

**2022 ANNUAL PROGRESS REPORT  
SWMU 1 – OILY WATER SEWER  
HF SINCLAIR PUGET SOUND REFINING LLC**

*Prepared for:*

Industrial Section  
Washington Department of Ecology  
PO Box 47600  
Olympia, WA 98504-7600

*Prepared by:*

HF Sinclair Puget Sound Refining LLC  
8505 South Texas Road  
Anacortes, WA 98221



February 27, 2023

2/27/2023

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Eric Libolt  
Professional Engineer #51580

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## 1.0 INTRODUCTION

This annual progress report has been prepared in accordance with the requirements in Section VII.C. of Agreed Order No DE 16298 (AO). The AO was entered into by the Washington State Department of Ecology (Ecology) and the predecessor to HF Sinclair Puget Sound Refining LLC (HFSPSR), Shell Oil Products US Puget Sound Refinery. The objective of the AO is to investigate and conduct remedial actions to the Puget Sound Refinery's oily water sewer (OWS) system, also referred to as Solid Waste Management Unit 1 (SWMU-1).

Per Section VII.A of the AO, an Investigation and Response Plan (IRP) was prepared to provide a framework to investigate the integrity of the OWS and respond to any releases or threatened releases from the OWS that are discovered during the investigation. Ecology approved the IRP by letter and email on June 24, 2022. The AO requires HFSPSR to submit an annual progress report to Ecology by April 1st of each year following the implementation of the IRP.

The IRP outlined four Phases of major OWS trunk line inspections to be completed by December 31, 2031. Video footage from previous sewer inspections was reviewed during 2022 to determine its suitability for inclusion in the inspection program.

The Puget Sound Refinery is situated two miles east of the city of Anacortes on the southern portion of March Point, a north-south oriented peninsula about 1.3 miles wide and 2.6 miles long. HFSPSR owns approximately 828 acres of the southern portion of March Point. The HFSPSR petroleum refining facilities occupy approximately 550 acres in the central portion of the property. The site address is 8505 South Texas Road, Anacortes, Washington 98221. The property location is shown on Figure 1.

Contact information for the Ecology site manager, project consultant and property owner/facility operator are included below.

- Ecology Site Manager: Andy Rippert
  - Address: PO Box 47600, Olympia, WA 98504
  - Phone: (360) 522-2499
  - Email: arip461@ecy.wa.gov

- Project Consultant: Whatcom Environmental Services, Inc.
  - Address: 228 E Champion St #101, Bellingham, WA 98225
  - Contact: Eric Libolt
  - Phone: (360) 752-9571
  - Email: elibolt@whatcom-es.com
  
- Property Owner/Facility Operator: HFSPSR
  - Address: 8505 South Texas Road, Anacortes, WA 98221
  - Contact: Jim Schneider
  - Phone: (360) 293-0868
  - Email: Jim.Schneider@HFSinclair.com

## **2.0 DEVIATIONS FROM THE IRP**

*In accordance with the VII.C.1 of Agreed Order No. DE 16298 HF Sinclair Puget Sound Refining is required to report any deviations from the Investigation and Response Plan.*

There were no deviations from the IRP in 2022.

### **3.0 OILY WATER SEWER ASSESSMENT**

*In accordance with the VII.C.2 of Agreed Order No. DE 16298 HF Sinclair Puget Sound Refining is required to report the findings of the sewer assessment, including the general condition of the OWS system components, the location and description of any problems identified and their cause, and a description of actions taken or planned to repair or maintain system components based on the results of the testing.*

Section 2.1 of the IRP states that video inspections completed on major trunk lines at HFSPSR prior to the issuance of the IRP may be used to comply with Agreed Order 16298 provided that the video inspections are evaluated in accordance with the IRP requirements for video inspection. OWS inspections were conducted in 2017 and 2018 by HydroChem and in 2019 by Clean Harbors using CCTV equipment. All inspection videos were provided to Whatcom Environmental Services in 2022 for assessment using the National Association of Sewer Service Companies (NASSCO) rating system. The videos were reviewed for quality and completeness. Defects (e.g., cracking, fractures, offset joints, etc.) were classified using NASSCO's Pipeline Assessment Certification Program (PACP). Following assignment of a NASSCO rating, each defect was assigned an environmental evaluation ranking (EER) based on the potential for a release.

Four locations were identified to have either an EER of 3 or 4 equating to a moderate to high potential for process sewer exfiltration. These areas will be investigated to determine if a release has occurred. Repairs are being evaluated by HFSPSR. The video review report is provided in this report in Appendix A.

#### **4.0 RELEASES**

*In accordance with the VII.C.3 of Agreed Order No. DE 16298 HF Sinclair Puget Sound Refining is required to report information on the nature and extent of releases identified including the characteristics of the release, sampling results, how soil and groundwater quality was evaluated, and information on the extent of soil and groundwater impacts.*

There were no confirmed (by investigation) releases identified in 2022.

## **5.0 CORRECTIVE ACTIONS AND INTERIM MEASURES TAKEN**

*In accordance with the VII.C.4 of Agreed Order No. DE 16298 HF Sinclair Puget Sound Refining is required to report a description of the corrective actions or interim measures taken or planned to remediate soil or groundwater, including the volume and disposition of contaminated soil removed, and measures taken to monitor or remediate groundwater.*

No corrective actions or interim measures were taken or planned to remediate soil or groundwater in 2022.



## **6.0 INACCESSIBLE AREAS**

*In accordance with the VII.C.5 of Agreed Order No. DE 16298 HF Sinclair Puget Sound Refining is required to report areas that were determined to be inaccessible and where contaminated soil or groundwater was left in place.*

No areas were determined to be inaccessible in 2022.

## **7.0 GEOLOGY AND HYDROGEOLOGY**

*In accordance with the VII.C.6 of Agreed Order No. DE 16298 HF Sinclair Puget Sound Refining is required to provide a discussion of the geology/hydrogeology in the area of any releases and how these characteristics may influence the migration of contaminants.*

No confirmed releases were identified in 2022.

## **8.0 RISK OF CONTAMINATION MIGRATION**

*In accordance with the VII.C.7 of Agreed Order No. DE 16298 HF Sinclair Puget Sound Refining is required to report measures to assess and prevent the risk of migration of contamination until a final remedy is implemented, including the elements of a groundwater monitoring program (number and location of wells, parameters monitored, frequency of monitoring).*

No areas of confirmed contamination were identified in 2022.

## **9.0 PREVIOUSLY DETERMINED INACCESSIBLE AREAS**

*In accordance with the VII.C.8 of Agreed Order No. DE 16298 HF Sinclair Puget Sound Refining is required to report a review of areas that were previously determined to be inaccessible to determine if they have become accessible in the last year, together with proposed timing and approach for remediation of the area(s). HF Sinclair Puget Sound Refining must submit a work plan for Ecology review and approval prior to initiating remedial action for a previously inaccessible area*

No areas were previously determined to be inaccessible in 2022.

## **10.0 CONCLUSIONS**

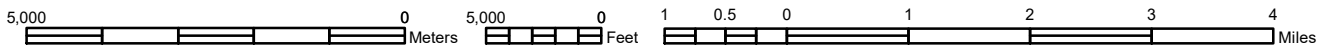
As part of the Phase I OWS investigation, sewer evaluations have been completed on previously inspected and filmed segments of the OWS at the Puget Sound Refinery. There were 4 locations that were identified to have a potential for release. Planning for site characterization, per the IRP, is in progress at all 4 locations.

As shown on Figure 2, further OWS site assessment of the Phase I investigation will continue in 2023 following the schedule presented in the Investigation and Response Plan.

## **11.0 REFERENCES**

HollyFrontier Puget Sound Refinery. June 15, 2022. Investigation and Response Plan  
SWMU 1 – Oily Water Sewer.

Washington State Department of Ecology (Ecology). Agreed Order for Interim Action –  
Oily Water Sewer (SWMU-1). No. DE 16298.



Prepared for:  
Puget Sound Refinery



Prepared by:

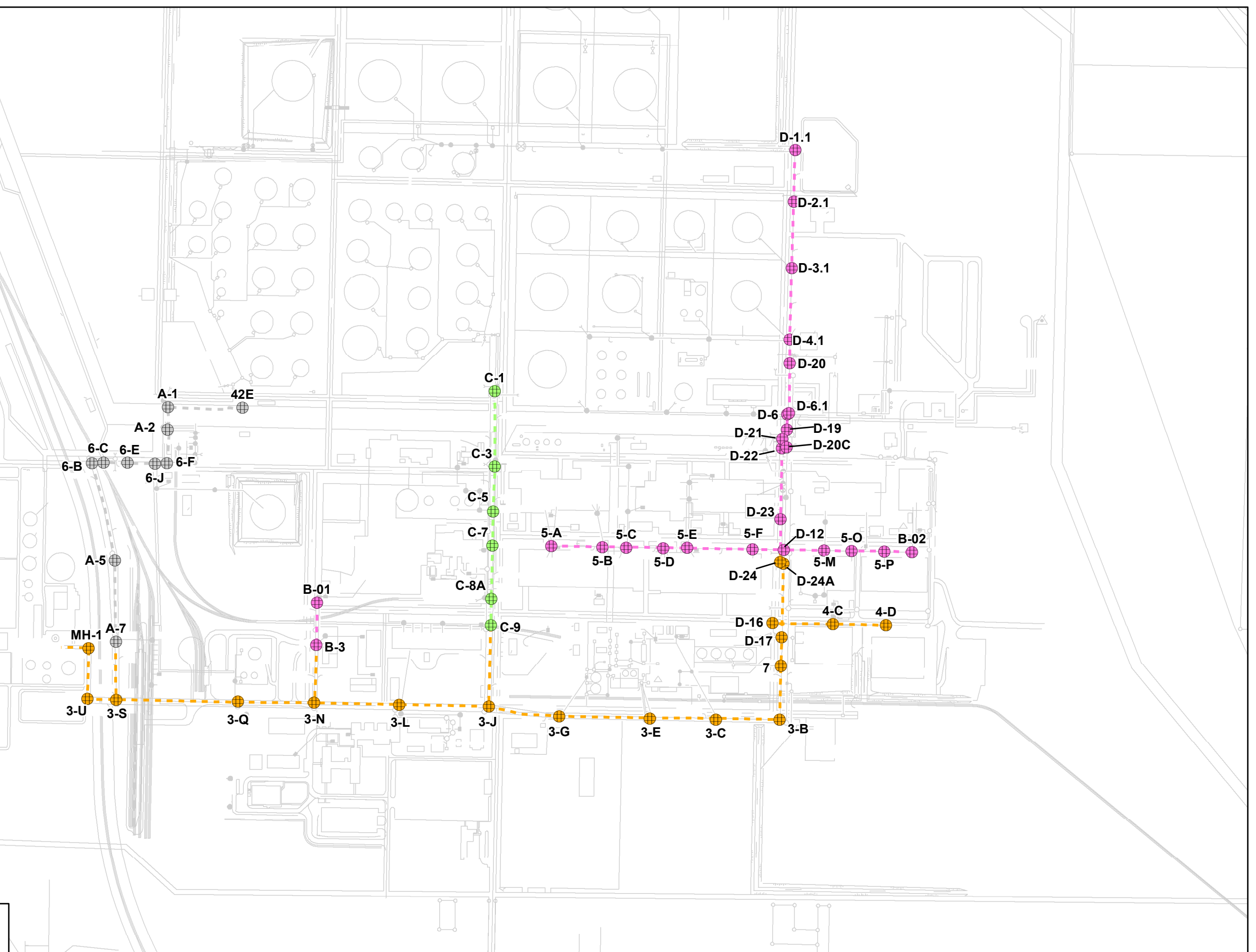


### Site Location Map

Oily Sewer Review

2/27/23

# Figure 1



⊕ Oily Sewer Manholes

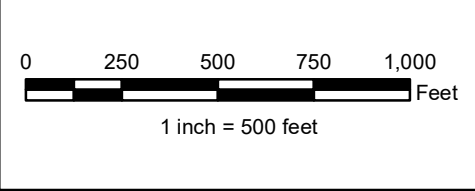
--- Oily Water Sewer Major Trunk Lines

**Inspection to be completed by date:**

December 31, 2023	December 31, 2028
December 31, 2026	December 31, 2031

HF Sinclair PSR Base Map:  
General Sewer Plan (34-ES-1)

All data are approximate and should be used for relative location reference only.



Puget Sound Refinery  
**HF Sinclair**  
8505 South Texas Road  
Anacortes, WA 98221

**Major Trunk Lines Oily Water Sewer Map**

Prepared on: 2/27/23

**Figure 2**



## **APPENDIX A**

2022 HF Sinclair PSR Existing Sewer Video Evaluation

December 5, 2022

Ms. Tracey Anderson  
HF Sinclair Puget Sound Refining LLC  
8505 South Texas Road  
Anacortes, WA 98221

**RE: Evaluation and NASSCO Rating of Existing Sewer Videos**

Ms. Anderson:

Whatcom Environmental Services conducted an evaluation of sewer video at the HF Sinclair Puget Sound Refining LLC (HFSPSR). Video inspections of the major trunk lines of the Oily Water Sewer (OWS) at HFSPSR are required to be conducted under the terms of Agreed Order 16298.

This evaluation was conducted on video which was previously recorded from inspections conducted on the OWS in 2017, 2018, and 2019. The review was performed by personnel certified by the National Association of Sewer Service Compliance (NASSCO) Pipeline Assessment Certification Program (PACP).

The evaluation was also completed to comply with Section 2.1 of the HFSPSR Investigation and Response Plan SWMU 1 – Oily Water Sewer (IRP). The IRP states that video inspections completed on major trunk lines at HFSPRS prior to the issuance of the IRP may be used to comply with Agreed Order 16298 provided that the video inspections are evaluated in accordance with the IRP requirements for video inspection.

The OWS inspection videos were reviewed by Henry Cade (NASSCO certification P0037737-052022). Surveys included video data collected in 2017 and 2018 by HydroChem and 2019 by Clean Harbors. A list and map of the OWS segments reviewed is provided in Table 1 and Figure 1, respectively. Each sewer video was uploaded then reviewed in Pipelogix Pheonix Version 1.2.6 SP 2 software. Additionally, each NASSCO code was given an Environmental Evaluation Ranking (EER) from 1 to 4 in pursuant to the evaluation rankings conducted for the Tulsa Refinery. The EER categories are listed below:

EER 1: No potential to small potential for process sewer exfiltration. Examples include hairline cracks, joint improperly seated, slight corrosion in pipe, etc. Required actions: document rating in tracking system and long-term monitoring.

EER 2: Small to moderate potential for process sewer exfiltration. Examples include moderate cracks/fractures; medium offset joint; moderate corrosion in pipe, etc. Required actions: document rating in tracking system and long-term monitoring.

EER 3: Moderate to high potential for process sewer exfiltration. Examples include substantial fractures at or below the segment flow line, small hole located at pipe crown, large offset joint, etc. Required actions: document rating in tracking system and prioritize defects for repair in order of severity and/or short-term monitoring.

EER 4: High potential/observed process sewer exfiltration. Examples include large hole located at or below segment flow line, completely separated joints with exposed surrounding soil, etc. Required actions: begin repair planning.

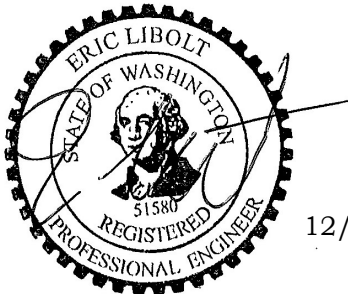
There were a total of 4 NASSCO codes that were rated at an EER of either 3 or 4. A list and description for each is provided in Table 2 and shown on Figure 2.

Attached are Pipe Graphic, Tabular, and Picture List reports generated in Pipelogix that summarize every NASSCO code in each sewer segment provided in Appendix A.

Per the IRP, the defects which were identified as EER 3 or EER 4 (as shown on Table 2) are considered potential releases. Site investigation activities should be initiated in these areas to determine if a release has occurred. In addition, pursuant to the IRP, these areas should be prioritized for sewer repairs as needed.

We appreciate the opportunity to assist HFSPSR with this project. If you have any questions about this report, please contact me at 360-752-9571 or [elibolt@whatcom-es.com](mailto:elibolt@whatcom-es.com)

Sincerely,



12/5/2022

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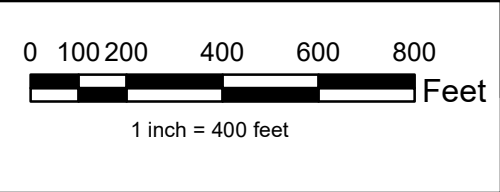
Eric Libolt  
Professional Engineer #51580



- ⊕ Sewer Investigation Manholes
- NASSCO review complete
- Major Trunk Lines
- - - - Oily Water Sewer

HF Sinclair PSR Base Map:  
General Sewer Plan (34-ES-1)

All data are approximate and should be  
used for relative location reference only.



Puget Sound  
Refinery  
**HF Sinclair**  
8505 South Texas Road  
Anacortes, WA 98221

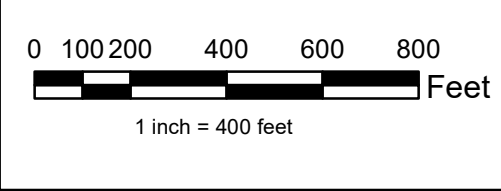
**Sewers Inspected  
and Sewer Status**  
Prepared on:  
12/7/22  
**Figure 1**



- ⊕ Sewer Investigation Manholes
- Environmental Evaluation Rankings 3 & 4
- Major Trunk Lines
- - - - Oily Water Sewer

HollyFrontier PSR Base Map:  
General Sewer Plan (34-ES-1)

All data are approximate and should be  
used for relative location reference only.



Puget Sound  
Refinery  
**HF Sinclair**  
8505 South Texas Road  
Anacortes, WA 98221

Environmental Evaluation  
Rankings 3 & 4  
Prepared on:  
11/30/22  
**Figure 2**

**Table 1. HF Sinclair Puget Sound Refining Reviewed Sewer Segments**

<b>Sewer Trunk Segment (MH to MH)</b>	<b>Pipe Diameter (Inch)</b>	<b>Inspected Footage (Feet)</b>	<b>Prior Company Inspection &amp; Year</b>
MH D-1 to MH D-2	15	252.8	HydroChem - 2017
MH D-2 to MH D-3	15	255.8	HydroChem - 2017
MH D-3 to MH D-4	15	412	HydroChem - 2017
MH D-4 to MH D-20	15	85.5	HydroChem - 2017
MH D-6 to MH D-19	15	85	HydroChem - 2017
MH D-20 to MH D-19	15	65	HydroChem - 2017
MH B-3 to MH 3-N	10	243.7	Clean Harbors - 2019
MH 5-P to MH 5-O	21	210.1	Clean Harbors - 2018
MH D-6.1 to MH D-20	15	233.8	HydroChem - 2017
MH D-6.1 to MH D-6	15	11.6	HydroChem - 2017
MH D-22 to MH D-23	32	333.2	HydroChem - 2017

**Table 2. HF Sinclair Puget Sound Refining Environmental Evaluation Ranking 3 and 4**

Sewer Trunk Segment (MH to MH)	NASSCO Code	EER	Location (Length (ft.)/Clock position)	Comments
MH D-4 to MH D-20 & MH D-6.1 to MH D-20	Hole Soil Visible	4	85.5' / 12 to 5 o'clock & 233.8' / 7 to 12 o'clock	Hole created to access Manhole D-20. Infiltration Runner Connection (IRC) from hole. The same code is in both sewer segments because both inspections end at MH D-20.
MH D-6.1 to MH D-20	Broken Void Visible	3	172.6' / 11 o'clock	Noticeably displaced pieces moved from their original position above the flow line.
MH D-6 to MH D-19	Broken Void Visible	3	69.0' / 12 o'clock	Noticeably displaced pieced moved from their original position above the flow line.
MH D-6 to MH D-19	Hole Soil Visible	3	74.0' / 12 o'clock	4 inch hole above flow line.

## **APPENDIX A**

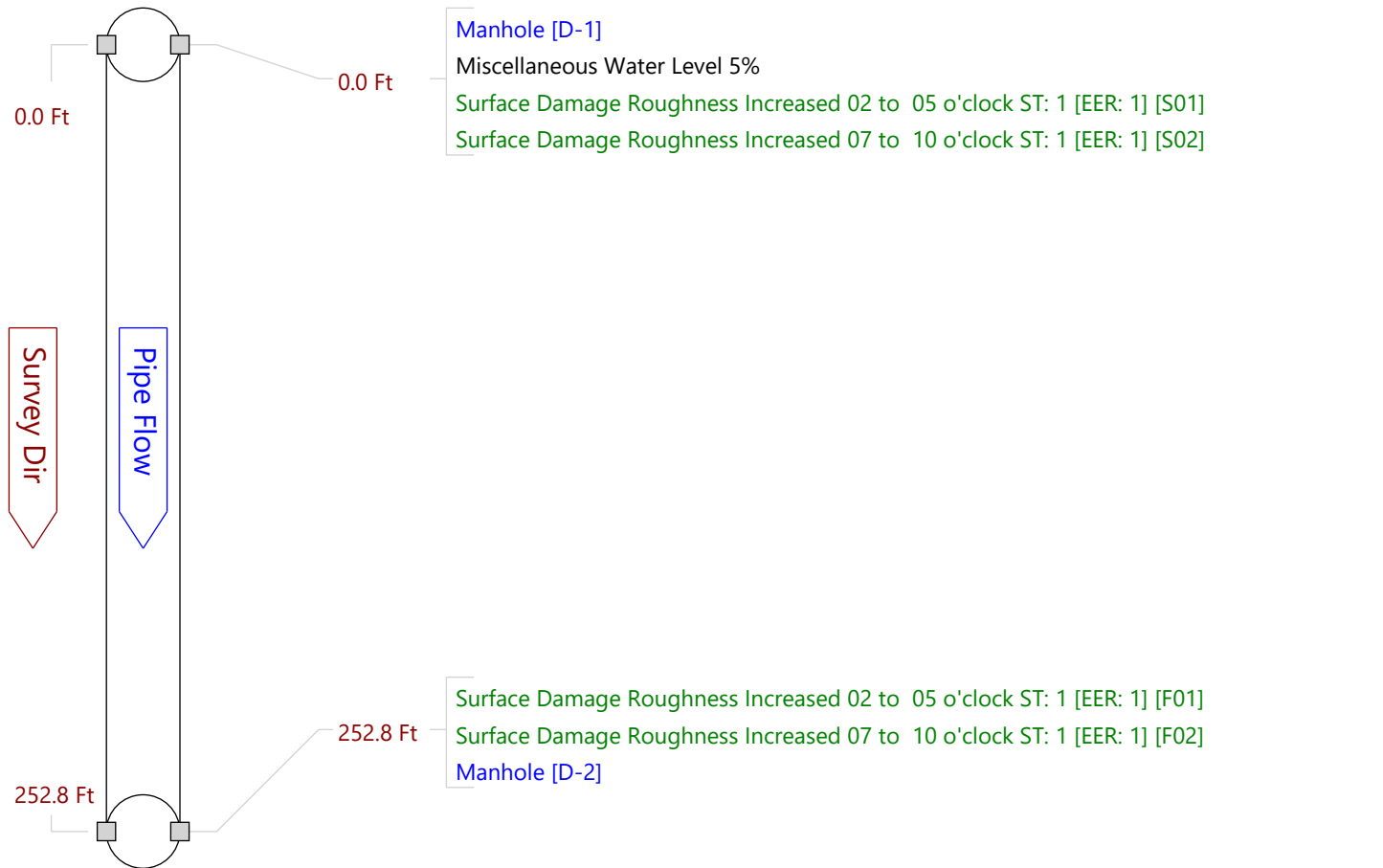
### Tabular, Graphic and Image Reports

Note: In the Pipe Graphic Reports there is a current a bug in the software that cuts off longer comments rather than wrapping the text. Pipelogix has been notified and once the issue is resolved Whatcom Environmental will provided updated reports.

Please see the corresponding tabular report for the full comment.



<b>Sheet 1</b>	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>
<b>Reviewed By</b> WES	<b>Reviewer #</b>	<b>Work Order</b>	
<b>Customer</b>	<b>PO</b>	<b>Media Label</b>	
<b>Date</b> 20170619 14:16	<b>Weather</b> Dry - No precipitation during survey	<b>PreClean</b> Not Known	<b>Date Cleaned</b>
<b>Flow Control</b> Not Controlled	<b>Purpose</b>	<b>Direction</b> Downstream	
<b>Inspection Status</b> Complete Inspection	<b>Consequence of Failure</b>	<b>Pressure</b>	
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Drainage Area</b>	
<b>Location</b>		<b>Pipe Use</b> Process Pipe	
<b>Details</b>		<b>Height</b> 15 in	<b>Width</b> in
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>	
<b>Coating</b>	<b>Joint Length</b> ft	<b>Total Length</b> 252.8 ft	
<b>Len. Surveyed</b> 252.8 ft	<b>Year Constructed</b>	<b>Year Rehabilitated</b>	
<b>Up</b> D-1	<b>Rim Invert</b> 8.2	<b>Grade Invert</b>	<b>Rim Grade</b> 12.7 ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Down</b> D-2	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Coordinate System</b>	<b>Vertical Datum</b>		
<b>GPS Accuracy</b>			
<b>Additional Info</b>	Miscellaneous <span style="color: green;">Structural</span> <span style="color: red;">O&amp;M</span> <span style="color: blue;">Constructional</span>		



**Sheet 1**      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By** WES      **Reviewer #**      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20170619 14:16      **Weather** Dry - No precipitation during survey      **PreClean** Not Known      **Date Cleaned**  
**Flow Control** Not Controlled      **Purpose**      **Direction** Downstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**       CCTV     Laser     Sonar     Sidewall     Zoom     Other

---

**Street** D Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 15 in      **Width** in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length** ft      **Total Length** 252.8 ft  
**Len. Surveyed** 252.8 ft      **Year Constructed**      **Year Rehabilitated**

---

**Up** D-1      **Rim Invert** 8.2      **Grade Invert**      **Rim Grade** 12.7 ft  
**Northing**      **Easting**      **Elevation**  
**Down** D-2      **Rim Invert**      **Grade Invert**      **Rim Grade** ft  
**Northing**      **Easting**      **Elevation**

---

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additional Info**

Miscellaneous
Structural
O&M
Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							D-1
0.0		MWL - Miscellaneous Water Level			005				
0.0	S01	SRI - Surface Damage Roughness Increased					02	05	EER: 1
0.0	S02	SRI - Surface Damage Roughness Increased					07	10	EER: 1
252.8	F01	SRI - Surface Damage Roughness Increased					02	05	EER: 1
252.8	F02	SRI - Surface Damage Roughness Increased					07	10	EER: 1
252.8		AMH - Manhole							D-2

252.8 ft Total Length Surveyed

<b>Work Order</b>	<b>Date</b> 4:16 20170619	<b>Sheet</b> 1
<b>Street</b> D Street		
<b>City</b> Anacortes	<b>Weather</b> Dry - No precipitation during survey	
<b>Location</b>		
<b>Up Node</b> D-1	<b>Down Node</b> D-2	<b>Direction</b> Downstream

0.0\_SRI\_From-02\_To-05.jpg

**Date:** 6/19/2017  
**Distance:** 0 ft  
**Obs:**  
SRI - Surface Damage  
Roughness Increased  
**Comments:**  
EER: 1



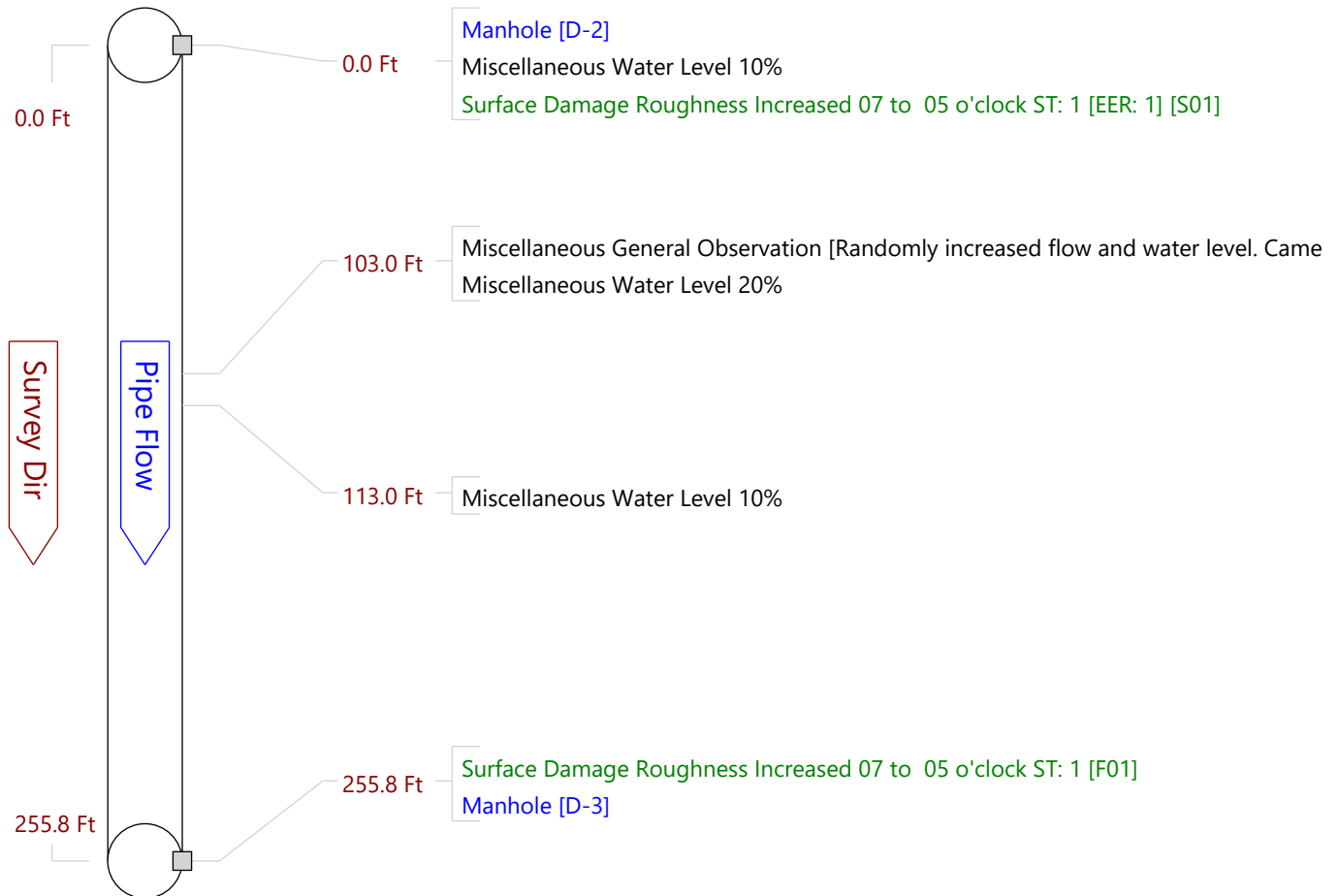
0.0\_SRI\_From-07\_To-10.jpg

**Date:** 6/19/2017  
**Distance:** 0 ft  
**Obs:**  
SRI - Surface Damage  
Roughness Increased  
**Comments:**  
EER: 1



<b>Sheet 2</b>	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>	
<b>Reviewed By</b>	<b>Reviewer #</b>	<b>Work Order</b>		<b>Media Label</b>
<b>Customer</b>		<b>PO</b>	<b>Date Cleaned</b>	
<b>Date</b> 20170619 11:39	<b>Weather</b>	<b>PreClean</b> Not Known	<b>Direction</b> Downstream	
<b>Flow Control</b> Not Controlled		<b>Purpose</b>	<b>Pressure</b>	
<b>Inspection Status</b> Complete Inspection		<b>Consequence of Failure</b>		
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other			
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Drainage Area</b>		
<b>Location</b>		<b>Pipe Use</b> Process Pipe		
<b>Details</b>		<b>Height</b> 15 in	<b>Width</b>	<b>in</b>
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>		
<b>Coating</b>	<b>Joint Length</b> ft	<b>Total Length</b>	255.8 ft	
<b>Len. Surveyed</b> 255.8 ft	<b>Year Constructed</b>	<b>Year Rehabilitated</b>		
<b>Up</b> D-2	<b>Rim Invert</b> 8.1	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Down</b> D-3	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Coordinate System</b>		<b>Vertical Datum</b>		
<b>GPS Accuracy</b>				
<b>Additional Info</b>				

Miscellaneous   Structural   O&M   Constructional



**Sheet 2**      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By**      **Reviewer #**      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20170619 11:39      **Weather**      **PreClean** Not Known      **Date Cleaned**  
**Flow Control** Not Controlled      **Purpose**      **Direction** Downstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**       CCTV     Laser     Sonar     Sidewall     Zoom     Other

---

**Street** D Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 15 in      **Width**      in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length**      ft      **Total Length** 255.8 ft  
**Len. Surveyed** 255.8 ft      **Year Constructed**      **Year Rehabilitated**

---

**Up** D-2      **Rim Invert** 8.1      **Grade Invert**      **Rim Grade**      ft  
**Northing**      **Easting**      **Elevation**  
**Down** D-3      **Rim Invert**      **Grade Invert**      **Rim Grade**      ft  
**Northing**      **Easting**      **Elevation**

---

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additional Info**

Miscellaneous      Structural      O&M      Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							D-2
0.0		MWL - Miscellaneous Water Level			010				
0.0	S01	SRI - Surface Damage Roughness Increased					07	05	EER: 1
103.0		MGO - Miscellaneous General Observation							Randomly increased flow and water level. Camera halted for approx. 10 mins.
103.0		MWL - Miscellaneous Water Level			020				
113.0		MWL - Miscellaneous Water Level			010				
255.8	F01	SRI - Surface Damage Roughness Increased					07	05	
255.8		AMH - Manhole							D-3

255.8 ft Total Length Surveyed

<b>Work Order</b>	<b>Date</b> 1:39 20170619	<b>Sheet</b> 2
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> D-2	<b>Down Node</b> D-3
		<b>Direction</b> Downstream

**Date:** 6/19/2017

**Distance:** 0 ft

**Obs:**  
SRI - Surface Damage  
Roughness Increased

**Comments:**

EER: 1

0.0\_SRI\_From-07\_To-05-D.jpg



**Date:** 6/19/2017

**Distance:** 103 ft

**Obs:**  
MWL - Miscellaneous  
Water Level

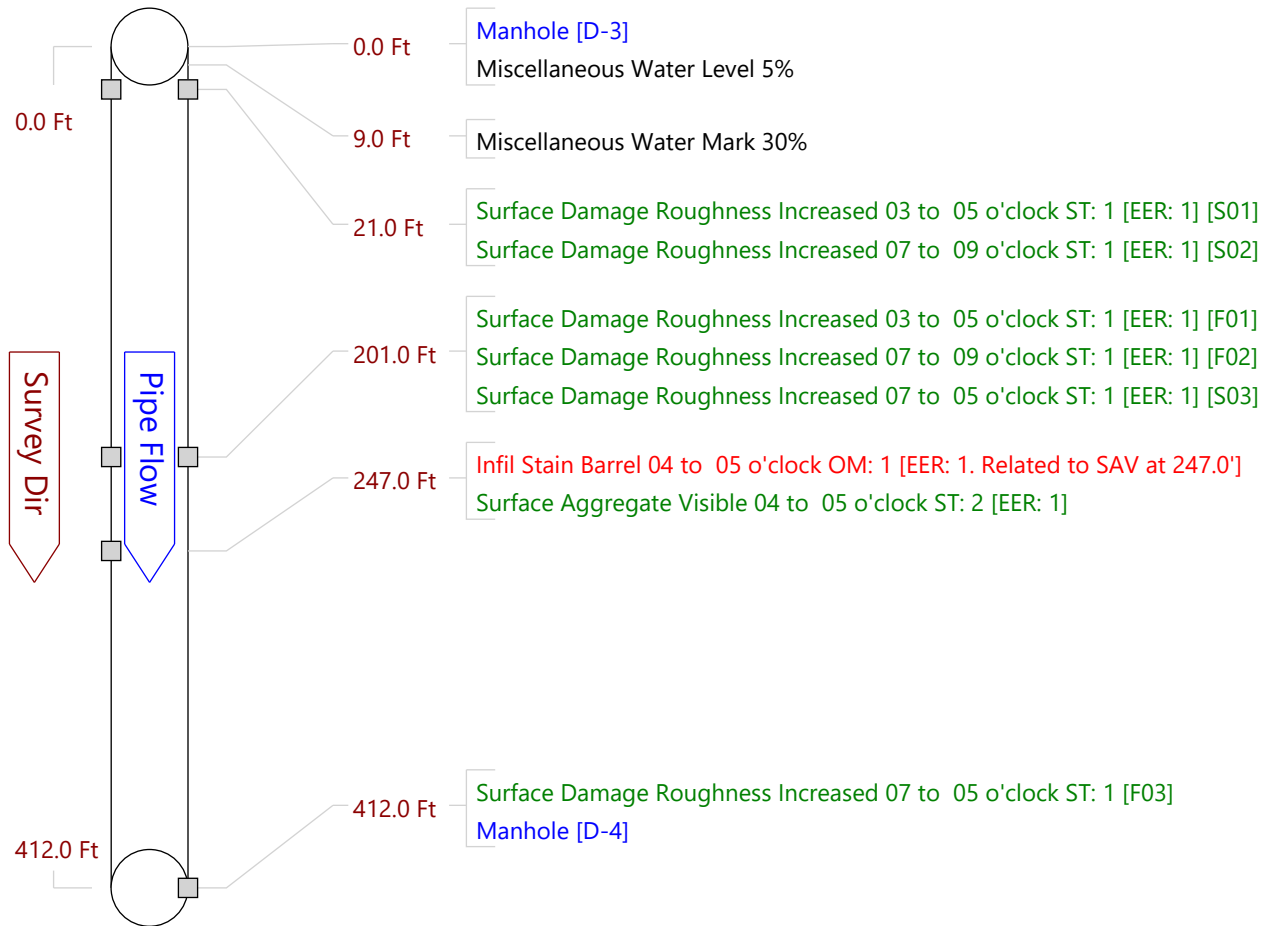
**Comments:**

103.0\_MWL\_From-\_To-.jpg



<b>Sheet 3</b>	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>	
<b>Reviewed By</b>	<b>Reviewer #</b>	<b>Work Order</b>		<b>Media Label</b>
<b>Customer</b>		<b>PO</b>	<b>Date Cleaned</b>	
<b>Date</b> 20170621 13:16	<b>Weather</b>	<b>PreClean</b> Not Known	<b>Direction</b> Downstream	
<b>Flow Control</b> Not Controlled		<b>Purpose</b>	<b>Pressure</b>	
<b>Inspection Status</b> Complete Inspection		<b>Consequence of Failure</b>		
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other			
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Drainage Area</b>		
<b>Location</b>		<b>Pipe Use</b> Process Pipe		
<b>Details</b>		<b>Height</b> 15 in	<b>Width</b>	<b>in</b>
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>		
<b>Coating</b>	<b>Joint Length</b> ft	<b>Total Length</b>	412.0 ft	
<b>Len. Surveyed</b> 412.0 ft	<b>Year Constructed</b>	<b>Year Rehabilitated</b>		
<b>Up</b> D-3	<b>Rim Invert</b> 8.6	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Down</b> D-4	<b>Rim Invert</b> 8.7	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Coordinate System</b>		<b>Vertical Datum</b>		
<b>GPS Accuracy</b>				
<b>Additional Info</b>				

Miscellaneous   Structural   O&M   Constructional



**Sheet 3**      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By**      **Reviewer #**      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20170621 13:16      **Weather**      **PreClean** Not Known      **Date Cleaned**  
**Flow Control** Not Controlled      **Purpose**      **Direction** Downstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**       CCTV     Laser     Sonar     Sidewall     Zoom     Other

---

**Street** D Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 15 in      **Width** in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length** ft      **Total Length** 412.0 ft  
**Len. Surveyed** 412.0 ft      **Year Constructed**      **Year Rehabilitated**

---

**Up** D-3      **Rim Invert** 8.6      **Grade Invert**      **Rim Grade** ft  
**Northing**      **Easting**      **Elevation**  
**Down** D-4      **Rim Invert** 8.7      **Grade Invert**      **Rim Grade** ft  
**Northing**      **Easting**      **Elevation**

---

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additional Info**

Miscellaneous      Structural      O&M      Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							D-3
0.0		MWL - Miscellaneous Water Level			005				
9.0		MWM - Miscellaneous Water Mark			030				
21.0	S01	SRI - Surface Damage Roughness Increased					03	05	EER: 1
21.0	S02	SRI - Surface Damage Roughness Increased					07	09	EER: 1
201.0	F01	SRI - Surface Damage Roughness Increased					03	05	EER: 1
201.0	F02	SRI - Surface Damage Roughness Increased					07	09	EER: 1
201.0	S03	SRI - Surface Damage Roughness Increased					07	05	EER: 1
247.0		ISB - Infil Stain Barrel					04	05	EER: 1. Related to SAV at 247.0'
247.0		SAV - Surface Aggregate Visible					04	05	EER: 1
412.0	F03	SRI - Surface Damage Roughness Increased					07	05	
412.0		AMH - Manhole							D-4

412.0 ft Total Length Surveyed



<b>Work Order</b>	<b>Date</b> 3:16 20170621	<b>Sheet</b> 3
<b>Street</b> D Street		
<b>City</b> Anacortes	<b>Weather</b>	
<b>Location</b>		
<b>Up Node</b> D-3	<b>Down Node</b> D-4	<b>Direction</b> Downstream

**Date:** 6/21/2017  
**Distance:** 21 ft  
**Obs:**  
SRI - Surface Damage  
Roughness Increased  
**Comments:**  
EER: 1

21.0\_SRI\_From-07\_To-09.jpg



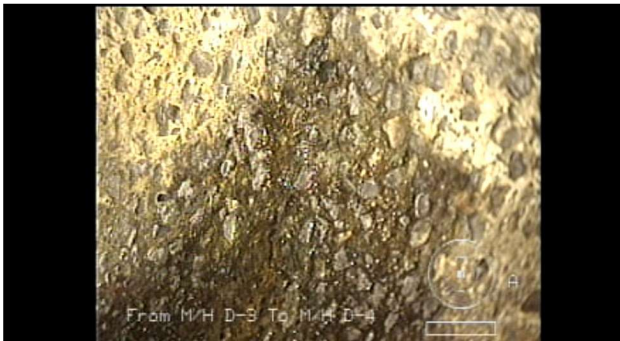
**Date:** 6/21/2017  
**Distance:** 201 ft  
**Obs:**  
SRI - Surface Damage  
Roughness Increased  
**Comments:**  
EER: 1

201.0\_SRI\_From-07\_To-05.jpg

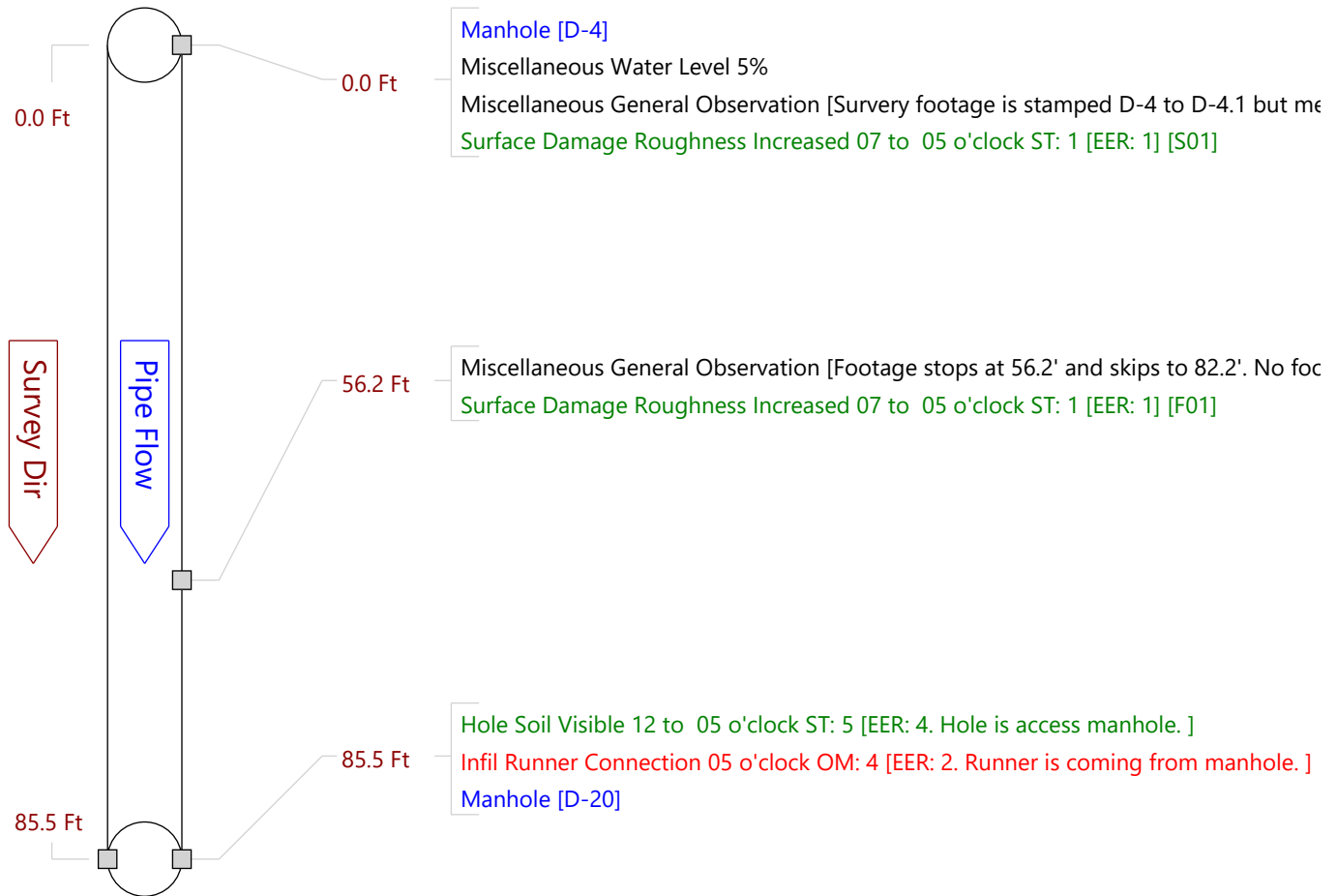


**Date:** 6/21/2017  
**Distance:** 247 ft  
**Obs:**  
SAV - Surface  
Aggregate Visible  
**Comments:**  
EER: 1

247.0\_SAV\_From-04\_To-05.jpg



<b>Sheet 4</b>	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>
<b>Reviewed By</b> WES	<b>Reviewer #</b> WES	<b>Work Order</b>	<b>Media Label</b>
<b>Customer</b>	<b>PO</b>	<b>PreClean</b> Not Known	<b>Date Cleaned</b>
<b>Date</b> 20170623 10:41	<b>Weather</b>	<b>Purpose</b>	<b>Direction</b> Downstream
<b>Flow Control</b>	<b>Consequence of Failure</b>	<b>Pressure</b>	
<b>Inspection Status</b> Complete Inspection			
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Drainage Area</b>	
<b>Location</b>		<b>Pipe Use</b> Process Pipe	
<b>Details</b>		<b>Height</b> 15 in	<b>Width</b> in
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>	
<b>Coating</b>	<b>Joint Length</b> ft	<b>Total Length</b> 85.5 ft	
<b>Len. Surveyed</b> 85.5 ft	<b>Year Constructed</b>	<b>Year Rehabilitated</b>	
<b>Up</b> D-4	<b>Rim Invert</b> 8.5	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Down</b> D-20	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Coordinate System</b>	<b>Vertical Datum</b>		
<b>GPS Accuracy</b>			
<b>Additional Info</b>	Miscellaneous    Structural    O&M    Constructional		



**Sheet 4**      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By** WES      **Reviewer #** WES      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20170623 10:41      **Weather**      **PreClean** Not Known      **Date Cleaned**  
**Flow Control**      **Purpose**      **Direction** Downstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**       CCTV     Laser     Sonar     Sidewall     Zoom     Other

---

**Street** D Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 15 in      **Width** in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length** ft      **Total Length** 85.5 ft  
**Len. Surveyed** 85.5 ft      **Year Constructed**      **Year Rehabilitated**

---

**Up** D-4      **Rim Invert** 8.5      **Grade Invert**      **Rim Grade** ft  
**Northing**      **Easting**      **Elevation**  
**Down** D-20      **Rim Invert**      **Grade Invert**      **Rim Grade** ft  
**Northing**      **Easting**      **Elevation**

---

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additional Info**

Miscellaneous      Structural      O&M      Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							D-4
0.0		MWL - Miscellaneous Water Level			005				
0.0		MGO - Miscellaneous General Observation							Survey footage is stamped D-4 to D-4.1 but media file is labeled D-4 to D-20.
0.0	S01	SRI - Surface Damage Roughness Increased					07	05	EER: 1
56.2		MGO - Miscellaneous General Observation							Footage stops at 56.2' and skips to 82.2'. No footage from 56.2' to 82.2'.
56.2	F01	SRI - Surface Damage Roughness Increased					07	05	EER: 1
85.5		HSV - Hole Soil Visible					12	05	EER: 4. Hole is access manhole.
85.5		IRC - Infil Runner Connection					05		EER: 2. Runner is coming from manhole.
85.5		AMH - Manhole							D-20

85.5 ft Total Length Surveyed

<b>Work Order</b>	<b>Date</b> 0:41 20170623	<b>Sheet</b> 4
<b>Street</b> D Street		
<b>City</b> Anacortes	<b>Weather</b>	
<b>Location</b>		
<b>Up Node</b> D-4	<b>Down Node</b> D-20	<b>Direction</b> Downstream

**Date:** 6/23/2017  
**Distance:** 0 ft  
**Obs:**  
SRI - Surface Damage  
Roughness Increased  
**Comments:**  
EER: 1

0.0\_SRI\_From-07\_To-05-E.jpg

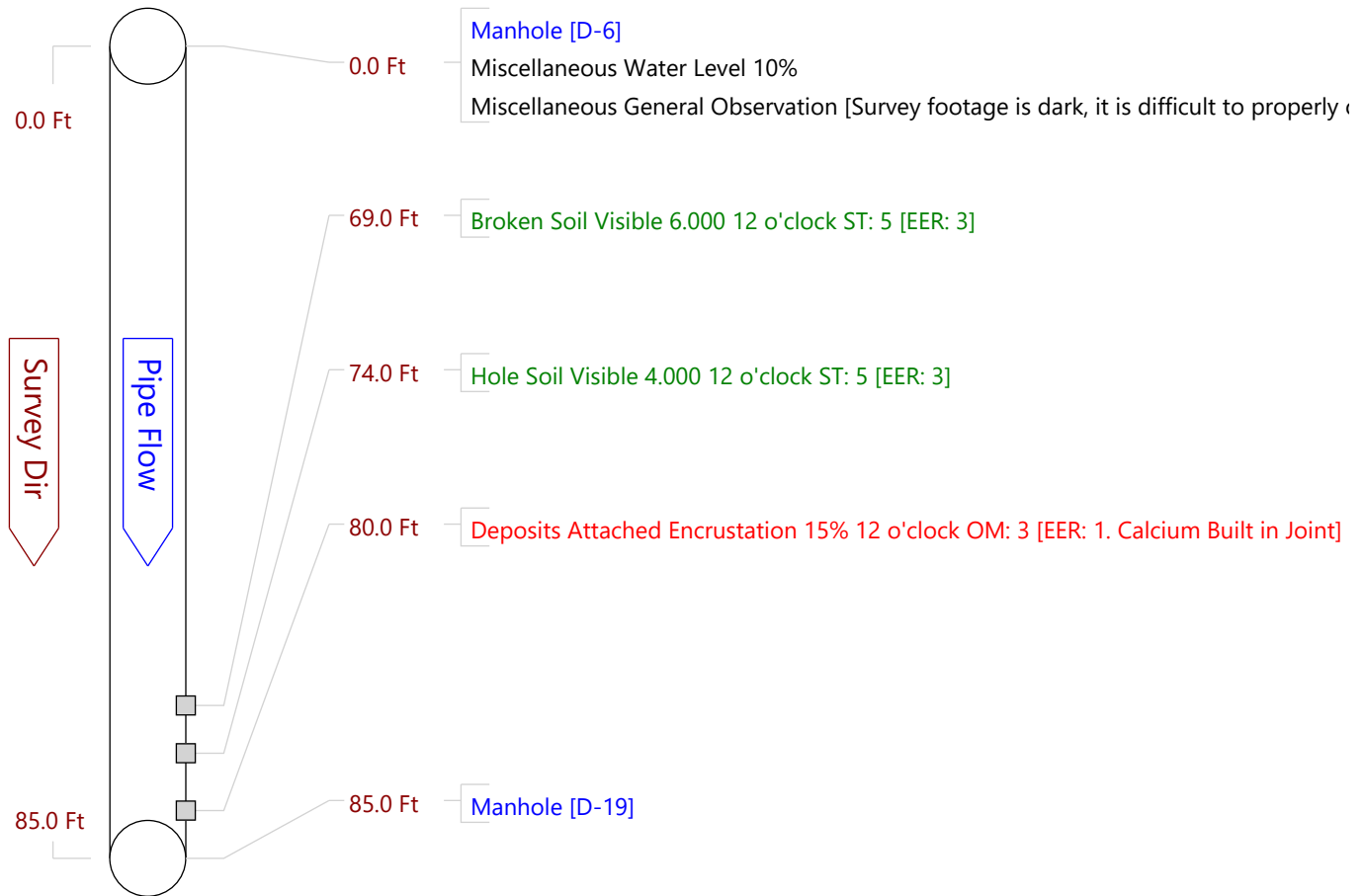


**Date:** 6/23/2017  
**Distance:** 85.5 ft  
**Obs:**  
HSV - Hole Soil Visible  
**Comments:**  
EER: 4. Hole is access  
manhole.

85.5\_HSV\_From-12\_To-05.jpg



<b>Sheet 5</b>	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>
<b>Reviewed By</b> HENRY CADE	<b>Reviewer #</b> P0037737-052022	<b>Work Order</b>	
<b>Customer</b>	<b>PO</b>	<b>Media Label</b>	
<b>Date</b> 20170710 11:12	<b>Weather</b>	<b>PreClean</b> Not Known	<b>Date Cleaned</b>
<b>Flow Control</b> Not Controlled	<b>Purpose</b>	<b>Direction</b> Downstream	
<b>Inspection Status</b> Complete Inspection	<b>Consequence of Failure</b>	<b>Pressure</b>	
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Drainage Area</b>	
<b>Location</b>	<b>Pipe Use</b> Process Pipe	<b>Height</b> 15 in	<b>Width</b> in
<b>Details</b>	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>	
<b>Shape</b> Circular	<b>Joint Length</b> ft	<b>Total Length</b> 85.0 ft	
<b>Coating</b>	<b>Year Constructed</b>	<b>Year Rehabilitated</b>	
<b>Len. Surveyed</b> 85.0 ft			
<b>Up</b> D-6	<b>Rim Invert</b> 8.0	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Down</b> D-19	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Coordinate System</b>	<b>Vertical Datum</b>		
<b>GPS Accuracy</b>			
<b>Additional Info</b>	Miscellaneous <span style="color: green;">Structural</span> <span style="color: red;">O&amp;M</span> <span style="color: blue;">Constructional</span>		



**Sheet 5**      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By** HENRY CADE      **Reviewer #** P0037737-052022      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20170710 11:12      **Weather**      **PreClean** Not Known      **Date Cleaned**  
**Flow Control** Not Controlled      **Purpose**      **Direction** Downstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**       **CCTV**     **Laser**     **Sonar**     **Sidewall**     **Zoom**     **Other**

---

**Street** D Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 15 in      **Width** in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length** ft      **Total Length** 85.0 ft  
**Len. Surveyed** 85.0 ft      **Year Constructed**      **Year Rehabilitated**

---

**Up** D-6      **Rim Invert** 8.0      **Grade Invert**      **Rim Grade** ft  
**Northing**      **Easting**      **Elevation**  
**Down** D-19      **Rim Invert**      **Grade Invert**      **Rim Grade** ft  
**Northing**      **Easting**      **Elevation**

---

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additional Info**

Miscellaneous      Structural      O&M      Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							D-6
0.0		MWL - Miscellaneous Water Level			010				
0.0		MGO - Miscellaneous General Observation							Survey footage is dark, it is difficult to properly code the condition of the sewer walls.
69.0		BSV - Broken Soil Visible	6.0				12		EER: 3
74.0		HSV - Hole Soil Visible	4.0				12		EER: 3
80.0		DAE - Deposits Attached Encrustation			015	X	12		EER: 1. Calcium Built in Joint
85.0		AMH - Manhole							D-19

85.0 ft Total Length Surveyed



<b>Work Order</b>	<b>Date</b> 1:12 20170710	<b>Sheet</b> 5
<b>Street</b> D Street		
<b>City</b> Anacortes	<b>Weather</b>	
<b>Location</b>		
<b>Up Node</b> D-6	<b>Down Node</b> D-19	<b>Direction</b> Downstream

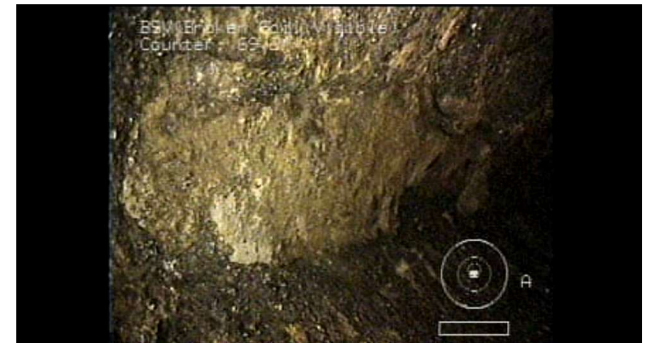
**Date:** 7/10/2017  
**Distance:** 0 ft  
**Obs:**  
 MWL - Miscellaneous  
 Water Level  
**Comments:**

0.0\_MWL\_From\_-To-.jpg



**Date:** 7/10/2017  
**Distance:** 69 ft  
**Obs:**  
 BSV - Broken Soil  
 Visible  
**Comments:**  
 EER: 3

69.0\_BSV\_From-12\_To-.jpg



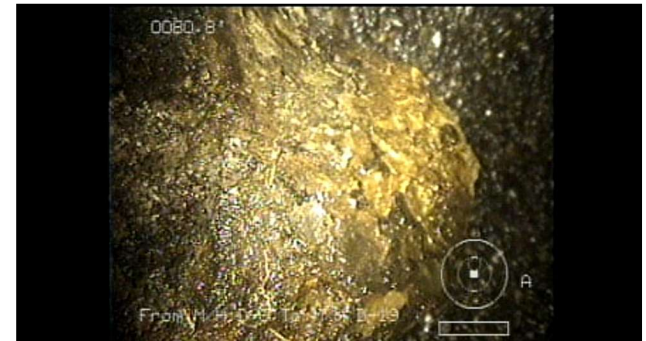
**Date:** 7/10/2017  
**Distance:** 74 ft  
**Obs:**  
 HSV - Hole Soil Visible  
**Comments:**  
 EER: 3

74.0\_HSV\_From-12\_To-.jpg

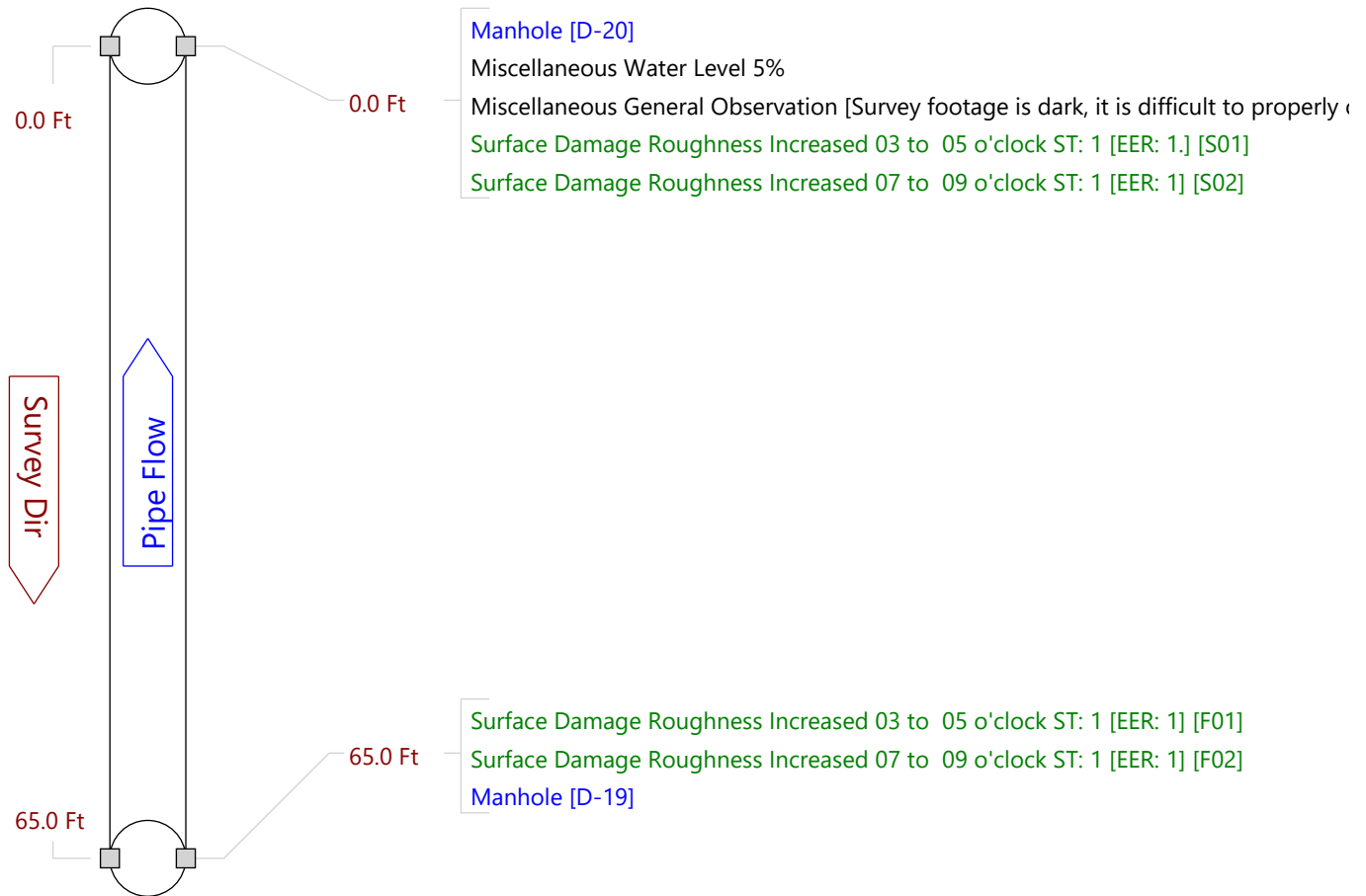


**Date:** 7/10/2017  
**Distance:** 80 ft  
**Obs:**  
 DAE - Deposits Attached  
 Encrustation  
**Comments:**  
 EER: 1. Calcium Built  
 in Joint

80.0\_DAE\_From-12\_To-.jpg



<b>Sheet 6</b>	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>
<b>Reviewed By</b> HENRY CADE	<b>Reviewer #</b> P0037737-052022	<b>Work Order</b>	
<b>Customer</b>	<b>PO</b>	<b>Media Label</b>	
<b>Date</b> 20170712 12:38	<b>Weather</b>	<b>PreClean</b> Not Known	<b>Date Cleaned</b>
<b>Flow Control</b>	<b>Purpose</b>	<b>Direction</b> Upstream	
<b>Inspection Status</b> Complete Inspection	<b>Consequence of Failure</b>	<b>Pressure</b>	
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Drainage Area</b>	
<b>Location</b>	<b>Pipe Use</b> Process Pipe	<b>Date Cleaned</b>	
<b>Details</b>	<b>Height</b> 15 in	<b>Width</b>	<b>in</b>
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>	
<b>Coating</b>	<b>Joint Length</b> ft	<b>Total Length</b>	65.0 ft
<b>Len. Surveyed</b> 65.0 ft	<b>Year Constructed</b>	<b>Year Rehabilitated</b>	
<b>Up</b> D-19	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Down</b> D-20	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Coordinate System</b>	<b>Vertical Datum</b>		
<b>GPS Accuracy</b>			
<b>Additional Info</b>	Miscellaneous <u>Structural</u> <u>O&amp;M</u> <u>Constructional</u>		





**Sheet 6**      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By** HENRY CADE      **Reviewer #** P0037737-052022      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20170712 12:38      **Weather**      **PreClean** Not Known      **Date Cleaned**  
**Flow Control**      **Purpose**      **Direction** Upstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**       CCTV     Laser     Sonar     Sidewall     Zoom     Other

---

**Street** D Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 15 in      **Width** in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length** ft      **Total Length** 65.0 ft  
**Len. Surveyed** 65.0 ft      **Year Constructed**      **Year Rehabilitated**

---

Up	D-19	Rim Invert Easting	Grade Invert	Rim Grade	ft
<b>Northing</b>			<b>Elevation</b>		

---

Down	D-20	Rim Invert Easting	Grade Invert	Rim Grade	ft
<b>Northing</b>			<b>Elevation</b>		

---

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additional Info**

Miscellaneous      Structural      O&M      Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							D-20
0.0		MWL - Miscellaneous Water Level			005				
0.0		MGO - Miscellaneous General Observation							Survey footage is dark, it is difficult to properly code the condition of the sewer walls.
0.0	S01	SRI - Surface Damage Roughness Increased					03	05	EER: 1.
0.0	S02	SRI - Surface Damage Roughness Increased					07	09	EER: 1
65.0	F01	SRI - Surface Damage Roughness Increased					03	05	EER: 1
65.0	F02	SRI - Surface Damage Roughness Increased					07	09	EER: 1
65.0		AMH - Manhole							D-19

65.0 ft Total Length Surveyed

<b>Work Order</b>	<b>Date</b> 2:38 20170712	<b>Sheet</b> 6
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> D-19	<b>Down Node</b> D-20
		<b>Direction</b> Upstream

0.0\_SRI\_From-07\_To-09.jpg

**Date:** 7/12/2017  
**Distance:** 0 ft  
**Obs:**  
SRI - Surface Damage  
Roughness Increased  
**Comments:**  
EER: 1

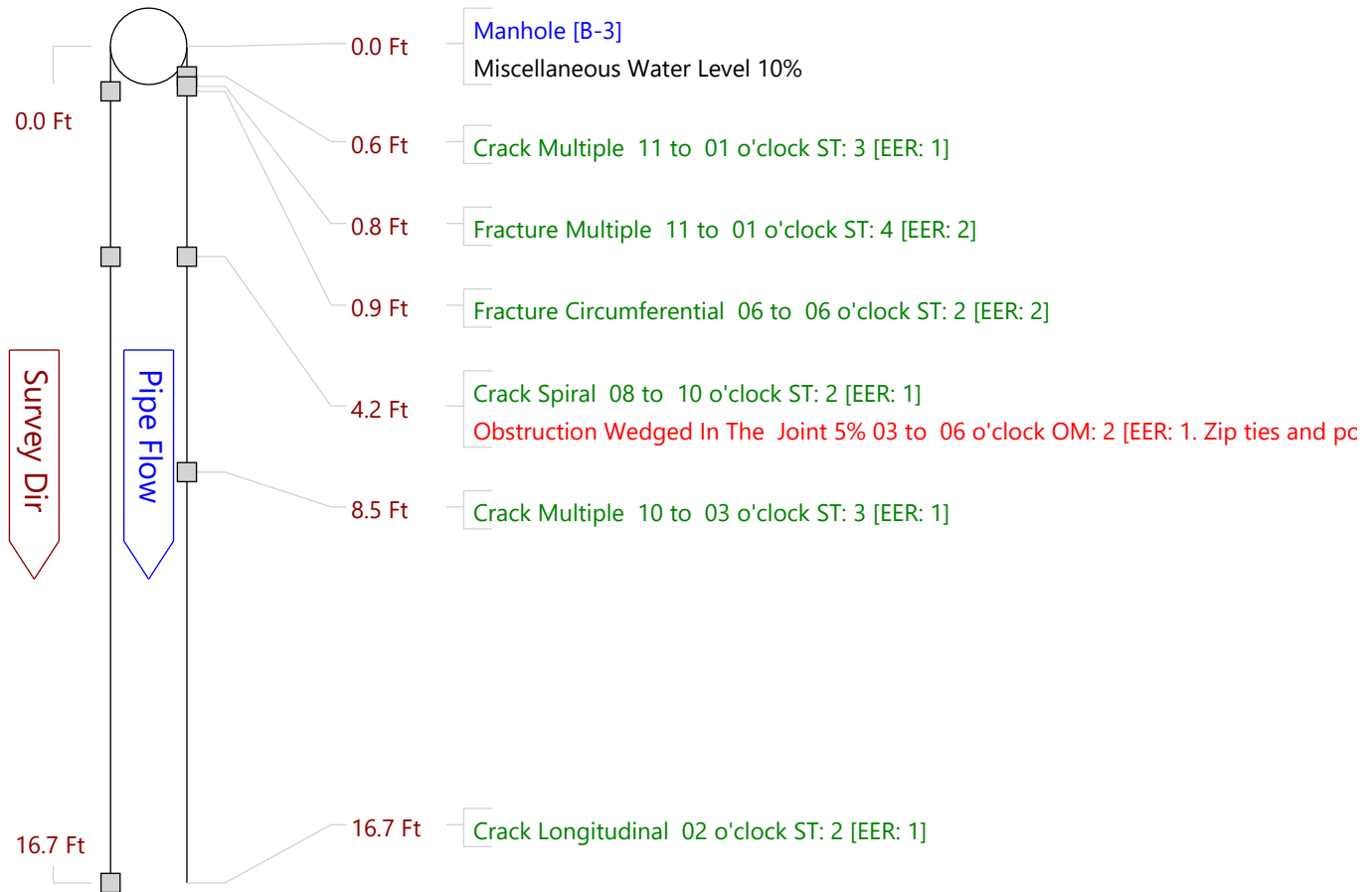


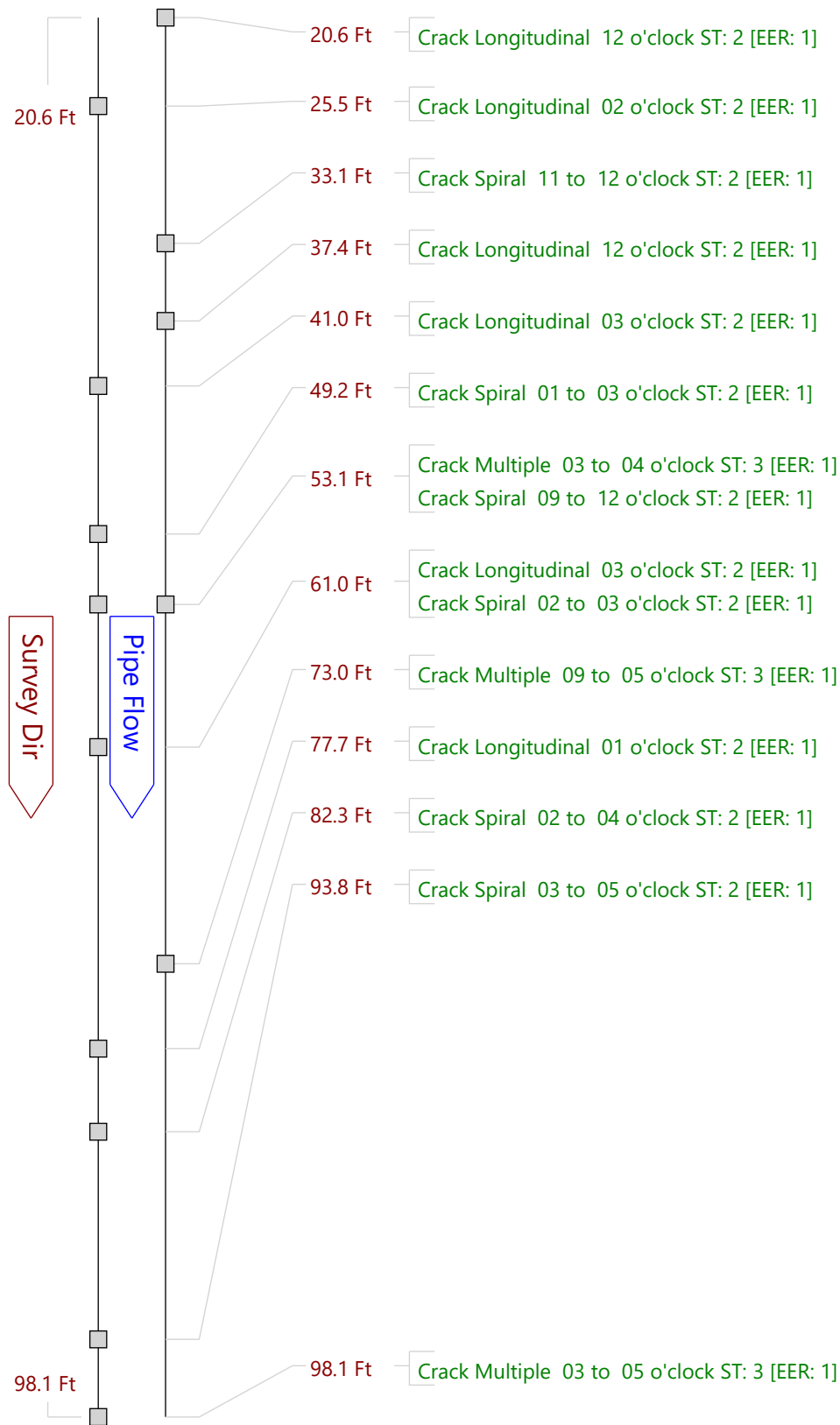
0.0\_SRI\_From-03\_To-05.jpg

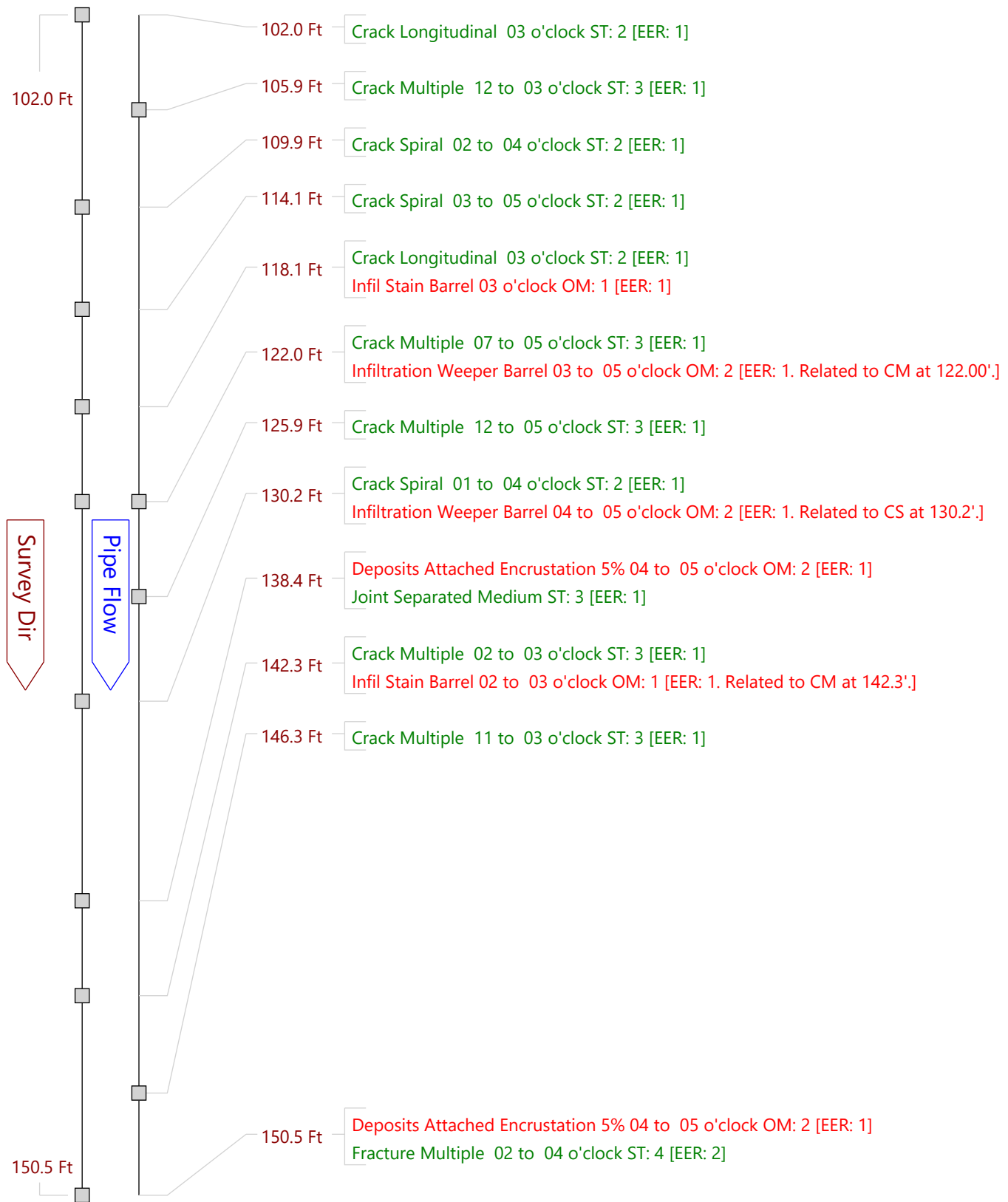
**Date:** 7/12/2017  
**Distance:** 0 ft  
**Obs:**  
SRI - Surface Damage  
Roughness Increased  
**Comments:**  
EER: 1

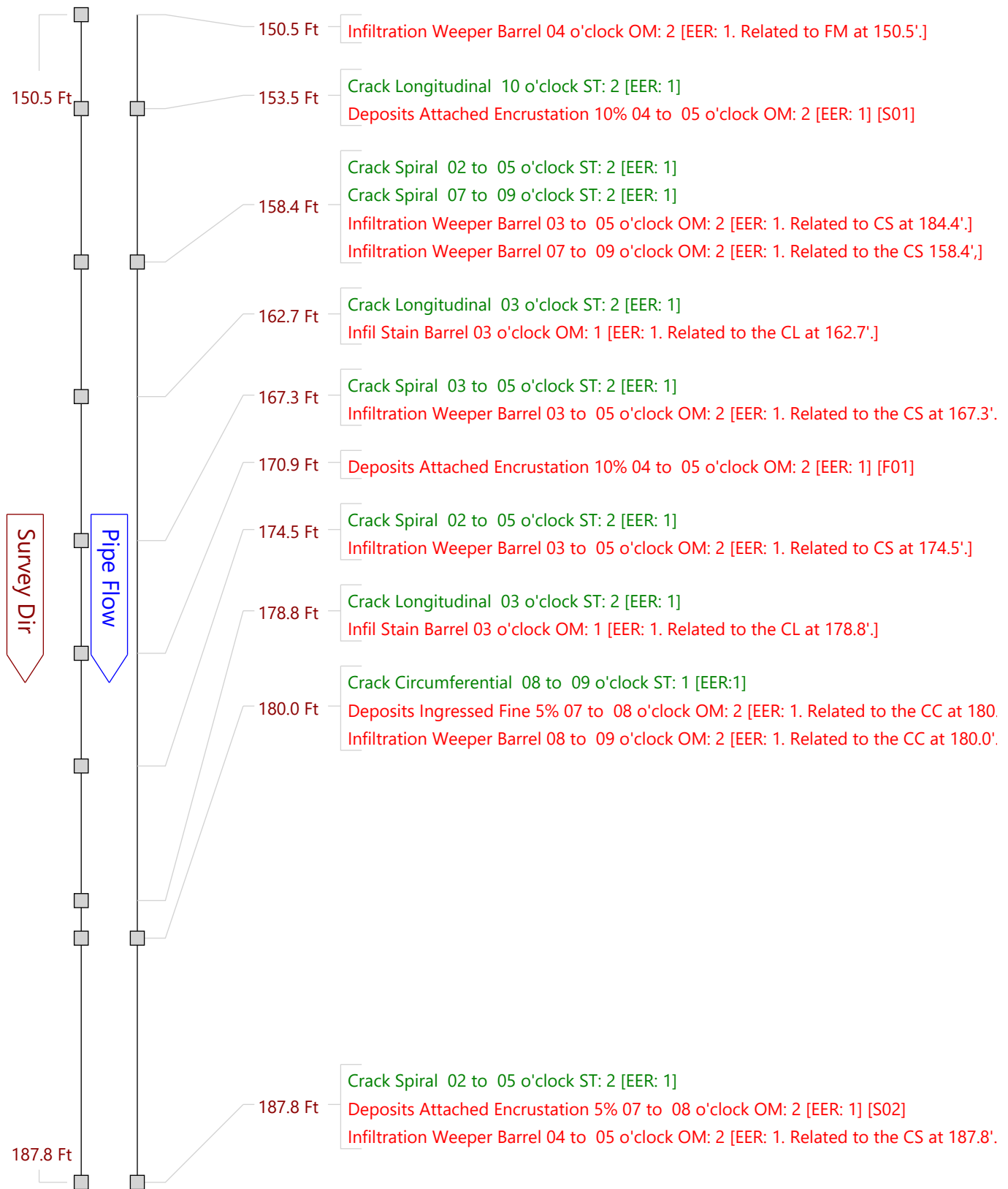


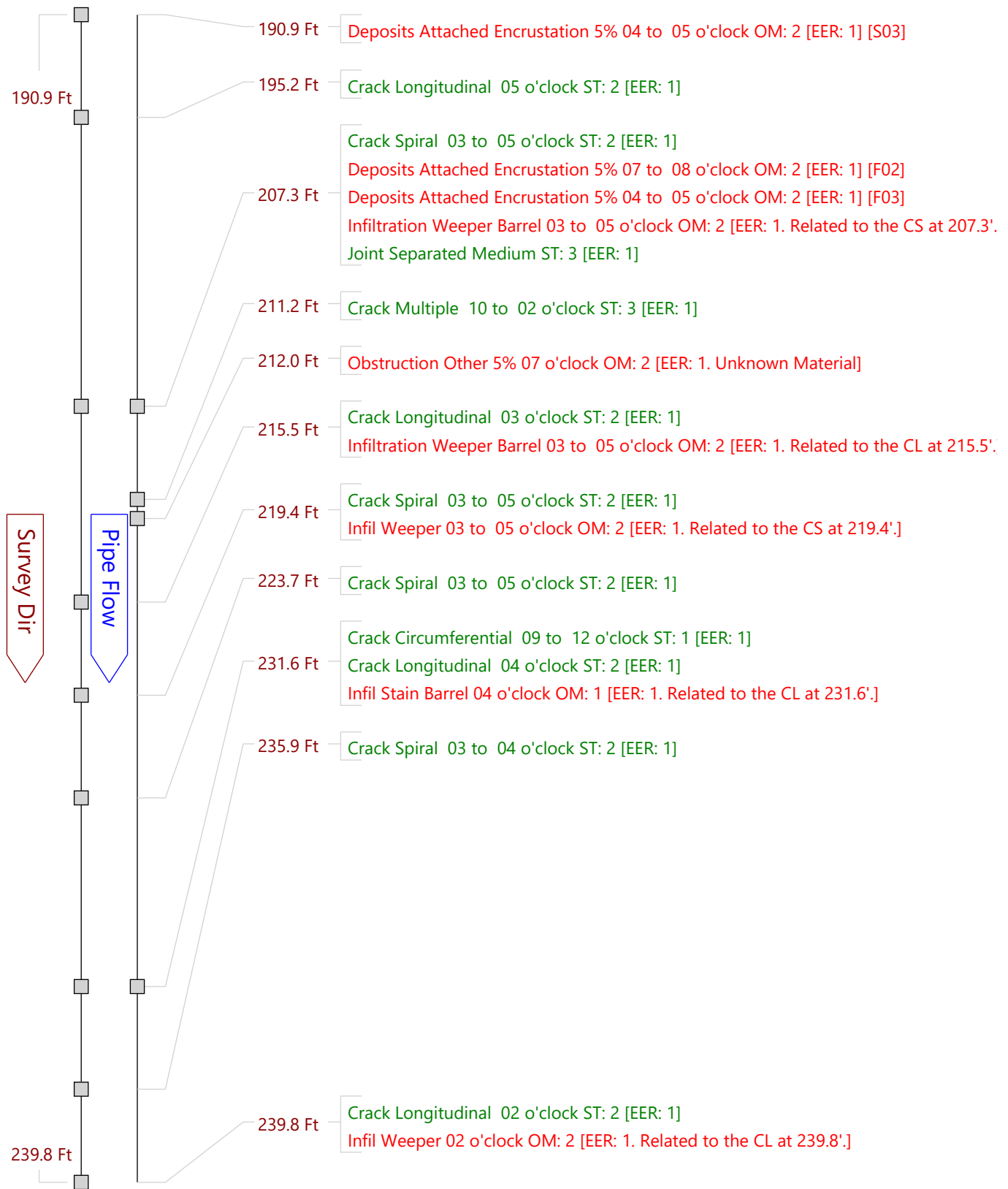
<b>Sheet 8</b>	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>
<b>Reviewed By</b>	<b>Reviewer #</b>	<b>Work Order</b>	<b>Media Label</b>
<b>Customer</b>		<b>PO</b>	<b>Date Cleaned</b>
<b>Date</b> 20190709 11:15	<b>Weather</b>	<b>PreClean</b> Not Known	<b>Direction</b> Downstream
<b>Flow Control</b>		<b>Purpose</b>	<b>Pressure</b>
<b>Inspection Status</b> Complete Inspection		<b>Consequence of Failure</b>	
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Drainage Area</b>	
<b>Location</b>		<b>Pipe Use</b> Process Pipe	
<b>Details</b>		<b>Height</b> 10 in	<b>Width</b> in
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>	
<b>Coating</b>	<b>Joint Length</b> ft	<b>Total Length</b> 243.7 ft	
<b>Len. Surveyed</b> 243.7 ft	<b>Year Constructed</b>	<b>Year Rehabilitated</b>	
<b>Up</b> B-3	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Down</b> 3-N	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Coordinate System</b>		<b>Vertical Datum</b>	
<b>GPS Accuracy</b>			
<b>Additional Info</b>		Miscellaneous	Structural O&M Constructional

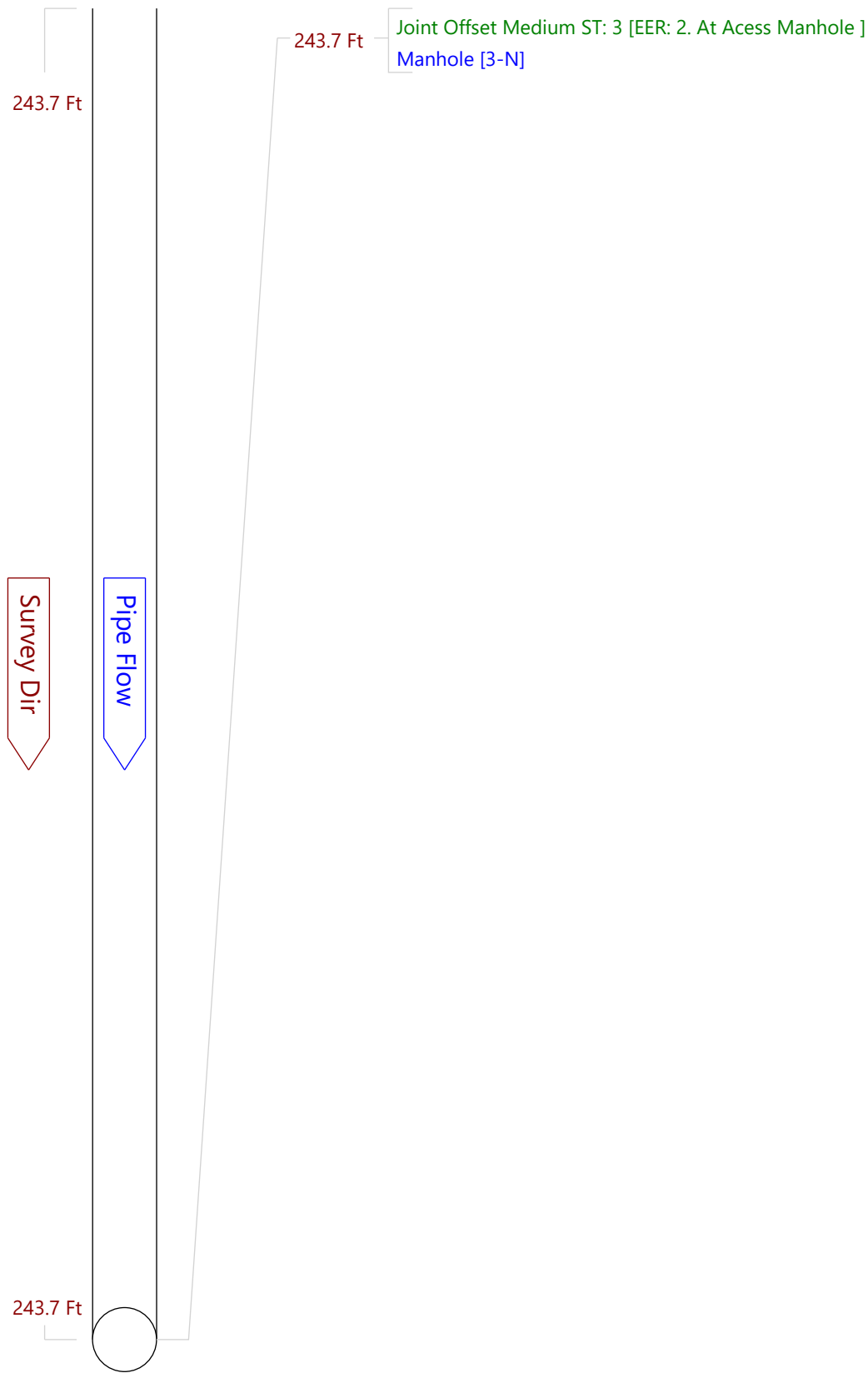














**Sheet 8**      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By**      **Reviewer #**      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20190709 11:15      **Weather**      **PreClean** Not Known      **Date Cleaned**  
**Flow Control**      **Purpose**      **Direction** Downstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**       CCTV     Laser     Sonar     Sidewall     Zoom     Other

---

**Street** B Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 10 in      **Width** in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length** ft      **Total Length** 243.7 ft  
**Len. Surveyed** 243.7 ft      **Year Constructed**      **Year Rehabilitated**

---

Up	B-3	Rim Invert	Grade Invert	Rim Grade	ft
<b>Northing</b>		<b>Easting</b>	<b>Elevation</b>		
Down	3-N	Rim Invert	Grade Invert	Rim Grade	ft
<b>Northing</b>		<b>Easting</b>	<b>Elevation</b>		

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additional Info**

Miscellaneous      Structural      O&M      Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							B-3
0.0		MWL - Miscellaneous Water Level			010				
0.6		CM - Crack Multiple				X	11	01	EER: 1
0.8		FM - Fracture Multiple					11	01	EER: 2
0.9		FC - Fracture Circumferential					06	06	EER: 2
4.2		CS - Crack Spiral				X	08	10	EER: 1
4.2		OBJ - Obstruction Wedged In The Joint			005	X	03	06	EER: 1. Zip ties and possibly a dead vermin. Unclear.
8.5		CM - Crack Multiple				X	10	03	EER: 1
16.7		CL - Crack Longitudinal				X	02		EER: 1
20.6		CL - Crack Longitudinal				X	12		EER: 1
25.5		CL - Crack Longitudinal				X	02		EER: 1
33.1		CS - Crack Spiral				X	11	12	EER: 1
37.4		CL - Crack Longitudinal				X	12		EER: 1
41.0		CL - Crack Longitudinal				X	03		EER: 1
49.2		CS - Crack Spiral				X	01	03	EER: 1
53.1		CM - Crack Multiple				X	03	04	EER: 1
53.1		CS - Crack Spiral				X	09	12	EER: 1
61.0		CL - Crack Longitudinal				X	03		EER: 1
61.0		CS - Crack Spiral				X	02	03	EER: 1
73.0		CM - Crack Multiple				X	09	05	EER: 1
77.7		CL - Crack Longitudinal				X	01		EER: 1
82.3		CS - Crack Spiral				X	02	04	EER: 1
93.8		CS - Crack Spiral				X	03	05	EER: 1
98.1		CM - Crack Multiple				X	03	05	EER: 1
102.0		CL - Crack Longitudinal				X	03		EER: 1

Work Order		Date		Sheet	
Street B Street		1:15 20190709		8	
City Anacortes		Weather			
Location					
Up Node	B-3	Down Node	3-N	Direction Downstream	
105.9		CM - Crack Multiple		X	12 03 EER: 1
109.9		CS - Crack Spiral		X	02 04 EER: 1
114.1		CS - Crack Spiral		X	03 05 EER: 1
118.1		CL - Crack Longitudinal		X	03 EER: 1
118.1		ISB - Infil Stain Barrel		X	03 EER: 1
122.0		CM - Crack Multiple		X	07 05 EER: 1
122.0		IWB - Infiltration Weeper Barrel		X	03 05 EER: 1. Related to CM at 122.00'.
125.9		CM - Crack Multiple		X	12 05 EER: 1
130.2		CS - Crack Spiral		X	01 04 EER: 1
130.2		IWB - Infiltration Weeper Barrel		X	04 05 EER: 1. Related to CS at 130.2'.
138.4		DAE - Deposits Attached Encrustation	005	X	04 05 EER: 1
138.4		JSM - Joint Separated Medium			EER: 1
142.3		CM - Crack Multiple		X	02 03 EER: 1
142.3		ISB - Infil Stain Barrel		X	02 03 EER: 1. Related to CM at 142.3'.
146.3		CM - Crack Multiple		X	11 03 EER: 1
150.5		DAE - Deposits Attached Encrustation	005	X	04 05 EER: 1
150.5		FM - Fracture Multiple		X	02 04 EER: 2
150.5		IWB - Infiltration Weeper Barrel		X	04 EER: 1. Related to FM at 150.5'.
153.5		CL - Crack Longitudinal		X	10 EER: 1
153.5	S01	DAE - Deposits Attached Encrustation	010	X	04 05 EER: 1
158.4		CS - Crack Spiral		X	02 05 EER: 1
158.4		CS - Crack Spiral		X	07 09 EER: 1
158.4		IWB - Infiltration Weeper Barrel		X	03 05 EER: 1. Related to CS at 184.4'.
158.4		IWB - Infiltration Weeper Barrel		X	07 09 EER: 1. Related to the CS 158.4',
162.7		CL - Crack Longitudinal		X	03 EER: 1
162.7		ISB - Infil Stain Barrel			03 EER: 1. Related to the CL at 162.7'.
167.3		CS - Crack Spiral		X	03 05 EER: 1
167.3		IWB - Infiltration Weeper Barrel			03 05 EER: 1. Related to the CS at 167.3'.
170.9	F01	DAE - Deposits Attached Encrustation	010	X	04 05 EER: 1
174.5		CS - Crack Spiral		X	02 05 EER: 1
174.5		IWB - Infiltration Weeper Barrel		X	03 05 EER: 1. Related to CS at 174.5'.
178.8		CL - Crack Longitudinal		X	03 EER: 1
178.8		ISB - Infil Stain Barrel		X	03 EER: 1. Related to the CL at 178.8'.
180.0		CC - Crack Circumferential			08 09 EER:1
180.0		DNF - Deposits Ingressed Fine	005		07 08 EER: 1. Related to the CC at 180.0'.
180.0		IWB - Infiltration Weeper Barrel			08 09 EER: 1. Related to the CC at 180.0'.
187.8		CS - Crack Spiral		X	02 05 EER: 1
187.8	S02	DAE - Deposits Attached Encrustation	005	X	07 08 EER: 1
187.8		IWB - Infiltration Weeper Barrel		X	04 05 EER: 1. Related to the CS at 187.8'.
190.9	S03	DAE - Deposits Attached Encrustation	005	X	04 05 EER: 1
195.2		CL - Crack Longitudinal		X	05 EER: 1

Work Order		Date 1:15 20190709				Sheet 8		
Street B Street		Weather						
City Anacortes								
Location								
Up Node	B-3	Down Node	3-N	Direction Downstream				
207.3		CS - Crack Spiral			X	03	05	EER: 1
207.3	F02	DAE - Deposits Attached Encrustation		005	X	07	08	EER: 1
207.3	F03	DAE - Deposits Attached Encrustation		005	X	04	05	EER: 1
207.3		IWB - Infiltration Weeper Barrel			X	03	05	EER: 1. Related to the CS at 207.3'.
207.3		JSM - Joint Separated Medium						EER: 1
211.2		CM - Crack Multiple			X	10	02	EER: 1
212.0		OBZ - Obstruction Other		005		07		EER: 1. Unknown Material
215.5		CL - Crack Longitudinal			X	03		EER: 1
215.5		IWB - Infiltration Weeper Barrel			X	03	05	EER: 1. Related to the CL at 215.5'.
219.4		CS - Crack Spiral				03	05	EER: 1
219.4		IW - Infil Weeper			X	03	05	EER: 1. Related to the CS at 219.4'.
223.7		CS - Crack Spiral			X	03	05	EER: 1
231.6		CC - Crack Circumferential				09	12	EER: 1
231.6		CL - Crack Longitudinal				04		EER: 1
231.6		ISB - Infil Stain Barrel				04		EER: 1. Related to the CL at 231.6'.
235.9		CS - Crack Spiral			X	03	04	EER: 1
239.8		CL - Crack Longitudinal			X	02		EER: 1
239.8		IW - Infil Weeper			X	02		EER: 1. Related to the CL at 239.8'.
243.7		JOM - Joint Offset Medium						EER: 2. At Access Manhole
243.7		AMH - Manhole						3-N

243.7 ft Total Length Surveyed

<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>		
<b>Up Node</b> B-3	<b>Down Node</b> 3-N	<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 0.6 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1

0.6\_CM\_From-11\_To-01.jpg



**Date:** 7/09/2019  
**Distance:** 0.8 ft  
**Obs:**  
 FM - Fracture Multiple  
**Comments:**  
 EER: 2

0.8\_FM\_From-11\_To-01.jpg



**Date:** 7/09/2019  
**Distance:** 0.9 ft  
**Obs:**  
 FC - Fracture Circumferential  
**Comments:**  
 EER: 2

0.6\_FC\_From-06\_To-06.jpg



**Date:** 7/09/2019  
**Distance:** 4.2 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

4.2\_CS\_From-08\_To-10.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

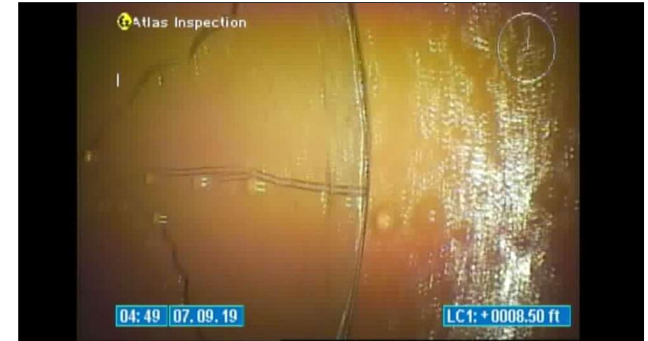
4.2\_OBJ\_From-03\_To-06.jpg

**Date:** 7/09/2019  
**Distance:** 4.2 ft  
**Obs:**  
 OBJ - Obstruction  
 Wedged In The Joint  
**Comments:**  
 EER: 1. Zip ties and possibly a dead vermin. Unclear.



8.5\_CM\_From-10\_To-03.jpg

**Date:** 7/09/2019  
**Distance:** 8.5 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1



16.7\_CL\_From-02\_To-.jpg

**Date:** 7/09/2019  
**Distance:** 16.7 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1



20.6\_CL\_From-12\_To-.jpg

**Date:** 7/09/2019  
**Distance:** 20.6 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>		
<b>Up Node</b> B-3	<b>Down Node</b> 3-N	<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 25.5 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1

25.5\_CL\_From-02\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 33.1 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

33.1\_CS\_From-11\_To-12.jpg



**Date:** 7/09/2019  
**Distance:** 37.4 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1

37.4\_CL\_From-12\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 41 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1

41.0\_CL\_From-03\_To--A.jpg





<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 49.2 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

49.2\_CS\_From-01\_To-03.jpg



**Date:** 7/09/2019  
**Distance:** 53.1 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1

53.1\_CM\_From-03\_To-04.jpg



**Date:** 7/09/2019  
**Distance:** 53.1 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

53.1\_CS\_From-09\_To-12.jpg



**Date:** 7/09/2019  
**Distance:** 61 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1

61.0\_CL\_From-03\_To-.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>		
<b>Up Node</b> B-3	<b>Down Node</b> 3-N	<b>Direction</b> Downstream

**61.0\_CS\_From-02\_To-03.jpg**


**Date:** 7/09/2019

**Distance:** 61 ft

**Obs:**  
CS - Crack Spiral

**Comments:**

EER: 1



**73.0\_CM\_From-09\_To-05.jpg**

**Date:** 7/09/2019

**Distance:** 73 ft

**Obs:**  
CM - Crack Multiple

**Comments:**

EER: 1



**77.7\_CL\_From-01\_To-.jpg**


**Date:** 7/09/2019

**Distance:** 77.7 ft

**Obs:**  
CL - Crack Longitudinal

**Comments:**

EER: 1



**82.3\_CS\_From-02\_To-04.jpg**

**Date:** 7/09/2019

**Distance:** 82.3 ft

**Obs:**  
CS - Crack Spiral

**Comments:**

EER: 1





<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

82.3\_CS\_From-03\_To-05.jpg

**Date:** 7/09/2019  
**Distance:** 93.8 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1



98.1\_CM\_From-03\_To-05.jpg

**Date:** 7/09/2019  
**Distance:** 98.1 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1



102.0\_CL\_From-03\_To-.jpg

**Date:** 7/09/2019  
**Distance:** 102 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1



105.9\_CM\_From-12\_To-03.jpg

**Date:** 7/09/2019  
**Distance:** 105.9 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 109.9 ft  
**Obs:** CS - Crack Spiral  
**Comments:**  
EER: 1

109.9\_CS\_From-02\_To-04.jpg



**Date:** 7/09/2019  
**Distance:** 114.1 ft  
**Obs:** CS - Crack Spiral  
**Comments:**  
EER: 1

114.1\_CS\_From-03\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 118.1 ft  
**Obs:** CL - Crack Longitudinal  
**Comments:**  
EER: 1

118.1\_CL\_From-03\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 118.1 ft  
**Obs:** ISB - Infil Stain Barrel  
**Comments:**  
EER: 1

118.1\_ISB\_From-03\_To-.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street <b>City</b> Anacortes <b>Location</b>	<b>Weather</b>	
<b>Up Node</b> B-3	<b>Down Node</b> 3-N	<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 122 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1

122.0\_CM\_From-07\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 122 ft  
**Obs:**  
 IWB - Infiltration  
 Weeper Barrel  
**Comments:**  
 EER: 1. Related to CM  
 at 122.00'.

122.0\_IWB\_From-03\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 125.9 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1

125.9\_CM\_From-12\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 130.2 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

130.2\_CS\_From-01\_To-04.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 138.4 ft  
**Obs:**  
 DAE - Deposits Attached Encrustation  
**Comments:**  
 EER: 1

138.4\_DAE\_From-04\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 138.4 ft  
**Obs:**  
 JSM - Joint Separated Medium  
**Comments:**  
 EER: 1

138.4\_JSM\_From-\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 142.3 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1

142.3\_CM\_From-02\_To-03.jpg



**Date:** 7/09/2019  
**Distance:** 142.3 ft  
**Obs:**  
 ISB - Infil Stain Barrel  
**Comments:**  
 EER: 1. Related to CM at 142.3'.

142.3\_ISB\_From-02\_To-03.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>		
<b>Up Node</b> B-3	<b>Down Node</b> 3-N	<b>Direction</b> Downstream

146.3\_CM\_From-11\_To-03.jpg

**Date:** 7/09/2019  
**Distance:** 146.3 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1



149.9\_DAE\_From-04\_To-05.jpg

**Date:** 7/09/2019  
**Distance:** 150.5 ft  
**Obs:**  
 DAE - Deposits Attached Encrustation  
**Comments:**  
 EER: 1



150.5\_FM\_From-02\_To-04.jpg

**Date:** 7/09/2019  
**Distance:** 150.5 ft  
**Obs:**  
 FM - Fracture Multiple  
**Comments:**  
 EER: 2



150.5\_IWB\_From-04\_To-.jpg

**Date:** 7/09/2019  
**Distance:** 150.5 ft  
**Obs:**  
 IWB - Infiltration Weeper Barrel  
**Comments:**  
 EER: 1. Related to FM at 150.5'.





<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>		
<b>Up Node</b> B-3	<b>Down Node</b> 3-N	<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 153.5 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1

153.5\_CL\_From-10\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 153.5 ft  
**Obs:**  
 DAE - Deposits Attached Encrustation  
**Comments:**  
 EER: 1

153.5\_DAE\_From-04\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 158.4 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

158.4\_CS\_From-02\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 158.4 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

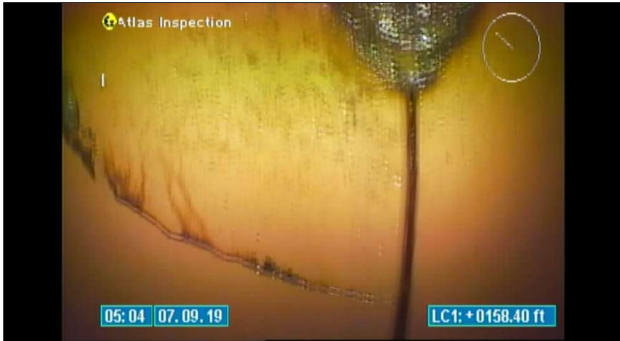
158.4\_CS\_From-07\_To-09.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 158.4 ft  
**Obs:**  
 IWB - Infiltration  
 Weeper Barrel  
**Comments:**  
 EER: 1. Related to the  
 CS 158.4',

158.4\_IWB\_From-07\_To-09.jpg



**Date:** 7/09/2019  
**Distance:** 162.7 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1

162.7\_CL\_From-03\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 167.3 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

167.3\_CS\_From-03\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 174.5 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

174.5\_CS\_From-02\_To-05.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 174.5 ft  
**Obs:**  
 IWB - Infiltration Weeper Barrel  
**Comments:**  
 EER: 1. Related to CS at 174.5'.

174.5\_IWB\_From-03\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 178.8 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1

178.8\_CL\_From-03\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 178.8 ft  
**Obs:**  
 ISB - Infil Stain Barrel  
**Comments:**  
 EER: 1. Related to the CL at 178.8'.

178.8\_IS\_From-03\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 180 ft  
**Obs:**  
 CC - Crack Circumferential  
**Comments:**  
 EER: 1

180.0\_CC\_From-08\_To-09.jpg





<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 180 ft  
**Obs:**  
 DNF - Deposits  
 Ingressed Fine  
**Comments:**  
 EER: 1. Related to the  
 CC at 180.0'.

180.0\_DNF\_From-07\_To-08.jpg



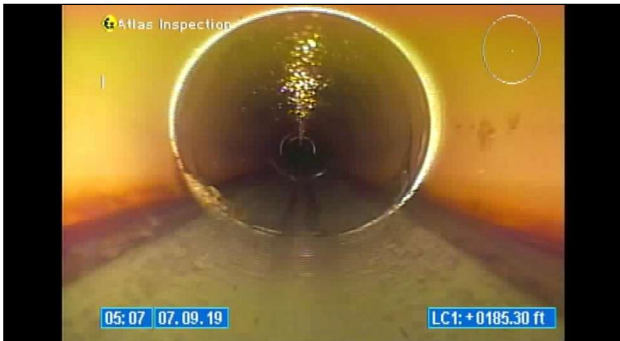
**Date:** 7/09/2019  
**Distance:** 187.8 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

187.8\_CS\_From-02\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 187.8 ft  
**Obs:**  
 DAE - Deposits Attached  
 Encrustation  
**Comments:**  
 EER: 1

187.8\_DAE\_From-07\_To-08.jpg



**Date:** 7/09/2019  
**Distance:** 190.9 ft  
**Obs:**  
 DAE - Deposits Attached  
 Encrustation  
**Comments:**  
 EER: 1

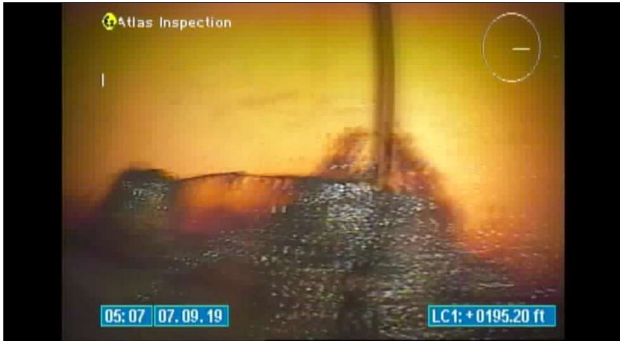
190.9\_DAE\_From-04\_To-05.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>		
<b>Up Node</b> B-3	<b>Down Node</b> 3-N	<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 195.2 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1

195.2\_CL\_From-05\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 207.3 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

207.3\_CS\_From-03\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 207.3 ft  
**Obs:**  
 JSM - Joint Separated Medium  
**Comments:**  
 EER: 1

207.3\_JSM\_From-\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 211.2 ft  
**Obs:**  
 CM - Crack Multiple  
**Comments:**  
 EER: 1

211.2\_CM\_From-10\_To-02.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

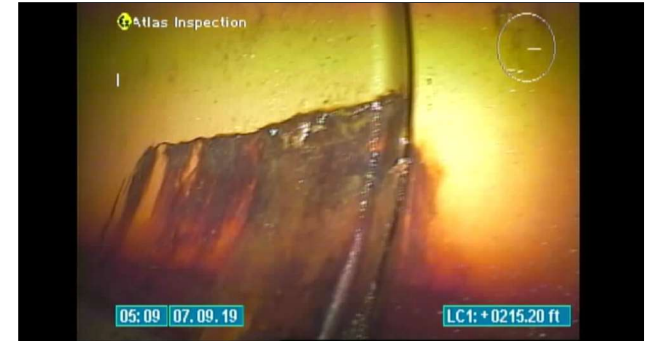
**Date:** 7/09/2019  
**Distance:** 212 ft  
**Obs:** OBZ - Obstruction Other  
**Comments:**  
 EER: 1. Unknown Material

212.0\_OBZ\_From-07\_To-.jpg



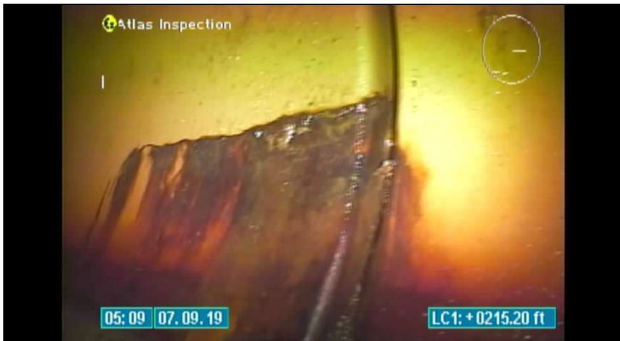
**Date:** 7/09/2019  
**Distance:** 215.5 ft  
**Obs:** CL - Crack Longitudinal  
**Comments:**  
 EER: 1

215.5\_CL\_From-03\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 215.5 ft  
**Obs:** IWB - Infiltration Weeper Barrel  
**Comments:**  
 EER: 1. Related to the CL at 215.5'.

215.5\_IW\_From-03\_To-05.jpg



**Date:** 7/09/2019  
**Distance:** 219.4 ft  
**Obs:** CS - Crack Spiral  
**Comments:**  
 EER: 1

219.4\_CS\_From-03\_To-05.jpg



<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>		
<b>Up Node</b> B-3	<b>Down Node</b> 3-N	<b>Direction</b> Downstream

223.7\_CS\_From-03\_To-05.jpg

**Date:** 7/09/2019  
**Distance:** 223.7 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1



231.6\_CC\_From-09\_To-12.jpg

**Date:** 7/09/2019  
**Distance:** 231.6 ft  
**Obs:**  
 CC - Crack Circumferential  
**Comments:**  
 EER: 1



231.6\_CL\_From-04\_To-.jpg

**Date:** 7/09/2019  
**Distance:** 231.6 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1



231.6\_IS\_From-04\_To-.jpg

**Date:** 7/09/2019  
**Distance:** 231.6 ft  
**Obs:**  
 ISB - Infil Stain Barrel  
**Comments:**  
 EER: 1. Related to the CL at 231.6'.





<b>Work Order</b>	<b>Date</b> 1:15 20190709	<b>Sheet</b> 8
<b>Street</b> B Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> B-3	<b>Down Node</b> 3-N
		<b>Direction</b> Downstream

**Date:** 7/09/2019  
**Distance:** 235.9 ft  
**Obs:**  
 CS - Crack Spiral  
**Comments:**  
 EER: 1

235.9\_CS\_From-03\_To-04.jpg



**Date:** 7/09/2019  
**Distance:** 239.8 ft  
**Obs:**  
 CL - Crack Longitudinal  
**Comments:**  
 EER: 1

239.8\_CL\_From-02\_To-.jpg



**Date:** 7/09/2019  
**Distance:** 239.8 ft  
**Obs:**  
 IW - Infil Weeper  
**Comments:**  
 EER: 1. Related to the CL at 239.8'.

239.8\_IW\_From-02\_To-.jpg



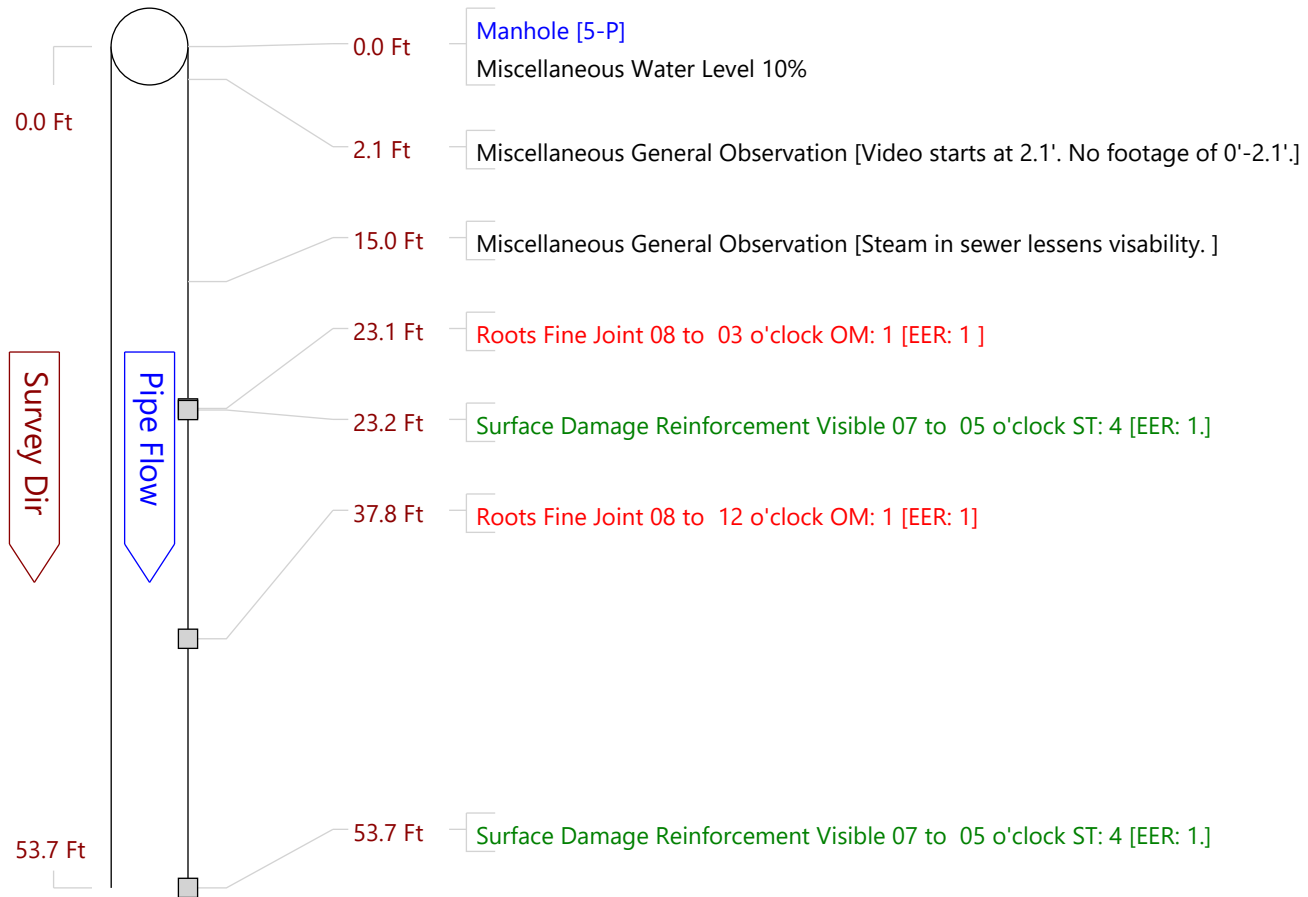
**Date:** 7/09/2019  
**Distance:** 243.7 ft  
**Obs:**  
 JOM - Joint Offset Medium  
**Comments:**  
 EER: 2. At Acess Manhole

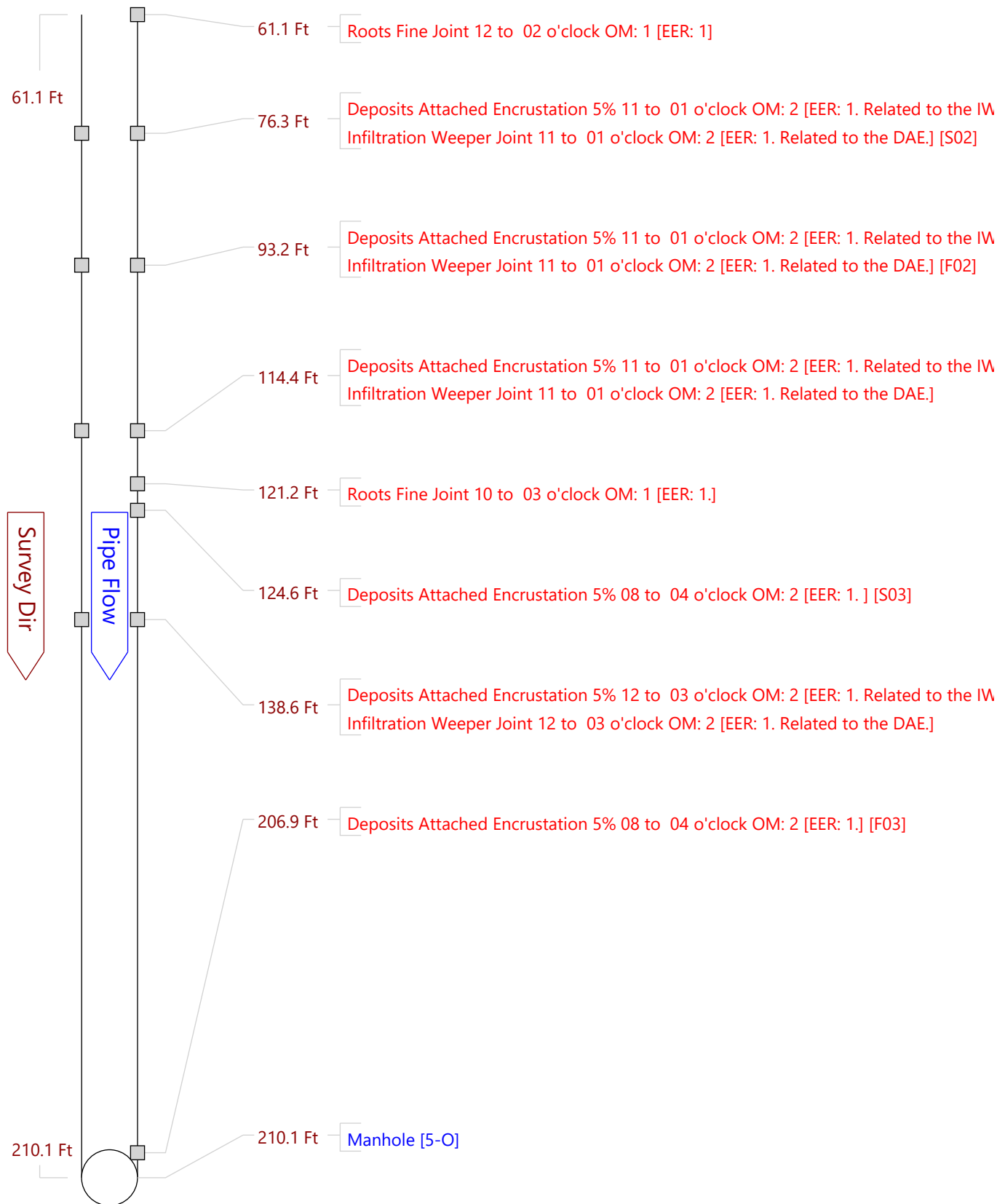
243.7\_JOM\_From-\_To-.jpg



<b>Sheet</b> 20	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>	
<b>Reviewed By</b>	<b>Reviewer #</b>	<b>Work Order</b>		<b>Media Label</b>
<b>Customer</b>		<b>PO</b>	<b>Date Cleaned</b>	
<b>Date</b> 20180809 13:52	<b>Weather</b>	<b>PreClean</b> Not Known	<b>Direction</b> Downstream	
<b>Flow Control</b>		<b>Purpose</b>	<b>Pressure</b>	
<b>Inspection Status</b> Complete Inspection		<b>Consequence of Failure</b>		
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other			
<b>Street</b> 5th Street	<b>City</b> Anacortes	<b>Drainage Area</b>		
<b>Location</b>		<b>Pipe Use</b> Process Pipe		
<b>Details</b>		<b>Height</b> 21 in	<b>Width</b>	<b>in</b>
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>		
<b>Coating</b>	<b>Joint Length</b> ft	<b>Total Length</b>	210.1 ft	
<b>Len. Surveyed</b> 210.1 ft	<b>Year Constructed</b>	<b>Year Rehabilitated</b>		
<b>Up</b> 5-P	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Down</b> 5-O	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Coordinate System</b>		<b>Vertical Datum</b>		
<b>GPS Accuracy</b>				
<b>Additional Info</b>				

Miscellaneous   Structural   O&M   Constructional





**Sheet** 20      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By**      **Reviewer #**      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20180809 13:52      **Weather**      **PreClean** Not Known      **Date Cleaned**  
**Flow Control**      **Purpose**      **Direction** Downstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**  CCTV  Laser  Sonar  Sidewall  Zoom  Other

---

**Street** 5th Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 21 in      **Width** in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length** ft      **Total Length** 210.1 ft  
**Len. Surveyed** 210.1 ft      **Year Constructed**      **Year Rehabilitated**

---

Up	5-P	Rim Invert	Grade Invert	Rim Grade	ft
Northing		Easting	Elevation		
Down	5-O	Rim Invert	Grade Invert	Rim Grade	ft
Northing		Easting	Elevation		

---

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additional Info**

Miscellaneous      Structural      O&M      Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							5-P
0.0		MWL - Miscellaneous Water Level			010				
2.1		MGO - Miscellaneous General Observation							Video starts at 2.1'. No footage of 0'-2.1'.
15.0		MGO - Miscellaneous General Observation							Steam in sewer lessens visibility.
23.1		RFJ - Roots Fine Joint				X	08	03	EER: 1
23.2		SRV - Surface Damage Reinforcement Visible				X	07	05	EER: 1.
37.8		RFJ - Roots Fine Joint				X	08	12	EER: 1
53.7		SRV - Surface Damage Reinforcement Visible					07	05	EER: 1.
61.1		RFJ - Roots Fine Joint				X	12	02	EER: 1
76.3	S01	DAE - Deposits Attached Encrustation			005	X	11	01	EER: 1. Related to the IWJ.
76.3	S02	IWJ - Infiltration Weeper Joint				X	11	01	EER: 1. Related to the DAE.
93.2	F01	DAE - Deposits Attached Encrustation			005	X	11	01	EER: 1. Related to the IWJ.
93.2	F02	IWJ - Infiltration Weeper Joint				X	11	01	EER: 1. Related to the DAE.
114.4		DAE - Deposits Attached Encrustation			005	X	11	01	EER: 1. Related to the IWJ.
114.4		IWJ - Infiltration Weeper Joint				X	11	01	EER: 1. Related to the DAE.
121.2		RFJ - Roots Fine Joint				X	10	03	EER: 1.
124.6	S03	DAE - Deposits Attached Encrustation			005		08	04	EER: 1.
138.6		DAE - Deposits Attached Encrustation			005	X	12	03	EER: 1. Related to the IWJ.
138.6		IWJ - Infiltration Weeper Joint				X	12	03	EER: 1. Related to the DAE.
206.9	F03	DAE - Deposits Attached Encrustation			005		08	04	EER: 1.
210.1		AMH - Manhole							5-O

210.1 ft Total Length Surveyed



<b>Work Order</b>	<b>Date</b> 3:52 20180809	<b>Sheet</b> 20
<b>Street</b> 5th Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> 5-P	<b>Down Node</b> 5-0
		<b>Direction</b> Downstream

**23.1\_RFJ\_From-08\_To-03.jpg**

**Date:** 8/09/2018

**Distance:** 23.1 ft

**Obs:**  
RFJ - Roots Fine Joint

**Comments:**

EER: 1



**23.2\_SRV\_From-07\_To-05.jpg**

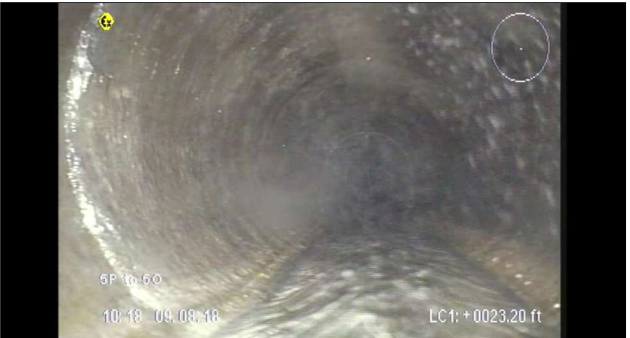
**Date:** 8/09/2018

**Distance:** 23.2 ft

**Obs:**  
SRV - Surface Damage Reinforcement Visible

**Comments:**

EER: 1.



**37.8\_RFJ\_From-08\_To-12.jpg**

**Date:** 8/09/2018

**Distance:** 37.8 ft

**Obs:**  
RFJ - Roots Fine Joint

**Comments:**

EER: 1



**53.7\_SRV\_From-07\_To-05.jpg**

**Date:** 8/09/2018

**Distance:** 53.7 ft

**Obs:**  
SRV - Surface Damage Reinforcement Visible

**Comments:**

EER: 1.



<b>Work Order</b>	<b>Date</b> 3:52 20180809	<b>Sheet</b> 20
<b>Street</b> 5th Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> 5-P	<b>Down Node</b> 5-O
		<b>Direction</b> Downstream

**Date:** 8/09/2018  
**Distance:** 61.1 ft  
**Obs:**  
 RFJ - Roots Fine Joint  
**Comments:**  
 EER: 1

61.1\_RFJ\_From-12\_To-02.jpg



**Date:** 8/09/2018  
**Distance:** 76.3 ft  
**Obs:**  
 DAE - Deposits Attached Encrustation  
**Comments:**  
 EER: 1. Related to the IWJ.

76.3\_DAE\_From-11\_To-01.jpg



**Date:** 8/09/2018  
**Distance:** 114.4 ft  
**Obs:**  
 DAE - Deposits Attached Encrustation  
**Comments:**  
 EER: 1. Related to the IWJ.

114.4\_DAE\_From-11\_To-01.jpg



**Date:** 8/09/2018  
**Distance:** 121.2 ft  
**Obs:**  
 RFJ - Roots Fine Joint  
**Comments:**  
 EER: 1.

121.2\_RFJ\_From-10\_To-03.jpg



<b>Work Order</b>	<b>Date</b> 3:52 20180809	<b>Sheet</b> 20
<b>Street</b> 5th Street		
<b>City</b> Anacortes	<b>Weather</b>	
<b>Location</b>		
<b>Up Node</b> 5-P	<b>Down Node</b> 5-0	<b>Direction</b> Downstream

138.6\_DAE\_From-12\_To-03.jpg

**Date:** 8/09/2018

**Distance:** 138.6 ft

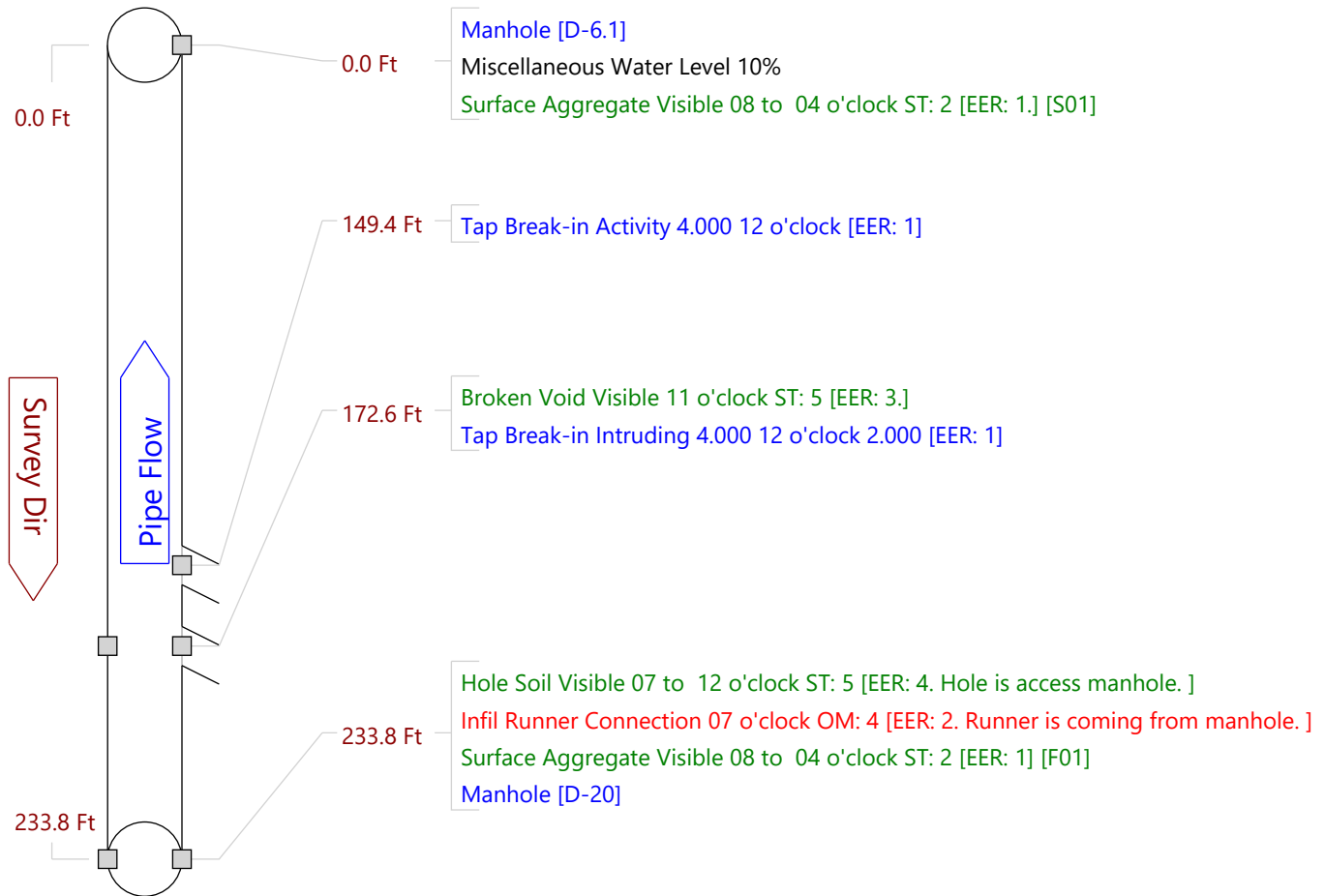
**Obs:**  
DAE - Deposits Attached  
Encrustation

**Comments:**  
EER: 1. Related to the  
IWJ.



<b>Sheet</b> 21	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>	
<b>Reviewed By</b>	<b>Reviewer #</b>	<b>Work Order</b>		<b>Media Label</b>
<b>Customer</b>		<b>PO</b>		
<b>Date</b> 20170629 12:52	<b>Weather</b>	<b>PreClean</b> Not Known	<b>Date Cleaned</b>	
<b>Flow Control</b>		<b>Purpose</b>	<b>Direction</b> Upstream	
<b>Inspection Status</b> Complete Inspection		<b>Consequence of Failure</b>	<b>Pressure</b>	
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other			
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Drainage Area</b>		
<b>Location</b>		<b>Pipe Use</b> Process Pipe		
<b>Details</b>		<b>Height</b> 15 in	<b>Width</b>	<b>in</b>
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>		
<b>Coating</b>	<b>Joint Length</b> ft	<b>Total Length</b>	233.8 ft	
<b>Len. Surveyed</b> 233.8 ft	<b>Year Constructed</b>	<b>Year Rehabilitated</b>		
<b>Up</b> D-20	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Down</b> D-6.1	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Coordinate System</b>		<b>Vertical Datum</b>		
<b>GPS Accuracy</b>				
<b>Additional Info</b>				

Miscellaneous    Structural    O&M    Constructional



**Sheet** 21      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By**      **Reviewer #**      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20170629 12:52      **Weather**      **PreClean** Not Known      **Date Cleaned**  
**Flow Control**      **Purpose**      **Direction** Upstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**  CCTV  Laser  Sonar  Sidewall  Zoom  Other

---

**Street** D Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 15 in      **Width** in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length** ft      **Total Length** 233.8 ft  
**Len. Surveyed** 233.8 ft      **Year Constructed**      **Year Rehabilitated**

---

<b>Up</b> D-20	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Down</b> D-6.1	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		

---

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additionl Info**

Miscellaneous      Structural      O&M      Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							D-6.1
0.0		MWL - Miscellaneous Water Level			010				
0.0	S01	SAV - Surface Aggregate Visible					08	04	EER: 1.
149.4		TBA - Tap Break-in Activity	4.0				12		EER: 1
172.6		BVV - Broken Void Visible					11		EER: 3.
172.6		TBI - Tap Break-in Intruding	4.0	2.0			12		EER: 1
233.8		HSV - Hole Soil Visible					07	12	EER: 4. Hole is access manhole.
233.8		IRC - Infil Runner Connection					07		EER: 2. Runner is coming from manhole.
233.8	F01	SAV - Surface Aggregate Visible					08	04	EER: 1
233.8		AMH - Manhole							D-20

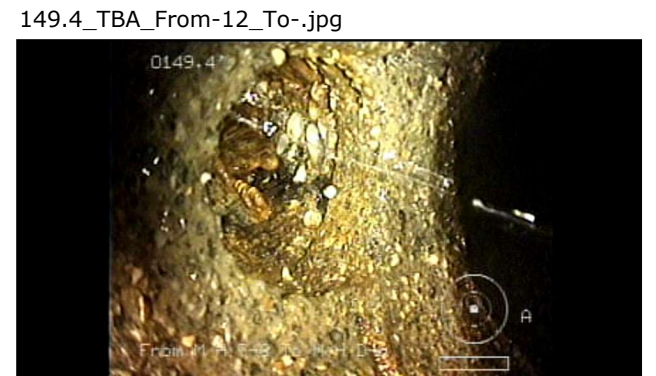
233.8 ft Total Length Surveyed

<b>Work Order</b>	<b>Date</b> 2:52 20170629	<b>Sheet</b> 21
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>		
<b>Up Node</b> D-20	<b>Down Node</b> D-6.1	<b>Direction</b> Upstream

**Date:** 6/29/2017  
**Distance:** 0 ft  
**Obs:**  
 SAV - Surface  
 Aggregate Visible  
**Comments:**  
 EER: 1.



**Date:** 6/29/2017  
**Distance:** 149.4 ft  
**Obs:**  
 TBA - Tap Break-in  
 Activity  
**Comments:**  
 EER: 1



**Date:** 6/29/2017  
**Distance:** 172.6 ft  
**Obs:**  
 BVV - Broken Void  
 Visible  
**Comments:**  
 EER: 3.



**Date:** 6/29/2017  
**Distance:** 172.6 ft  
**Obs:**  
 TBI - Tap Break-in  
 Intruding  
**Comments:**  
 EER: 1





<b>Work Order</b>	<b>Date</b> 2:52 20170629	<b>Sheet</b> 21
<b>Street</b> D Street		
<b>City</b> Anacortes	<b>Weather</b>	
<b>Location</b>		
<b>Up Node</b> D-20	<b>Down Node</b> D-6.1	<b>Direction</b> Upstream

233.8\_IRC\_From-07\_To-.jpg

**Date:** 6/29/2017

**Distance:** 233.8 ft

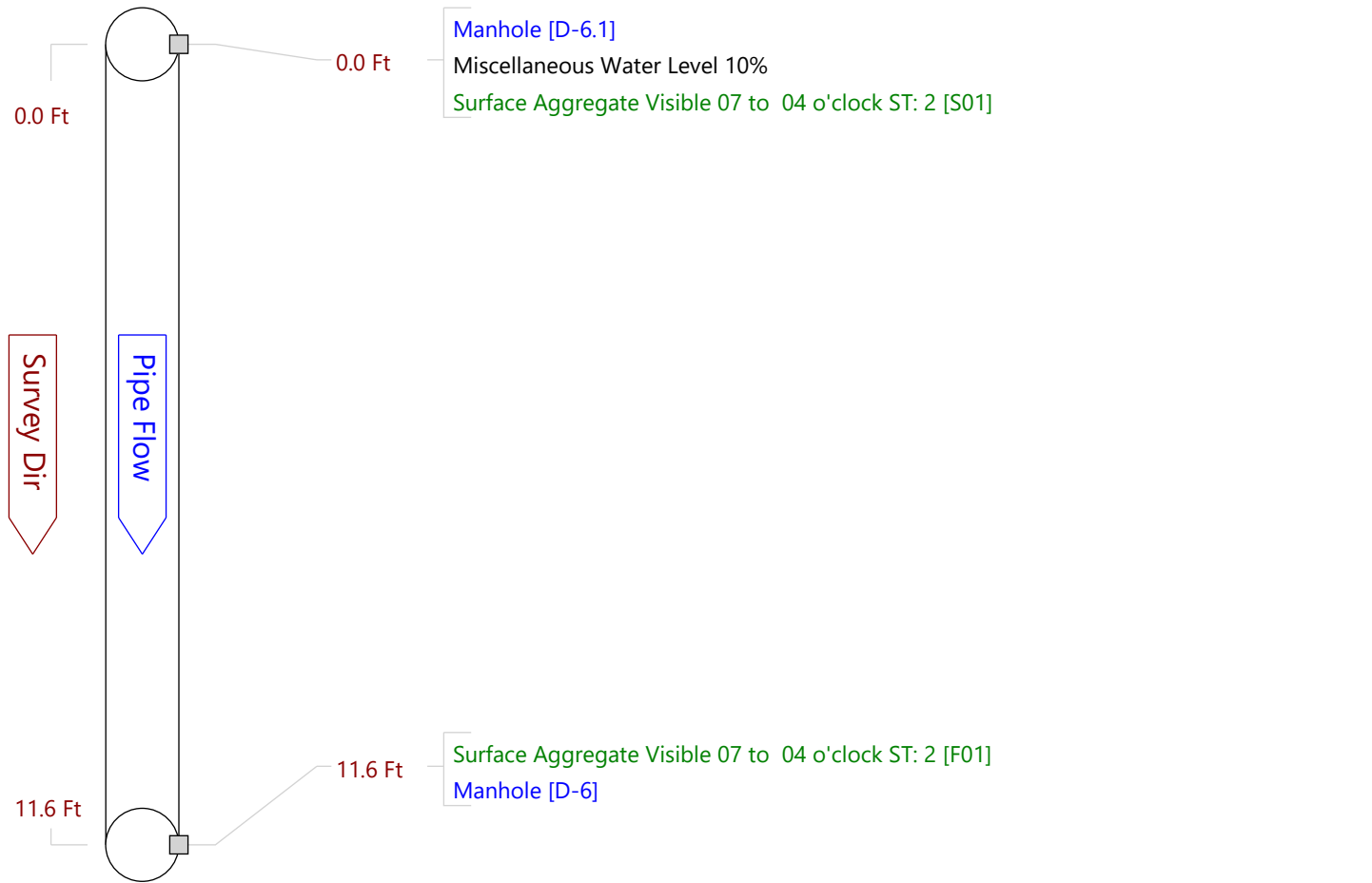
**Obs:**  
IRC - Infil Runner  
Connection

**Comments:**

EER: 2. Runner is  
coming from manhole.



<b>Sheet</b> 22	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>
<b>Reviewed By</b>	<b>Reviewer #</b>	<b>Work Order</b>	<b>Media Label</b>
<b>Customer</b>	<b>PO</b>	<b>PreClean</b> Not Known	<b>Date Cleaned</b>
<b>Date</b> 20170629 13:33	<b>Weather</b>	<b>Purpose</b>	<b>Direction</b> Downstream
<b>Flow Control</b>	<b>Consequence of Failure</b>	<b>Pressure</b>	
<b>Inspection Status</b> Complete Inspection			
<b>Inspection Technology Used</b>	<input type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other		
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Drainage Area</b>	
<b>Location</b>	<b>Pipe Use</b> Process Pipe	<b>Height</b> 15 in	<b>Width</b> in
<b>Details</b>	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>	
<b>Shape</b> Circular	<b>Joint Length</b> ft	<b>Total Length</b> 11.6 ft	
<b>Coating</b>	<b>Year Constructed</b>	<b>Year Rehabilitated</b>	
<b>Len. Surveyed</b> 11.6 ft			
<b>Up</b> D-6.1	<b>Rim Invert</b> 4.0	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Down</b> D-6	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b> ft
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>	
<b>Coordinate System</b>	<b>Vertical Datum</b>		
<b>GPS Accuracy</b>			
<b>Additional Info</b>	Miscellaneous    Structural    O&M    Constructional		





**Sheet** 22     
 **Surveyor** HENRY CADE     
 **Certificate** P0037737-052022     
 **System Owner**

**Reviewed By**     
 **Reviewer #**     
 **Work Order**

**Customer**     
 **PO**     
 **Media Label**

**Date** 20170629 13:33     
 **Weather**     
 **PreClean** Not Known     
 **Date Cleaned**

**Flow Control**     
 **Purpose**     
 **Direction** Downstream

**Inspection Status** Complete Inspection     
 **Consequence of Failure**     
 **Pressure**

**Inspection Technology Used**
 CCTV  
  Laser  
  Sonar  
  Sidewall  
  Zoom  
  Other

**Street** D Street     
 **City** Anacortes     
 **Drainage Area**

**Location**     
 **Pipe Use** Process Pipe

**Details**     
 **Height** 15 in     
 **Width** in

**Shape** Circular     
 **Material** Reinforced Concrete Pipe     
 **Lining**

**Coating**     
 **Joint Length** ft     
 **Total Length** 11.6 ft

**Len. Surveyed** 11.6 ft     
 **Year Constructed**     
 **Year Rehabilitated**

**Up** D-6.1     
 **Rim Invert** 4.0     
 **Grade Invert**     
 **Rim Grade** ft

**Northing**     
 **Easting**     
 **Elevation**

**Down** D-6     
 **Rim Invert**     
 **Grade Invert**     
 **Rim Grade** ft

**Northing**     
 **Easting**     
 **Elevation**

**Coordinate System**     
 **Vertical Datum**

**GPS Accuracy**

**Additional Info**

Miscellaneous     
 Structural     
 O&M     
 Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							D-6.1
0.0		MWL - Miscellaneous Water Level			010				
0.0	S01	SAV - Surface Aggregate Visible				07	04		
11.6	F01	SAV - Surface Aggregate Visible				07	04		
11.6		AMH - Manhole							D-6

11.6 ft Total Length Surveyed

<b>Work Order</b>	<b>Date</b> 3:33 20170629	<b>Sheet</b> 22
<b>Street</b> D Street		
<b>City</b> Anacortes	<b>Weather</b>	
<b>Location</b>		
<b>Up Node</b> D-6.1	<b>Down Node</b> D-6	<b>Direction</b> Downstream

0.0\_SAV\_From-07\_To-04.jpg

**Date:** 6/29/2017

**Distance:** 0 ft

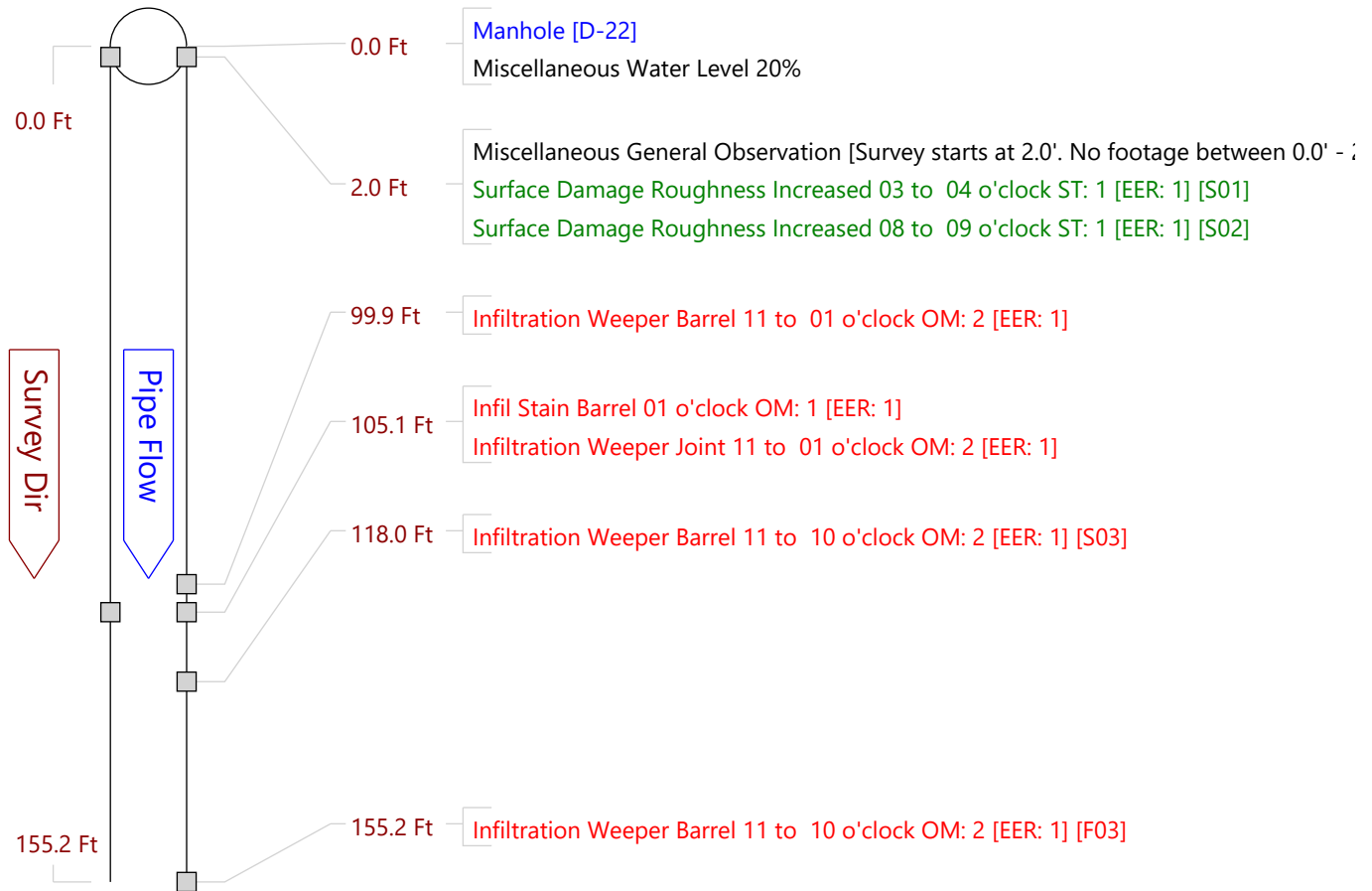
**Obs:**  
SAV - Surface  
Aggregate Visible

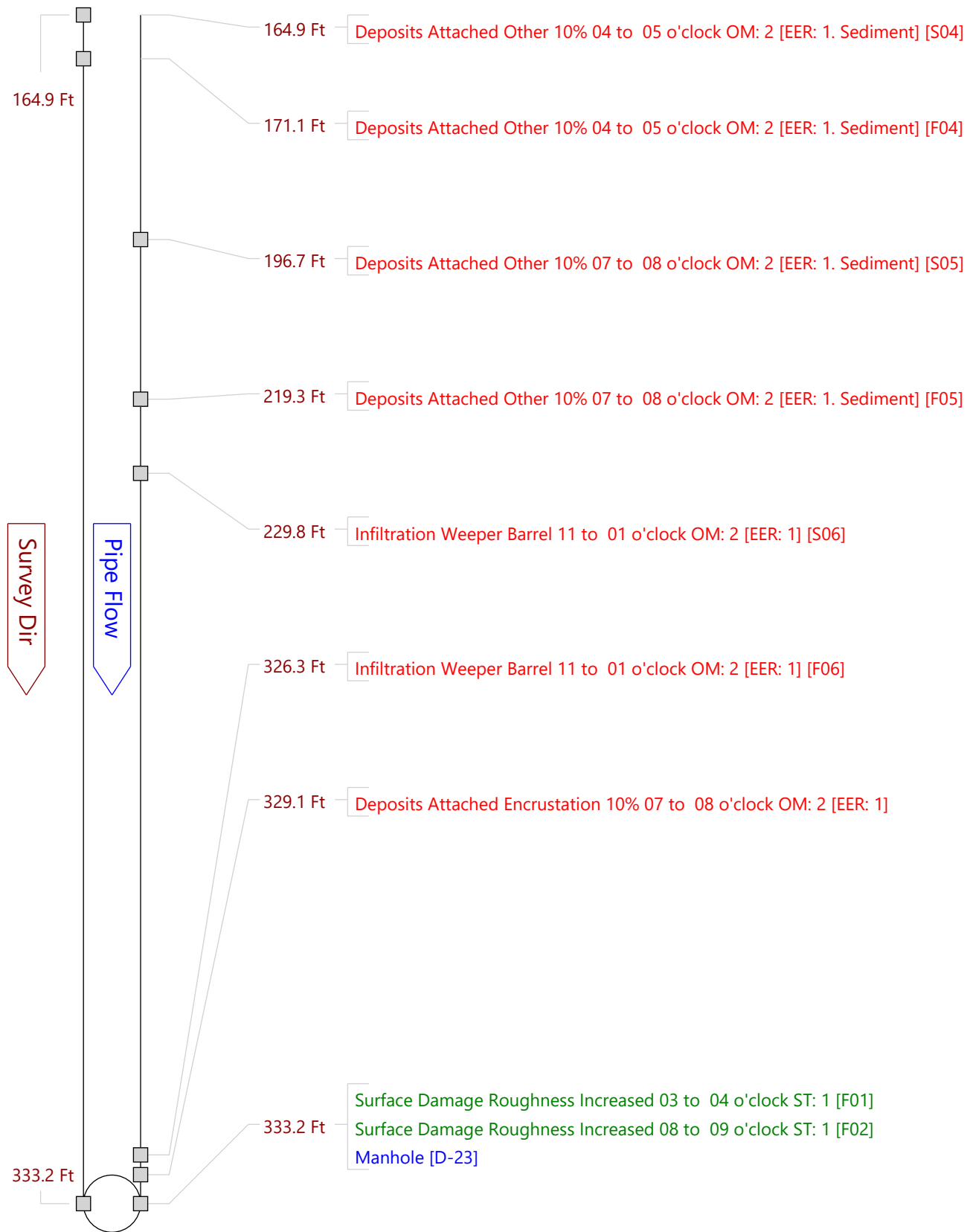
**Comments:**



<b>Sheet</b> 23	<b>Surveyor</b> HENRY CADE	<b>Certificate</b> P0037737-052022	<b>System Owner</b>	
<b>Reviewed By</b>	<b>Reviewer #</b>	<b>Work Order</b>		<b>Media Label</b>
<b>Customer</b>		<b>PO</b>	<b>Date Cleaned</b>	
<b>Date</b> 20180808 10:25	<b>Weather</b>	<b>PreClean</b> Not Known	<b>Direction</b> Downstream	
<b>Flow Control</b>		<b>Purpose</b>	<b>Pressure</b>	
<b>Inspection Status</b> Complete Inspection		<b>Consequence of Failure</b>		
<b>Inspection Technology Used</b>	<input checked="" type="checkbox"/> CCTV <input type="checkbox"/> Laser <input type="checkbox"/> Sonar <input type="checkbox"/> Sidewall <input type="checkbox"/> Zoom <input type="checkbox"/> Other			
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Drainage Area</b>		
<b>Location</b>		<b>Pipe Use</b> Process Pipe		
<b>Details</b>		<b>Height</b> 32 in	<b>Width</b>	<b>in</b>
<b>Shape</b> Circular	<b>Material</b> Reinforced Concrete Pipe	<b>Lining</b>		
<b>Coating</b>	<b>Joint Length</b> ft	<b>Total Length</b>	333.2 ft	
<b>Len. Surveyed</b> 333.2 ft	<b>Year Constructed</b>	<b>Year Rehabilitated</b>		
<b>Up</b> D-22	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Down</b> D-23	<b>Rim Invert</b>	<b>Grade Invert</b>	<b>Rim Grade</b>	<b>ft</b>
<b>Northing</b>	<b>Easting</b>	<b>Elevation</b>		
<b>Coordinate System</b>		<b>Vertical Datum</b>		
<b>GPS Accuracy</b>				
<b>Additional Info</b>				

Miscellaneous   Structural   O&M   Constructional





**Sheet** 23      **Surveyor** HENRY CADE      **Certificate** P0037737-052022      **System Owner**  
**Reviewed By**      **Reviewer #**      **Work Order**  
**Customer**      **PO**      **Media Label**  
**Date** 20180808 10:25      **Weather**      **PreClean** Not Known      **Date Cleaned**  
**Flow Control**      **Purpose**      **Direction** Downstream  
**Inspection Status** Complete Inspection      **Consequence of Failure**      **Pressure**  
**Inspection Technology Used**  CCTV  Laser  Sonar  Sidewall  Zoom  Other

---

**Street** D Street      **City** Anacortes      **Drainage Area**  
**Location**      **Pipe Use** Process Pipe  
**Details**      **Height** 32 in      **Width** in  
**Shape** Circular      **Material** Reinforced Concrete Pipe      **Lining**  
**Coating**      **Joint Length** ft      **Total Length** 333.2 ft  
**Len. Surveyed** 333.2 ft      **Year Constructed**      **Year Rehabilitated**

---

Up	D-22	Rim Invert	Grade Invert	Rim Grade	ft
Northing		Easting	Elevation		
Down	D-23	Rim Invert	Grade Invert	Rim Grade	ft
Northing		Easting	Elevation		

---

**Coordinate System**      **Vertical Datum**  
**GPS Accuracy**  
**Additional Info**

Miscellaneous      Structural      O&M      Constructional

Count	CD	Code	Val 1	Val 2	%	Jnt	Fr	To	Remarks
0.0		AMH - Manhole							D-22
0.0		MWL - Miscellaneous Water Level			020				
2.0		MGO - Miscellaneous General Observation							Survey starts at 2.0'. No footage between 0.0' - 2.0'.
2.0	S01	SRI - Surface Damage Roughness Increased					03	04	EER: 1
2.0	S02	SRI - Surface Damage Roughness Increased					08	09	EER: 1
99.9		IWB - Infiltration Weeper Barrel					11	01	EER: 1
105.1		ISB - Infil Stain Barrel					01		EER: 1
105.1		IWJ - Infiltration Weeper Joint				X	11	01	EER: 1
118.0	S03	IWB - Infiltration Weeper Barrel					11	10	EER: 1
155.2	F03	IWB - Infiltration Weeper Barrel					11	10	EER: 1
164.9	S04	DAZ - Deposits Attached Other			010		04	05	EER: 1. Sediment
171.1	F04	DAZ - Deposits Attached Other			010		04	05	EER: 1. Sediment
196.7	S05	DAZ - Deposits Attached Other			010		07	08	EER: 1. Sediment
219.3	F05	DAZ - Deposits Attached Other			010		07	08	EER: 1. Sediment
229.8	S06	IWB - Infiltration Weeper Barrel					11	01	EER: 1
326.3	F06	IWB - Infiltration Weeper Barrel					11	01	EER: 1
329.1		DAE - Deposits Attached Encrustation			010		07	08	EER: 1
333.2	F01	SRI - Surface Damage Roughness Increased					03	04	
333.2	F02	SRI - Surface Damage Roughness Increased					08	09	
333.2		AMH - Manhole							D-23

333.2 ft Total Length Surveyed

<b>Work Order</b>	<b>Date</b> 0:25 20180808	<b>Sheet</b> 23
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> D-22	<b>Down Node</b> D-23
		<b>Direction</b> Downstream

2.0\_SRI\_From-08\_To-09.jpg

**Date:** 8/08/2018  
**Distance:** 2 ft  
**Obs:**  
 SRI - Surface Damage  
 Roughness Increased  
**Comments:**  
 EER: 1



2.0\_SRI\_From-03\_To-04.jpg

**Date:** 8/08/2018  
**Distance:** 2 ft  
**Obs:**  
 SRI - Surface Damage  
 Roughness Increased  
**Comments:**  
 EER: 1



99.9\_IWB\_From-11\_To-01.jpg

**Date:** 8/08/2018  
**Distance:** 99.9 ft  
**Obs:**  
 IWB - Infiltration  
 Weeper Barrel  
**Comments:**  
 EER: 1



105.1\_ISB\_From-01\_To-.jpg

**Date:** 8/08/2018  
**Distance:** 105.1 ft  
**Obs:**  
 ISB - Infil Stain Barrel  
**Comments:**  
 EER: 1



<b>Work Order</b>	<b>Date</b> 0:25 20180808	<b>Sheet</b> 23
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> D-22	<b>Down Node</b> D-23
		<b>Direction</b> Downstream

**105.0\_IWJ\_From-11\_To-01.jpg**

**Date:** 8/08/2018

**Distance:** 105.1 ft

**Obs:**  
IWJ - Infiltration Weeper Joint

**Comments:**  
EER: 1

**118.0\_IWB\_From-12\_To-.jpg**

**Date:** 8/08/2018

**Distance:** 118 ft

**Obs:**  
IWB - Infiltration Weeper Barrel

**Comments:**  
EER: 1

**164.9\_DAZ\_From-04\_To-05.jpg**

**Date:** 8/08/2018

**Distance:** 164.9 ft

**Obs:**  
DAZ - Deposits Attached Other

**Comments:**  
EER: 1. Sediment

**196.7\_DAZ\_From-07\_To-08.jpg**

**Date:** 8/08/2018

**Distance:** 196.7 ft

**Obs:**  
DAZ - Deposits Attached Other

**Comments:**  
EER: 1. Sediment

<b>Work Order</b>	<b>Date</b> 0:25 20180808	<b>Sheet</b> 23
<b>Street</b> D Street	<b>City</b> Anacortes	<b>Weather</b>
<b>Location</b>	<b>Up Node</b> D-22	<b>Down Node</b> D-23
		<b>Direction</b> Downstream

219.3\_IWB\_From-11\_To-01.jpg

**Date:** 8/08/2018  
**Distance:** 229.8 ft  
**Obs:**  
IWB - Infiltration  
Weeper Barrel  
**Comments:**  
EER: 1



329.1\_DAE\_From-07\_To-08.jpg

**Date:** 8/08/2018  
**Distance:** 329.1 ft  
**Obs:**  
DAE - Deposits Attached  
Encrustation  
**Comments:**  
EER: 1

