

RedZone
ROBOTICS

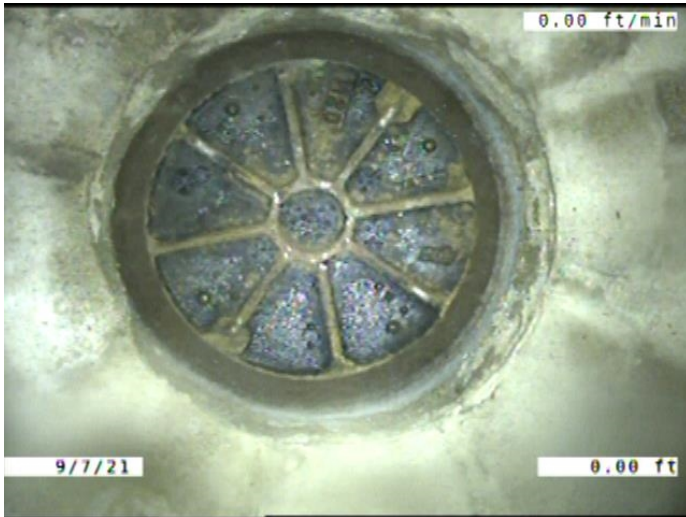
Street:	41st Avenue	Flow Control:	Not Controlled
City:	Hobart, IN	Year Renewed:	
Location:	Alley	Tape/Media #:	
Purpose:	Routine Assessment	Dia/Height:	10"
Use:	Sanitary Sewage Pipe	Material:	CP
Drain Area:		Lining:	None
Category:	NA		
Comment:			
Location Details:		Direction of Survey:	Upstream
US MH:	M-504-110	DS MH:	M-504-110.1
			Total Length Surveyed (ft)

O&M Index:	1.94	O&M Quick:	4134	O&M Rating:	122.00
Structural Index:	2.69	Structural Quick:	4333	Structural Rating:	35.00
Overall Index:	2.07	Overall Quick:	4437	Overall Rating:	157.00

Position	Code	Observation	Video (sec)	Grade
M-504-110.1				
.0	AMH	Manhole	1	NA
.0	MWL	Miscellaneous Water Level	62	NA
2.0	CM	Crack Multiple	121	S 3
2.0	DAE	Deposits Attached Encrustation	144	M 2
2.9	FM	Fracture Multiple	212	S 4
3.3	TB	Tap Break-in/Hammer	230	NA
8.0	DSF(S01)	Deposits Settled Fine	262	M 2
12.5	MWLS(S02)	Miscellaneous Water Level Sag	291	S 2
17.1	MMC	Miscellaneous Material Change	346	NA
18.3	TFD	Tap Factory Defective	375	M 3
19.3	MMC	Miscellaneous Material Change	421	NA
25.3	DAE	Deposits Attached Encrustation	471	M 2
28.4	DAE	Deposits Attached Encrustation	511	M 2
37.6	MWLS(F02)	Miscellaneous Water Level Sag	562	S 2
43.4	DAR	Deposits Attached Ragging	598	M 2
46.8	MMC	Miscellaneous Material Change	654	NA
48.0	TF	Tap Factory	681	NA
48.9	MMC	Miscellaneous Material Change	722	NA
52.6	CM	Crack Multiple	829	S 3

53.0	TBI	Tap Break-in Intruding	854	M 2
56.5	TBD	Tap Break-in/Hammer Defective	960	M 3
63.9	DAE	Deposits Attached Encrustation	1023	M 2
68.8	DAE	Deposits Attached Encrustation	1079	M 2
80.0	DAE	Deposits Attached Encrustation	1184	M 2
82.9	DAR	Deposits Attached Ragging	1219	M 2
101.2	MMC	Miscellaneous Material Change	1331	NA
102.3	TF	Tap Factory	1359	NA
103.2	B	Broken	1424	S 4
103.2	MMC	Miscellaneous Material Change	1492	NA
106.3	MMC	Miscellaneous Material Change	1546	NA
108.5	TF	Tap Factory	1585	NA
109.2	MMC	Miscellaneous Material Change	1628	NA
109.2	RMJ	Roots Medium Joint	1680	M 3
112.5	RFJ(S03)	Roots Fine Joint	1733	M 1
113.5	MWLS(S04)	Miscellaneous Water Level Sag	1758	S 2
123.0	MWLS(F04)	Miscellaneous Water Level Sag	1806	S 2
142.4	MMC	Miscellaneous Material Change	1918	NA
142.4	DAE	Deposits Attached Encrustation	1975	M 4
145.7	DAE	Deposits Attached Encrustation	2049	M 2
148.0	RFJ(F03)	Roots Fine Joint	2083	M 1
151.7	RFJ	Roots Fine Joint	2118	M 1
151.7	CM	Crack Multiple	2143	S 3
154.1	TF	Tap Factory	2173	NA
154.8	MMC	Miscellaneous Material Change	2221	NA
157.7	MMC	Miscellaneous Material Change	2278	NA
160.1	TFD	Tap Factory Defective	2313	M 3
160.8	B	Broken	2374	S 4
160.9	MMC	Miscellaneous Material Change	2409	NA
163.9	RFJ(S05)	Roots Fine Joint	2462	M 1
169.7	RFJ(F05)	Roots Fine Joint	2509	M 1
179.2	RFJ	Roots Fine Joint	2562	M 1
198.5	DSF(F01)	Deposits Settled Fine	2650	M 2
199.6	AMH	Manhole	2718	NA

M-504-110



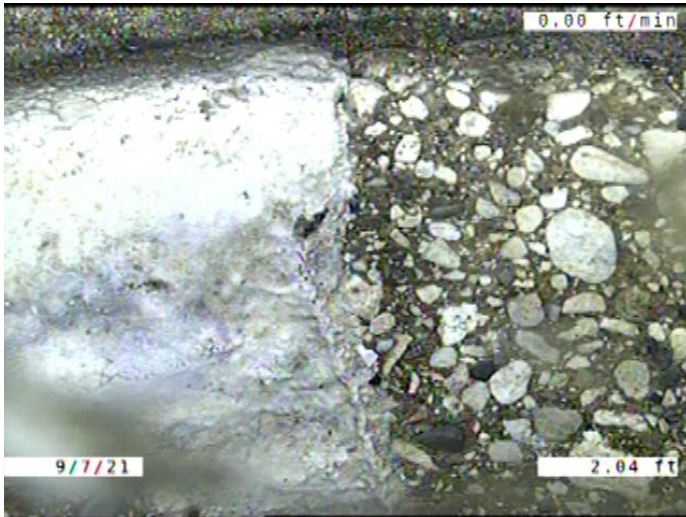
Code: **AMH**
Description: **Manhole**

Distance (ft): **.0**
Structural Grade: **0**
O&M Grade: **0**
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Value Percent:
Continuous Index:
Within 8" of Joint: **NO**
Remarks: **M-504-110.1**



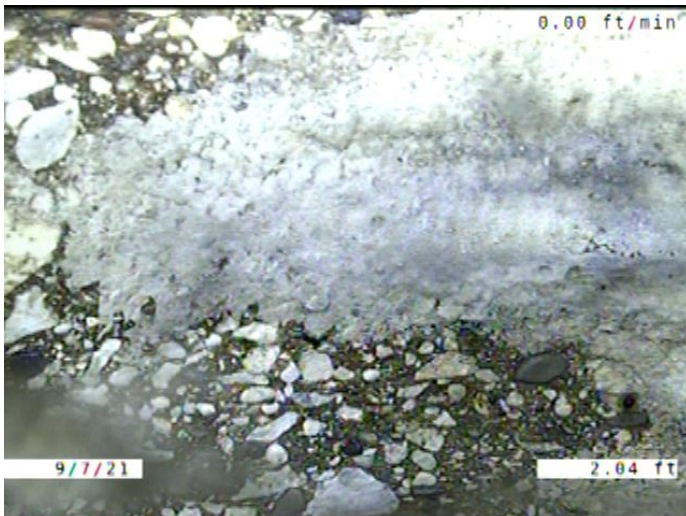
Code: **MWL**
Description: **Miscellaneous Water Level**

Distance (ft): **.0**
Structural Grade: **0**
O&M Grade: **0**
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Value Percent: **5.000**
Continuous Index:
Within 8" of Joint: **NO**
Remarks:



Code: **CM**
 Description: **Crack Multiple**

Distance (ft): **2.0**
 Structural Grade: **3**
 O&M Grade: **0**
 Clock Start/From: **10**
 Clock To: **12**
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



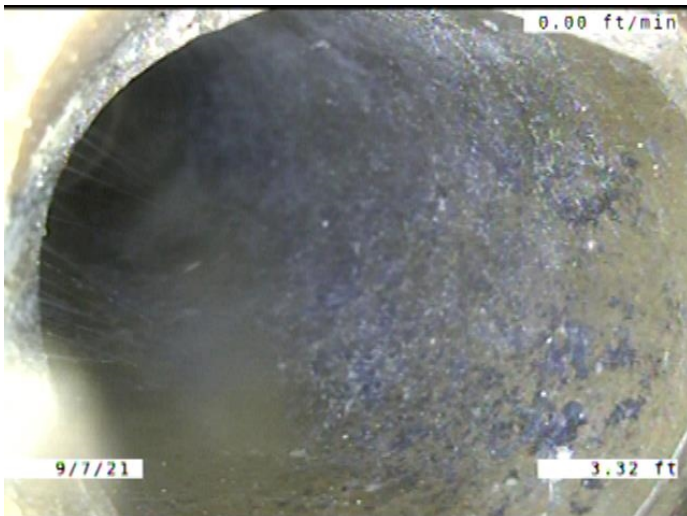
Code: **DAE**
 Description: **Deposits Attached Encrustation**

Distance (ft): **2.0**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **9**
 Clock To: **11**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



Code: **FM**
 Description: **Fracture Multiple**

Distance (ft): **2.9**
 Structural Grade: **4**
 O&M Grade: **0**
 Clock Start/From: **12**
 Clock To: **12**
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



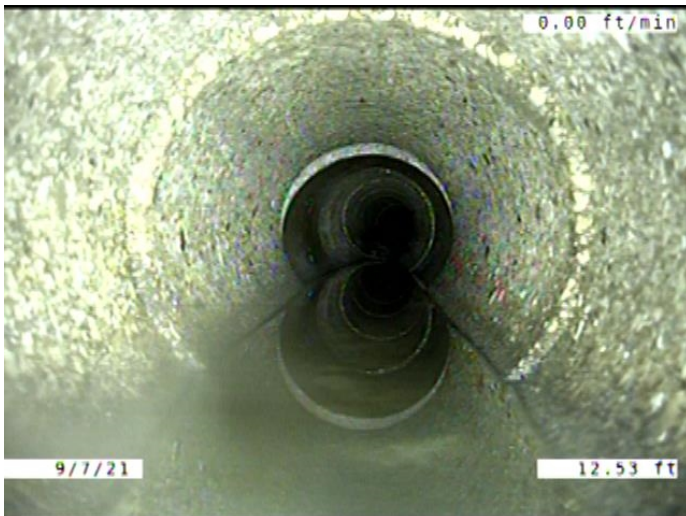
Code: **TB**
 Description: **Tap Break-in/Hammer**

Distance (ft): **3.3**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From: **11**
 Clock To:
 1st Value: **4.000**
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks:



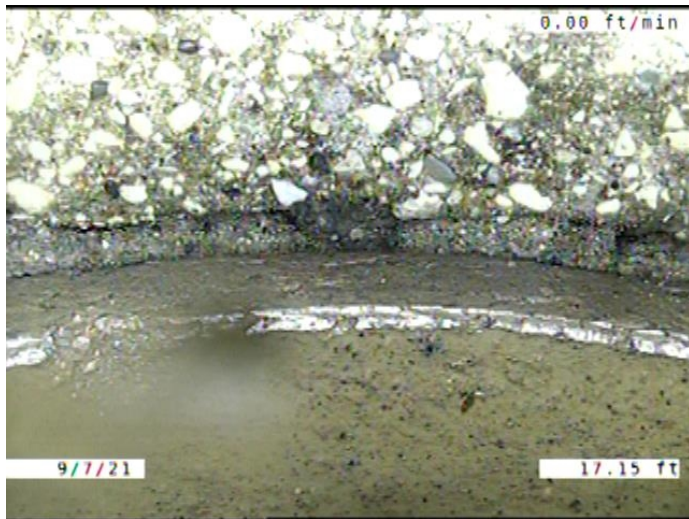
Code: **DSF**
 Description: **Deposits Settled Fine**

Distance (ft): **8.0**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **5**
 Clock To: **7**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index: **S01**
 Within 8" of Joint: **YES**
 Remarks:



Code: **MWLS**
 Description: **Miscellaneous Water Level Sag**

Distance (ft): **12.5**
 Structural Grade: **2**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index: **S02**
 Within 8" of Joint: **NO**
 Remarks:



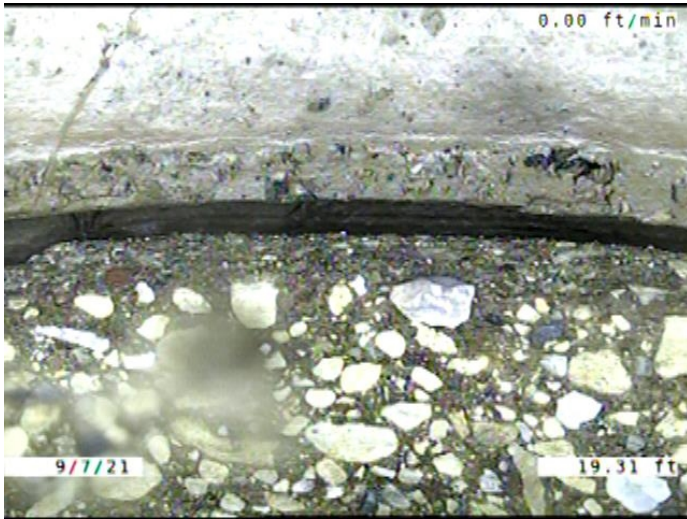
Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **17.1**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **CONCRETE TO VCP**



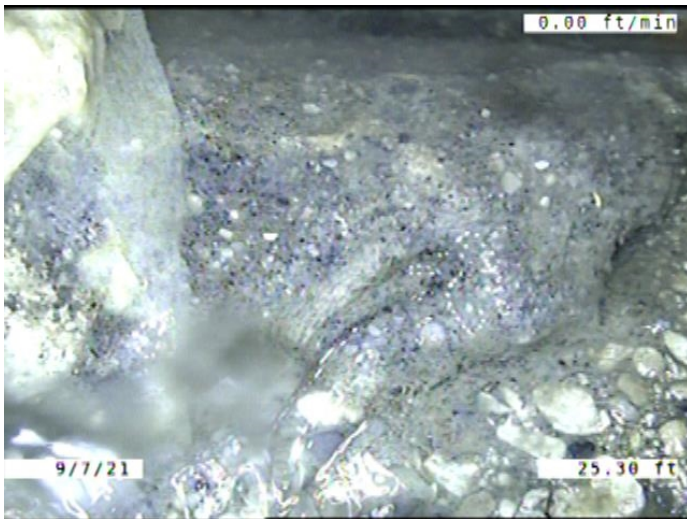
Code: **TFD**
 Description: **Tap Factory Defective**

Distance (ft): **18.3**
 Structural Grade: **0**
 O&M Grade: **3**
 Clock Start/From: **1**
 Clock To:
 1st Value: **4.000**
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks: **Defective**



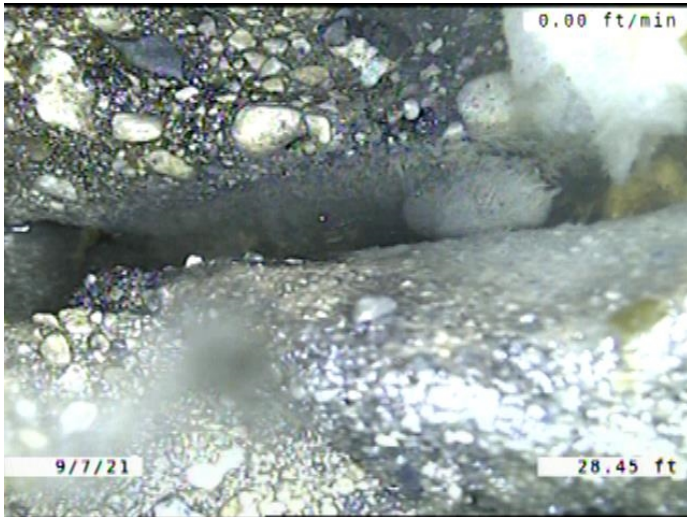
Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **19.3**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **VCP TO CONCRETE**



Code: **DAE**
 Description: **Deposits Attached Encrustation**

Distance (ft): **25.3**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **4**
 Clock To: **7**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



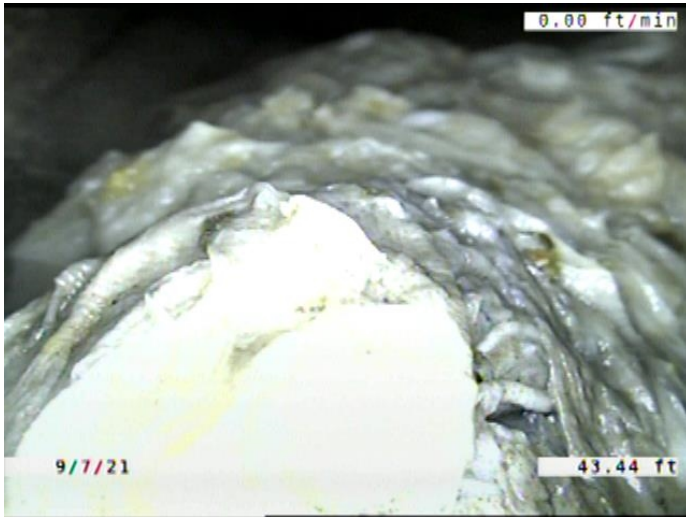
Code: **DAE**
 Description: **Deposits Attached Encrustation**

Distance (ft): **28.4**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **4**
 Clock To: **7**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



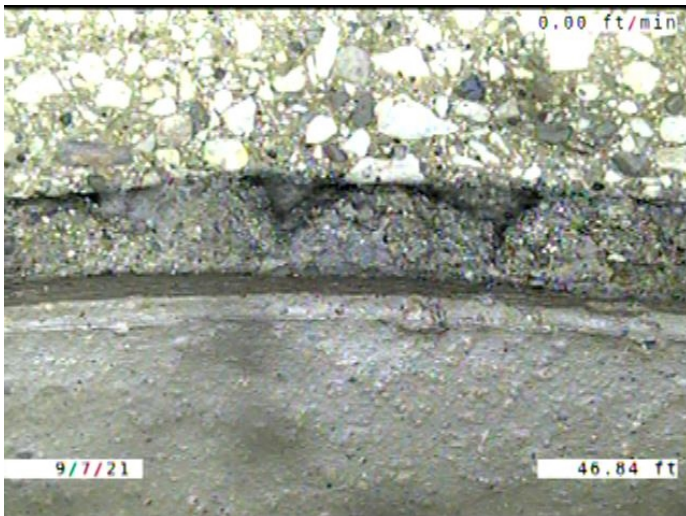
Code: **MWLS**
 Description: **Miscellaneous Water Level Sag**

Distance (ft): **37.6**
 Structural Grade: **2**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index: **F02**
 Within 8" of Joint: **NO**
 Remarks:



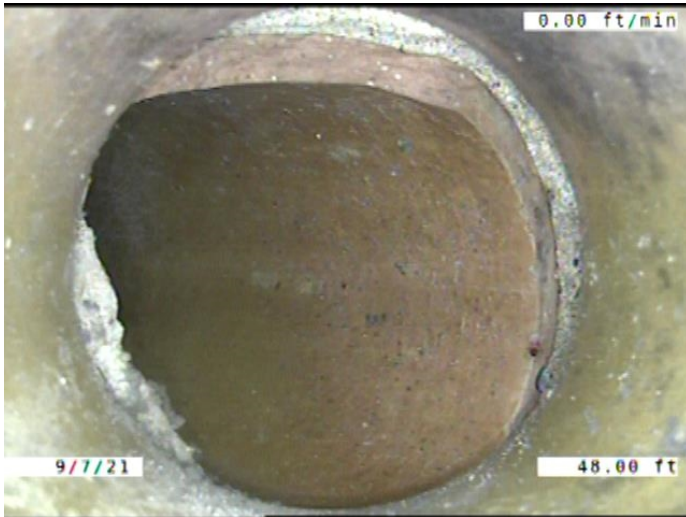
Code: **DAR**
 Description: **Deposits Attached Ragging**

Distance (ft): **43.4**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **5**
 Clock To: **7**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks: **TP AND RAGS**



Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **46.8**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **CONCRETE TO VCP**



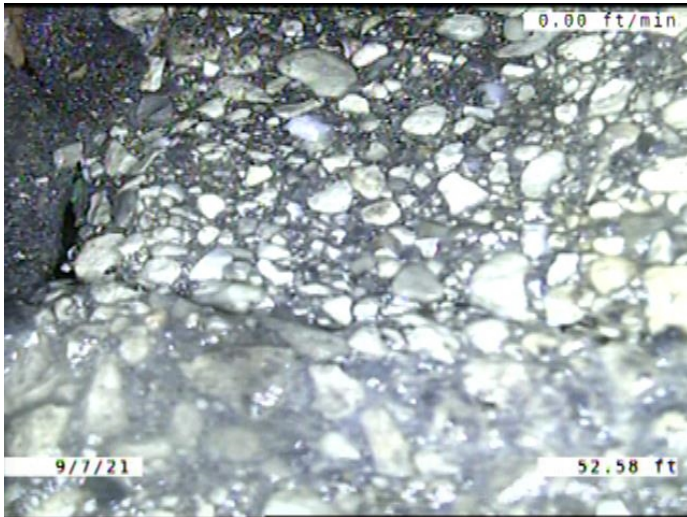
Code: **TF**
 Description: **Tap Factory**

Distance (ft): **48.0**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From: **11**
 Clock To:
 1st Value: **4.000**
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



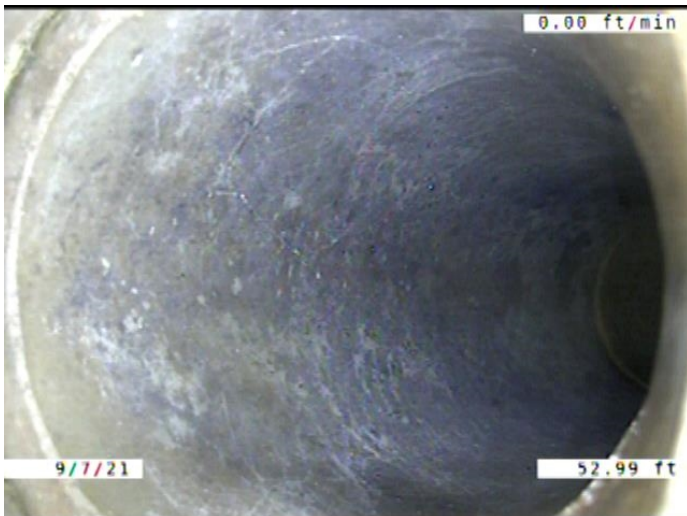
Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **48.9**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **VCP TO CONCRETE**



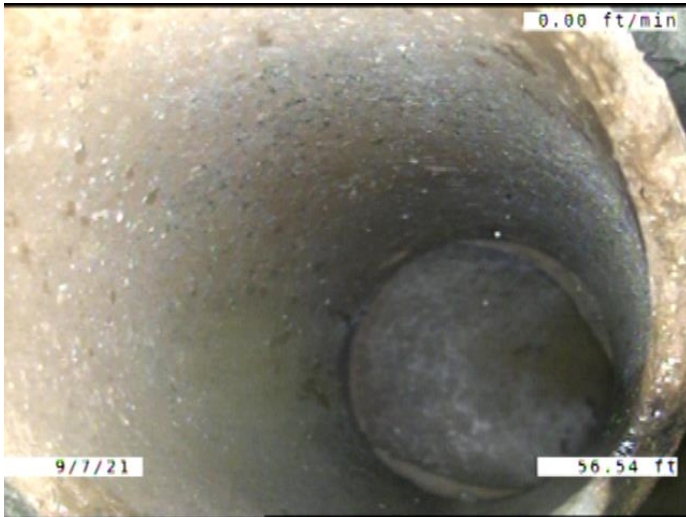
Code: **CM**
 Description: **Crack Multiple**

Distance (ft): **52.6**
 Structural Grade: **3**
 O&M Grade: **0**
 Clock Start/From: **3**
 Clock To: **9**
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks:



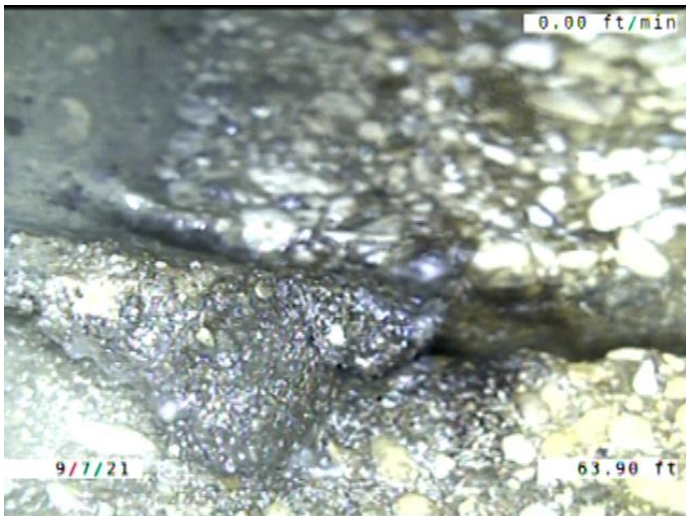
Code: **TBI**
 Description: **Tap Break-in Intruding**

Distance (ft): **53.0**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **10**
 Clock To:
 1st Value: **4.000**
 2nd Value: **2.000**
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks:



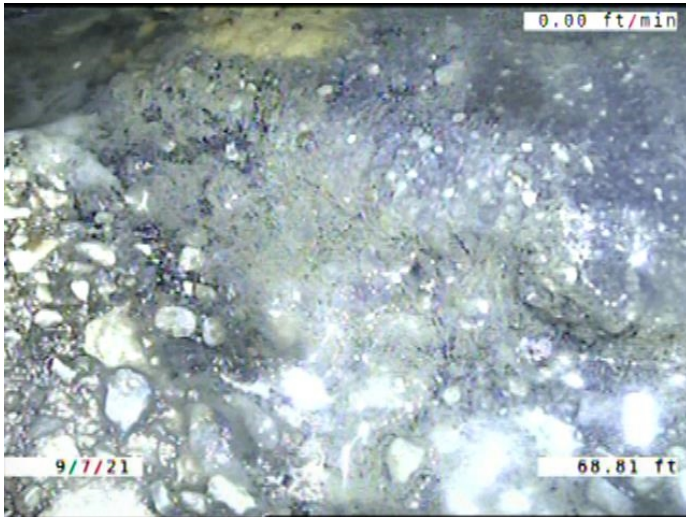
Code: **TBD**
 Description: **Tap Break-in/Hammer Defective**

Distance (ft): **56.5**
 Structural Grade: **0**
 O&M Grade: **3**
 Clock Start/From: **12**
 Clock To:
 1st Value: **4.000**
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks: **Defective**



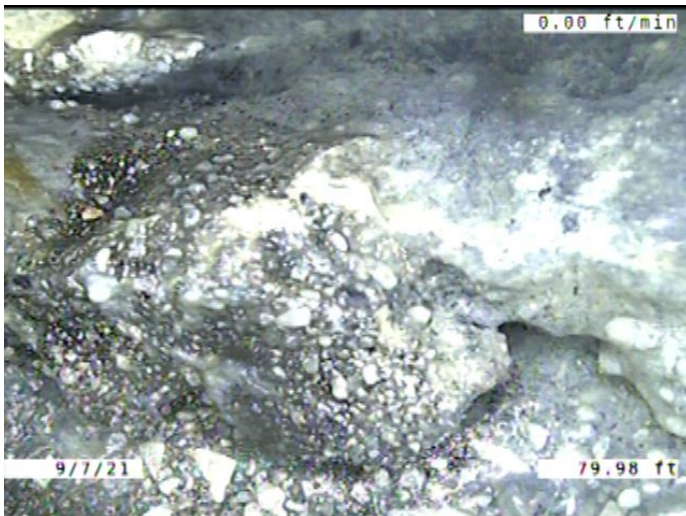
Code: **DAE**
 Description: **Deposits Attached Encrustation**

Distance (ft): **63.9**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **4**
 Clock To: **8**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



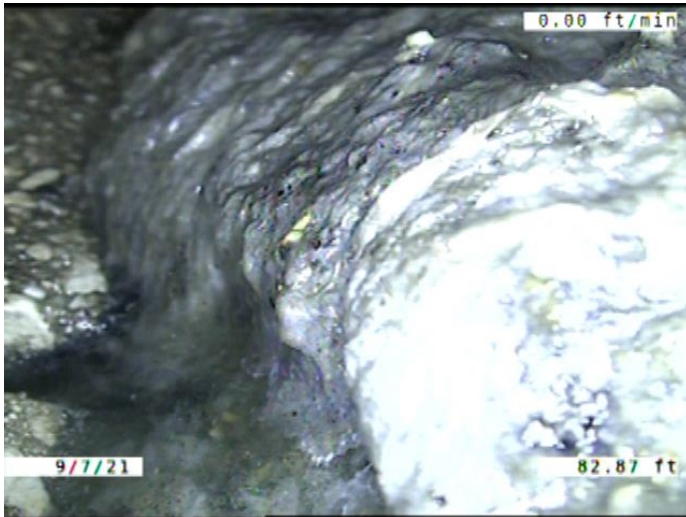
Code: **DAE**
 Description: **Deposits Attached Encrustation**

Distance (ft): **68.8**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **5**
 Clock To: **7**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



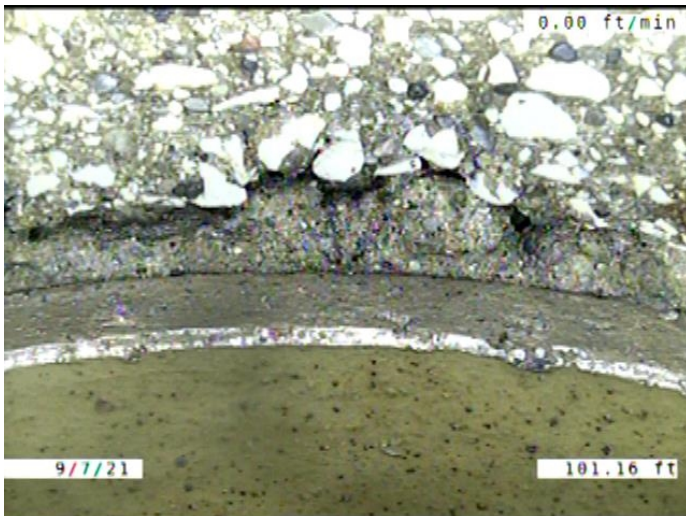
Code: **DAE**
 Description: **Deposits Attached Encrustation**

Distance (ft): **80.0**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **4**
 Clock To: **8**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



Code: **DAR**
 Description: **Deposits Attached Ragging**

Distance (ft): **82.9**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **6**
 Clock To: **7**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks: **TP AND RAGS**



Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **101.2**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **CONCRETE TO VCP**



Code: **TF**
Description: **Tap Factory**

Distance (ft): **102.3**
Structural Grade: **0**
O&M Grade: **0**
Clock Start/From: **11**
Clock To:
1st Value: **4.000**
2nd Value:
Value Percent:
Continuous Index:
Within 8" of Joint: **YES**
Remarks:



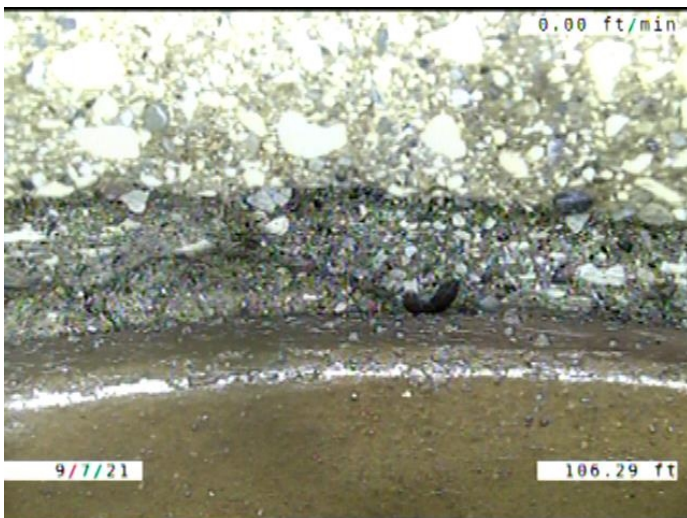
Code: **B**
Description: **Broken**

Distance (ft): **103.2**
Structural Grade: **4**
O&M Grade: **0**
Clock Start/From: **9**
Clock To: **2**
1st Value:
2nd Value:
Value Percent:
Continuous Index:
Within 8" of Joint: **YES**
Remarks:



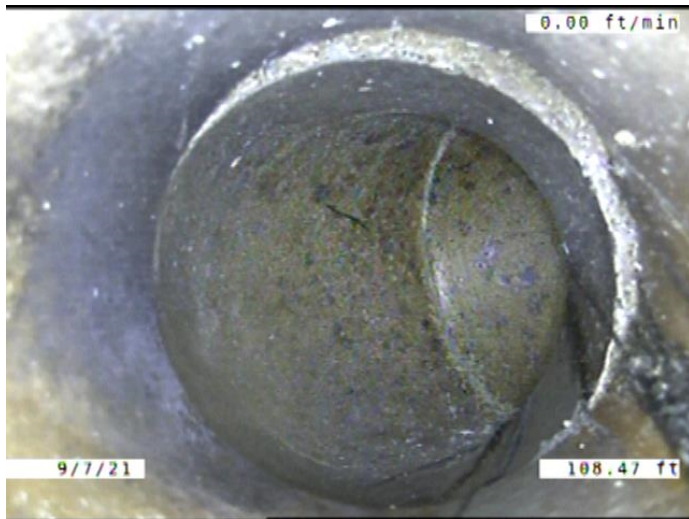
Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **103.2**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **VCP TO CONCRETE**



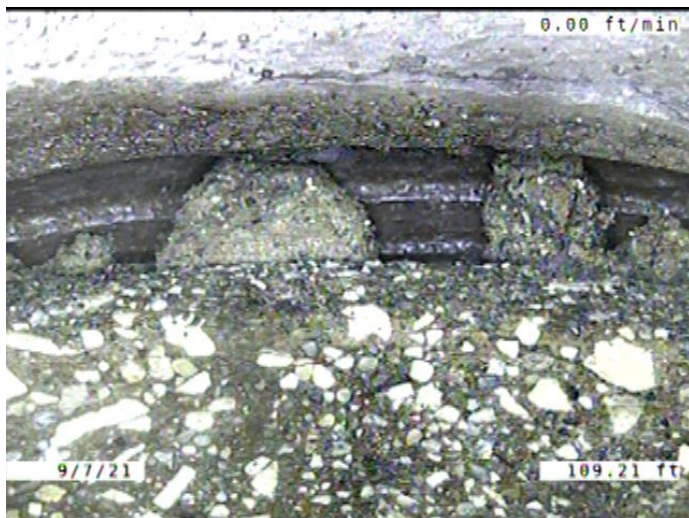
Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **106.3**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **CONCRETE TO VCP**



Code: **TF**
 Description: **Tap Factory**

Distance (ft): **108.5**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From: **12**
 Clock To:
 1st Value: **4.000**
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



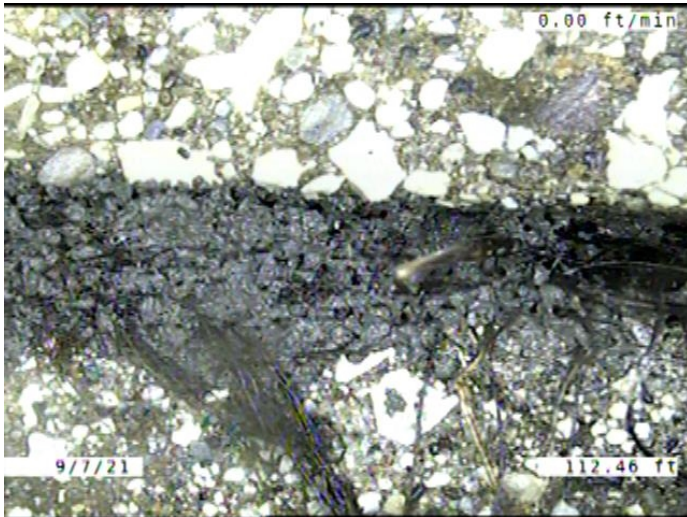
Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **109.2**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **VCP TO CONCRETE**



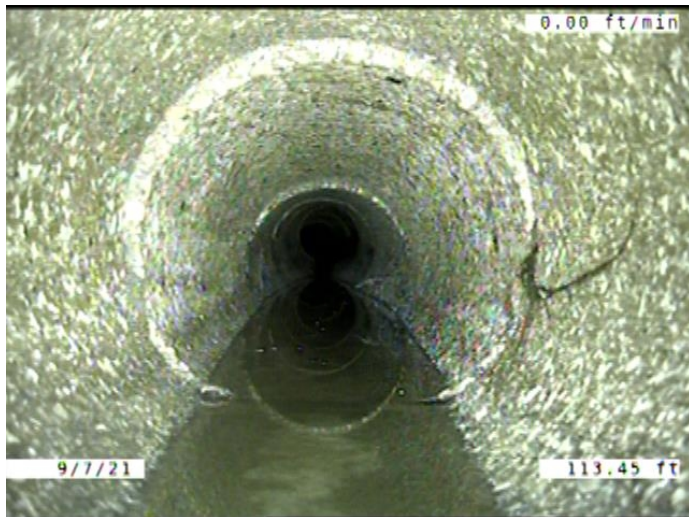
Code: **RMJ**
 Description: **Roots Medium Joint**

Distance (ft): **109.2**
 Structural Grade: **0**
 O&M Grade: **3**
 Clock Start/From: **7**
 Clock To: **4**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



Code: **RFJ**
 Description: **Roots Fine Joint**

Distance (ft): **112.5**
 Structural Grade: **0**
 O&M Grade: **1**
 Clock Start/From: **2**
 Clock To: **9**
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index: **S03**
 Within 8" of Joint: **YES**
 Remarks:



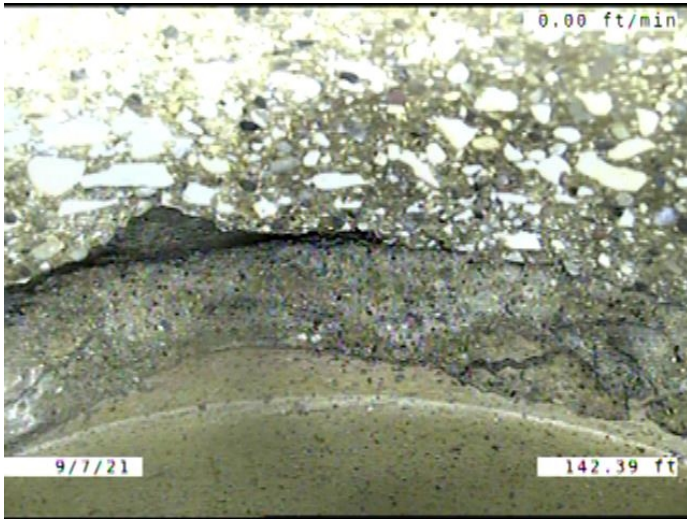
Code: **MWLS**
Description: **Miscellaneous Water Level Sag**

Distance (ft): **113.5**
Structural Grade: **2**
O&M Grade: **0**
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Value Percent: **5.000**
Continuous Index: **S04**
Within 8" of Joint: **NO**
Remarks:



Code: **MWLS**
Description: **Miscellaneous Water Level Sag**

Distance (ft): **123.0**
Structural Grade: **2**
O&M Grade: **0**
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Value Percent: **5.000**
Continuous Index: **F04**
Within 8" of Joint: **NO**
Remarks:



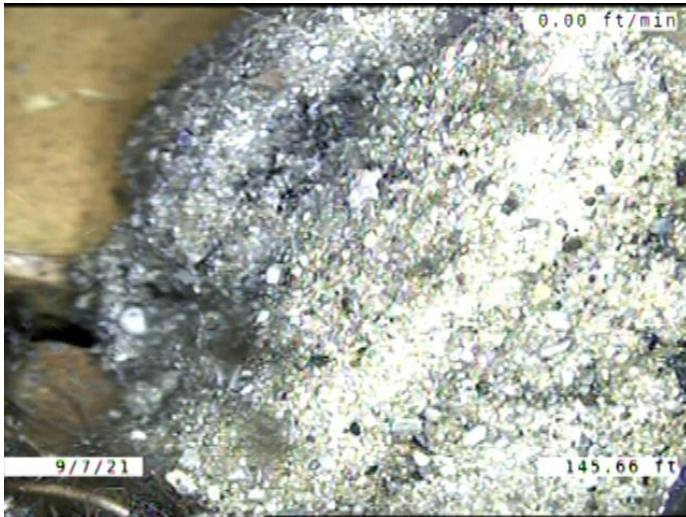
Code: **MMC**
Description: **Miscellaneous Material Change**

Distance (ft): **142.4**
Structural Grade: **0**
O&M Grade: **0**
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Value Percent:
Continuous Index:
Within 8" of Joint: **NO**
Remarks: **CONCRETE TO VCP**



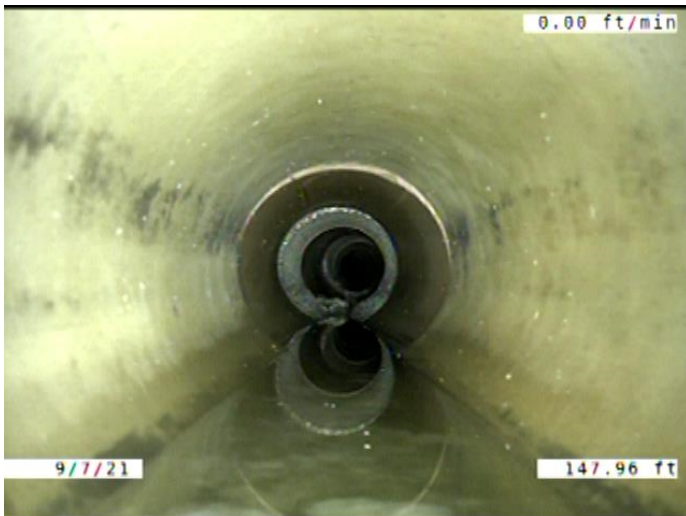
Code: **DAE**
Description: **Deposits Attached Encrustation**

Distance (ft): **142.4**
Structural Grade: **0**
O&M Grade: **4**
Clock Start/From: **4**
Clock To: **9**
1st Value:
2nd Value:
Value Percent: **25.000**
Continuous Index:
Within 8" of Joint: **YES**
Remarks:



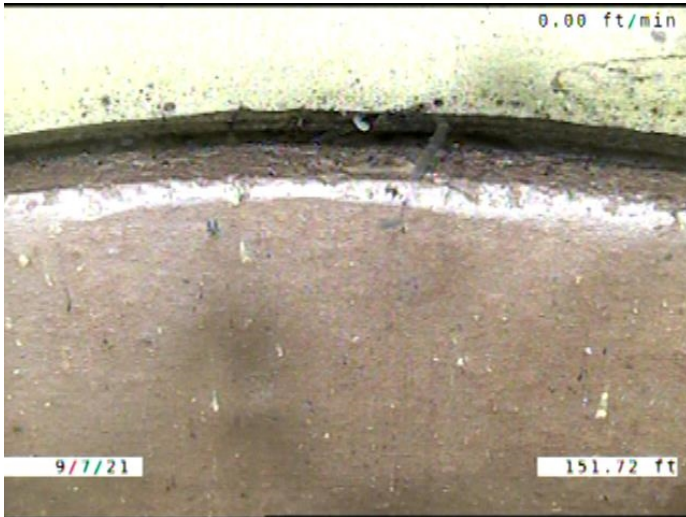
Code: **DAE**
 Description: **Deposits Attached Encrustation**

Distance (ft): **145.7**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **6**
 Clock To: **8**
 1st Value:
 2nd Value:
 Value Percent: **10.000**
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



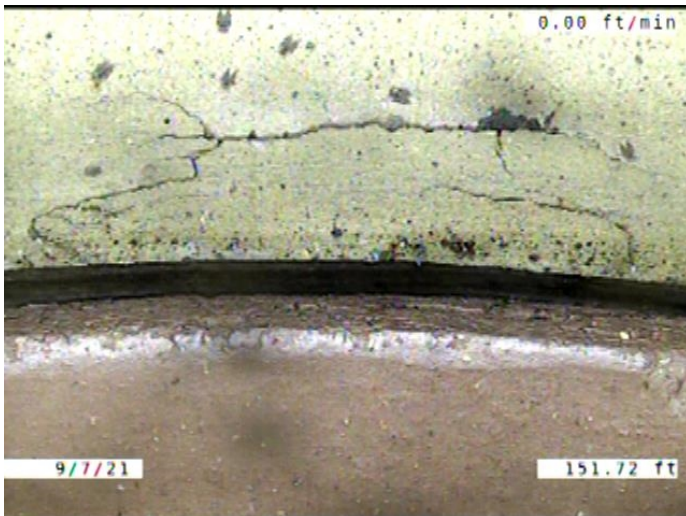
Code: **RFJ**
 Description: **Roots Fine Joint**

Distance (ft): **148.0**
 Structural Grade: **0**
 O&M Grade: **1**
 Clock Start/From: **2**
 Clock To: **9**
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index: **F03**
 Within 8" of Joint: **YES**
 Remarks:



Code: **RFJ**
 Description: **Roots Fine Joint**

Distance (ft): **151.7**
 Structural Grade: **0**
 O&M Grade: **1**
 Clock Start/From: **11**
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



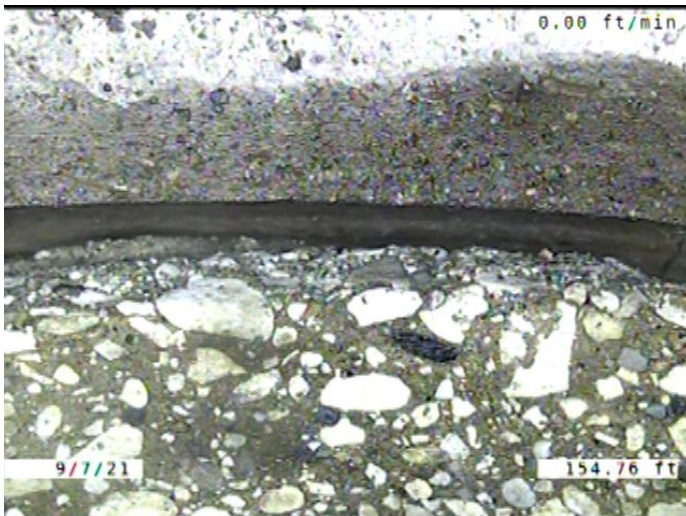
Code: **CM**
 Description: **Crack Multiple**

Distance (ft): **151.7**
 Structural Grade: **3**
 O&M Grade: **0**
 Clock Start/From: **11**
 Clock To: **1**
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



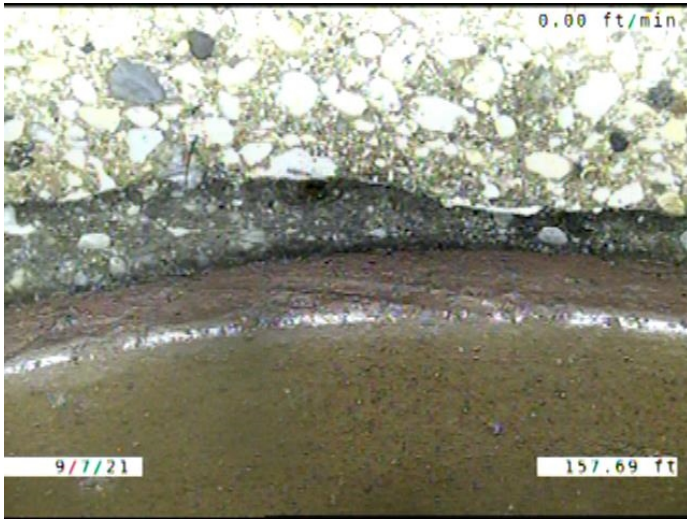
Code: **TF**
 Description: **Tap Factory**

Distance (ft): **154.1**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From: **11**
 Clock To:
 1st Value: **4.000**
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



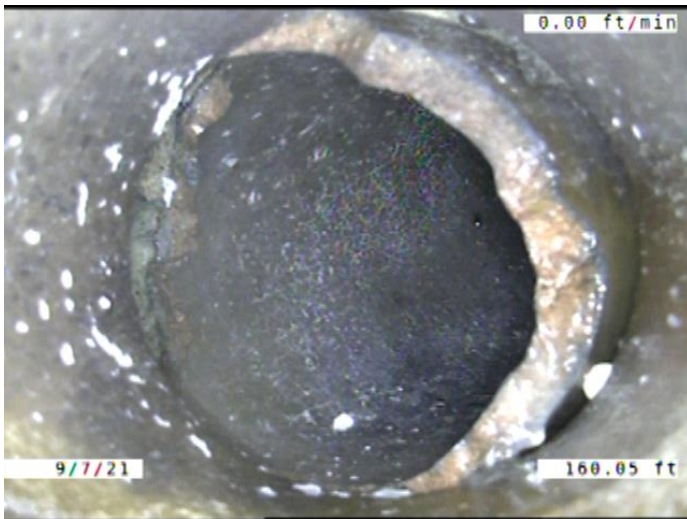
Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **154.8**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **VCP TO CONCRETE**



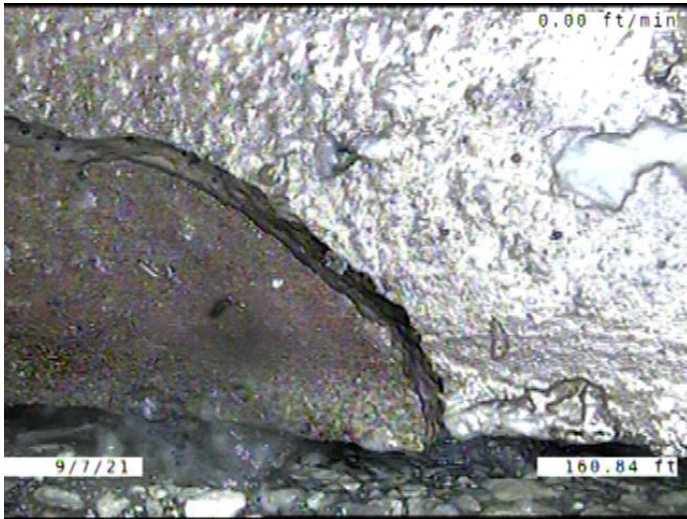
Code: **MMC**
Description: **Miscellaneous Material Change**

Distance (ft): **157.7**
Structural Grade: **0**
O&M Grade: **0**
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Value Percent:
Continuous Index:
Within 8" of Joint: **NO**
Remarks: **CONCRETE TO VCP**



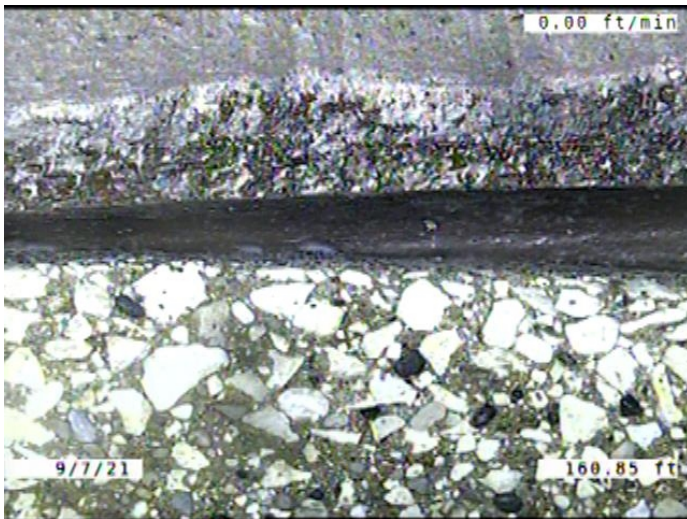
Code: **TFD**
Description: **Tap Factory Defective**

Distance (ft): **160.1**
Structural Grade: **0**
O&M Grade: **3**
Clock Start/From: **1**
Clock To:
1st Value: **4.000**
2nd Value:
Value Percent:
Continuous Index:
Within 8" of Joint: **YES**
Remarks: **Defective**



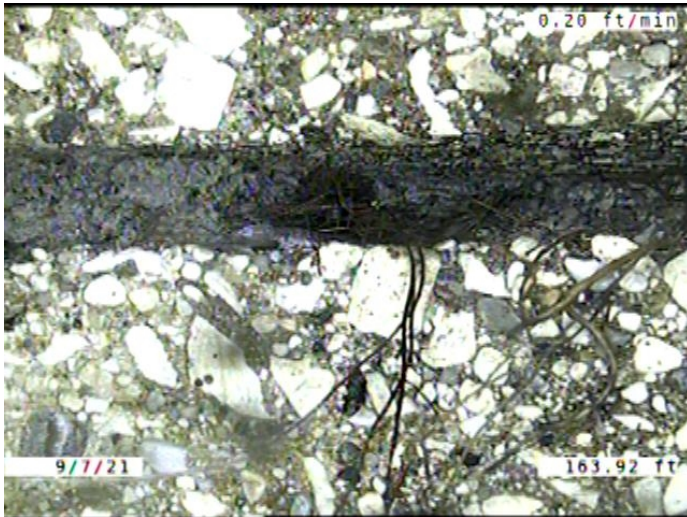
Code: **B**
 Description: **Broken**

Distance (ft): **160.8**
 Structural Grade: **4**
 O&M Grade: **0**
 Clock Start/From: **2**
 Clock To: **4**
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



Code: **MMC**
 Description: **Miscellaneous Material Change**

Distance (ft): **160.9**
 Structural Grade: **0**
 O&M Grade: **0**
 Clock Start/From:
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **NO**
 Remarks: **VCP TO CONCRETE**



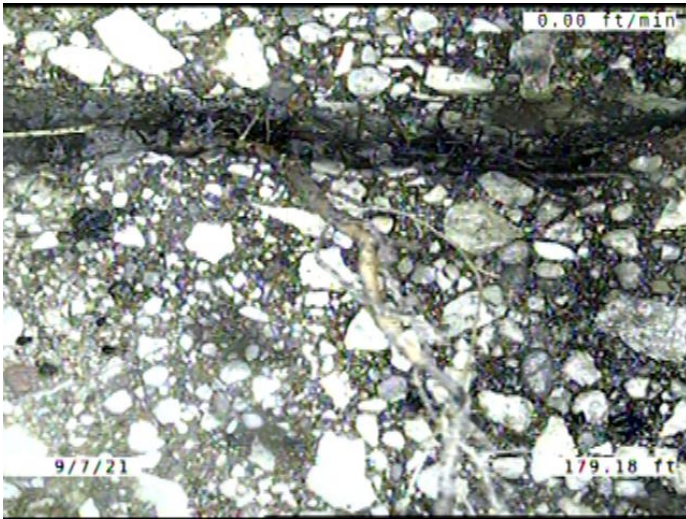
Code: **RFJ**
Description: **Roots Fine Joint**

Distance (ft): **163.9**
Structural Grade: **0**
O&M Grade: **1**
Clock Start/From: **3**
Clock To: **9**
1st Value:
2nd Value:
Value Percent:
Continuous Index: **S05**
Within 8" of Joint: **YES**
Remarks:



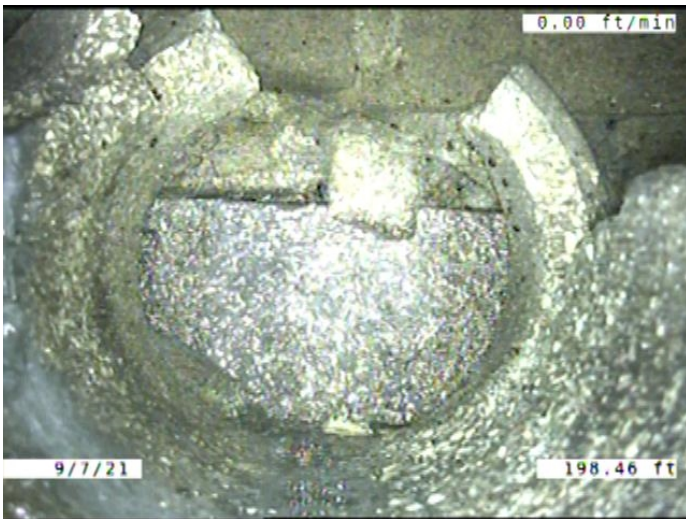
Code: **RFJ**
Description: **Roots Fine Joint**

Distance (ft): **169.7**
Structural Grade: **0**
O&M Grade: **1**
Clock Start/From: **3**
Clock To: **9**
1st Value:
2nd Value:
Value Percent:
Continuous Index: **F05**
Within 8" of Joint: **YES**
Remarks:



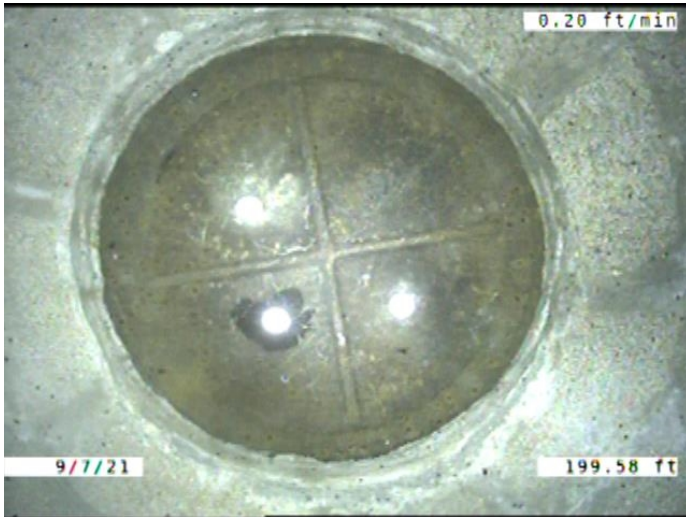
Code: **RFJ**
 Description: **Roots Fine Joint**

Distance (ft): **179.2**
 Structural Grade: **0**
 O&M Grade: **1**
 Clock Start/From: **8**
 Clock To:
 1st Value:
 2nd Value:
 Value Percent:
 Continuous Index:
 Within 8" of Joint: **YES**
 Remarks:



Code: **DSF**
 Description: **Deposits Settled Fine**

Distance (ft): **198.5**
 Structural Grade: **0**
 O&M Grade: **2**
 Clock Start/From: **5**
 Clock To: **7**
 1st Value:
 2nd Value:
 Value Percent: **5.000**
 Continuous Index: **F01**
 Within 8" of Joint: **YES**
 Remarks:



Code:	AMH
Description:	Manhole
Distance (ft):	199.6
Structural Grade:	0
O&M Grade:	0
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Value Percent:	
Continuous Index:	
Within 8" of Joint:	NO
Remarks:	M-504-110