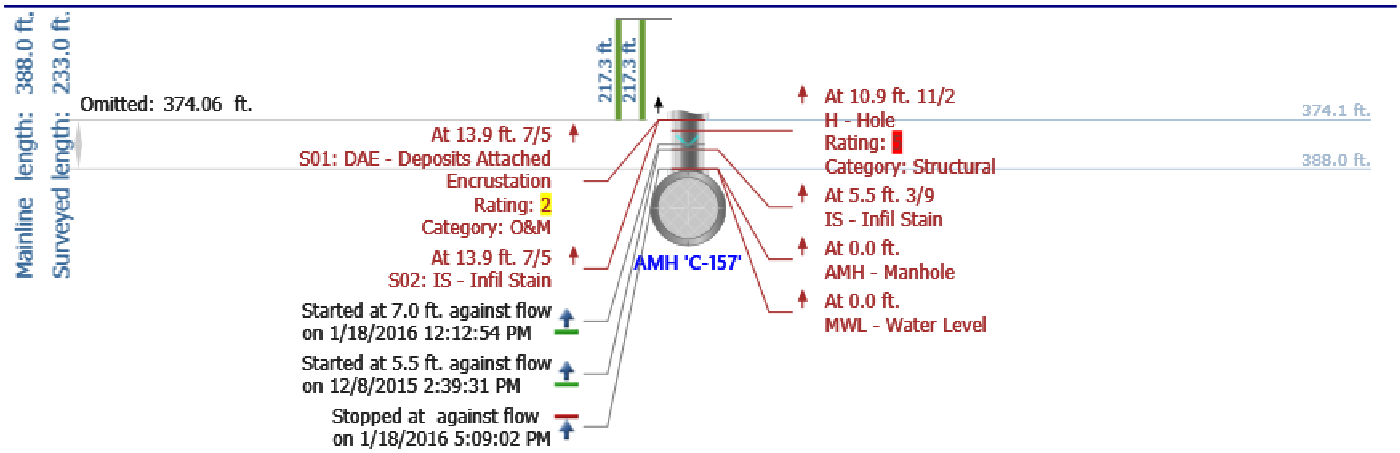
1



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 5	**C-158-C-157-6353**	**12/8/2015 2:39 PM**	**U**

Weather:

1



CUES, Inc.
3600 Rio Vista Avenue
Orlando, FL 32805
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Fax: 407-425-1569

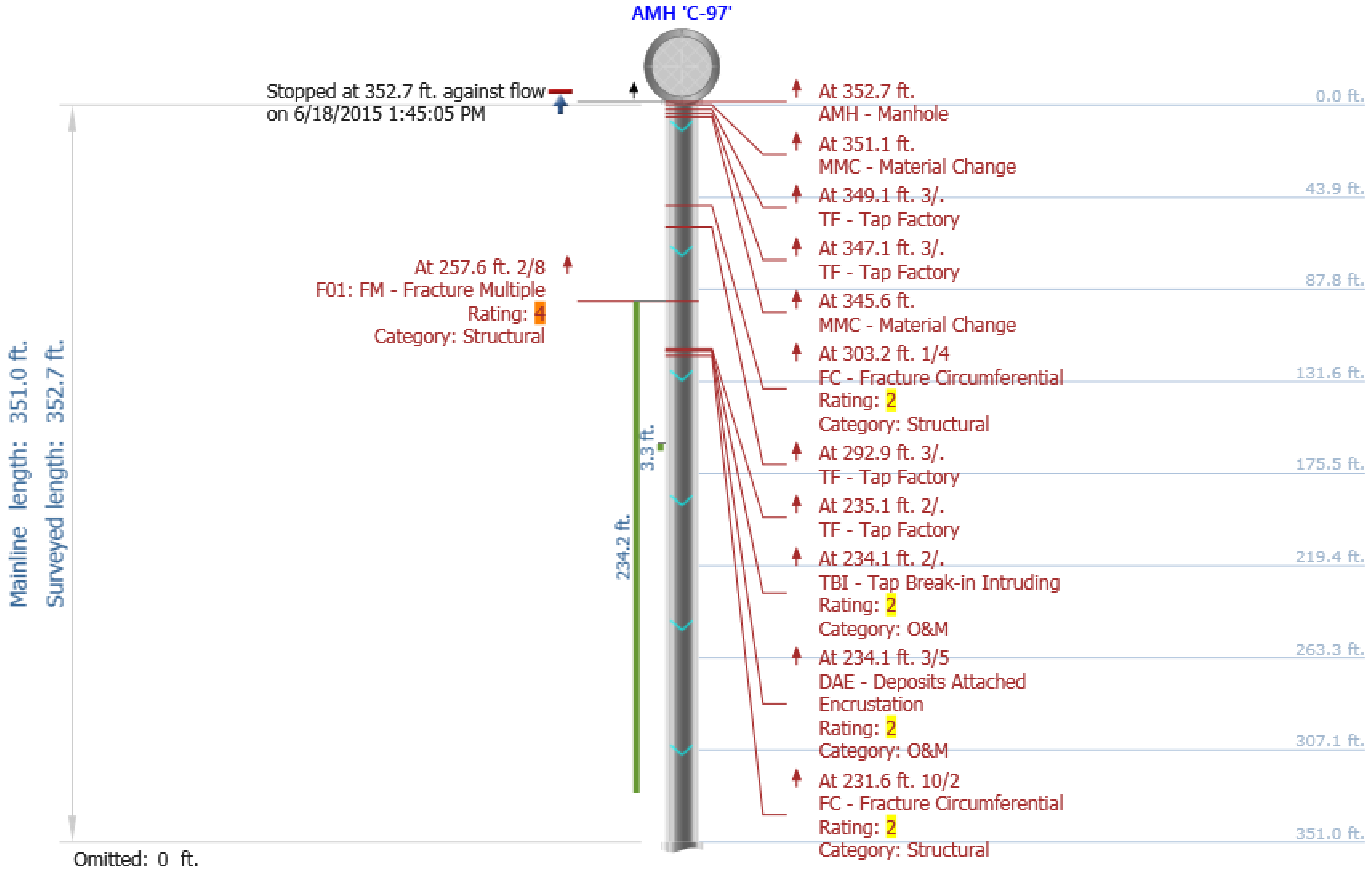
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
PACKET-5 SANITARY	**C-97 - C-96 - 6394**	**MT PLEASANT**	**BROWN**
Start date/time:	Direction:	Weather:	Location code:
6/18/2015 1:29 PM	**U**	**1**	**B**
Shape:	Material:	Height:	Width:
C	**CP**	**8 in.**	

Scores

Calculated at: **8/14/2015 11:30:17 AM**

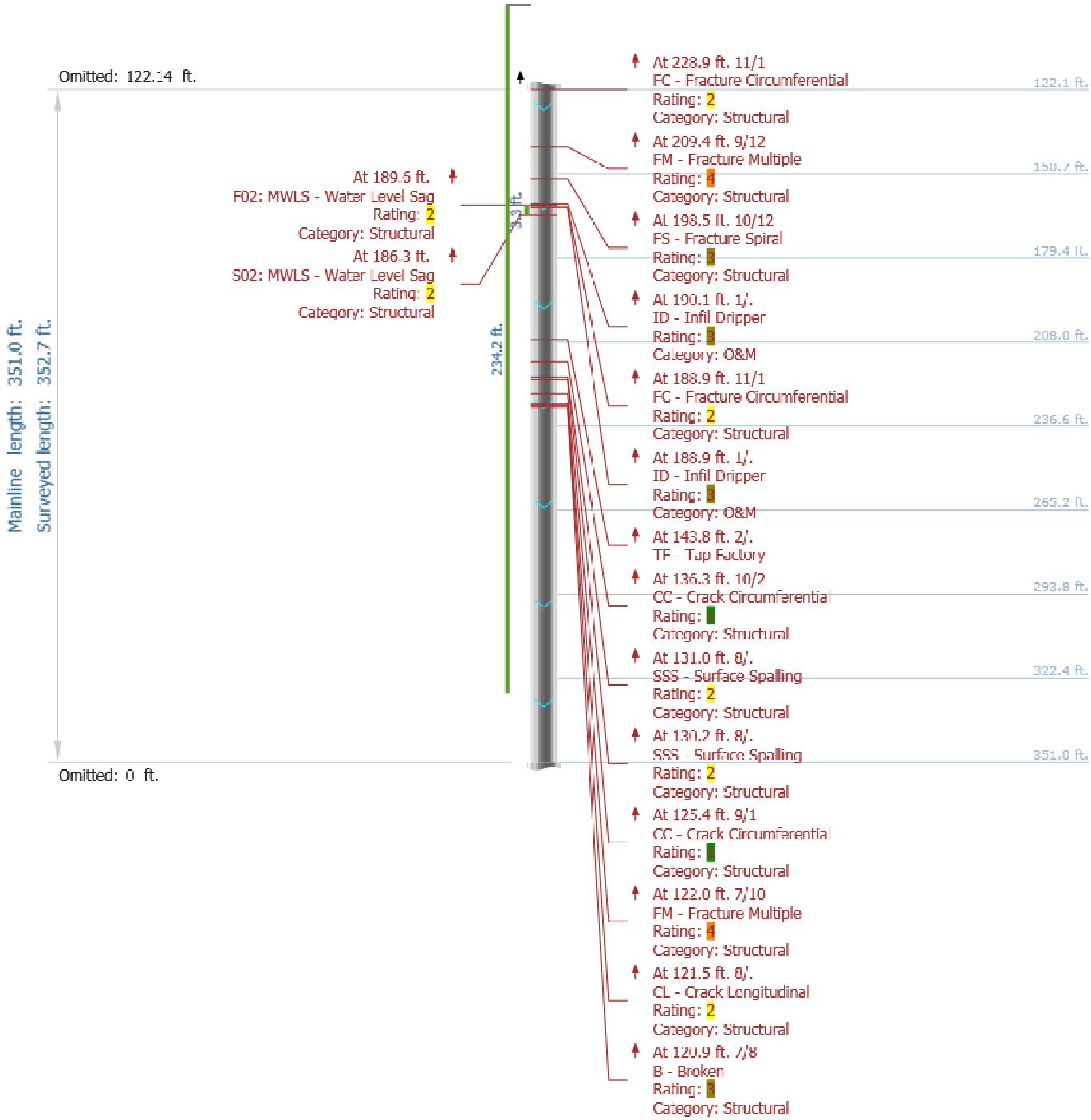
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	2	250	4I34	3.57	0	10	3222	2.50	260	3.51
2	20				4					
3	12				6					
4	216				0					
5	0				0					



Project name:	Mainline ID:	Start date/time:	Direction:
PACKET-5 SANITARY	**C-97 - C-96 - 6394**	**6/18/2015 1:29 PM**	**U**

Weather:

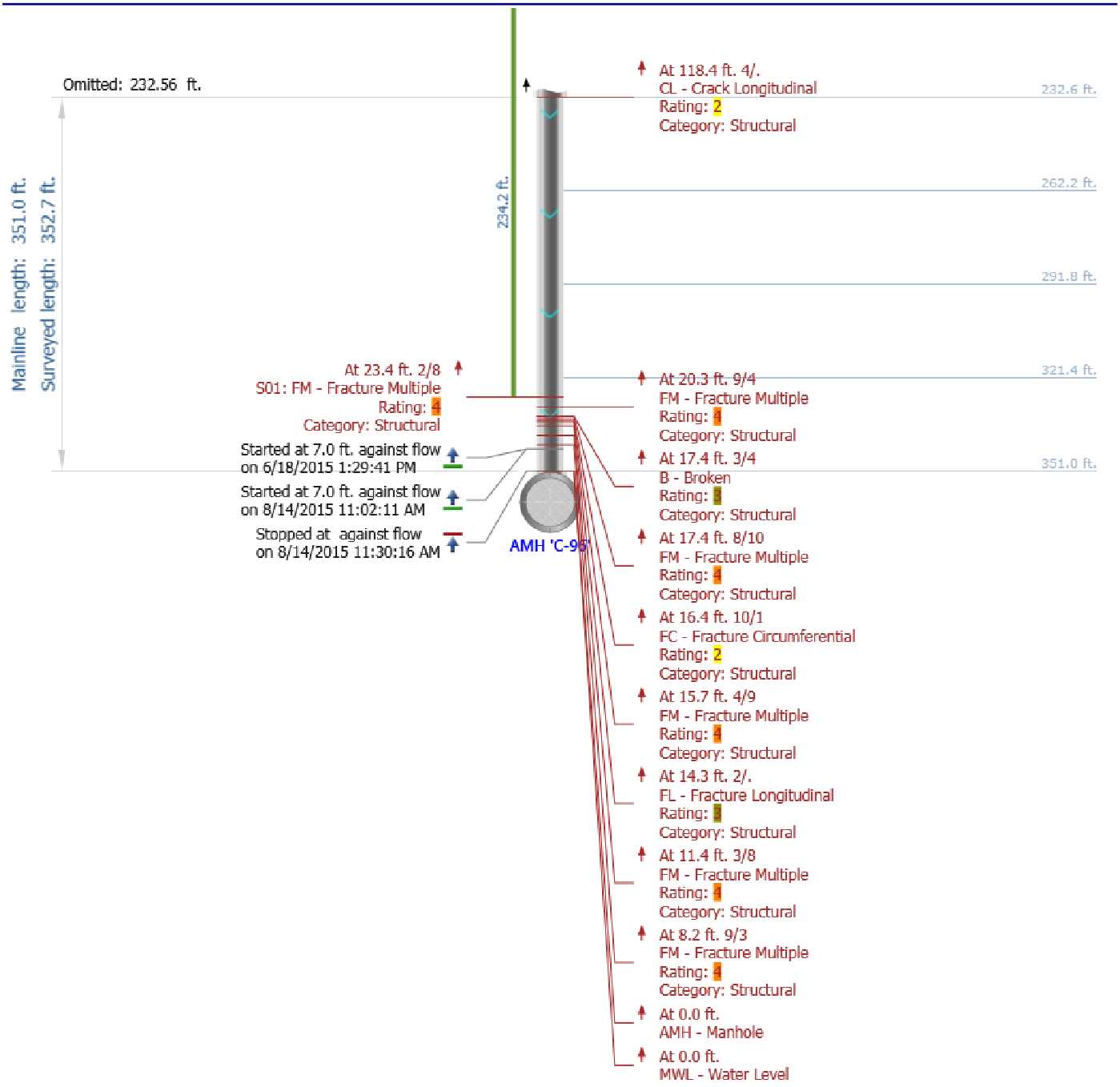
1



Project name:	Mainline ID:	Start date/time:	Direction:
PACKET-5 SANITARY	**C-97 - C-96 - 6394**	**6/18/2015 1:29 PM**	**U**

Weather:

1



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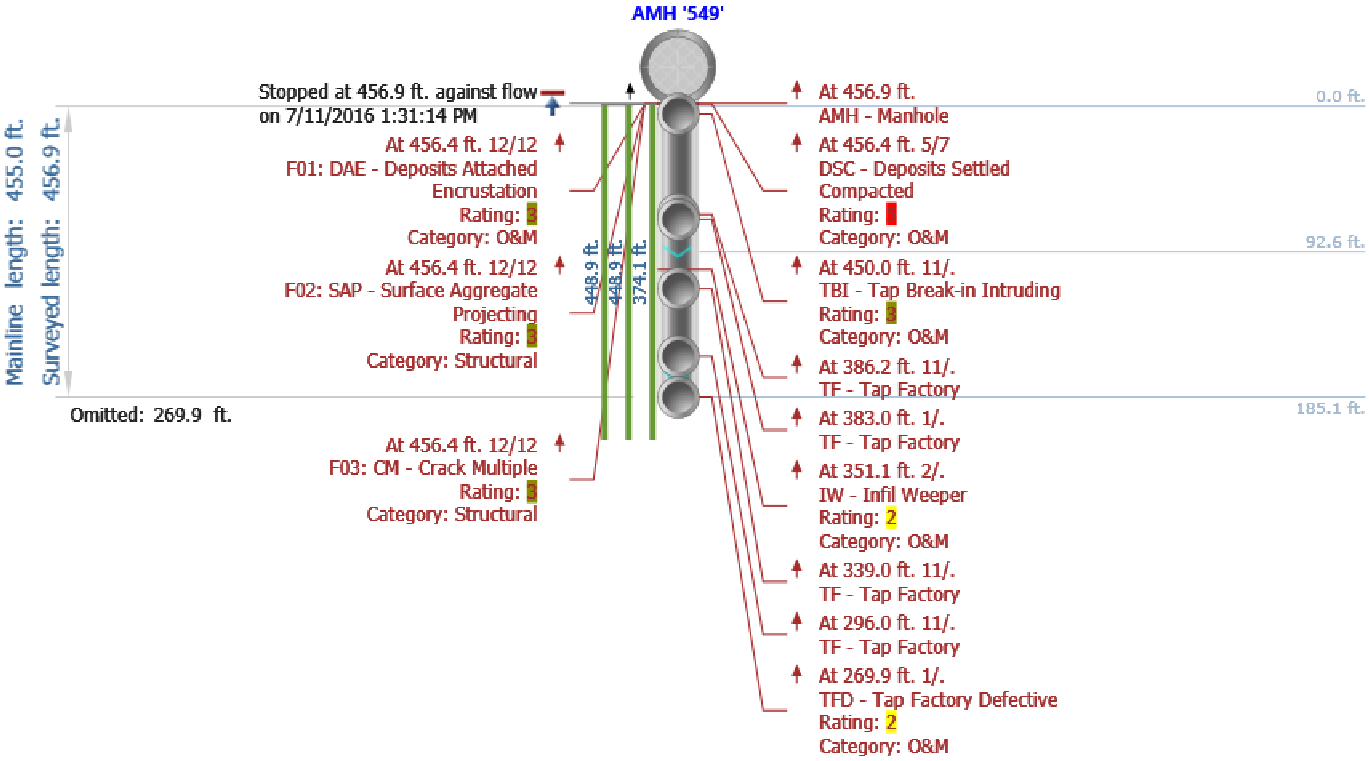
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
MT. PLEASANT SANITARY PACKET 13	**549-548-6432**	**MT. PLEASANT**	**ANDRE**
Start date/time:	Direction:	Weather:	Location code:
7/11/2016 12:57 PM	**U**	**1**	**C**
Shape:	Material:	Height:	Width:
C	**RCP**	**8 in.**	

Scores

Calculated at: **8/24/2016 2:19:14 PM**

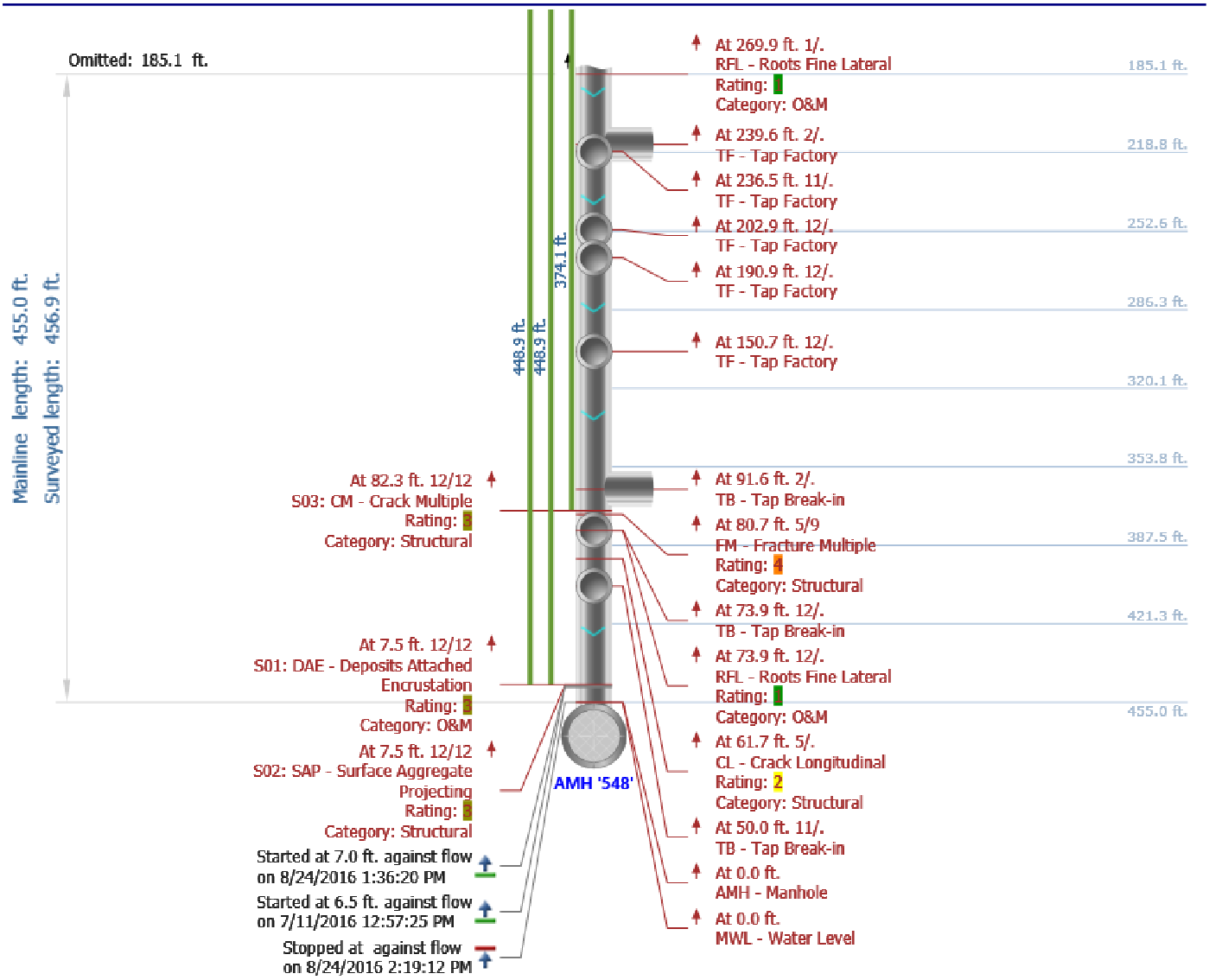
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	0	501	413Z	3.00	2	284	513Q	2.96	785	2.98
2	2				4					
3	495				273					
4	4				0					
5	0				5					



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 13	**549-548-6432**	**7/11/2016 12:57 PM**	**U**

Weather:

1



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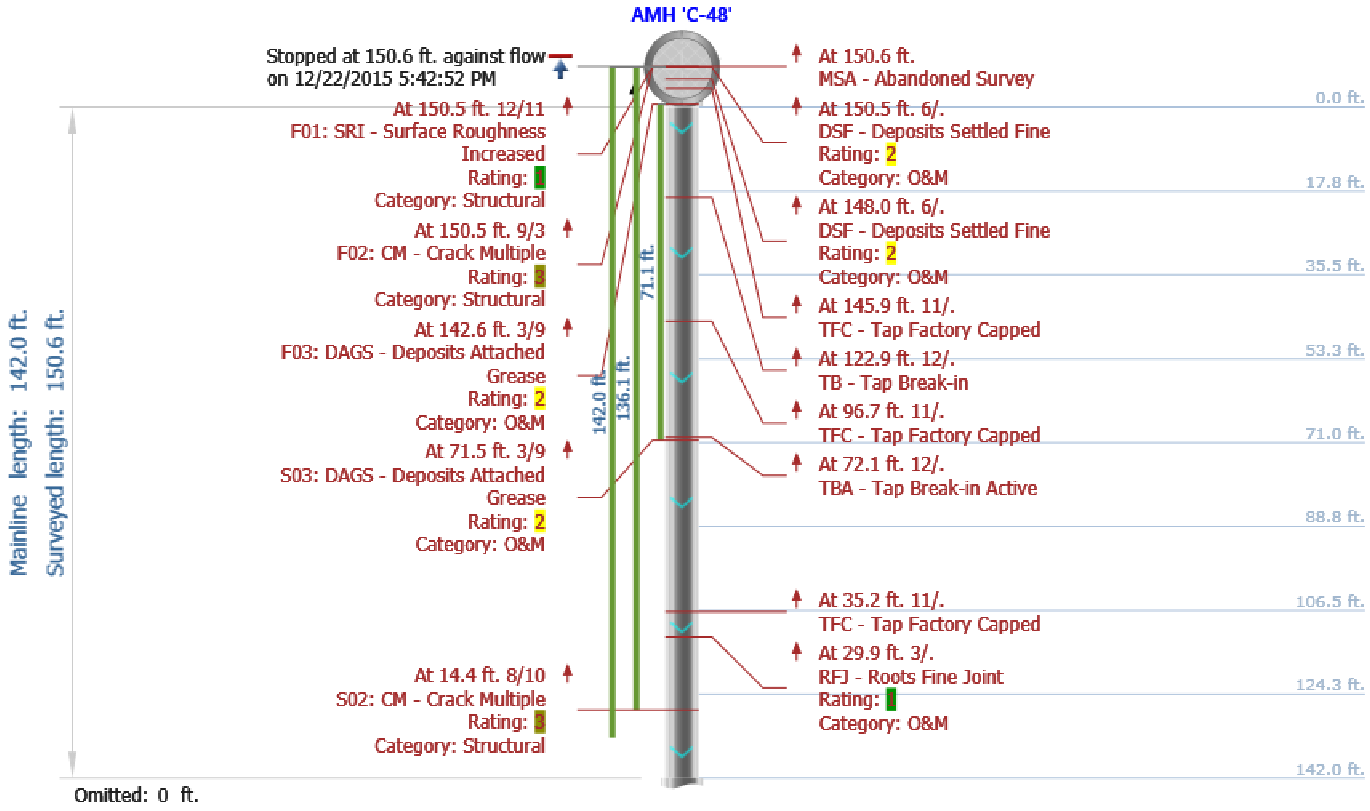
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
MT. PLEASANT SANITARY PACKET 6	**C-48-C-48-1-6570**	**MT. PLEASANT**	**S. OF PICKARD**
Start date/time:	Direction:	Weather:	Location code:
12/22/2015 6:18 PM	**U**	**1**	**G**
Shape:	Material:	Height:	Width:
C	**CP**	**8 in.**	

Scores

Calculated at: **1/20/2016 1:25:13 PM**

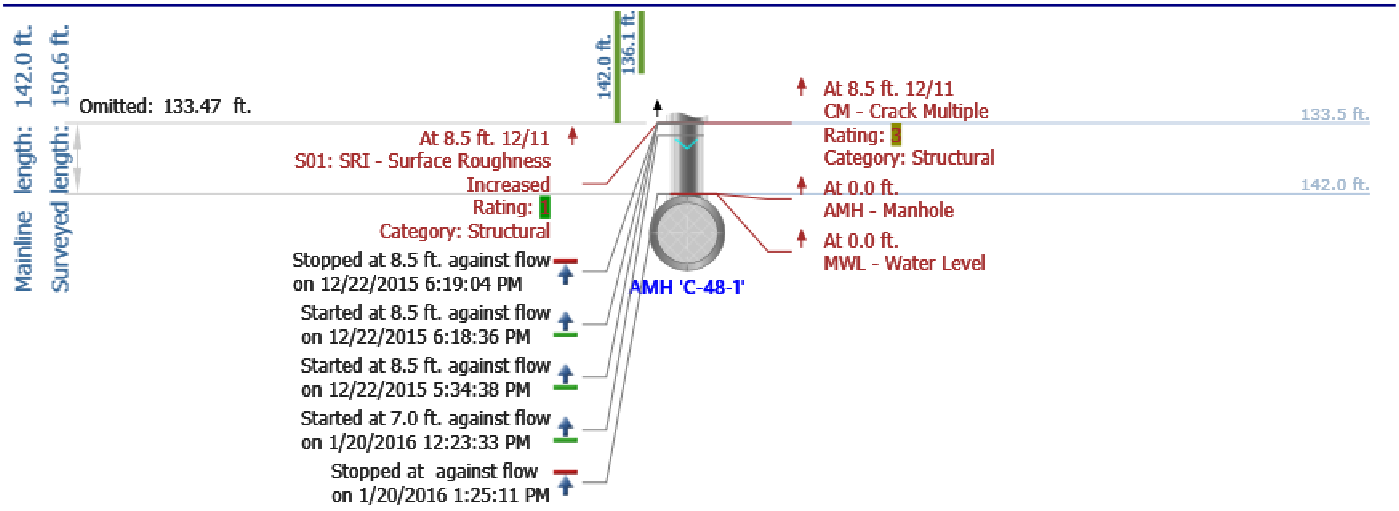
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	28	112	3D1D	2.00	1	33	2B11	1.94	145	1.99
2	0				32					
3	84				0					
4	0				0					
5	0				0					



Project name:	Mainline ID:	Start date/time:	Direction:
MT. PLEASANT SANITARY PACKET 6	**C-48-C-48-1-6570**	**12/22/2015 6:18 PM**	**U**

Weather:

1



CUES, Inc.
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Orlando, FL 32805
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Fax: 407-425-1569

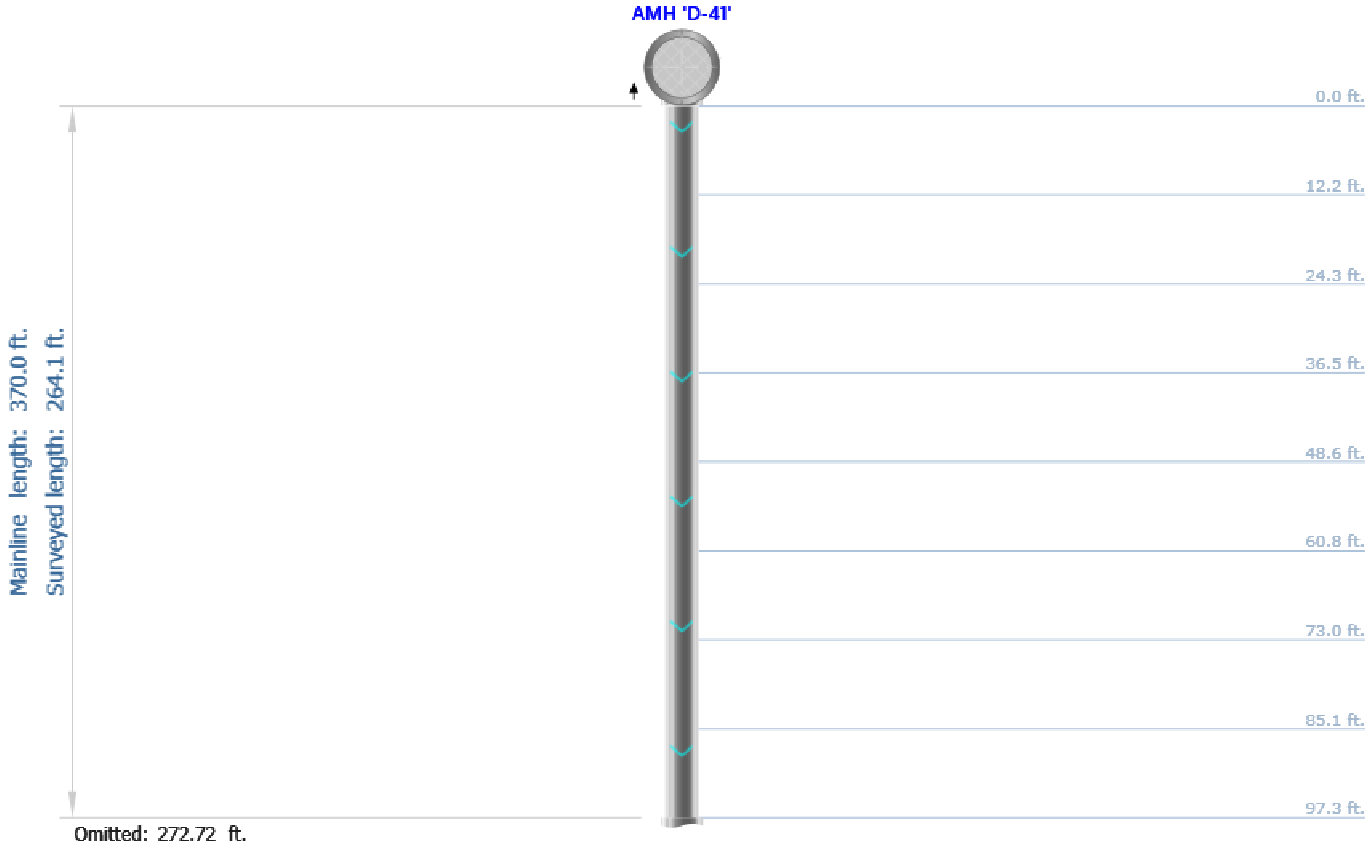
Main Inspections Pipe Run and Scoring

Project name:	Mainline ID:	City:	Street:
MT PLEASANT SANITARY PACKET #3	**D-41-D-40-7245.**	**MT. PLEASANT**	**FANCHER**
Start date/time:	Direction:	Weather:	Location code:
12/9/2015 4:13 PM	**U**	**1**	**C**
Shape:	Material:	Height:	Width:
C	**VCP**	**6 in.**	

Scores

Calculated at: **1/8/2016 1:53:15 PM**

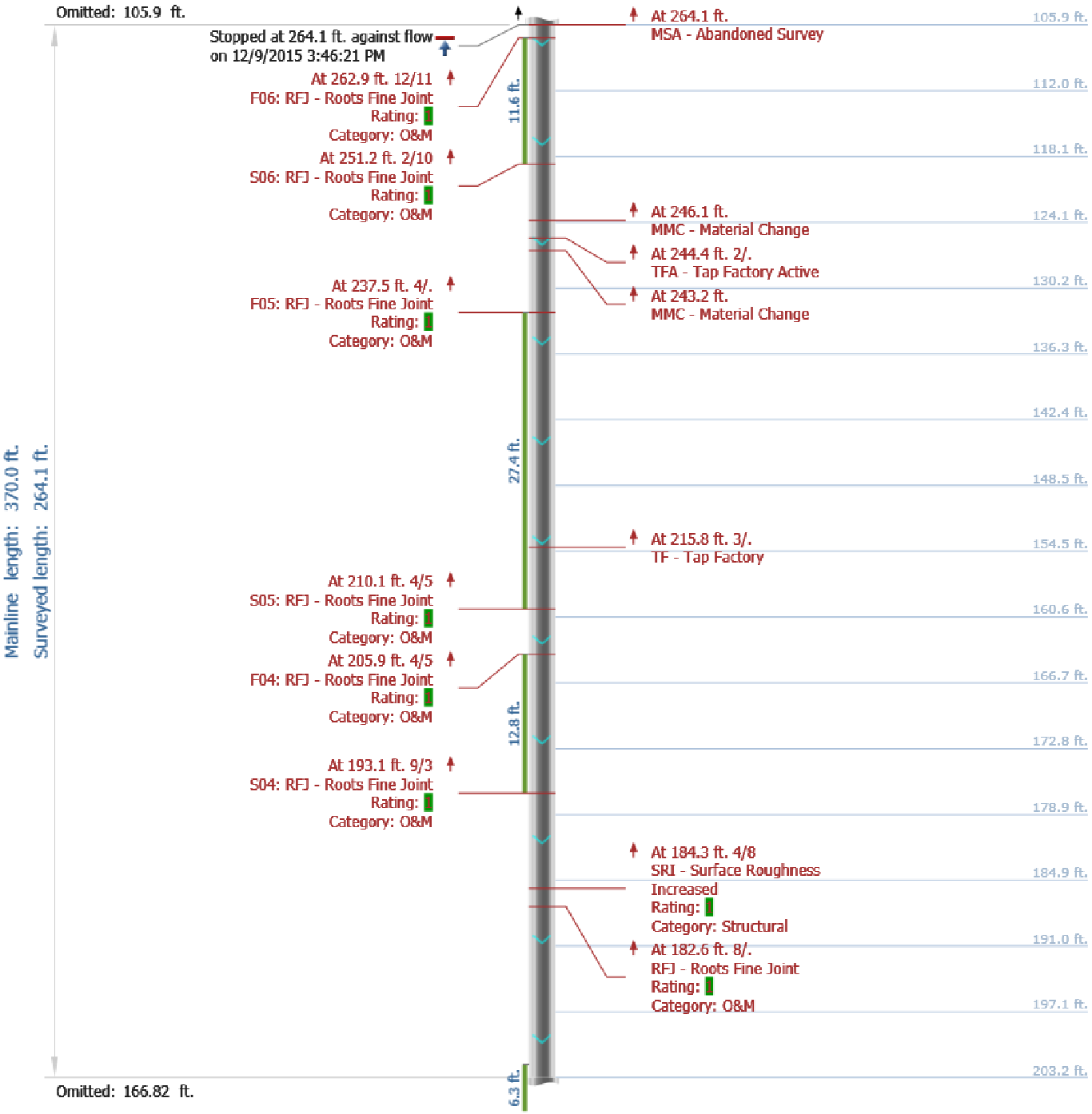
Grade	Structural:				O&M:				Overall:	
	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Segment Grade	Pipe Rating	Quick Rating	Pipe Rating Index	Pipe Rating	Pipe Rating Index
1	11	24	5132	1.60	25	34	3123	1.17	58	1.32
2	2				6					
3	6				3					
4	0				0					
5	5				0					



Project name:	Mainline ID:	Start date/time:	Direction:
MT PLEASANT SANITARY PACKET #3	**D-41-D-40-7245.**	**12/9/2015 4:13 PM**	**U**

Weather:

1

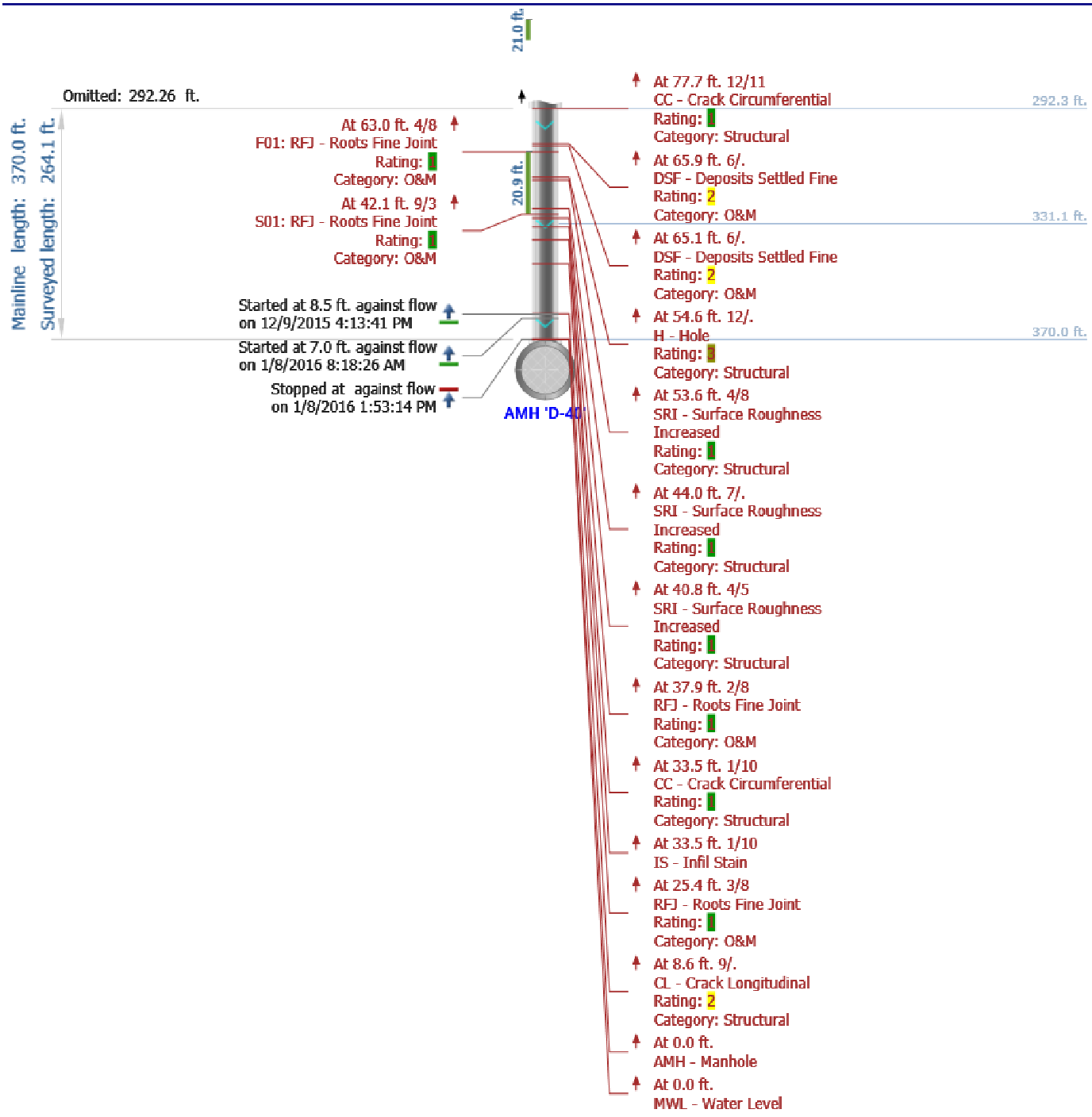


Project name:	Mainline ID:	Start date/time:	Direction:
MT PLEASANT SANITARY PACKET #3	**D-41-D-40-7245.**	**12/9/2015 4:13 PM**	**U**

Weather:

1

Project name:	Mainline ID:	Start date/time:	Direction:
MT PLEASANT SANITARY PACKET #3	**D-41-D-40-7245.**	**12/9/2015 4:13 PM**	**U**

Weather:

1