RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset:

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8018 to 04-8017	04-8018	04-8017	Concrete Pipe (non-reinforced)	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA		0	0
Pre-Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
North A St	City of Arvin	Main Highway - urban	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/01/2010	02:40 PM	Upstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		249
Media Label	Reverse Setup	Work Order No	Additional Info	
NS6-1468	NO	-		

Results:

Overall Rating	Structural Rating	Maintenance Rating
189	187	2
Overall Index	Structural Index	Maintenance Index
2.95	2.97	2
Overall Quick	Structural Quick	Maintenance Quick
423J	423J	2100

- wl = 30%, 80 – 95
- 20 ft sag from J23-43
- walls need to be in better condition
- no dislocation / moderate amount of cracks

Recommendation

Spot Repair J23-43 (20ft)

&

CIPP Lining entire length

Joint every 3ft

Grade	Dist (ft)	Observation
04-8017		
-	0	[AMH] Manhole Remarks: Begin survey
-	0	[MWL] Water Level 20% of cross sectional area (20%)
3	2.3	[SAP] Surface Aggregate Projecting from 8 to 4 o'clock NOT within 8" of joint Start Continuous
-	25.8	[MWL] Water Level 40% of cross sectional area J11 - 47
3	49.4	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint J50 J23 43
-	50.2	[MGP] General Photo
3	76.3	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint J76
3	85.1	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint J85
3	94	[FL] Fracture Longitudinal at 11 o'clock within 8" of joint J94
3	99.8	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint
-	100.2	[MGP] General Photo
3	105.7	[FL] Fracture Longitudinal at 11 o'clock within 8" of joint J108-106
-	122.8	[MWL] Water Level 10% of cross sectional area
-	150.3	[MGP] General Photo
2	159	[CL] Crack Longitudinal at 2 o'clock within 8" of joint
-	177.5	[TB] Tap Break-in at 2 o'clock
4	185.6	[FM] Fracture Multiple from 9 to 12 o'clock within 8" of joint
3	197.6	[FL] Fracture Longitudinal at 9 o'clock within 8" of joint
-	200.2	[MGP] General Photo
2	203.4	[CL] Crack Longitudinal at 11 o'clock NOT within 8" of joint
4	224.1	[FM] Fracture Multiple from 12 to 1 o'clock within 8" of joint
2	226.8	[FC] Fracture Circumferential from 9 to 3 o'clock NOT within 8" of joint
2	236	[CL] Crack Longitudinal at 12 o'clock within 8" of joint
3	242	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint
2	247.5	[OBZ] Obstacle Other 5% of cross sectional area from 4 to 6 o'clock NOT within 8" of joint
3	248.7	[SAP] Surface Aggregate Projecting from 8 to 4 o'clock NOT within 8" of joint End
-	248.7	[MSA] Abandoned Survey Remarks: Blocked by debris
04-8018		

Camera Direction

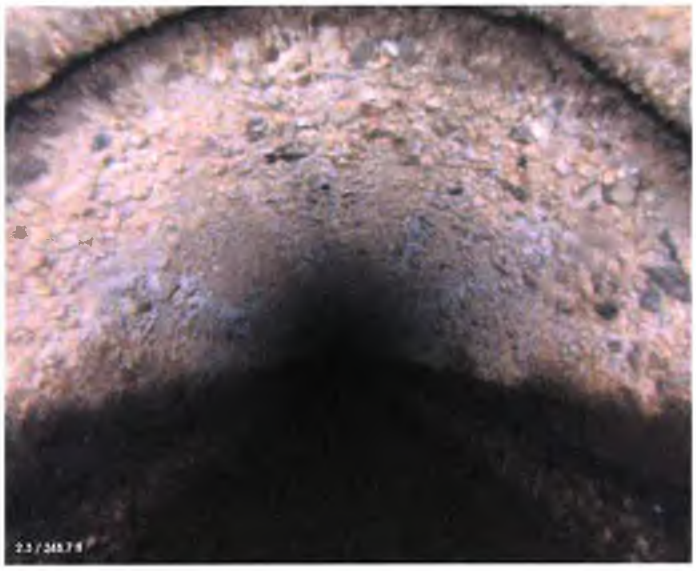
Condition Observations:

Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	20% of cross sectional area				20	☐		
3	2.3	SAP	Surface Aggregate Projecting	from 8 to 4 o'clock NOT within 8" of joint Start	S01				☐	8	4
-	25.8	MWL	Water Level	40% of cross sectional area				40	☐		
3	49.4	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	
-	50.2	MGP	General Photo						☐		
3	76.3	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	
3	85.1	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	

3	94	FL	Fracture Longitudinal	at 11 o'clock within 8" of joint					☑	11	
3	99.8	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	
-	100.2	MGP	General Photo						☐		
3	105.7	FL	Fracture Longitudinal	at 11 o'clock within 8" of joint					☑	11	
-	122.8	MWL	Water Level	10% of cross sectional area				10	☐		
-	150.3	MGP	General Photo						☐		
2	159	CL	Crack Longitudinal	at 2 o'clock within 8" of joint					☑	2	
-	177.5	TB	Tap Break-in	at 2 o'clock		4			☐	2	
4	185.6	FM	Fracture Multiple	from 9 to 12 o'clock within 8" of joint					☑	9	12
3	197.6	FL	Fracture Longitudinal	at 9 o'clock within 8" of joint					☑	9	
-	200.2	MGP	General Photo						☐		
2	203.4	CL	Crack Longitudinal	at 11 o'clock NOT within 8" of joint					☐	11	
4	224.1	FM	Fracture Multiple	from 12 to 1 o'clock within 8" of joint					☑	12	1
2	226.8	FC	Fracture Circumferential	from 9 to 3 o'clock NOT within 8" of joint					☐	9	3
2	236	CL	Crack Longitudinal	at 12 o'clock within 8" of joint					☑	12	
3	242	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	
2	247.5	OBZ	Obstacle Other	5% of cross sectional area from 4 to 6 o'clock NOT within 8" of joint				5	☐	4	6
3	248.7	SAP	Surface Aggregate Projecting	from 8 to 4 o'clock NOT within 8" of joint End	F01				☐	8	4
-	248.7	MSA	Abandoned Survey	Remarks: Blocked by debris					☐		

PACP Code:	AMH		
Description:	Manhole		
Image Name:	d6665072-ab01-4e18-9010-0940f2ae5776_0-AMH.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Begin survey		

PACP Code:	MWL		
Description:	Water Level		
Image Name:	9def8965-dc41-43c5-bf93-34750e8122c1_0-MWL.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	20		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



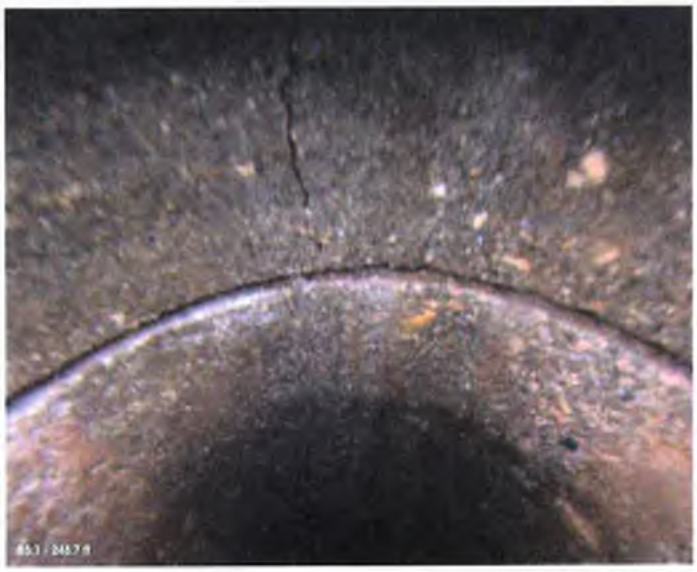
PACP Code:	SAP		
Description:	Surface Aggregate Projecting		
Image Name:	cd81604a-b2cf-4995-bc2a-73ad73c4442f_2.3-SAP.jpg		
Distance (ft):	2.3		
Structural Grade:	3	Maintenance Grade	0
Percent Value:			
Clock At/From:	8	Clock To:	4
1st Value:		2nd Value:	
Continuous Index:	S01	Within 8" of Joint:	☐
Remarks:			

PACP Code:	MWL		
Description:	Water Level		
Image Name:	b30d4d40-ac08-45d5-87a0-6db4d15ebf18_25.8-MWL.jpg		
Distance (ft):	25.8		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	40		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

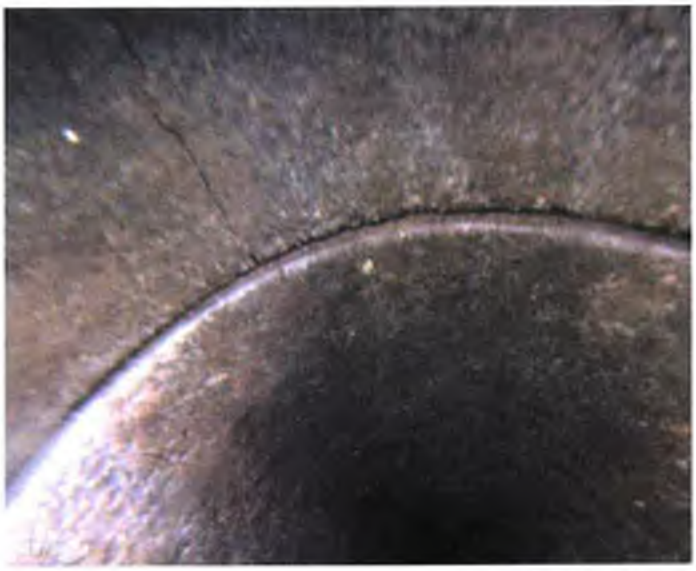
PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**a579af11-c86e-40be-8346-2dcd31d83d49_49.4-FL.jpg**		
Distance (ft):	**49.4**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**730b3477-0f17-43cb-a090-9d31b8edfb64_50.2-MGP.jpg**		
Distance (ft):	**50.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**a715cd94-e057-4516-80bc-5fb2b7081d35_76.3-FL.jpg**		
Distance (ft):	**76.3**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



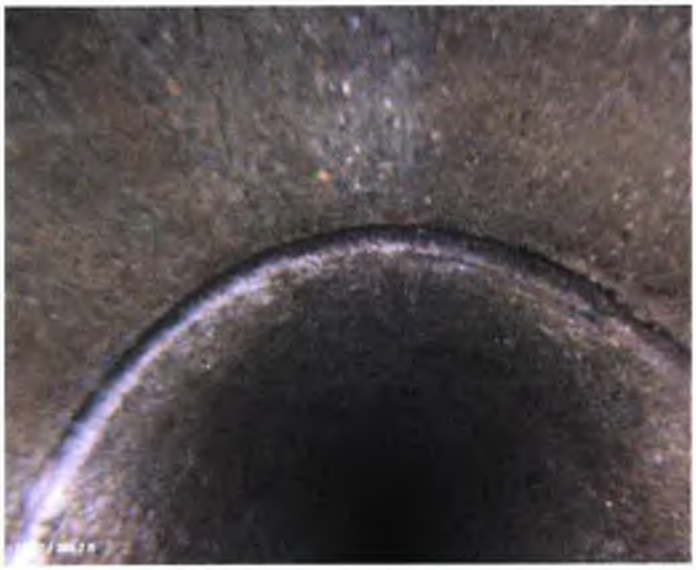
PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**8c77f6ff-9d39-494b-bdad-06bb9cfa6c2c_85.1-FL.jpg**		
Distance (ft):	**85.1**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**8c5bfe3b-8469-417d-a05b-215368f8ab9d_94-FL.jpg**		
Distance (ft):	**94**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**2b65ac2b-9615-42eb-9584-b6ca38ec319a_99.8-FL.jpg**		
Distance (ft):	**99.8**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**f14f5366-e924-4e70-90bc-32da19a6c987_100.2-MGP.jpg**		
Distance (ft):	**100.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



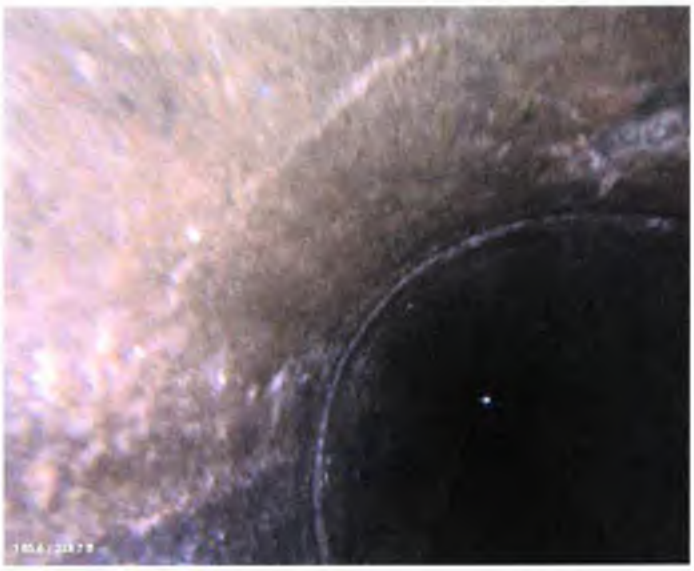
PACP Code:	**FL**		
Description:	**Fracture Longitudinal**		
Image Name:	**27acc283-5ac4-4082-a68a-7c3b1b8cffac_105.7-FL.jpg**		
Distance (ft):	**105.7**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MWL**		
Description:	**Water Level**		
Image Name:	**28a521bc-8486-4a09-8a82-acd89e378872_122.8-MWL.jpg**		
Distance (ft):	**122.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:	**10**		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

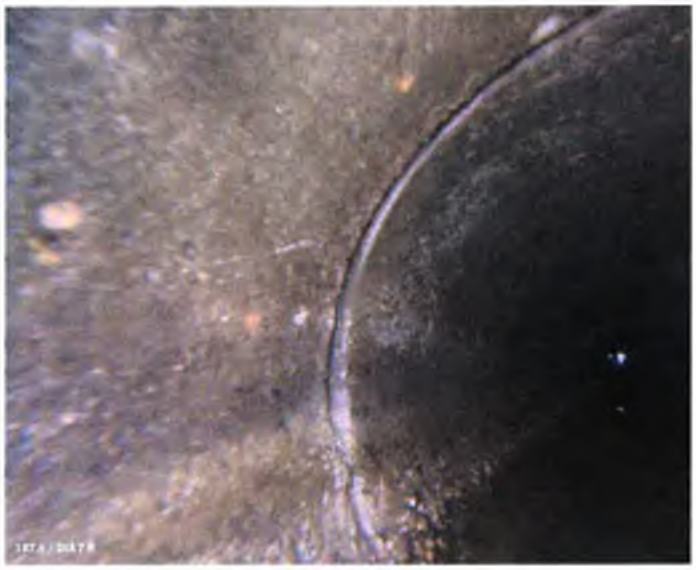
PACP Code:	MGP		
Description:	General Photo		
Image Name:	6399457a-43ec-48a5-847b-1556a0c67ba5_150.3-MGP.jpg		
Distance (ft):	150.3		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	CL		
Description:	Crack Longitudinal		
Image Name:	47c3304d-de9c-489b-8436-4c5501c67023_159-CL.jpg		
Distance (ft):	159		
Structural Grade:	2	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	TB		
Description:	Tap Break-in		
Image Name:	082300d0-9aaa-4790-9eb9-4c3bf0fe5a93_177.5-TB.jpg		
Distance (ft):	177.5		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

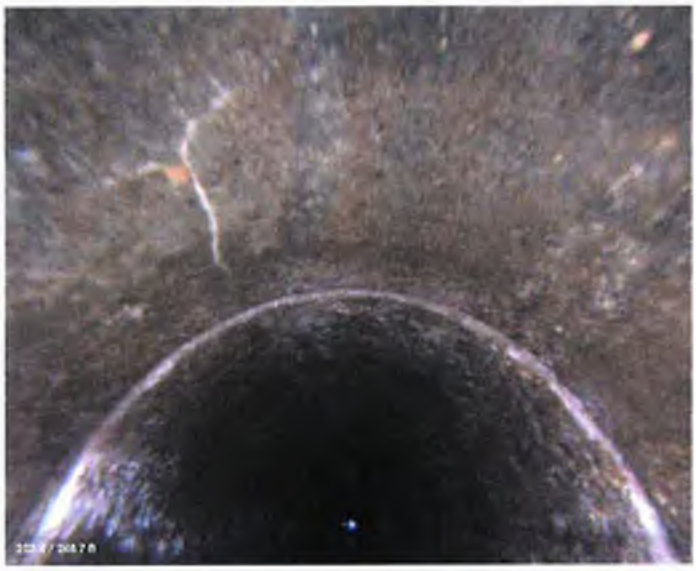


PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**f4a5f76b-98e5-40e2-927b-14d2ff9a992c_185.6-FM.jpg**		
Distance (ft):	**185.6**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**9**	Clock To:	**12**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

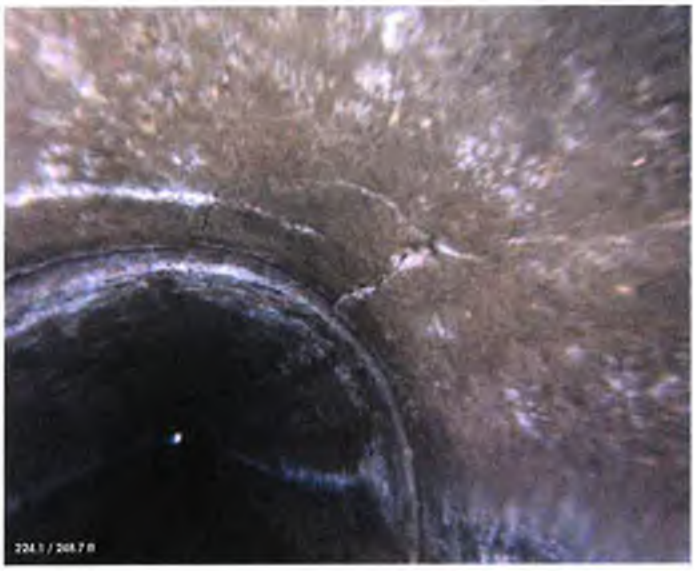


PACP Code:	**FL**		
Description:	**Fracture Longitudinal**		
Image Name:	**f018bf65-593a-4cbe-b893-d3bacbc53b06_197.6-FL.jpg**		
Distance (ft):	**197.6**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**9**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**9404585b-7f8c-451d-a2f3-4a105b66268a_200.2-MGP.jpg**		
Distance (ft):	**200.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



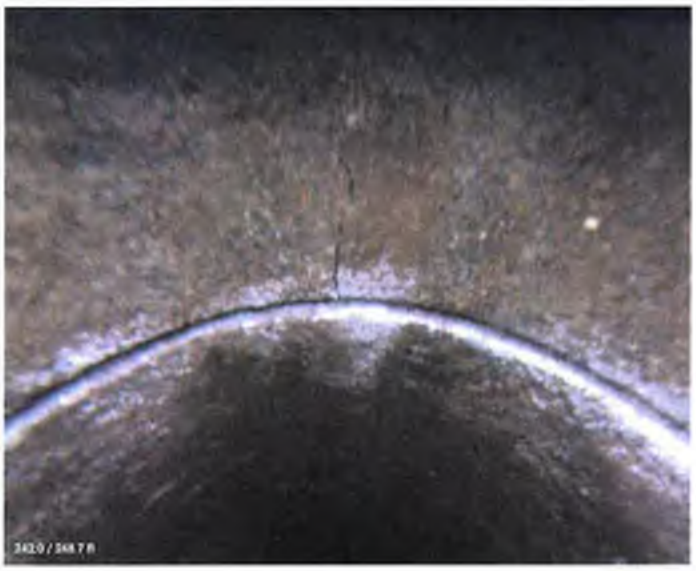
PACP Code:	CL		
Description:	**Crack Longitudinal**		
Image Name:	**31b1ba94-50e3-45e2-92fb-fe1cd4523b82_203.4-CL.jpg**		
Distance (ft):	**203.4**		
Structural Grade:	**2**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



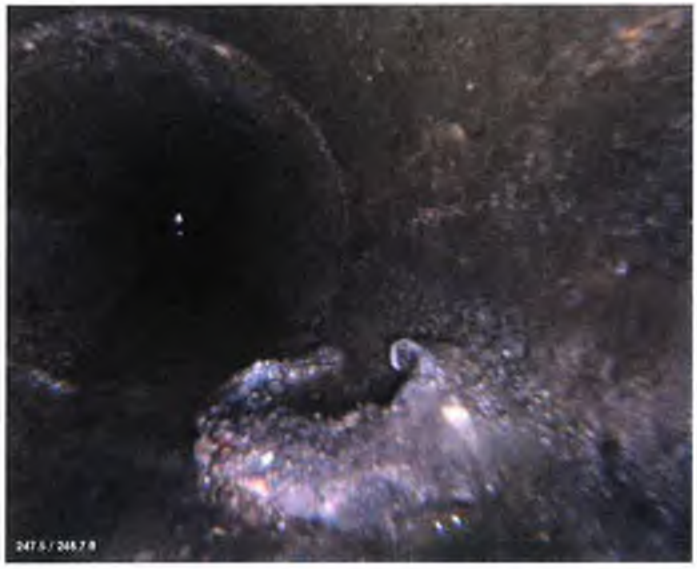
PACP Code:	FM		
Description:	**Fracture Multiple**		
Image Name:	**4ef394b3-c26d-448a-aeba-da1e7eef56b2_224.1-FM.jpg**		
Distance (ft):	**224.1**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	**1**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	FC		
Description:	**Fracture Circumferential**		
Image Name:	**bb8976a6-d373-41c5-aac7-0488c34e3a0c_226.8-FC.jpg**		
Distance (ft):	**226.8**		
Structural Grade:	**2**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**9**	Clock To:	**3**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

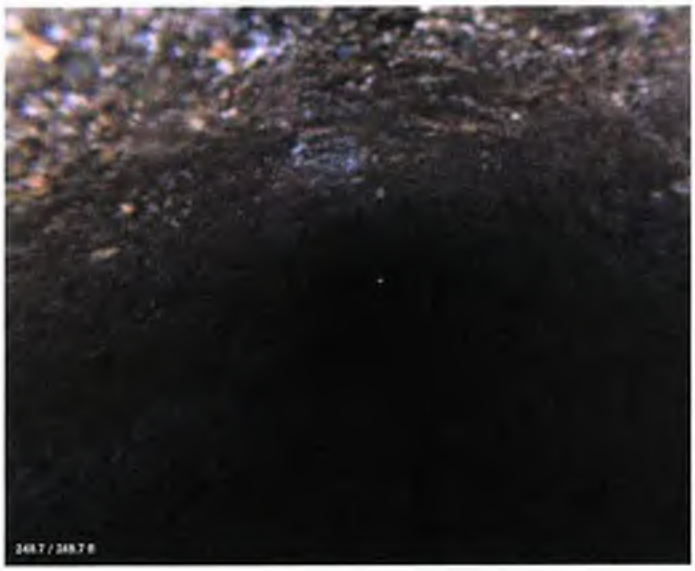
PACP Code:	CL		
Description:	**Crack Longitudinal**		
Image Name:	**1a27f42b-b903-4418-8445-2cbeb5a3bdfe_236-CL.jpg**		
Distance (ft):	**236**		
Structural Grade:	**2**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



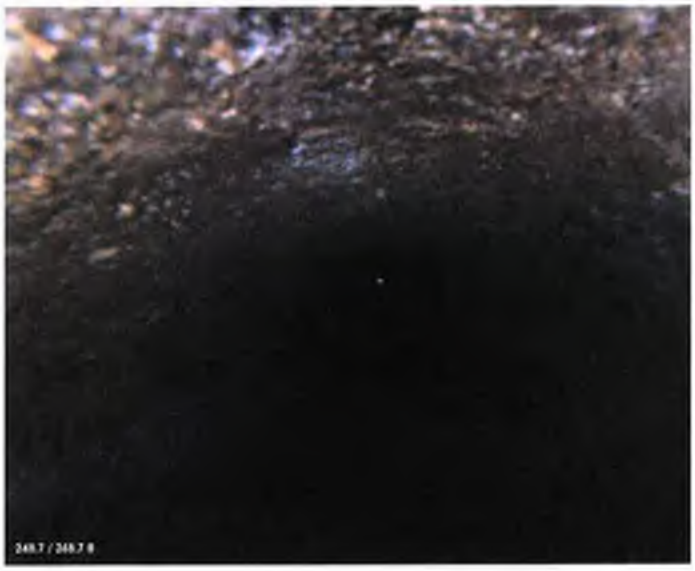
PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**bedb8796-678b-4d2e-b533-9f2f19a13525_242-FL.jpg**		
Distance (ft):	**242**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	OBZ		
Description:	**Obstacle Other**		
Image Name:	**9d111d46-bce1-4f5b-9935-fc26c581e076_247.5-OBZ.jpg**		
Distance (ft):	**247.5**		
Structural Grade:	**0**	Maintenance Grade	**2**
Percent Value:	**5**		
Clock At/From:	**4**	Clock To:	**6**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**e4a63f93-34d5-42e7-bd3f-40510244ffb5_248.7-SAP.jpg**		
Distance (ft):	**248.7**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**8**	Clock To:	**4**
1st Value:		2nd Value:	
Continuous Index:	**F01**	Within 8" of Joint:	☐
Remarks:			



PACP Code:	**MSA**		
Description:	**Abandoned Survey**		
Image Name:	**307efbfb-8bb3-48b3-a228-df7ea6d449fa_248.7-MSA.jpg**		
Distance (ft):	**248.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Blocked by debris**		

CCTV Observation Report

Harris & Associates

Date: 2015
Pipe Length
Customer: Veolia

Owner: City of Anaheim
Surveyor:
Weather: Dry

Pre Clean:
Shape: Circular
Reach: 04-8017 to 04-8016

Street: North A Ave.
City: City of Anaheim
Use: Sanitary
US Manhole: 04-8017

Flow Control: Not Controlled
Dia/Height (in): 8in
Material: Concrete
DS Manhole: 04-8016

Survey Direction: Upstream
Total Length Surveyed: 640

Position	Code	Observation	Video (sec)	Grade
0	SAV	Surface Aggregate Visible	Continuous	S3
66	TF	Tap Factory		
67	JOM	Joint Offset (Medium)		
68.2	TF	Tap Factory		
77.9	TF	Tap Factory		
92.4	TF	Tap Factory		
113.1	TFC	Tap Factory Capped		
139.7	TF	Tap Factory		
163.1	TF	Tap Factory		
193.4	TF	Tap Factory		
198.9	TF	Tap Factory		
210	TF	Tap Factory		
240.5	TB	Tap Breaks In		
255	TFC	Tap Factory Capped		
260.1	TB I	Tap Breakin including	J161-164	
295	TFC	Tap Factory Capped		
294.2	TF	Tap Factory		
296.4	TFC	Tap Factory Capped		
324.8	TB	Tap Break In		
330.3	TF	Tap Factory		
350.	TFC	Tap Factory Capped		
356.5	TB	Tap Break In		
392.1	TBA	Tap Breaks In Active		
398.2	TF	Tap Factory Capped		
421.8	TFC	Tap Factory Capped		
424.8	TB	Tap Breaks In		
442.5	TFC	Tap Factory Capped		
448.4	TF	Tap Factory		
496.1	TFC	Tap Factory Capped		
499.9	TB	Tap Break In		

• Spot Repair (Sag) → J90 - 130

Recommendation
- Open Trench Pipe Replacement
640 ft

04-8017 - 04-8016 (2)

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach:

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole:	DS Manhole:	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
526	TF	Tap Factory		
543.2	TF	Tap Factory *Crack in lateral		
546.2	TFC	Tap Factory Capped		
582.2	TFC	Tap Factory Capped		
593.6	TFC	Tap Factory Capped		
604	TBI	Tap Breaks In Intruding Abandon Survey		M3

Second Video

- additional 44 feet same conditions of the first video → 640 ft

Recommendation

Open Trench Pipe Replacement 640 ft

- due to the amount of laterals to be reinstated

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset:

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8017 to 04-8016	04-8017	04-8016	Concrete Pipe (non-reinforced)	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA		0	0
Pre-Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
North A St	City of Arvin	Main Highway - urban	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/01/2010	04:07 PM	Upstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		449
Media Label	Reverse Setup	Work Order No	Additional Info	
NS22-921	NO	-	Length unknown - Upstream manhole location unknown	

Results:

Overall Rating	Structural Rating	Maintenance Rating
310	304	6
Overall Index	Structural Index	Maintenance Index
3.01	3.04	2
Overall Quick	Structural Quick	Maintenance Quick
463Q	463Q	3121

04-8016

Camera Direction

Grade	Dist (ft)	Observation
-	0	[AMH] Manhole Remarks: Begin survey
-	0	[MWL] Water Level 15% of cross sectional area
1	0.1	[VC] Vermin Cockroach NOT within 8" of joint
3	0.1	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint Start
4	24.2	[FM] Fracture Multiple from 11 to 1 o'clock within 8" of joint
-	50.3	[MGP] General Photo
-	54.1	[MWL] Water Level 30% of cross sectional area
-	61.1	[MMC] Material Change Remarks: Vitrified clay
-	62.4	[TF] Tap Factory at 10 o'clock
4	63.3	[FM] Fracture Multiple from 9 to 12 o'clock within 8" of joint
-	64.7	[TF] Tap Factory at 2 o'clock
-	66.1	[MMC] Material Change Remarks: Concrete
-	74	[TB] Tap Break-in at 11 o'clock
-	87	[MMC] Material Change Remarks: Vitrified clay
-	88.5	[TF] Tap Factory at 2 o'clock
2	89.5	[SSS] Surface Spalling from 2 to 3 o'clock within 8" of joint
3	89.5	[CM] Crack Multiple from 10 to 2 o'clock within 8" of joint
-	89.8	[MMC] Material Change Remarks: Concrete
-	100	[MGP] General Photo
-	107.8	[MMC] Material Change Remarks: Vitrified clay
-	109.1	[TFC] Tap Factory Capped at 10 o'clock
-	110.4	[MMC] Material Change Remarks: Concrete
-	134.6	[MMC] Material Change Remarks: Vitrified clay
-	135.8	[TF] Tap Factory at 10 o'clock
3	136.8	[CM] Crack Multiple from 9 to 3 o'clock within 8" of joint
-	137.2	[MMC] Material Change Remarks: Concrete
2	137.3	[FC] Fracture Circumferential from 7 to 3 o'clock NOT within 8" of joint
-	150.1	[MGP] General Photo
-	158.3	[MMC] Material Change Remarks: Vitrified clay
-	159.5	[TF] Tap Factory at 2 o'clock
-	160.7	[MMC] Material Change Remarks: Concrete
-	187.9	[MMC] Material Change Remarks: Vitrified clay
-	189.3	[TF] Tap Factory at 2 o'clock
-	190.3	[MMC] Material Change Remarks: Concrete
-	193.4	[MMC] Material Change Remarks: Vitrified clay
-	195	[TF] Tap Factory at 10 o'clock
-	196	[MMC] Material Change Remarks: Concrete
-	200.2	[MGP] General Photo
3	225.6	[FL] Fracture Longitudinal at 2 o'clock within 8" of joint
-	226.2	[MMC] Material Change Remarks: Concrete

-	227.4	[TF] Tap Factory at 10 o'clock
-	228.7	[MMC] Material Change Remarks: Concrete
-	236	[TF] Tap Factory at 11 o'clock
-	249.6	[MMC] Material Change Remarks: Vitrified clay
-	249.6	[MGP] General Photo
-	250.9	[TFC] Tap Factory Capped at 2 o'clock
-	252.2	[MMC] Material Change Remarks: Concrete
3	255.7	[TBI] Tap Break-in Intruding at 2 o'clock NOT within 8" of joint
-	279.1	[MMC] Material Change Remarks: Vitrified clay
-	279.1	[TFC] Tap Factory Capped at 2 o'clock
-	280.5	[MMC] Material Change Remarks: Concrete
-	288.9	[TB] Tap Break-in at 11 o'clock
-	290.9	[MMC] Material Change Remarks: Vitrified clay
-	290.9	[TFC] Tap Factory Capped at 10 o'clock
-	292	[MMC] Material Change Remarks: Concrete
-	300.4	[MGP] General Photo
-	319.4	[TB] Tap Break-in at 1 o'clock
2	320.2	[VR] Vermin Rat NOT within 8" of joint
-	323.5	[MMC] Material Change Remarks: Vitrified clay
-	323.5	[TF] Tap Factory at 2 o'clock
-	326.1	[MMC] Material Change Remarks: Concrete
-	344	[MMC] Material Change Remarks: Vitrified clay
-	344	[TFC] Tap Factory Capped at 10 o'clock
-	346.6	[MMC] Material Change Remarks: Concrete
-	350.1	[MGP] General Photo
-	351	[TB] Tap Break-in at 10 o'clock
4	358.2	[FM] Fracture Multiple from 10 to 2 o'clock within 8" of joint
4	382.5	[FM] Fracture Multiple from 11 to 1 o'clock within 8" of joint
-	387.7	[TBA] Tap Break-in Active at 11 o'clock
-	387.7	[MMC] Material Change Remarks: Vitrified clay
-	391.7	[TFC] Tap Factory Capped at 10 o'clock
4	393.1	[FM] Fracture Multiple from 1 to 2 o'clock within 8" of joint
-	400.4	[MGP] General Photo
-	415.5	[MMC] Material Change Remarks: Vitrified clay
-	415.5	[TFC] Tap Factory Capped at 2 o'clock
4	416.7	[FM] Fracture Multiple from 10 to 2 o'clock within 8" of joint
-	417.6	[TBA] Tap Break-in Active at 2 o'clock
-	435.8	[MMC] Material Change Remarks: Vitrified clay
-	435.8	[TFC] Tap Factory Capped at 2 o'clock
-	438.5	[MMC] Material Change Remarks: Concrete
-	438.5	[MMC] Material Change Remarks: Vitrified clay
-	441.6	[TFC] Tap Factory Capped at 10 o'clock
-	443	[MMC] Material Change Remarks: Concrete

04-8017

3	444.2	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint End
-	448.6	[MSA] Abandoned Survey Remarks: Unknown

Condition Observations:

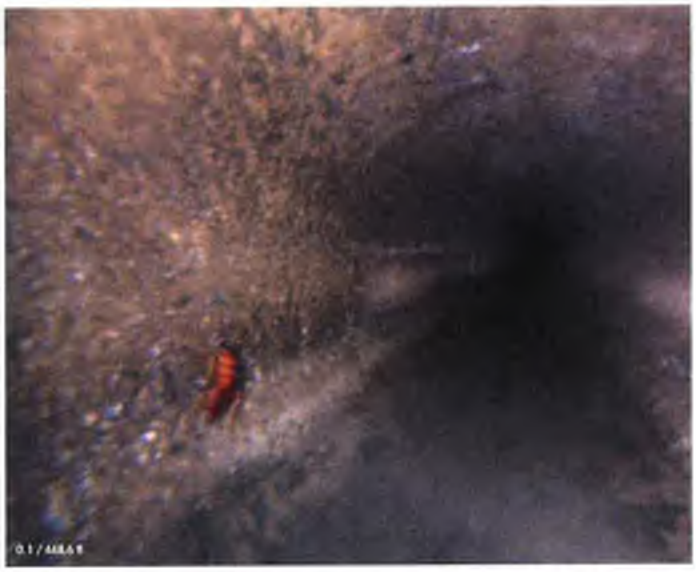
Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	15% of cross sectional area				15	☐		
1	0.1	VC	Vermin Cockroach	NOT within 8" of joint					☐		
3	0.1	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint Start	S01				☐	7	5
4	24.2	FM	Fracture Multiple	from 11 to 1 o'clock within 8" of joint					☑	11	1
-	50.3	MGP	General Photo						☐		
-	54.1	MWL	Water Level	30% of cross sectional area				30	☐		
-	61.1	MMC	Material Change	Remarks: Vitrified clay					☐		
-	62.4	TF	Tap Factory	at 10 o'clock		4			☐	10	
4	63.3	FM	Fracture Multiple	from 9 to 12 o'clock within 8" of joint					☑	9	12
-	64.7	TF	Tap Factory	at 2 o'clock		4			☐	2	
-	66.1	MMC	Material Change	Remarks: Concrete					☐		
-	74	TB	Tap Break-in	at 11 o'clock		4			☐	11	
-	87	MMC	Material Change	Remarks: Vitrified clay					☐		
-	88.5	TF	Tap Factory	at 2 o'clock		4			☐	2	
2	89.5	SSS	Surface Spalling	from 2 to 3 o'clock within 8" of joint					☑	2	3
3	89.5	CM	Crack Multiple	from 10 to 2 o'clock within 8" of joint					☑	10	2
-	89.8	MMC	Material Change	Remarks: Concrete					☐		
-	100	MGP	General Photo						☐		
-	107.8	MMC	Material Change	Remarks: Vitrified clay					☐		
-	109.1	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	
-	110.4	MMC	Material Change	Remarks: Concrete					☐		
-	134.6	MMC	Material Change	Remarks: Vitrified clay					☐		
-	135.8	TF	Tap Factory	at 10 o'clock		4			☐	10	
3	136.8	CM	Crack Multiple	from 9 to 3 o'clock within 8" of joint					☑	9	3
-	137.2	MMC	Material Change	Remarks: Concrete					☐		
2	137.3	FC	Fracture Circumferential	from 7 to 3 o'clock NOT within 8" of joint					☐	7	3
-	150.1	MGP	General Photo						☐		
-	158.3	MMC	Material Change	Remarks: Vitrified clay					☐		
-	159.5	TF	Tap Factory	at 2 o'clock		4			☐	2	
-	160.7	MMC	Material Change	Remarks: Concrete					☐		
-	187.9	MMC	Material Change	Remarks: Vitrified clay					☐		
-	189.3	TF	Tap Factory	at 2 o'clock		4			☐	2	
-	190.3	MMC	Material Change	Remarks: Concrete					☐		
-	193.4	MMC	Material Change	Remarks: Vitrified clay					☐		
-	195	TF	Tap Factory	at 10 o'clock		4			☐	10	

-	196	MMC	Material Change	Remarks: Concrete					☐		
-	200.2	MGP	General Photo						☐		
3	225.6	FL	Fracture Longitudinal	at 2 o'clock within 8" of joint					☑	2	
-	226.2	MMC	Material Change	Remarks: Concrete					☐		
-	227.4	TF	Tap Factory	at 10 o'clock		4			☐	10	
-	228.7	MMC	Material Change	Remarks: Concrete					☐		
-	236	TF	Tap Factory	at 11 o'clock		4			☐	11	
-	249.6	MMC	Material Change	Remarks: Vitrified clay					☐		
-	249.6	MGP	General Photo						☐		
-	250.9	TFC	Tap Factory Capped	at 2 o'clock		4			☐	2	
-	252.2	MMC	Material Change	Remarks: Concrete					☐		
3	255.7	TBI	Tap Break-in Intruding	at 2 o'clock NOT within 8" of joint		4	1		☐	2	
-	279.1	MMC	Material Change	Remarks: Vitrified clay					☐		
-	279.1	TFC	Tap Factory Capped	at 2 o'clock		4			☐	2	
-	280.5	MMC	Material Change	Remarks: Concrete					☐		
-	288.9	TB	Tap Break-in	at 11 o'clock		4			☐	11	
-	290.9	MMC	Material Change	Remarks: Vitrified clay					☐		
-	290.9	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	
-	292	MMC	Material Change	Remarks: Concrete					☐		
-	300.4	MGP	General Photo						☐		
-	319.4	TB	Tap Break-in	at 1 o'clock		4			☐	1	
2	320.2	VR	Vermin Rat	NOT within 8" of joint		1			☐		
-	323.5	MMC	Material Change	Remarks: Vitrified clay					☐		
-	323.5	TF	Tap Factory	at 2 o'clock		4			☐	2	
-	326.1	MMC	Material Change	Remarks: Concrete					☐		
-	344	MMC	Material Change	Remarks: Vitrified clay					☐		
-	344	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	
-	346.6	MMC	Material Change	Remarks: Concrete					☐		
-	350.1	MGP	General Photo						☐		
-	351	TB	Tap Break-in	at 10 o'clock		4			☐	10	
4	358.2	FM	Fracture Multiple	from 10 to 2 o'clock within 8" of joint					☑	10	2
4	382.5	FM	Fracture Multiple	from 11 to 1 o'clock within 8" of joint					☑	11	1
-	387.7	TBA	Tap Break-in Active	at 11 o'clock		4			☐	11	
-	387.7	MMC	Material Change	Remarks: Vitrified clay					☐		
-	391.7	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	
4	393.1	FM	Fracture Multiple	from 1 to 2 o'clock within 8" of joint					☑	1	2
-	400.4	MGP	General Photo						☐		
-	415.5	MMC	Material Change	Remarks: Vitrified clay					☐		
-	415.5	TFC	Tap Factory Capped	at 2 o'clock		4			☐	2	
4	416.7	FM	Fracture Multiple	from 10 to 2 o'clock within 8" of joint					☑	10	2
-	417.6	TBA	Tap Break-in Active	at 2 o'clock		4			☐	2	
-	435.8	MMC	Material Change	Remarks: Vitrified clay					☐		
-	435.8	TFC	Tap Factory Capped	at 2 o'clock		4			☐	2	
-	438.5	MMC	Material Change	Remarks: Concrete					☐		

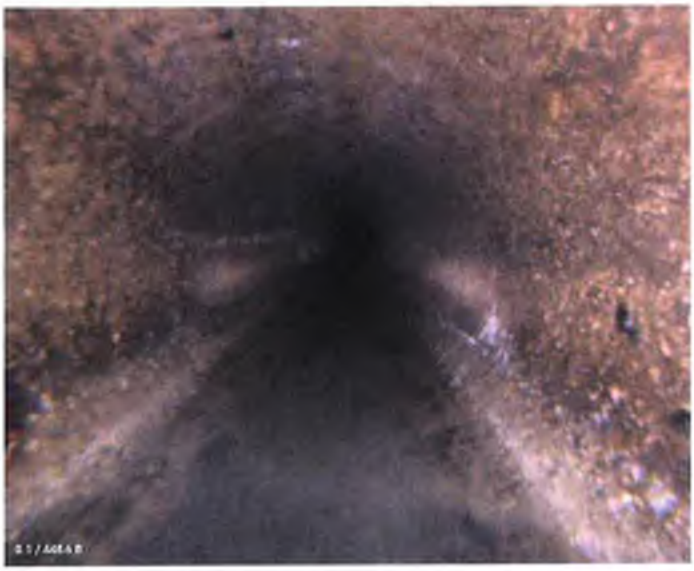
-	438.5	MMC	Material Change	Remarks: Vitrified clay					☐		
-	441.6	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	
-	443	MMC	Material Change	Remarks: Concrete					☐		
3	444.2	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint End	F01				☐	7	5
-	448.6	MSA	Abandoned Survey	Remarks: Unknown					☐		

PACP Code:	AMH		
Description:	Manhole		
Image Name:	ef16ba49-1f86-4225-9d06-f41b02727281_0-AMH.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Begin survey		

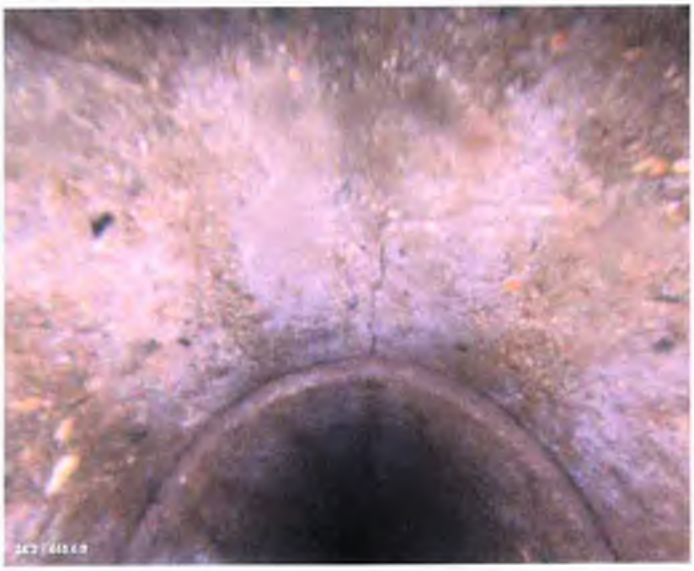
PACP Code:	MWL		
Description:	Water Level		
Image Name:	cd4f57dc-3a3a-4a2d-888f-704f4d2b3ada_0-MWL.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	15		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	VC		
Description:	Vermin Cockroach		
Image Name:	627ec9e5-ec04-47a6-8e53-fc8b3389d312_0.1-VC.jpg		
Distance (ft):	0.1		
Structural Grade:	0	Maintenance Grade	1
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	SAP		
Description:	Surface Aggregate Projecting		
Image Name:	2c4b5c33-45eb-42c0-81e8-20e2b4344904_0.1-SAP.jpg		
Distance (ft):	0.1		
Structural Grade:	3	Maintenance Grade	0
Percent Value:			
Clock At/From:	7	Clock To:	5
1st Value:		2nd Value:	
Continuous Index:	S01	Within 8" of Joint:	☐
Remarks:			

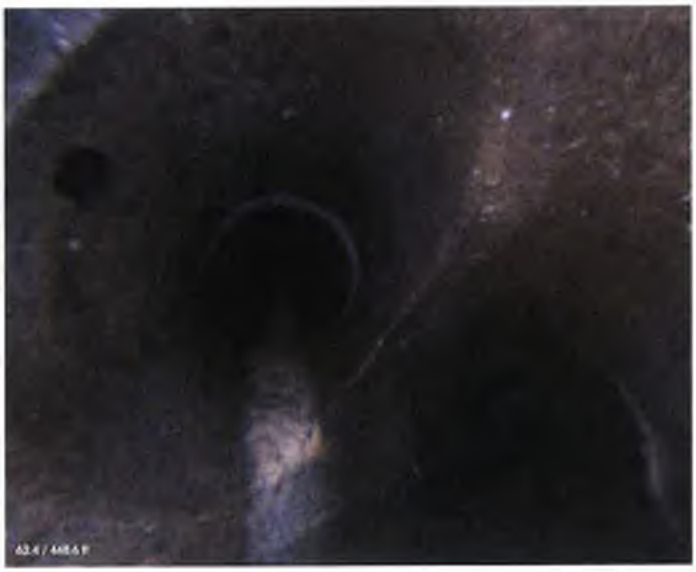


PACP Code:	FM		
Description:	Fracture Multiple		
Image Name:	3b09baef-ad1b-4757-9fa6-f54a16605a11_24.2-FM.jpg		
Distance (ft):	24.2		
Structural Grade:	4	Maintenance Grade	0
Percent Value:			
Clock At/From:	11	Clock To:	1
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

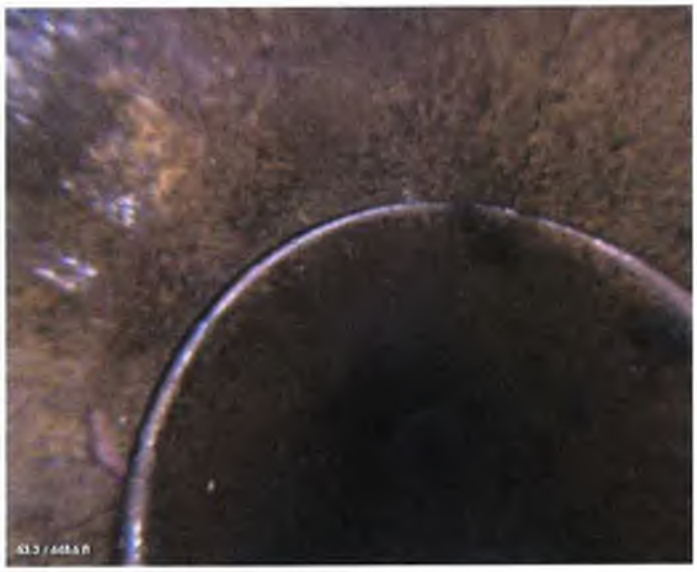
PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**13685361-a700-40d0-b9e2-e8c5a68c88a7_50.3-MGP.jpg**		
Distance (ft):	**50.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MWL**		
Description:	**Water Level**		
Image Name:	**fdcff293-090e-4670-a399-82dadccb12da_54.1-MWL.jpg**		
Distance (ft):	**54.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:	**30**		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

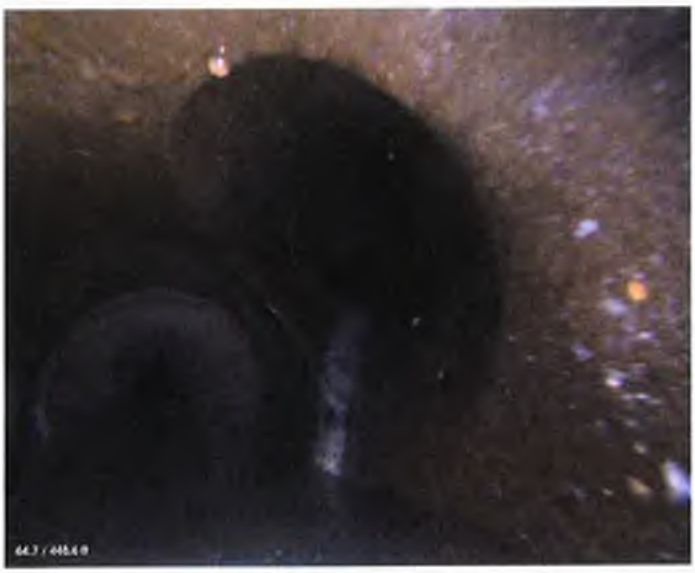
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**f54ebba8-40bc-4b5f-9df3-1abd509ed4d2_61.1-MMC.jpg**		
Distance (ft):	**61.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**a4b81db0-22aa-42e9-9142-22c68701863a_62.4-TF.jpg**		
Distance (ft):	**62.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	FM		
Description:	**Fracture Multiple**		
Image Name:	**eb942b8b-ee7b-4bff-8381-35a881072aea_63.3-FM.jpg**		
Distance (ft):	**63.3**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**9**	Clock To:	**12**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

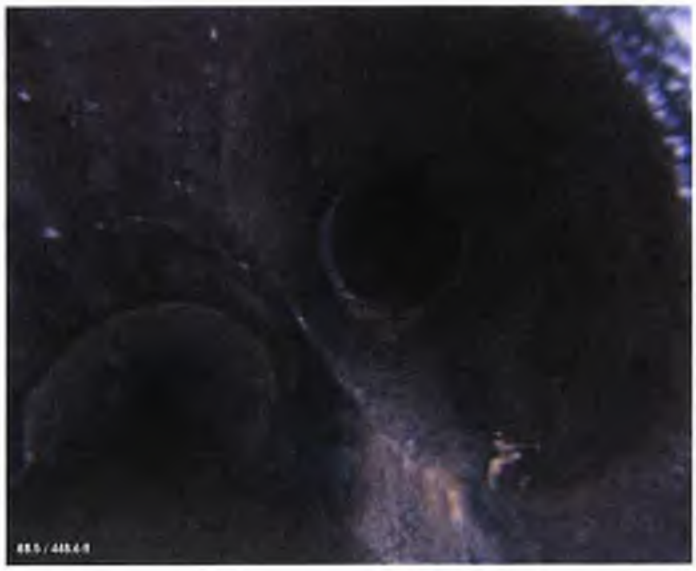


PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**29d73d0f-b2cd-42a4-b493-6f27346527b4_64.7-TF.jpg**		
Distance (ft):	**64.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**a9acfcf1-d25d-41c1-a228-078284c0a1cf_66.1-MMC.jpg**		
Distance (ft):	**66.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

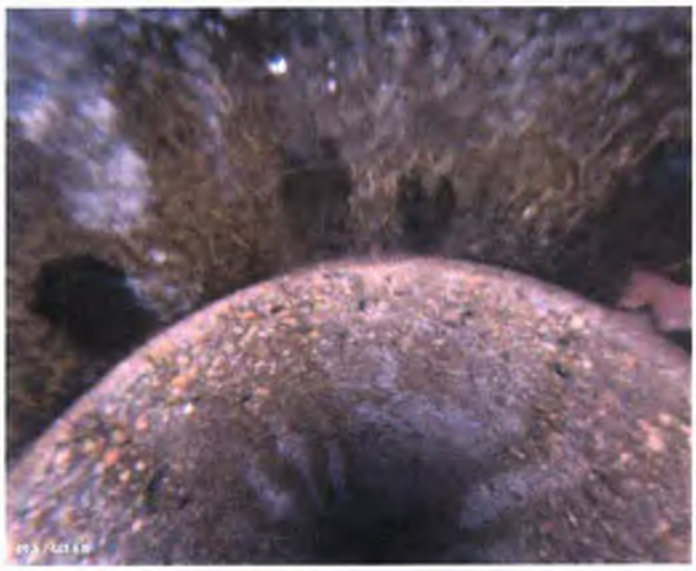
PACP Code:	**TB**		
Description:	**Tap Break-in**		
Image Name:	**e752d240-72b6-446e-b577-5fa00f093d93_74-TB.jpg**		
Distance (ft):	**74**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**c240937b-49b1-4d88-87cd-68db991a8c0c_87-MMC.jpg**		
Distance (ft):	**87**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**5b0492f8-102b-4158-87d6-4fd21ec578be_88.5-TF.jpg**		
Distance (ft):	**88.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	SSS		
Description:	**Surface Spalling**		
Image Name:	**abaf6f58-f11b-44cb-9064-c41ba0bab699_89.5-SSS.jpg**		
Distance (ft):	**89.5**		
Structural Grade:	**2**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	**3**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	CM		
Description:	**Crack Multiple**		
Image Name:	**52d9dbb9-a15a-49ae-aace-8188035f31f1_89.5-CM.jpg**		
Distance (ft):	**89.5**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	**2**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**f50a2142-c317-4cb7-b2be-e95dd285ffd8_89.8-MMC.jpg**		
Distance (ft):	**89.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

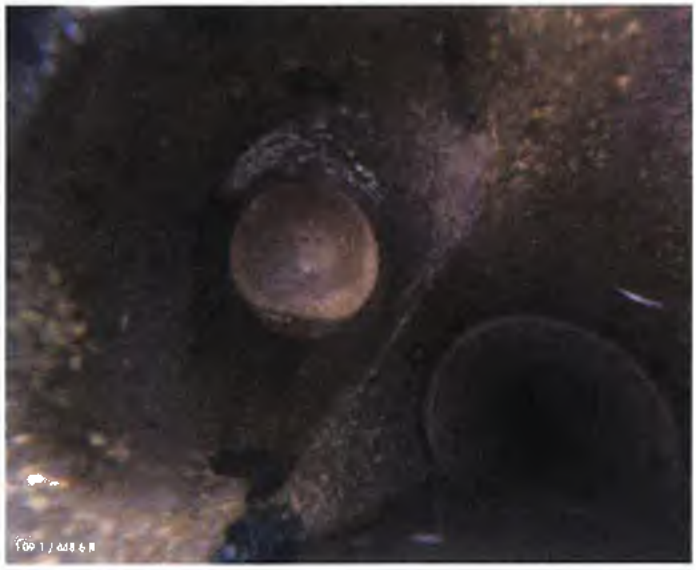
WL = 40%.

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**aac9d17e-7b6a-4221-85f1-fdac0f7ad257_100-MGP.jpg**		
Distance (ft):	**100**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

WL = 40%.

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**97eebea6-6c60-4a77-9c77-6317995bdcf4_107.8-MMC.jpg**		
Distance (ft):	**107.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

WL = 30%.



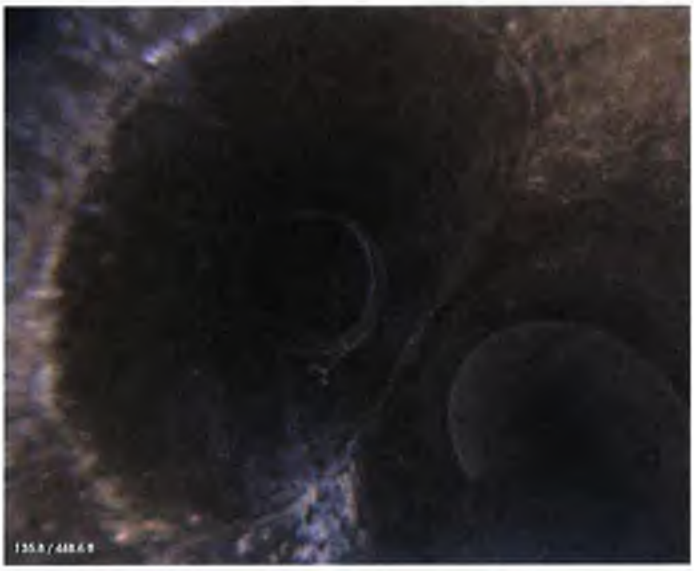
PACP Code:	TFC		
Description:	**Tap Factory Capped**		
Image Name:	**3297032a-8140-4d02-8e64-6215bd405734_109.1-TFC.jpg**		
Distance (ft):	**109.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	MMC		
Description:	**Material Change**		
Image Name:	**e4b4bfb9-91b7-4913-8d9c-ec25eddee07f_110.4-MMC.jpg**		
Distance (ft):	**110.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

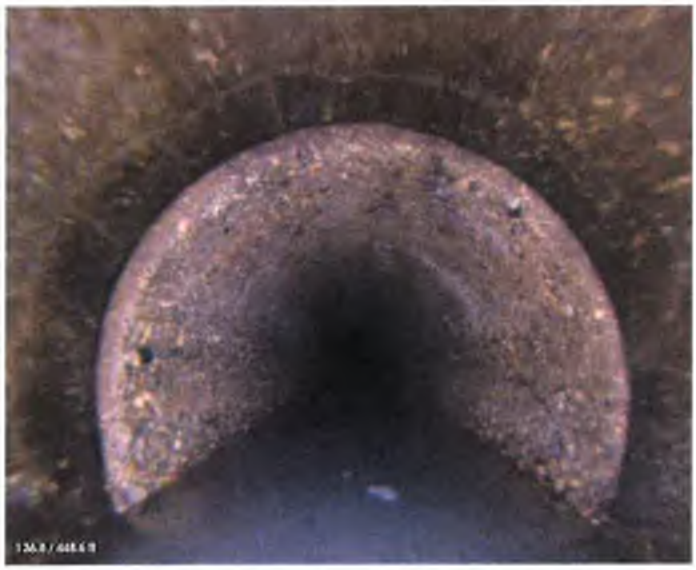
WL = 30%

PACP Code:	MMC		
Description:	**Material Change**		
Image Name:	**d7d084b1-80ed-43e7-b6dc-e27650494411_134.6-MMC.jpg**		
Distance (ft):	**134.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

WL = 30%

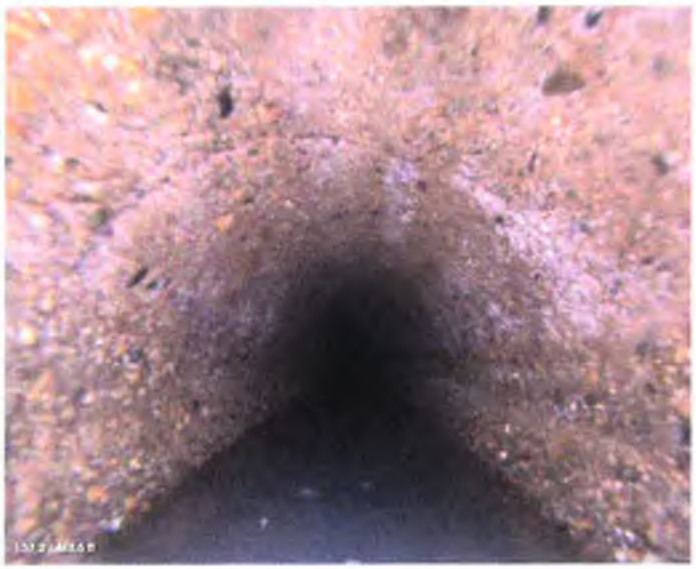


PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**598737b8-1842-48e4-aa1f-20d3a19703e0_135.8-TF.jpg**		
Distance (ft):	**135.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



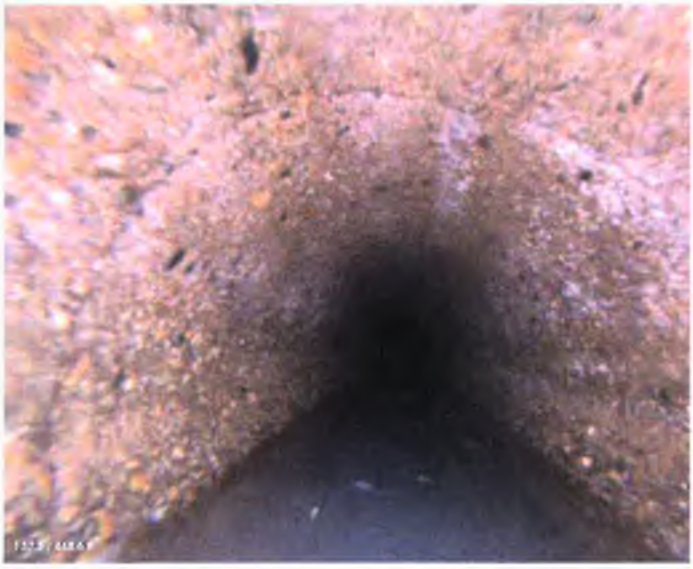
PACP Code:	CM		
Description:	**Crack Multiple**		
Image Name:	**b8b78739-927c-4fc3-9125-1457bedc091f_136.8-CM.jpg**		
Distance (ft):	**136.8**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**9**	Clock To:	**3**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

WL = 25%



PACP Code:	MMC		
Description:	**Material Change**		
Image Name:	**7b952d00-d1ad-479b-bab1-143fc30aecb4_137.2-MMC.jpg**		
Distance (ft):	**137.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

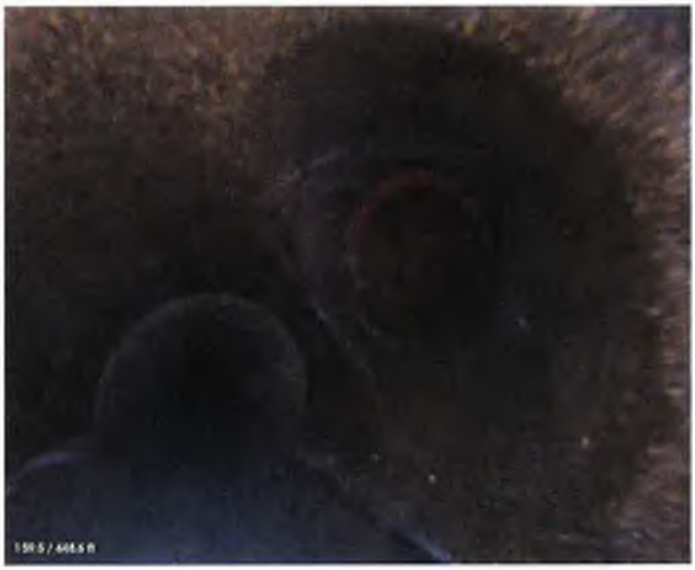
WL = 25%



PACP Code:	**FC**		
Description:	**Fracture Circumferential**		
Image Name:	**fc8a5d3a-471a-4939-8d84-45f5681c1b2c_137.3-FC.jpg**		
Distance (ft):	**137.3**		
Structural Grade:	**2**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**7**	Clock To:	**3**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**e0206ebd-a52d-4b3f-837b-1e6e63e588ee_150.1-MGP.jpg**		
Distance (ft):	**150.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

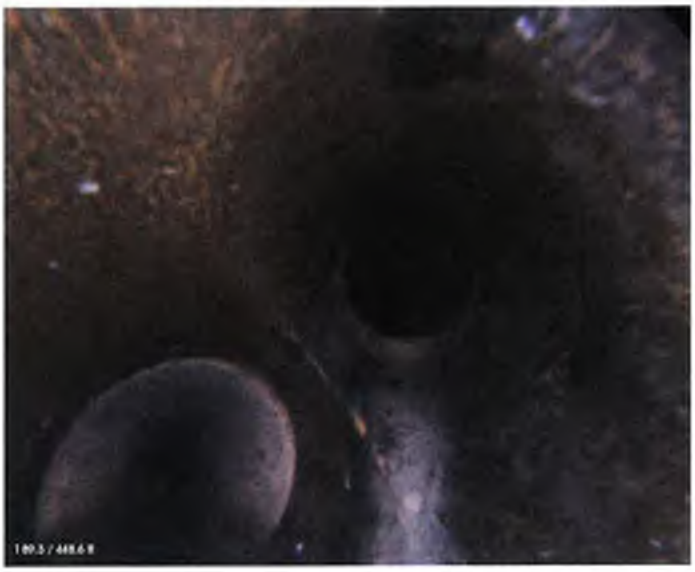
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**06a6022d-c44a-4a24-9062-9430cb9de11d_158.3-MMC.jpg**		
Distance (ft):	**158.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	TF		
Description:	Tap Factory		
Image Name:	7a6ef5e7-9594-4882-94e3-b33b185d4b39_159.5-TF.jpg		
Distance (ft):	159.5		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	MMC		
Description:	Material Change		
Image Name:	6521735f-d60a-45e6-9ff2-310dcbc34923_160.7-MMC.jpg		
Distance (ft):	160.7		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Concrete		

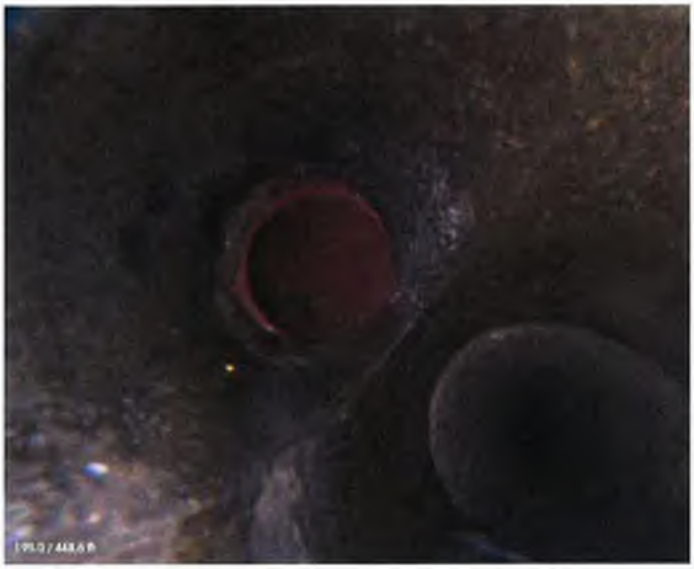
PACP Code:	MMC		
Description:	Material Change		
Image Name:	3200445c-8dab-4ef1-884b-91ffd49413d0_187.9-MMC.jpg		
Distance (ft):	187.9		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Vitrified clay		



PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**db39b534-bd4d-446d-b5b6-dd51ff93633f_189.3-TF.jpg**		
Distance (ft):	**189.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**63125eff-12ff-4cbf-85e2-8429975bf55e_190.3-MMC.jpg**		
Distance (ft):	**190.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**34545801-56c9-4758-b67d-af7b38e81d76_193.4-MMC.jpg**		
Distance (ft):	**193.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

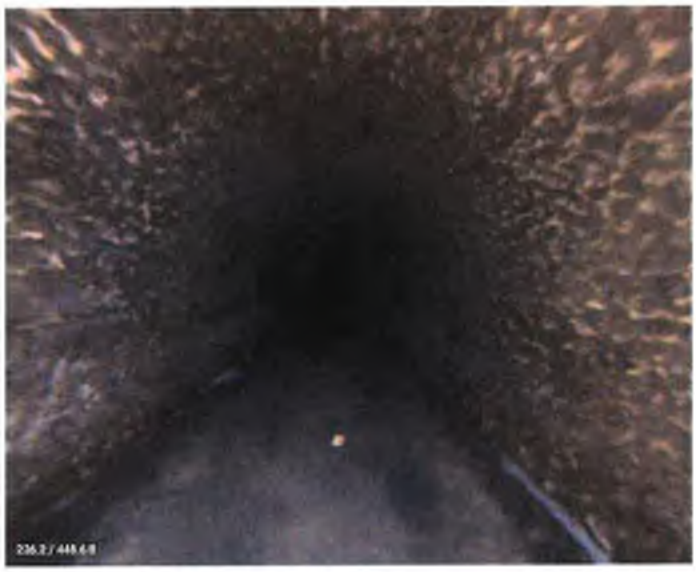


PACP Code:	TF		
Description:	Tap Factory		
Image Name:	9895debd-0f04-4c64-b122-586c65b5512d_195-TF.jpg		
Distance (ft):	195		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	10	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

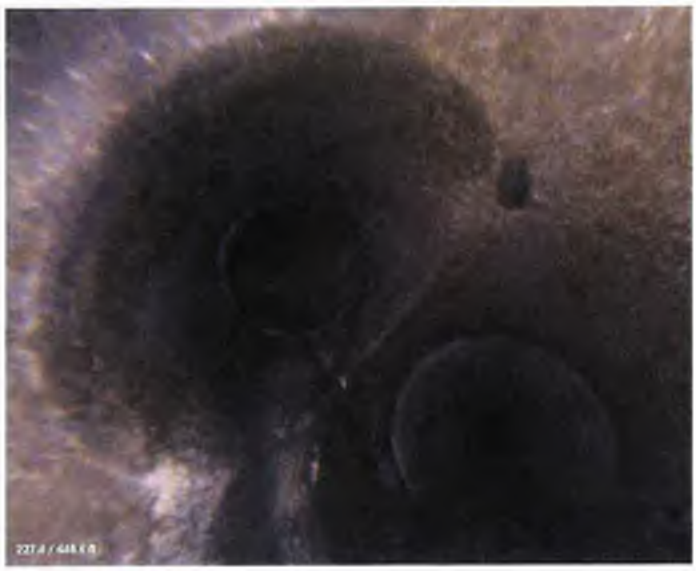
PACP Code:	MMC		
Description:	Material Change		
Image Name:	4bbfa2c0-586d-4eb0-95ea-134c5945c0f8_196-MMC.jpg		
Distance (ft):	196		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Concrete		

PACP Code:	MGP		
Description:	General Photo		
Image Name:	421c0859-a031-4229-80c0-da189abcbfa8_200.2-MGP.jpg		
Distance (ft):	200.2		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	FL		
Description:	Fracture Longitudinal		
Image Name:	45229637-d877-496c-b4f4-fa574545da9f_225.6-FL.jpg		
Distance (ft):	225.6		
Structural Grade:	3	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	MMC		
Description:	Material Change		
Image Name:	98c15581-996a-4073-9545-99b696f49714_226.2-MMC.jpg		
Distance (ft):	226.2		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Concrete		



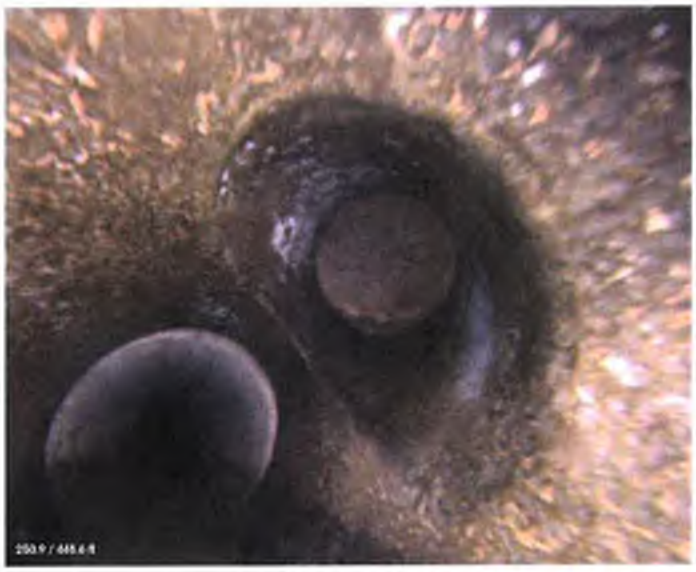
PACP Code:	TF		
Description:	Tap Factory		
Image Name:	cbf00645-9dee-4621-84cf-f450bb551ca7_227.4-TF.jpg		
Distance (ft):	227.4		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	10	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	MMC		
Description:	Material Change		
Image Name:	7a6d22fa-d5f5-4df4-bae1-eae413ed2e49_228.7-MMC.jpg		
Distance (ft):	228.7		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Concrete		

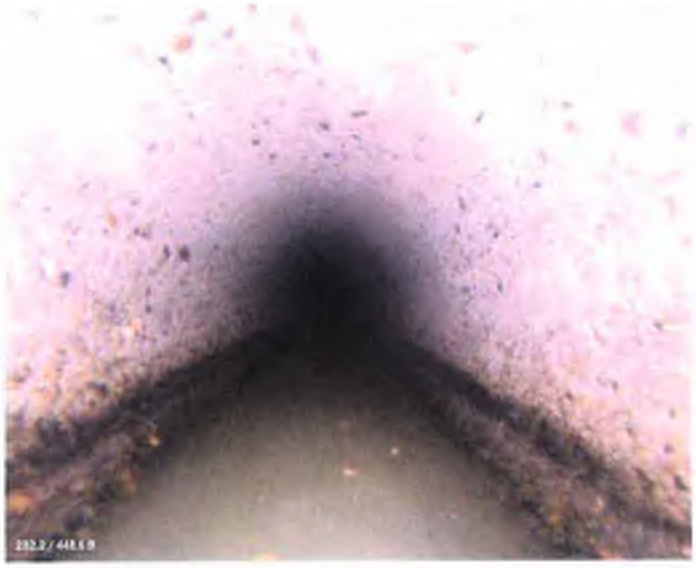
PACP Code:	TF		
Description:	Tap Factory		
Image Name:	2d231427-1c5b-49af-9b5f-128bc390da72_236-TF.jpg		
Distance (ft):	236		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	11	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	MMC		
Description:	Material Change		
Image Name:	49b3a1d6-c327-4844-a495-b249edd4da5a_249.6-MMC.jpg		
Distance (ft):	249.6		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Vitrified clay		

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**12a62240-a7f6-4c9a-af01-5e3df3b2fd1b_249.6-MGP.jpg**		
Distance (ft):	**249.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

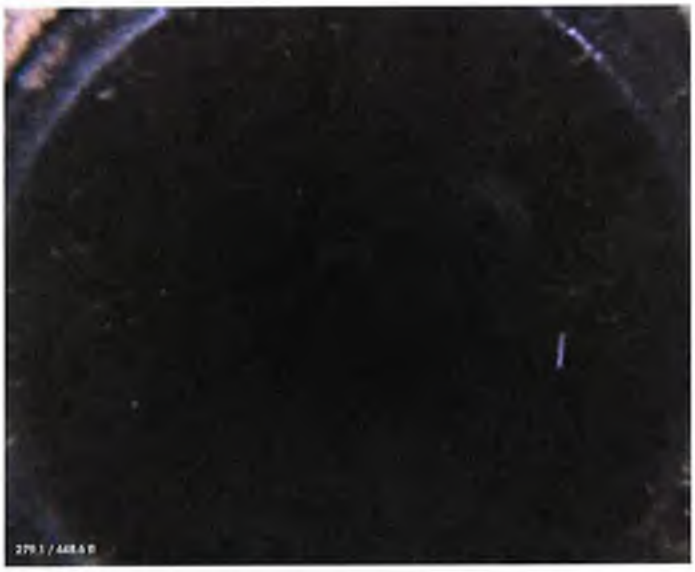


PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**6ef441e0-25c0-4205-9339-e138a83fb4b2_250.9-TFC.jpg**		
Distance (ft):	**250.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

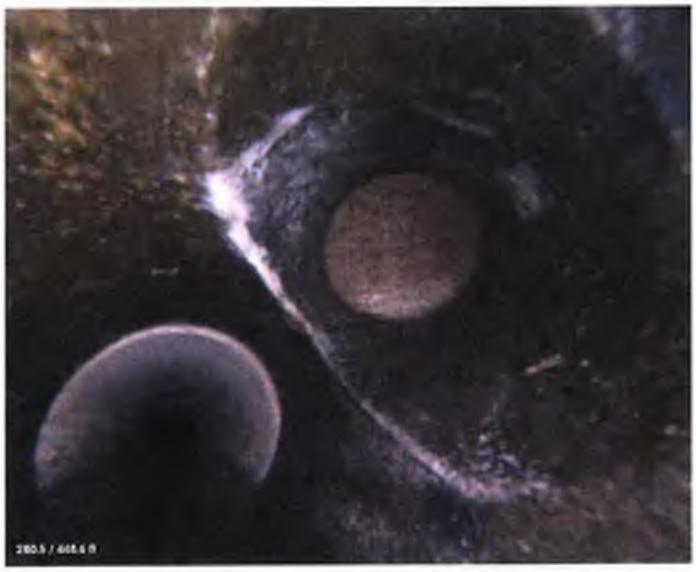


PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**10bc9b32-f752-4548-ba18-2d35d28afef6_252.2-MMC.jpg**		
Distance (ft):	**252.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**TBI**		
Description:	**Tap Break-in Intruding**		
Image Name:	**45aa1a08-b299-4b8b-b1e8-cc13d6c1458c_255.7-TBI.jpg**		
Distance (ft):	**255.7**		
Structural Grade:	**0**	Maintenance Grade	**3**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	**1**
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**2dd944a2-a220-4b70-83d3-58c49afca7ea_279.1-MMC.jpg**		
Distance (ft):	**279.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

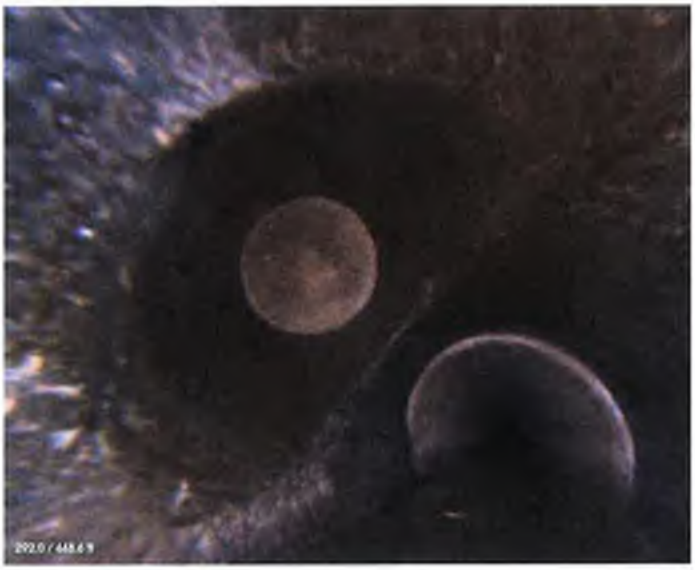


PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**26de7b4f-03a1-4bc9-96ac-3d8b8d7dc57f_279.1-TFC.jpg**		
Distance (ft):	**279.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**0c68243d-d18b-44d6-9f7d-171319f7d710_280.5-MMC.jpg**		
Distance (ft):	**280.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

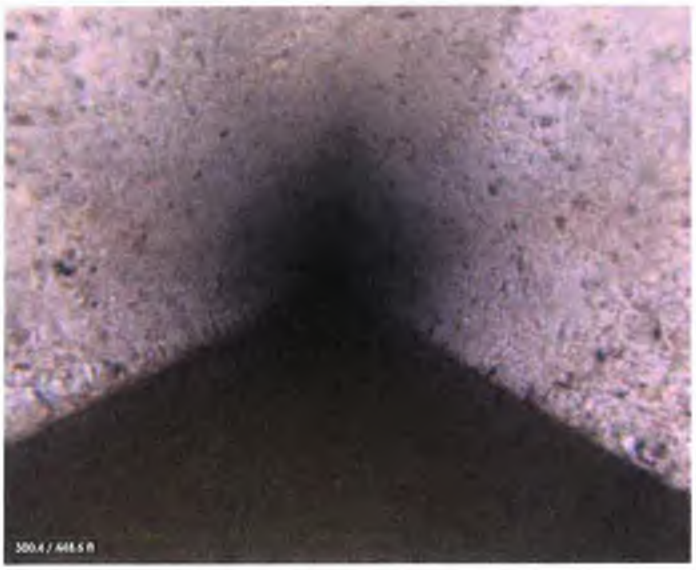
PACP Code:	**TB**		
Description:	**Tap Break-in**		
Image Name:	**c35249d0-5b05-497b-a5bb-ba3f69ecbe0a_288.9-TB.jpg**		
Distance (ft):	**288.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**2a669934-57d1-4ee2-9a6b-f5abff4cf78b_290.9-MMC.jpg**		
Distance (ft):	**290.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	TFC		
Description:	**Tap Factory Capped**		
Image Name:	**043aff10-5b82-45a3-8dbc-42dee3c433ea_290.9-TFC.jpg**		
Distance (ft):	**290.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

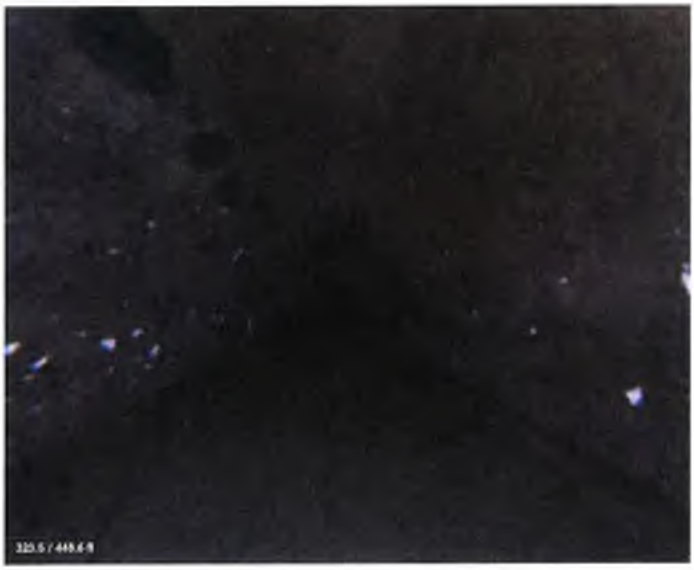
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**c37f8794-3f63-4d0c-b299-16ec3a73c925_292-MMC.jpg**		
Distance (ft):	**292**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		



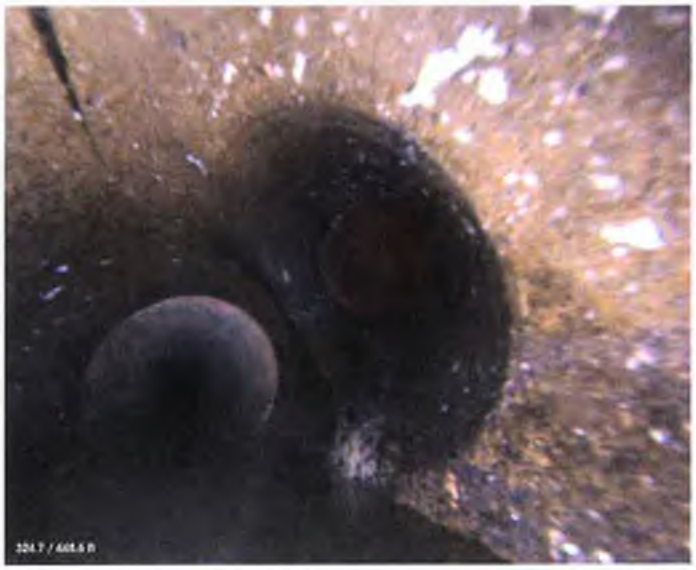
PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**562ee504-c590-4dad-94d8-802d80c0613b_300.4-MGP.jpg**		
Distance (ft):	**300.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	TB		
Description:	Tap Break-in		
Image Name:	3727c241-045f-4ff4-a262-56716ceb796b_319.4-TB.jpg		
Distance (ft):	319.4		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	1	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	VR		
Description:	Vermin Rat		
Image Name:	583ccbe1-3d3b-46ec-9a1e-2759a915561c_320.2-VR.jpg		
Distance (ft):	320.2		
Structural Grade:	0	Maintenance Grade	2
Percent Value:			
Clock At/From:		Clock To:	
1st Value:	1	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



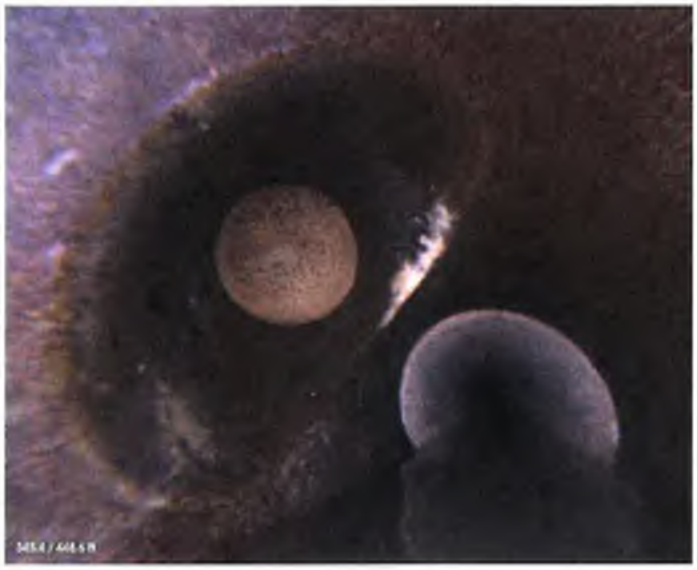
PACP Code:	MMC		
Description:	Material Change		
Image Name:	b52f38cc-e9dc-4d30-8d34-7559e04c2817_323.5-MMC.jpg		
Distance (ft):	323.5		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Vitrified clay		



PACP Code:	TF		
Description:	Tap Factory		
Image Name:	15cdd2fd-f08a-4ccf-ac3d-84dd09f052f3_323.5-TF.jpg		
Distance (ft):	323.5		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	MMC		
Description:	Material Change		
Image Name:	1be84bca-9bba-4a73-83d2-ba34fecf351f_326.1-MMC.jpg		
Distance (ft):	326.1		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Concrete		

PACP Code:	MMC		
Description:	Material Change		
Image Name:	3d2fb5b6-3e77-4dee-95af-455c7ebb9c2e_344-MMC.jpg		
Distance (ft):	344		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Vitrified clay		

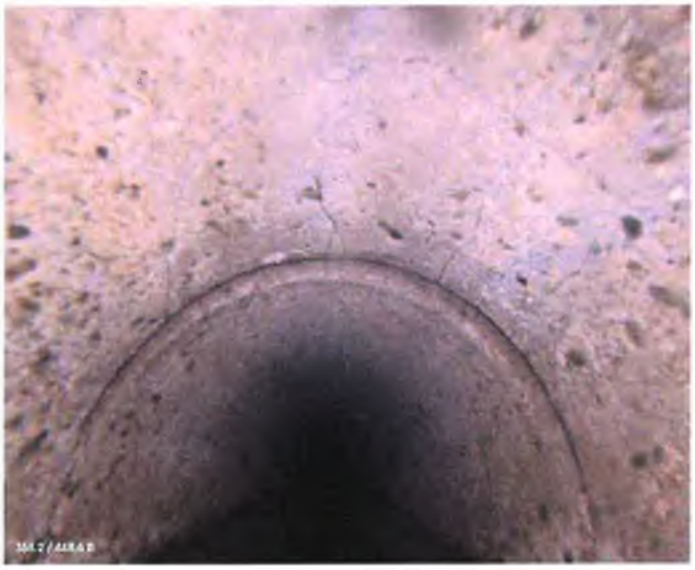


PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**16ff23a8-6109-4e41-858e-d91fbab1da5f_344-TFC.jpg**		
Distance (ft):	**344**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**281e0636-ff13-418e-901d-a1ee88abc055_346.6-MMC.jpg**		
Distance (ft):	**346.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

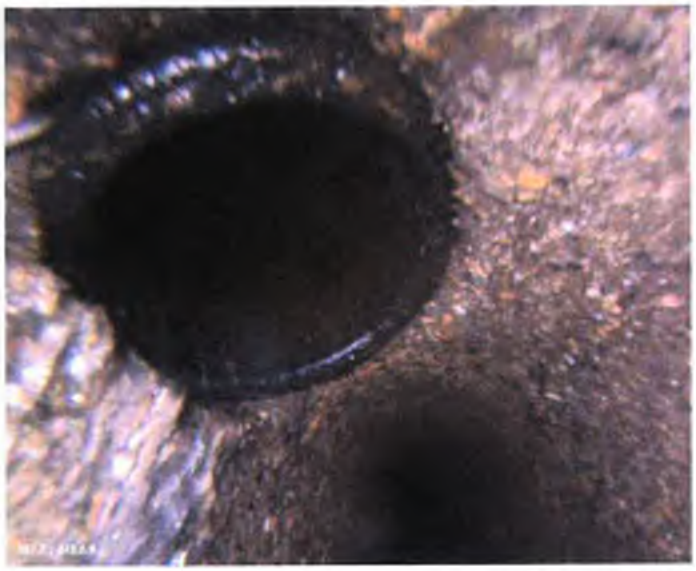
PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**78339f1d-250d-4499-a741-54c18c4e1902_350.1-MGP.jpg**		
Distance (ft):	**350.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**TB**		
Description:	**Tap Break-in**		
Image Name:	**26560606-c2c5-41b0-9302-f46fd9eb2398_351-TB.jpg**		
Distance (ft):	**351**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**bfa47cf5-497e-487d-9fe9-7e60dd904cc5_358.2-FM.jpg**		
Distance (ft):	**358.2**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	**2**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

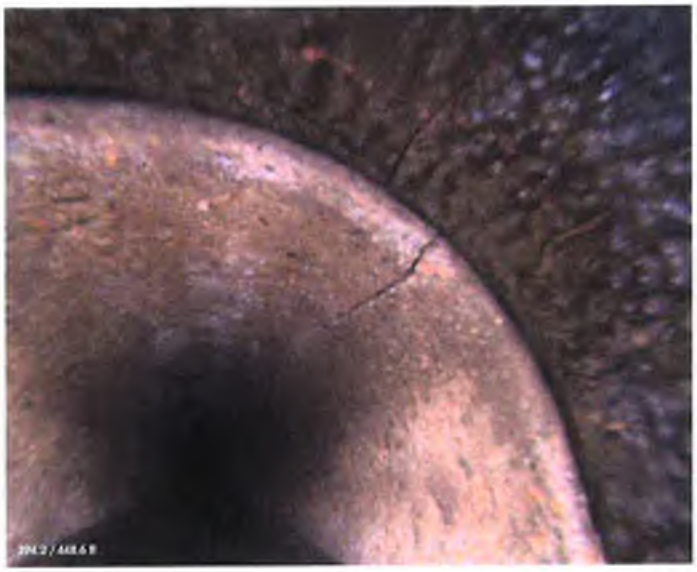
PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**b22cdfac-ae5e-4ad7-b439-3707de21344a_382.5-FM.jpg**		
Distance (ft):	**382.5**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	**1**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



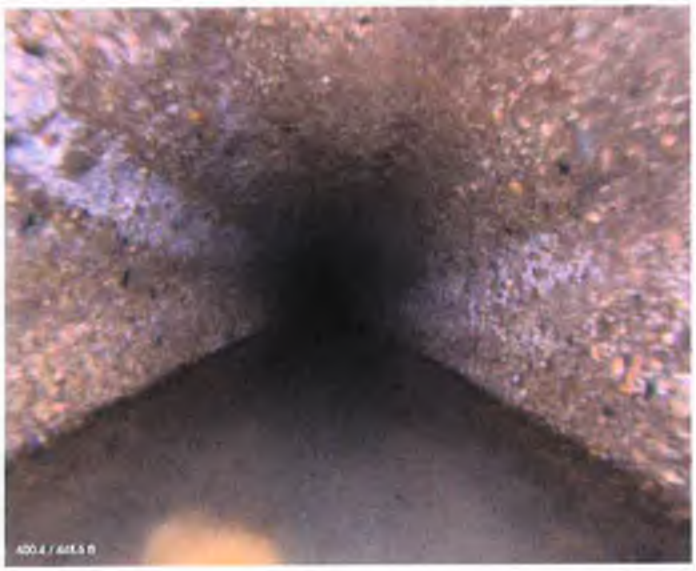
PACP Code:	**TBA**		
Description:	**Tap Break-in Active**		
Image Name:	**62b9065a-f5e8-479d-8766-009101304188_387.7-TBA.jpg**		
Distance (ft):	**387.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**3d84bc12-b0ea-48b9-826b-35385320b61f_387.7-MMC.jpg**		
Distance (ft):	**387.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**32ba12b4-e391-410d-a7d2-6c2f68c12fd7_391.7-TFC.jpg**		
Distance (ft):	**391.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

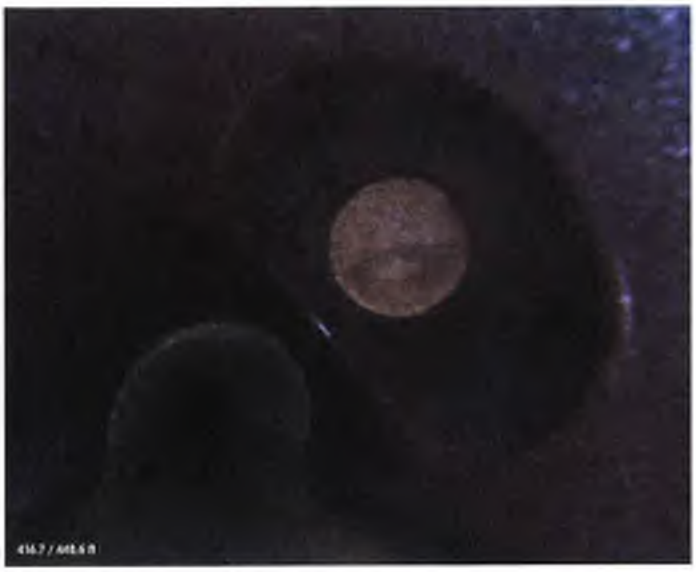


PACP Code:	FM		
Description:	Fracture Multiple		
Image Name:	42034889-0516-48f6-857b-134d3c810726_393.1-FM.jpg		
Distance (ft):	393.1		
Structural Grade:	4	Maintenance Grade	0
Percent Value:			
Clock At/From:	1	Clock To:	2
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

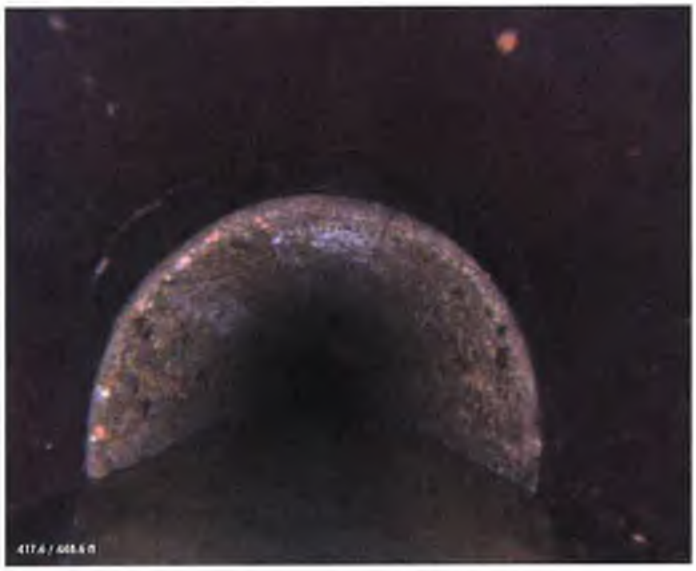


PACP Code:	MGP		
Description:	General Photo		
Image Name:	d8e135f3-21a0-41c1-8748-ab28b20fb769_400.4-MGP.jpg		
Distance (ft):	400.4		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	MMC		
Description:	Material Change		
Image Name:	4f73a992-b713-4b10-a056-99a533ee4c77_415.5-MMC.jpg		
Distance (ft):	415.5		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Vitrified clay		

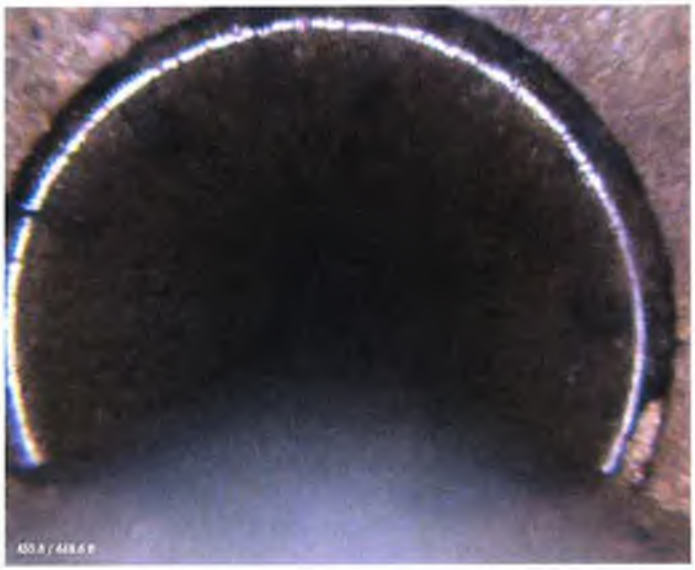


PACP Code:	TFC		
Description:	Tap Factory Capped		
Image Name:	f251dbdd-a0a5-4340-ad5b-66e48512ed2e_415.5-TFC.jpg		
Distance (ft):	415.5		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

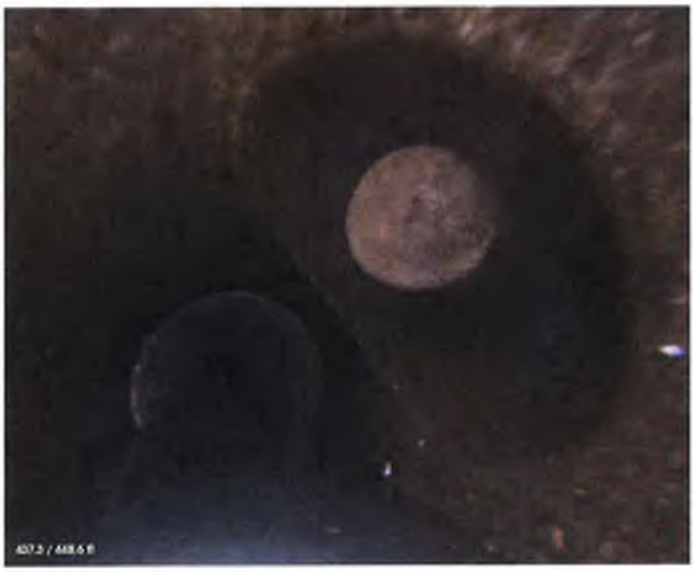


PACP Code:	FM		
Description:	Fracture Multiple		
Image Name:	e8915268-b8b5-4e39-bd95-10ea3d449335_416.7-FM.jpg		
Distance (ft):	416.7		
Structural Grade:	4	Maintenance Grade	0
Percent Value:			
Clock At/From:	10	Clock To:	2
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	TBA		
Description:	Tap Break-in Active		
Image Name:	9fb9bbc1-c030-499e-9197-8c3374372a54_417.6-TBA.jpg		
Distance (ft):	417.6		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



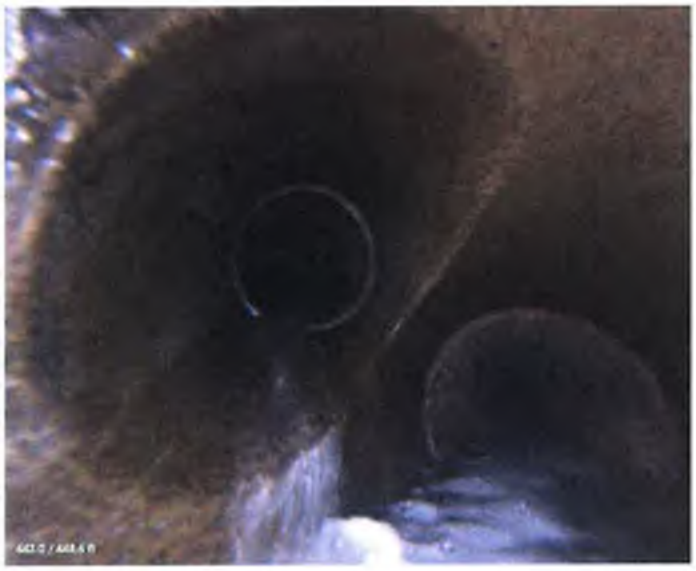
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**69ab75fc-8d52-4e03-97fc-32eef6a4c9da_435.8-MMC.jpg**		
Distance (ft):	**435.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**b91bb5f1-e56b-4261-8bab-9d9ba0157fa9_435.8-TFC.jpg**		
Distance (ft):	**435.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

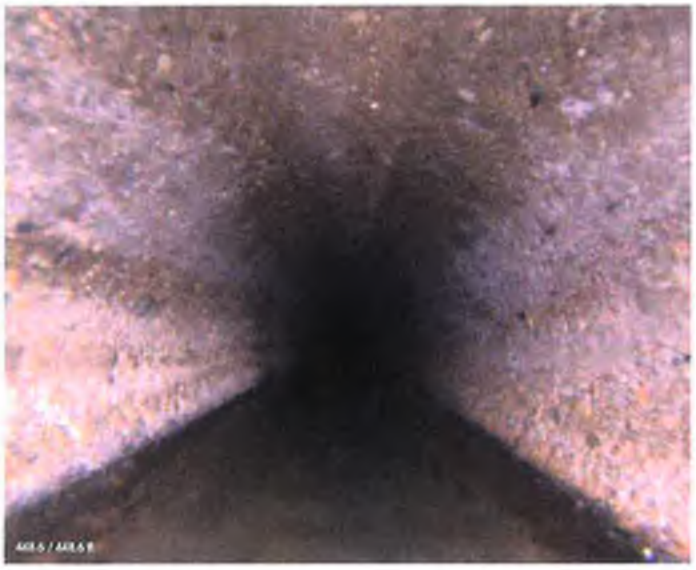
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**eb1e834c-903f-4acd-a400-08eec98a492e_438.5-MMC.jpg**		
Distance (ft):	**438.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**db017422-f2e1-48c1-855a-9a1d895ef6bf_438.5-MMC.jpg**		
Distance (ft):	**438.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**936a4f62-db0c-4259-b447-9ffc010b1d61_441.6-TFC.jpg**		
Distance (ft):	**441.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**da68676e-7c72-4eda-8add-d8db78fc5a83_443-MMC.jpg**		
Distance (ft):	**443**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		



PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**94290232-10bc-40ee-9056-a2ece3a2ad8e_444.2-SAP.jpg**		
Distance (ft):	**444.2**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**7**	Clock To:	**5**
1st Value:		2nd Value:	
Continuous Index:	**F01**	Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MSA**		
Description:	**Abandoned Survey**		
Image Name:	**a1dcd956-eab0-42da-bc5a-95f5e13a33ea_448.6-MSA.jpg**		
Distance (ft):	**448.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Unknown**		

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset:

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8016 to 04-8013	04-8016	04-8013	Concrete Pipe (non-reinforced)	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA		0	0
Pre-Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
North A St	City of Arvin	Main Highway - urban	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/01/2010	04:09 PM	Downstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		205
Media Label	Reverse Setup	Work Order No	Additional Info	
NS19-1452	NO	-	Length unknown - Upstream manhole location unknown	

Results:

Overall Rating	Structural Rating	Maintenance Rating
154	153	1
Overall Index	Structural Index	Maintenance Index
3.08	3.12	1
Overall Quick	Structural Quick	Maintenance Quick
463G	463G	1100

- Joints not dislocated
- Walls of pipe need to be rehabilitated
- multiple cracks and fractures
- ~~from joint 197 to MH 04-8013 open trench~~

Recommendation

- CIPP Lining due to no multiple sags, no dislocations and multiple cracks (210ft)

Grade	Dist (ft)	Observation

Joint every 3ft

04-8016

-	0	[AMH] Manhole Remarks: Begin survey
-	0	[MWL] Water Level 15% of cross sectional area (WL = 15%)
3	0	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint Start continuous
1	0.5	[VC] Vermin Cockroach NOT within 8" of joint
4	22.9	[FM] Fracture Multiple from 12 to 1 o'clock within 8" of joint J23-26
4	46.8	[FM] Fracture Multiple from 12 to 2 o'clock within 8" of joint J47-50
-	50.6	[MGP] General Photo WL = 15%
4	62.1	[FM] Fracture Multiple from 1 to 11 o'clock within 8" of joint J62-65
4	68.1	[FM] Fracture Multiple from 10 to 12 o'clock within 8" of joint J68-71
3	95.1	[FL] Fracture Longitudinal at 10 o'clock within 8" of joint J95-98
-	100.9	[MGP] General Photo
4	130.9	[FM] Fracture Multiple from 9 to 1 o'clock within 8" of joint J131-134
3	143	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint J140-146
-	150	[MGP] General Photo
4	175.8	[FM] Fracture Multiple from 12 to 3 o'clock within 8" of joint J176
-	200.8	[MGP] General Photo
3	204.6	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint End
-	204.6	[MSA] Abandoned Survey Remarks: Unknown J197 – MH 04-8013

Camera Direction

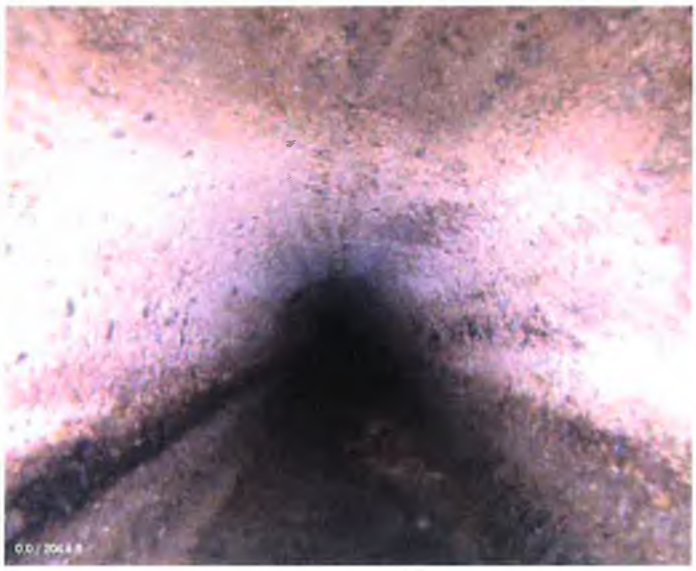
*no tap factors

04-8013

Condition Observations:

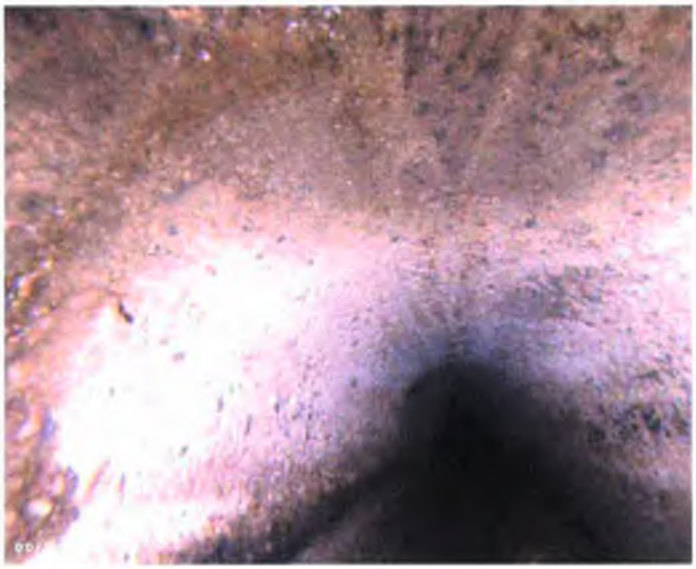
Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	15% of cross sectional area				15	☐		
3	0	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint Start	S01				☐	7	5
1	0.5	VC	Vermin Cockroach	NOT within 8" of joint					☐		
4	22.9	FM	Fracture Multiple	from 12 to 1 o'clock within 8" of joint					☑	12	1
4	46.8	FM	Fracture Multiple	from 12 to 2 o'clock within 8" of joint					☑	12	2
-	50.6	MGP	General Photo						☐		
4	62.1	FM	Fracture Multiple	from 1 to 11 o'clock within 8" of joint					☑	1	11
4	68.1	FM	Fracture Multiple	from 10 to 12 o'clock within 8" of joint					☑	10	12
3	95.1	FL	Fracture Longitudinal	at 10 o'clock within 8" of joint					☑	10	
-	100.9	MGP	General Photo						☐		
4	130.9	FM	Fracture Multiple	from 9 to 1 o'clock within 8" of joint					☑	9	1
3	143	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	
-	150	MGP	General Photo						☐		

4	175.8	FM	Fracture Multiple	from 12 to 3 o'clock within 8" of joint					☑	12	3
-	200.8	MGP	General Photo						☐		
3	204.6	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint End	F01				☐	7	5
-	204.6	MSA	Abandoned Survey	Remarks: Unknown					☐		

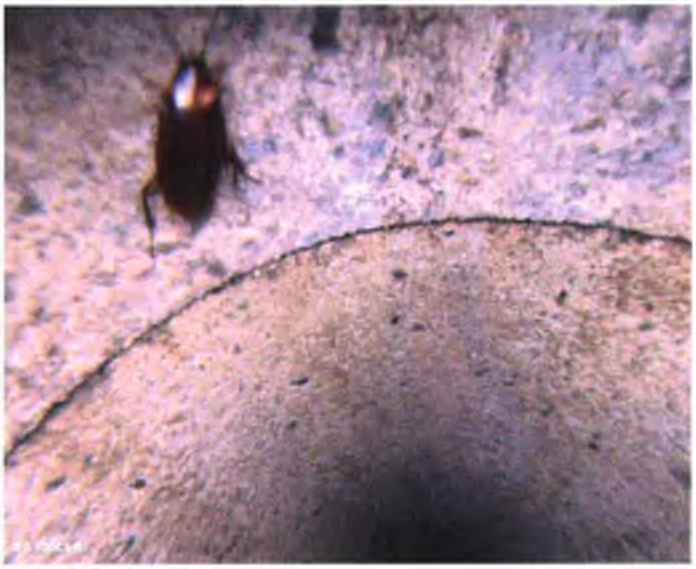


PACP Code:	AMH		
Description:	Manhole		
Image Name:	6319d6ea-2654-4c5b-8f38-ad9a3f9d9c38_0-AMH.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Begin survey		

PACP Code:	MWL		
Description:	Water Level		
Image Name:	98492549-8573-4d3e-9a00-56be6f0f57e5_0-MWL.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	15		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

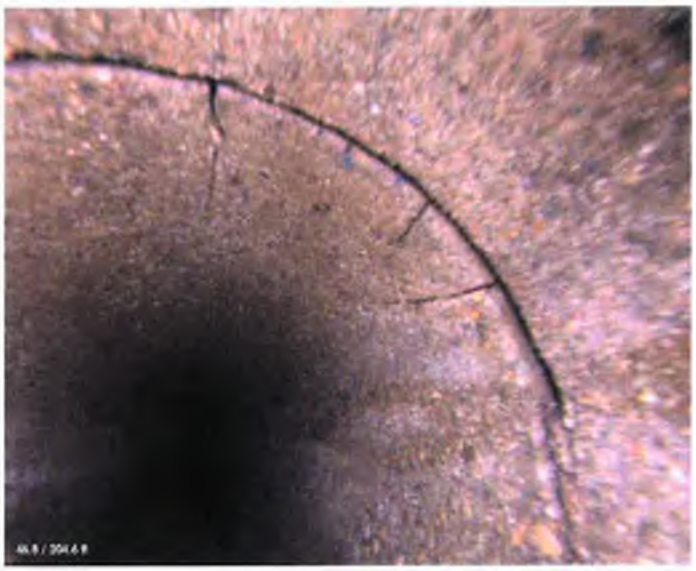


PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**0f7d33c2-6a57-4938-bf71-d78dafe7eb52_0-SAP.jpg**		
Distance (ft):	**0**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**7**	Clock To:	**5**
1st Value:		2nd Value:	
Continuous Index:	**S01**	Within 8" of Joint:	☐
Remarks:			



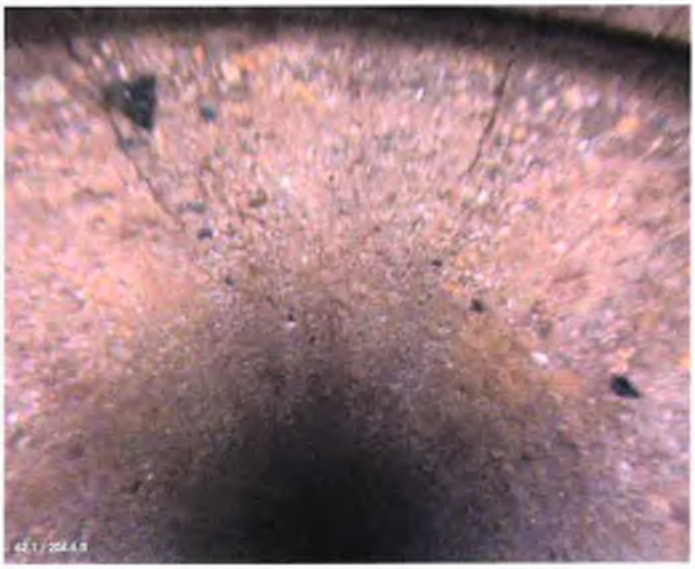
PACP Code:	**VC**		
Description:	**Vermin Cockroach**		
Image Name:	**f777d67f-5a2b-4776-8dfd-3f2a6c66ee61_0.5-VC.jpg**		
Distance (ft):	**0.5**		
Structural Grade:	**0**	Maintenance Grade	**1**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**a49238cc-1400-4be1-81ff-46fc275f4a55_22.9-FM.jpg**		
Distance (ft):	**22.9**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	**1**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

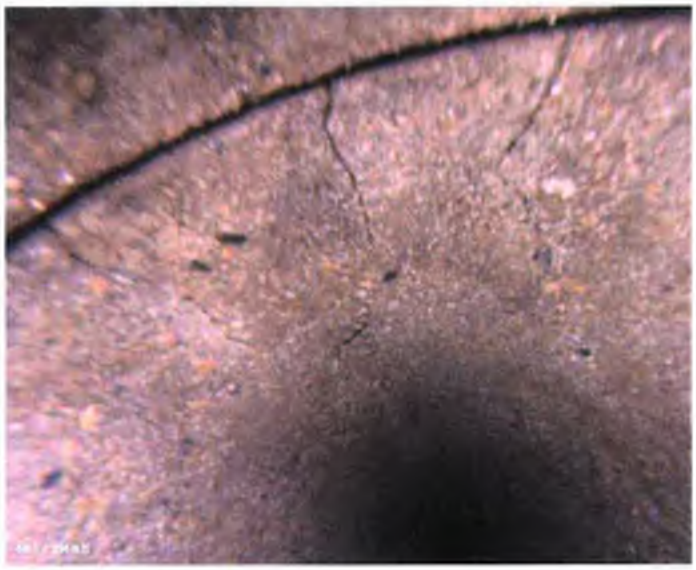


PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**a3951afb-724b-4632-ba88-4908bbd360da_46.8-FM.jpg**		
Distance (ft):	**46.8**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	**2**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

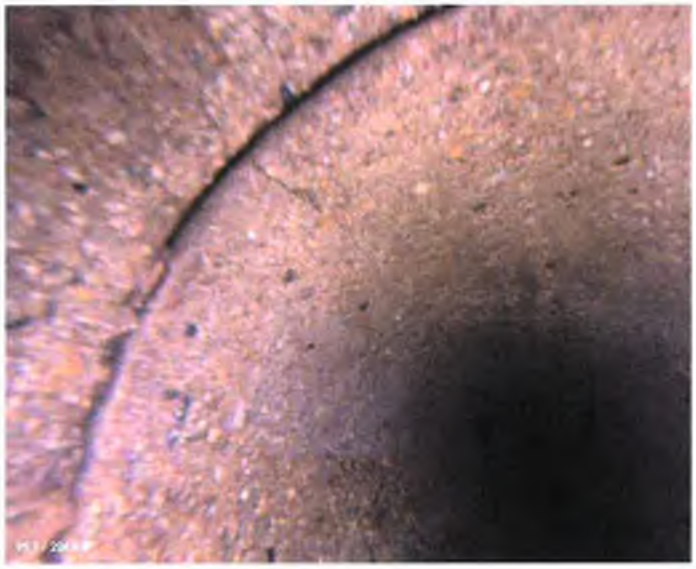
PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**1b669953-ff72-4566-a8a9-652a29218591_50.6-MGP.jpg**		
Distance (ft):	**50.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



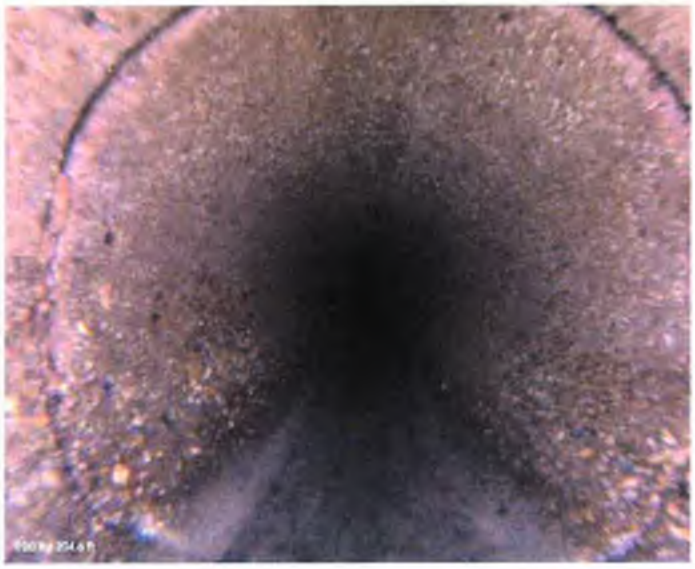
PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**da07f8e7-15bb-4712-ba2e-60a7ef69ab2c_62.1-FM.jpg**		
Distance (ft):	**62.1**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**1**	Clock To:	**11**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



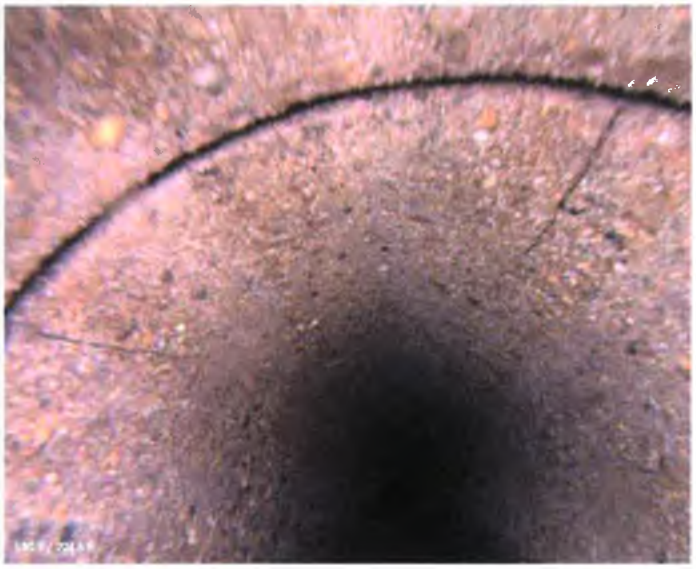
PACP Code:	FM		
Description:	**Fracture Multiple**		
Image Name:	**35aee0c3-c28b-4d5d-a356-80962a55e635_68.1-FM.jpg**		
Distance (ft):	**68.1**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	**12**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**27a4574c-f47f-4759-89cd-3169c9e3c8b2_95.1-FL.jpg**		
Distance (ft):	**95.1**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



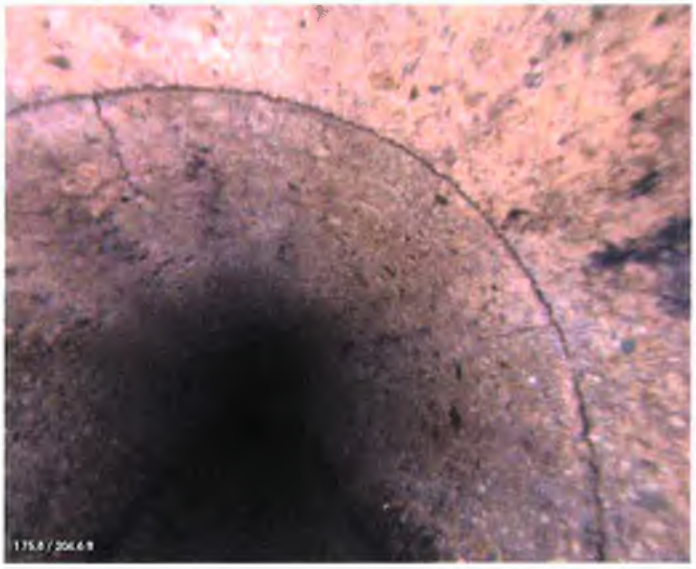
PACP Code:	MGP		
Description:	**General Photo**		
Image Name:	**ecedf520-36f6-4ce3-bfb0-fd50149895b8_100.9-MGP.jpg**		
Distance (ft):	**100.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**10abbd5d-04f9-4bb7-86a2-510cf2d50af5_130.9-FM.jpg**		
Distance (ft):	**130.9**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**9**	Clock To:	**1**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**FL**		
Description:	**Fracture Longitudinal**		
Image Name:	**518f1044-b044-4b30-a8cc-6fbd6335e2d8_143-FL.jpg**		
Distance (ft):	**143**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**0a5df8ab-0ae9-4ec5-ae3b-6502a1a4ee4f_150-MGP.jpg**		
Distance (ft):	**150**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**ee784eca-92ec-456a-94aa-442ff399447a_175.8-FM.jpg**		
Distance (ft):	**175.8**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	**3**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**a93f3045-6b4b-48cb-a49f-0327ec1e3065_200.8-MGP.jpg**		
Distance (ft):	**200.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**dc97d00f-3755-413f-897b-a160f1bbae94_204.6-SAP.jpg**		
Distance (ft):	**204.6**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**7**	Clock To:	**5**
1st Value:		2nd Value:	
Continuous Index:	**F01**	Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MSA**		
Description:	**Abandoned Survey**		
Image Name:	**c25e2dd5-2d3e-4237-9ff8-e844cbfb2303_204.6-MSA.jpg**		
Distance (ft):	**204.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Unknown**		

04-8015 to 04-8014

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

rd Street
Pittsburgh PA

Asset

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
to	04-8015	04-8014	Concrete Pipe non reinforced	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA			
Pre Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location

Street	City	Location	Details
North A St	City of Arvin	Main Highway urban	

Inspection

Surveyed By	Certificate No	Date	Time	Direction
JJC	U		PM	Upstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		
Media Label	Reverse Setup	Work Order No	Additional Info	
NS	NO		Length unknown Upstream manhole location unknown	

Results

Overall Rating	Structural Rating	Maintenance Rating
152	151	6
Overall Index	Structural Index	Maintenance Index
2.96	3.02	2
Overall Quick	Structural Quick	Maintenance Quick
4131	413H	3121

Joint every 3ft

Grade	Dist ft	Observation	
		AMH Manhole Remarks Begin survey	
		MWL Water Level of cross sectional area	
		SAP Surface Aggregate Projecting from to o clock NOT within of joint Start	
		VC Vermin Cockroach NOT within of joint	
		MGP General Photo	
		MMC Material Change Remarks Vitrified clay	
		TF Tap Factory at o clock	
		TF Tap Factory at o clock	
		MMC Material Change Remarks Concrete	
		MMC Material Change Remarks Vitrified clay	
		TF Tap Factory at o clock	
	91	FM Fracture Multiple from to o clock within of joint	S3
		MMC Material Change Remarks Concrete	
		MMC Material Change Remarks Vitrified clay	
		TF Tap Factory at o clock	
		MMC Material Change Remarks Concrete	
		MMC Material Change Remarks Vitrified clay	
		TF Tap Factory at o clock	
		MMC Material Change Remarks Concrete	
	141	FL Fracture Longitudinal at o clock within of joint	S2
		MGP General Photo	
		MMC Material Change Remarks Vitrified clay	
		TF Tap Factory at o clock	
	158.1	FL Fracture Longitudinal at o clock within of joint	S2
		MMC Material Change Remarks Concrete	
	164	FL Fracture Longitudinal at o clock within of joint	
		TB Tap Break in at o clock	
		VR Vermin Rat NOT within of joint	
		MMC Material Change Remarks Vitrified clay	
		TFC Tap Factory Capped at o clock	
		MMC Material Change Remarks Vitrified clay	
		TF Tap Factory at o clock	
		MMC Material Change Remarks Concrete	
	199	FL Fracture Longitudinal at o clock within of joint	
		MGP General Photo	
		TBI Tap Break in Intruding at o clock NOT within of joint	
		SAP Surface Aggregate Projecting from to o clock NOT within of joint End	
		MSA Abandoned Survey Remarks Blocked by intruding tap	

Camera Direction

2015

- Downstream Length → Upstream Length 230
- lining of concrete needs improvement
- Open Trench Pipe Replacement 454

Condition Observations

Grade	Dist ft	Observation		Description	Cont	Values st	nd		of Joint	Clock From	To
		AMH	Manhole	Remarks Begin survey							
		MWL	Water Level	of cross sectional area							
		SAP	Surface Aggregate Projecting	from to o clock NOT within of joint Start	S						
		VC	Vermin Cockroach	NOT within of joint							
		MGP	General Photo								
		MMC	Material Change	Remarks Vitrified clay							
		TF	Tap Factory	at o clock							
		TF	Tap Factory	at o clock							
		MMC	Material Change	Remarks Concrete							
		MMC	Material Change	Remarks Vitrified clay							
		TF	Tap Factory	at o clock							
		FM	Fracture Multiple	from to o clock within of joint					✓		
		MMC	Material Change	Remarks Concrete							
		MMC	Material Change	Remarks Vitrified clay							
		TF	Tap Factory	at o clock							
		MMC	Material Change	Remarks Concrete							
		MMC	Material Change	Remarks Vitrified clay							
		TF	Tap Factory	at o clock							
		MMC	Material Change	Remarks Concrete							
		FL	Fracture Longitudinal	at o clock within of joint					✓		
		MGP	General Photo								
		MMC	Material Change	Remarks Vitrified clay							
		TF	Tap Factory	at o clock							
		FL	Fracture Longitudinal	at o clock within of joint					✓		
		MMC	Material Change	Remarks Concrete							
		FL	Fracture Longitudinal	at o clock within of joint					✓		
		TB	Tap Break in	at o clock							
		VR	Vermin Rat	NOT within of joint							
		MMC	Material Change	Remarks Vitrified clay							
		TFC	Tap Factory Capped	at o clock							
		MMC	Material Change	Remarks Vitrified clay							
		TF	Tap Factory	at o clock							
		MMC	Material Change	Remarks Concrete							
		FL	Fracture Longitudinal	at o clock within of joint					✓		
		MGP	General Photo								
		TBI	Tap Break in Intruding	at o clock NOT within of joint							
		SAP	Surface Aggregate Projecting	from to o clock NOT within of joint End	F						
		MSA	Abandoned Survey	Remarks Blocked by intruding tap							

PACP Code	**AMH**		
Description	**Manhole**		
Image Name	**c a e c de dac ef AMH jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Begin survey**		

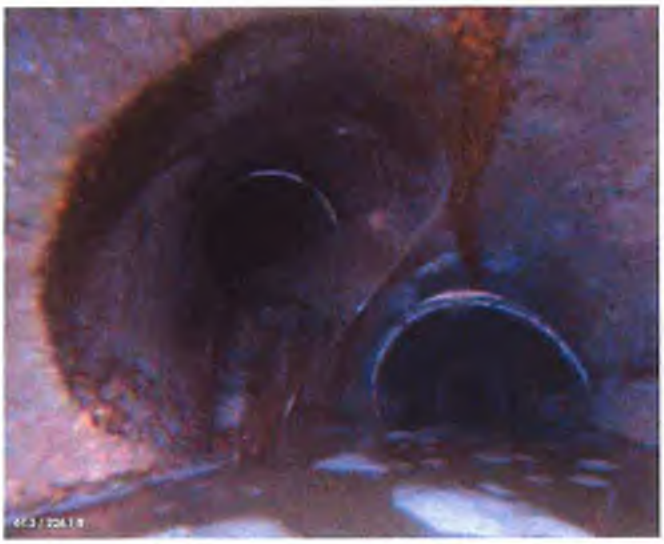
PACP Code	**MWL**		
Description	**Water Level**		
Image Name	**b ff cb aadc b ed MWL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

PACP Code	**SAP**		
Description	**Surface Aggregate Projecting**		
Image Name	**aee aa c ff fe ec f f SAP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index	**S**	Within of Joint	
Remarks			

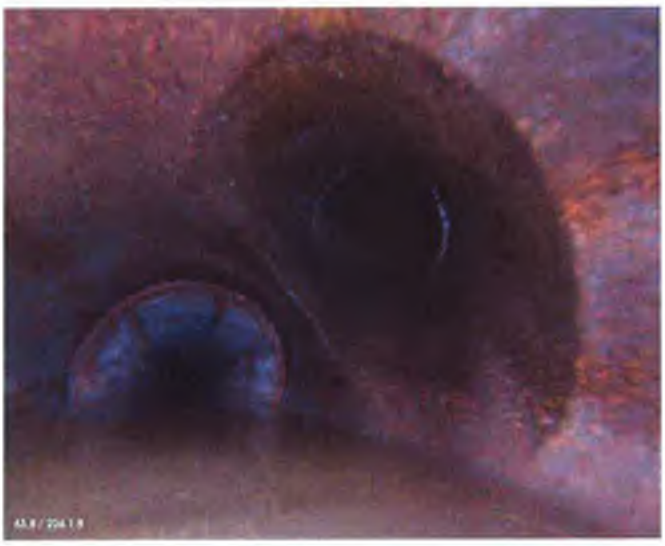
PACP Code	VC		
Description	**Vermin Cockroach**		
Image Name	**dc fc d a d bbad afa c bc VC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

PACP Code	MGP		
Description	**General Photo**		
Image Name	**eb a e feac c a ff c c MGP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

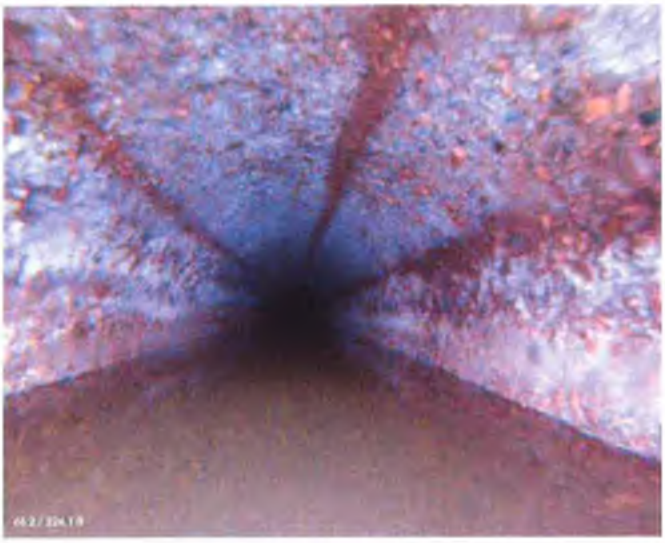
PACP Code	MMC		
Description	**Material Change**		
Image Name	**fdd eda f e b aa cf be da b MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Vitrified clay**		



PACP Code	TF		
Description	**Tap Factory**		
Image Name	a f e fc fe bda b TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

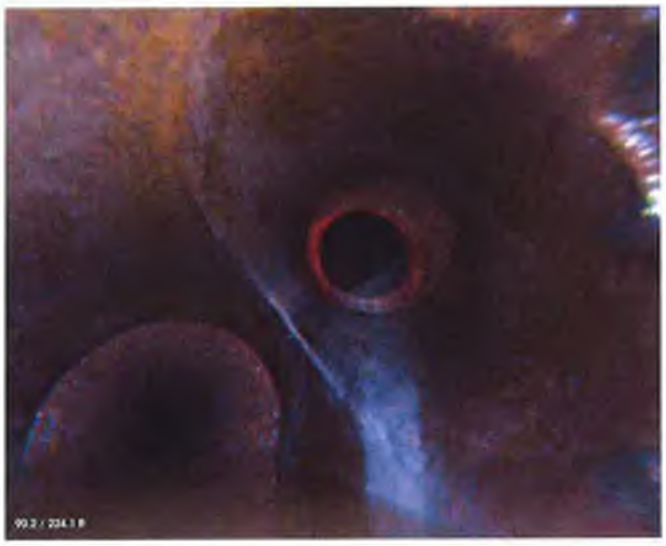


PACP Code	TF		
Description	**Tap Factory**		
Image Name	c c bff fb d ed TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

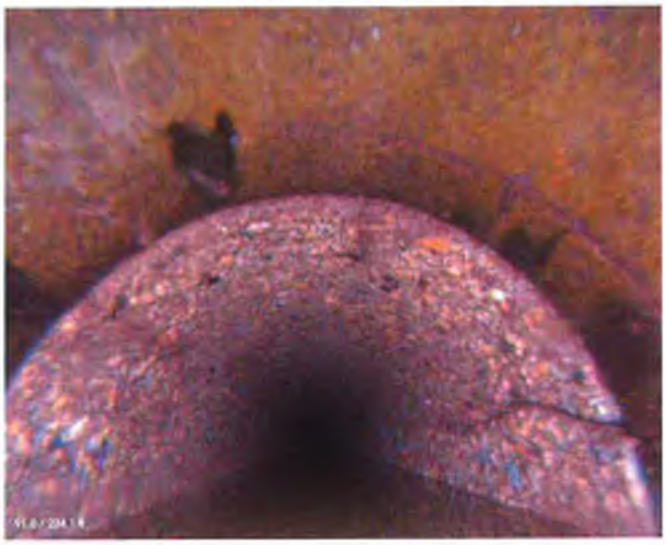


PACP Code	MMC		
Description	**Material Change**		
Image Name	b fbb e dd b c b bd db MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Concrete**		

PACP Code	MMC		
Description	Material Change		
Image Name	fadc e b b a d eee MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	Vitrified clay		



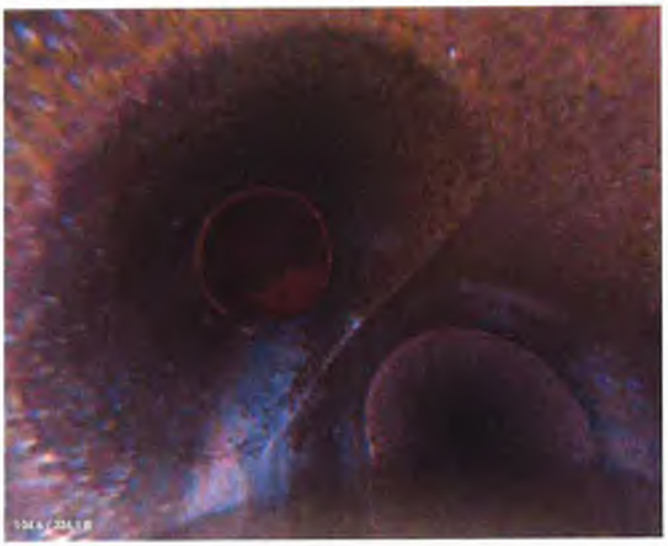
PACP Code	TF		
Description	Tap Factory		
Image Name	f cb a c b efd d cc c d TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



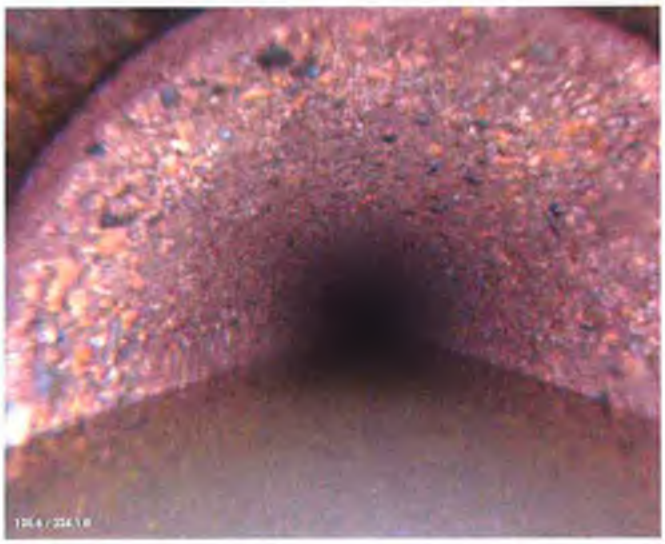
PACP Code	FM		
Description	Fracture Multiple		
Image Name	e d bb e e c FM jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			

PACP Code	**MMC**		
Description	**Material Change**		
Image Name	**d aa f a a b a c MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Concrete**		

PACP Code	**MMC**		
Description	**Material Change**		
Image Name	**d a dec b f adae b e c MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Vitrified clay**		



PACP Code	**TF**		
Description	**Tap Factory**		
Image Name	**a c a ef b b a fc c c TF jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

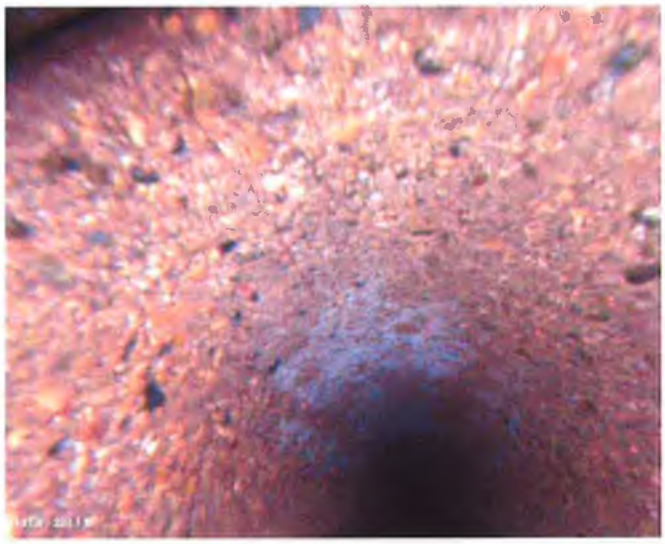


PACP Code	MMC		
Description	Material Change		
Image Name	fe e def cad f bb e c a MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	Concrete		

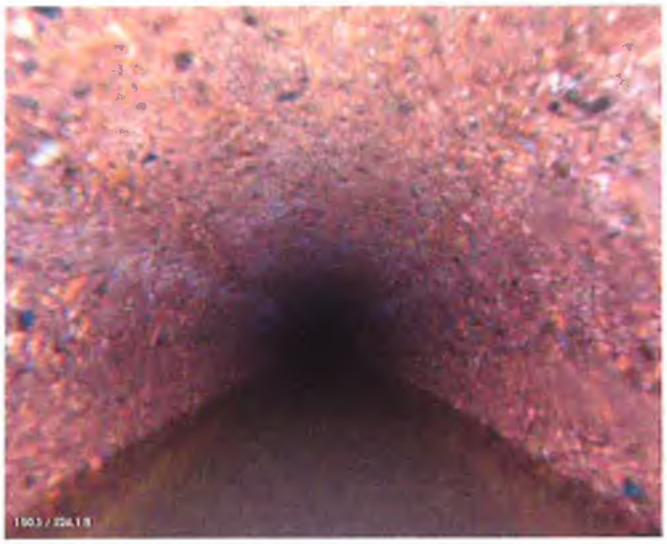
PACP Code	MMC		
Description	Material Change		
Image Name	abe a d b c c beefdb MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	Vitrified clay		

PACP Code	TF		
Description	Tap Factory		
Image Name	e d ec a ceccbd f TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

PACP Code	MMC		
Description	Material Change		
Image Name	f ad d fc bf a dbe e b dbe MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	Concrete		

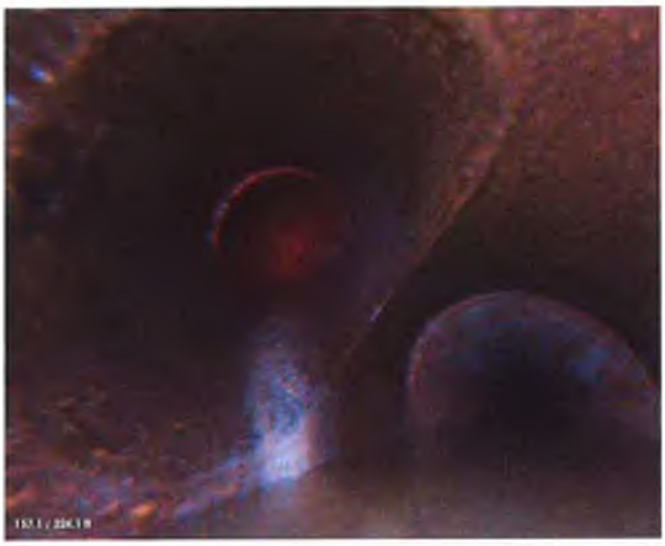


PACP Code	FL		
Description	Fracture Longitudinal		
Image Name	c c aaa a aa FL jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			

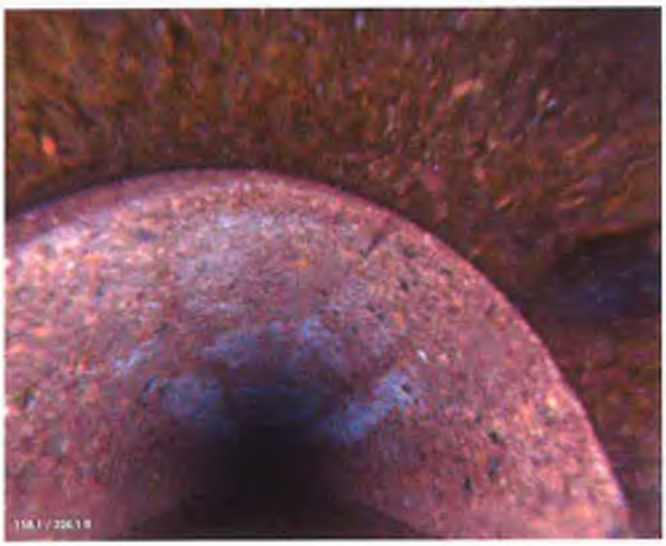


PACP Code	MGP		
Description	General Photo		
Image Name	b f d bb b d d MGP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

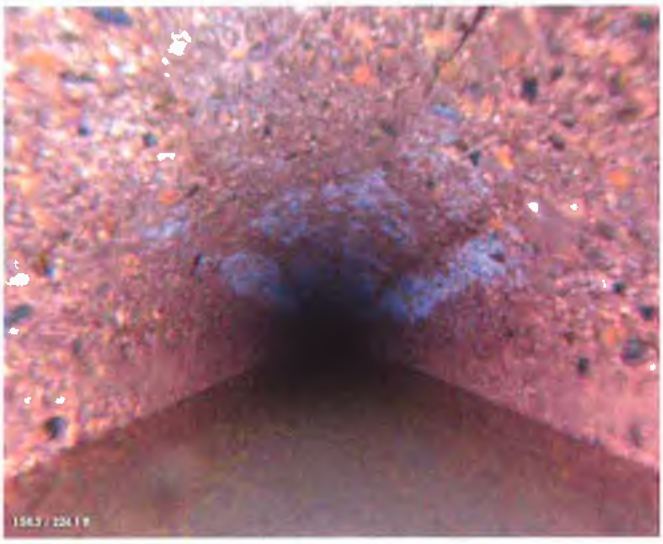
PACP Code	MMC		
Description	**Material Change**		
Image Name	dcae a f dd b b d bac a MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**Vitrified clay**		



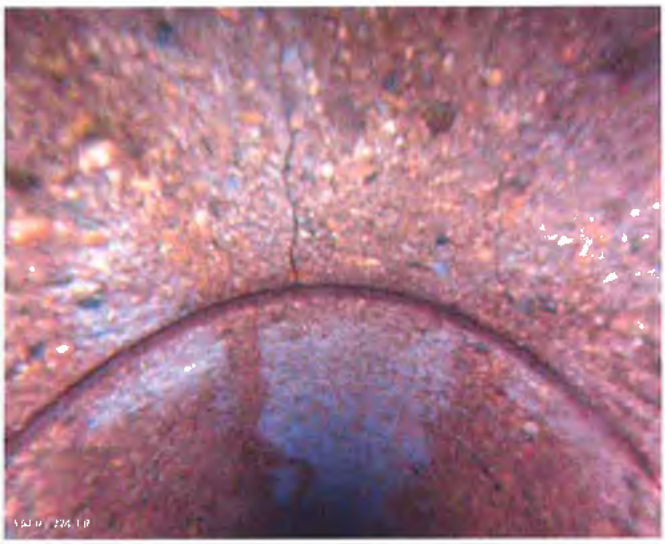
PACP Code	TF		
Description	**Tap Factory**		
Image Name	b ff bb d b fe a d a a TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



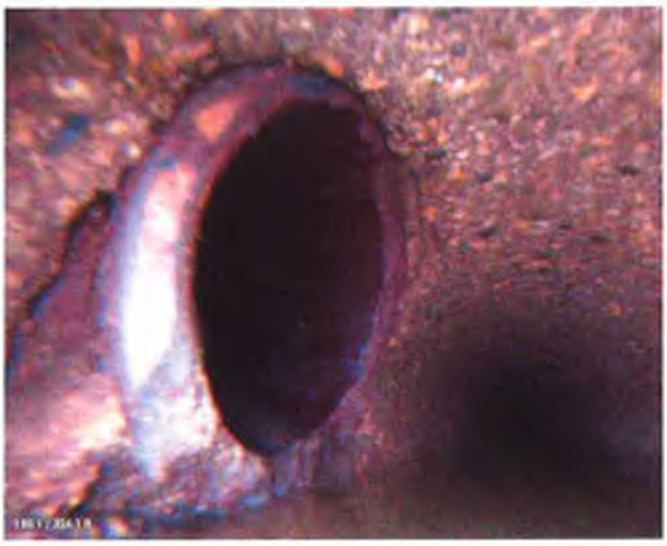
PACP Code	FL		
Description	**Fracture Longitudinal**		
Image Name	f d e b af c ef a c FL jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			



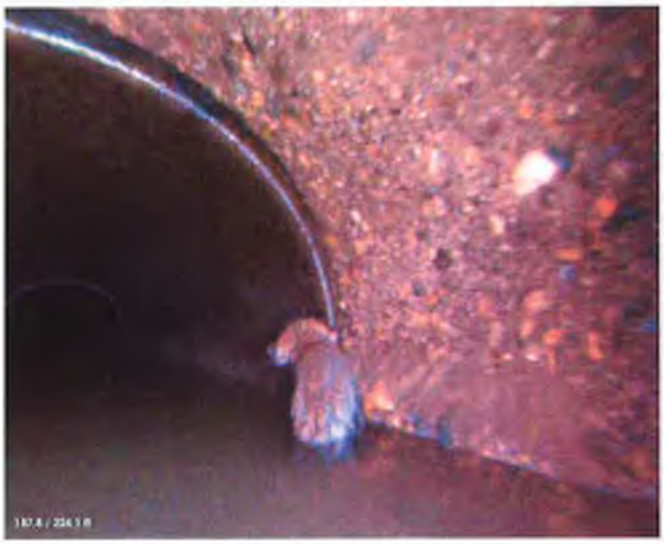
PACP Code	**MMC**		
Description	**Material Change**		
Image Name	**bda d f bee aa f b ec MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Concrete**		



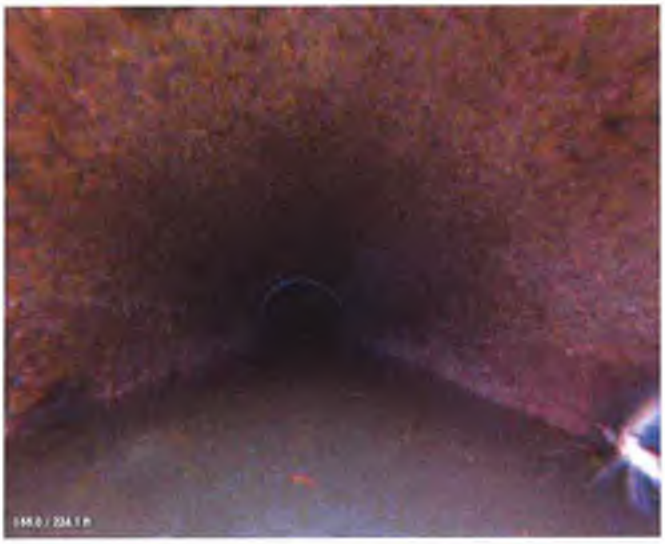
PACP Code	**FL**		
Description	**Fracture Longitudinal**		
Image Name	**ba ee c bdaf ecda ed FL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			



PACP Code	**TB**		
Description	**Tap Break in**		
Image Name	**c dbb dd aa a e faf e f TB jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			



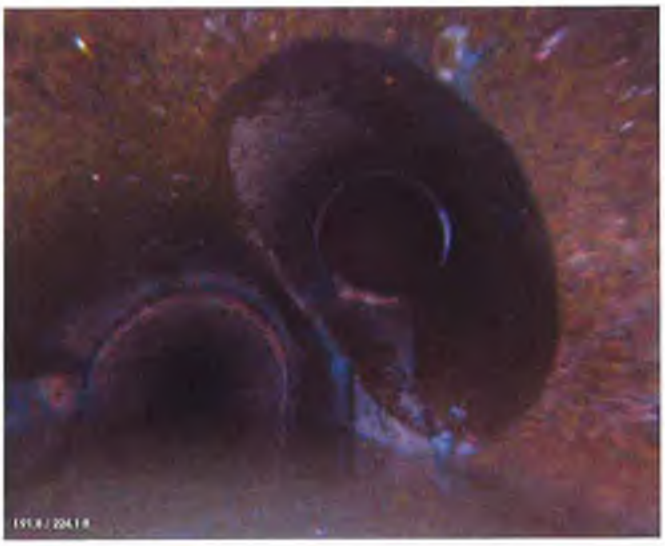
PACP Code	VR		
Description	**Vermin Rat**		
Image Name	d b bf fe bc a f b VR jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			



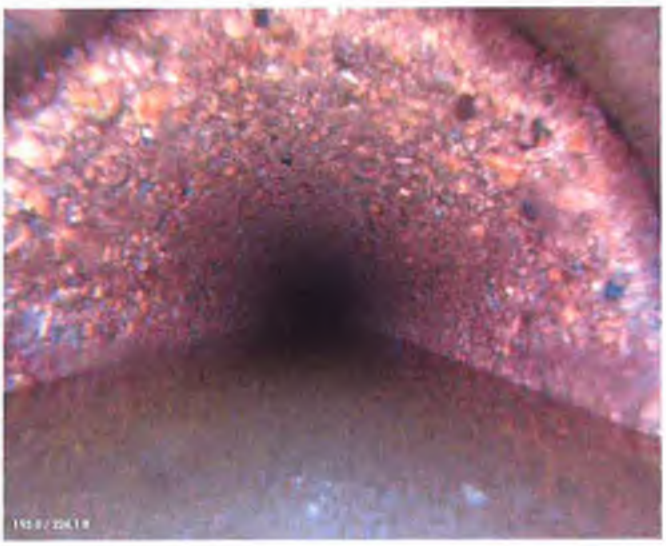
PACP Code	MMC		
Description	**Material Change**		
Image Name	bd fe d b e c dbe a MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Vitrified clay**		

PACP Code	TFC		
Description	**Tap Factory Capped**		
Image Name	ee dd a d d a a d bec TFC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

PACP Code	MMC		
Description	Material Change		
Image Name	e fabf dd b bdb a ed da e e MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	Vitrified clay		



PACP Code	TF		
Description	Tap Factory		
Image Name	c b cdcd ec a c cef b d b TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			



PACP Code	MMC		
Description	Material Change		
Image Name	b c fff dc da d eecf c MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	Concrete		

PACP Code	FL		
Description	**Fracture Longitudinal**		
Image Name	d ed b c e ebac FL jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			

PACP Code	MGP		
Description	**General Photo**		
Image Name	b c f a e d e dfab MGP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	TBI		
Description	**Tap Break in Intruding**		
Image Name	a a c e d a a TBI jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	**SAP**		
Description	**Surface Aggregate Projecting**		
Image Name	**d e f fc b b SAP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index	**F**	Within of Joint	
Remarks			

PACP Code	**MSA**		
Description	**Abandoned Survey**		
Image Name	**cb e c a c fc c f b MSA jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Blocked by intruding tap**		

4-8014 to 04-8013

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

rd Street
Pittsburgh PA

Asset

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
4-8014 to 4-8013	04-8014	04-8013	Concrete Pipe non reinforced	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA		0	0
Pre Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location

Street	City	Location	Details
North A St	City of Arvin	Main Highway urban	

Inspection

Surveyed By	Certificate No	Date	Time	Direction
JJC	U		PM	Downstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		
Media Label	Reverse Setup	Work Order No	Additional Info	
NS	NO		Length unknown Upstream manhole location unknown	

Results

Overall Rating	Structural Rating	Maintenance Rating
81	77	4
Overall Index	Structural Index	Maintenance Index
2.89	2.46	2
Overall Quick	Structural Quick	Maintenance Quick
3D21	3D21	3111

Grade	Dist ft	Observation

AMH Manhole Remarks Begin survey

MWL Water Level of cross sectional area 5:,

VC Vermin Cockroach NOT within of joint

6.5 SAP Surface Aggregate Projecting from to o clock NOT within of joint Start M3

MGP General Photo

73.2 MMC Material Change Remarks Vitrified clay

73.6 TFC Tap Factory Capped at o clock

MGP General Photo Remarks Image of capped tap from rear camera

75.8 MMC Material Change Remarks Concrete

MGP General Photo

SSS Surface Spalling from to o clock within of joint M3

TBI Tap Break in Intruding at o clock NOT within of joint M3

SAP Surface Aggregate Projecting from to o clock NOT within of joint End M3

MSA Abandoned Survey Remarks Blocked by intruding tap

* review 2015 videos

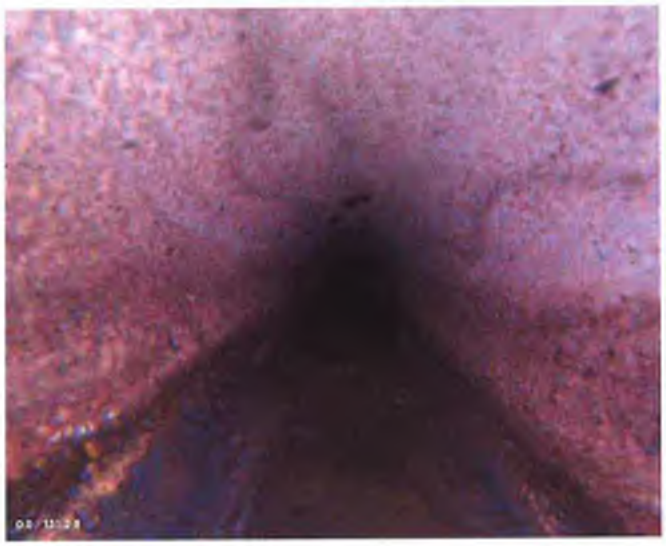
Condition Observations

Grade	Dist ft	Observation		Description	Cont	Values st	nd		of Joint	Clock From	To
		AMH	Manhole	Remarks Begin survey					☐		
		MWL	Water Level	of cross sectional area					☐		
		VC	Vermin Cockroach	NOT within of joint					☐		
		SAP	Surface Aggregate Projecting	from to o clock NOT within of joint Start	S				☐		
		MGP	General Photo						☐		
		MMC	Material Change	Remarks Vitrified clay					☐		
		TFC	Tap Factory Capped	at o clock					☐		
		MGP	General Photo	Remarks Image of capped tap from rear camera					☐		
		MMC	Material Change	Remarks Concrete					☐		
		MGP	General Photo						☐		
		SSS	Surface Spalling	from to o clock within of joint					☑		
		TBI	Tap Break in Intruding	at o clock NOT within of joint					☐		
		SAP	Surface Aggregate Projecting	from to o clock NOT within of joint End	F				☐		
		MSA	Abandoned Survey	Remarks Blocked by intruding tap					☐		

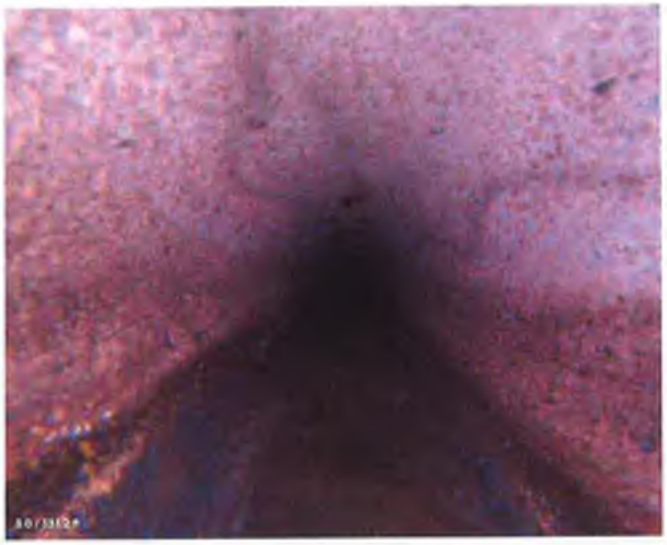
2015

- many drops in the joints (almost all of them)
- Same tap breaks in intruding
- Surface of the pipe seems in bad condition
  - multiple bad tap break ins.

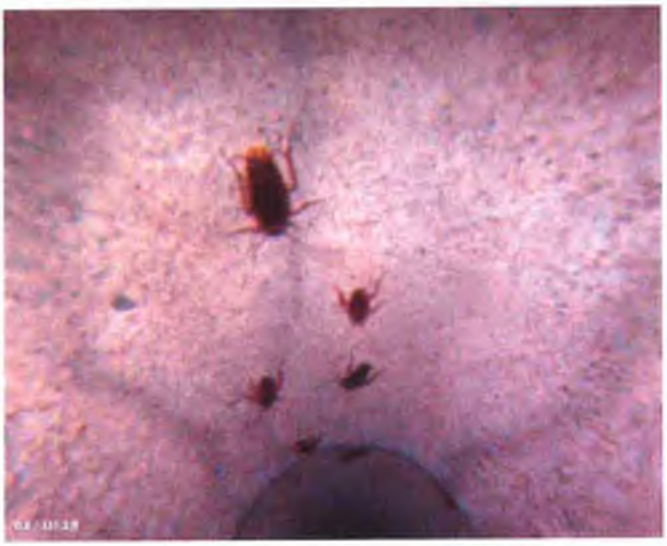
Recommendation: Open Trench Replacement 280ft



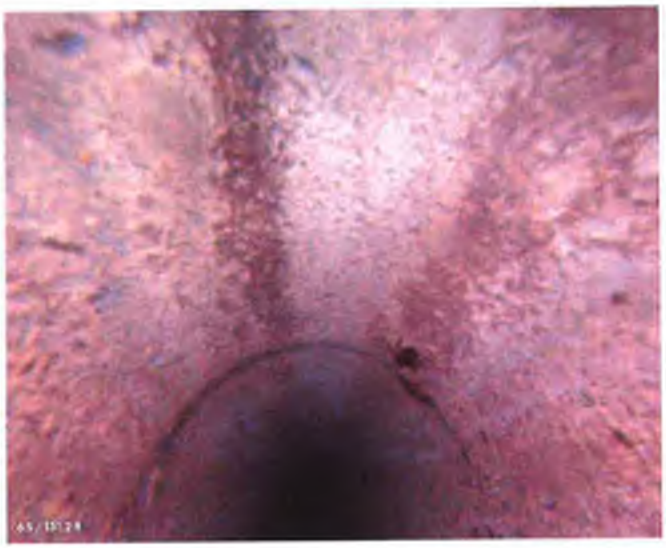
PACP Code	**AMH**		
Description	**Manhole**		
Image Name	**ef bdc d a b b cfa AMH jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Begin survey**		



PACP Code	**MWL**		
Description	**Water Level**		
Image Name	**fc e f ec a c ef MWL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			



PACP Code	**VC**		
Description	**Vermin Cockroach**		
Image Name	**fd e b a cff a e VC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

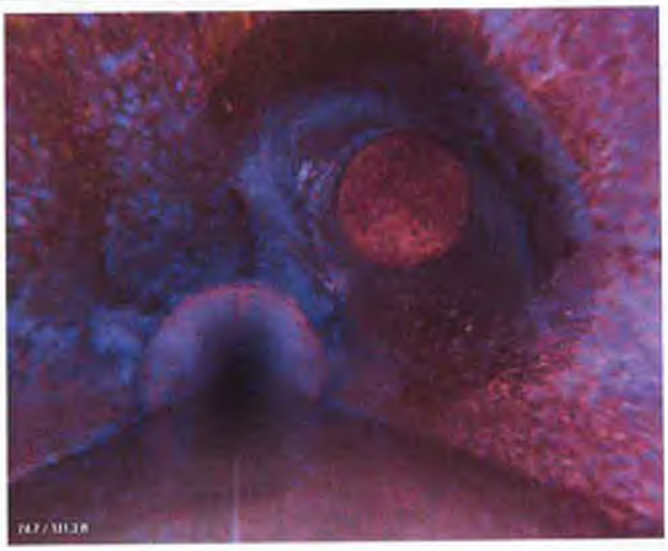


PACP Code	SAP		
Description	Surface Aggregate Projecting		
Image Name	c b f b e dac c fafbd bf cb SAP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index	S	Within of Joint	
Remarks			

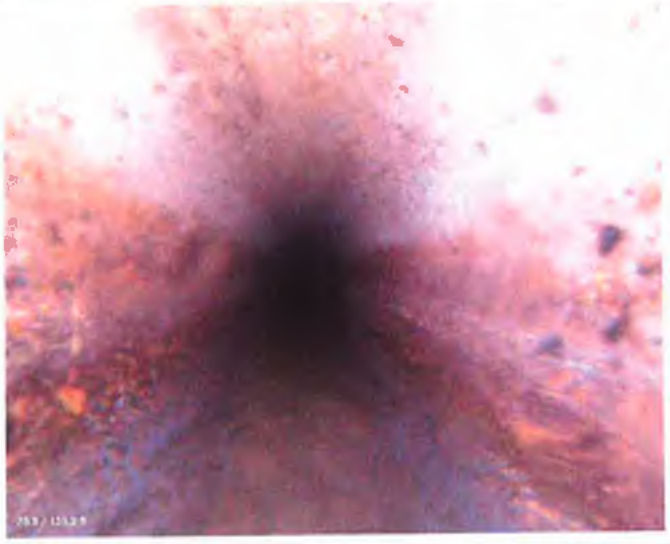
PACP Code	MGP		
Description	General Photo		
Image Name	ddefa e c b f c bffb c MGP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

PACP Code	MMC		
Description	Material Change		
Image Name	b f ee c a d e MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	Vitrified clay		

PACP Code	TFC		
Description	Tap Factory Capped		
Image Name	bdc d db TFC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



PACP Code	MGP		
Description	General Photo		
Image Name	ba a b b a e MGP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	Image of capped tap from rear camera		



PACP Code	MMC		
Description	Material Change		
Image Name	d b d be d ed de MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	Concrete		

PACP Code	MGP		
Description	General Photo		
Image Name	d f e a d eb a a de fadc MGP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	SSS		
Description	Surface Spalling		
Image Name	dc e f b cb ec a ca SSS jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			

PACP Code	TBI		
Description	Tap Break in Intruding		
Image Name	bc a c b c a e TBI jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	**SAP**		
Description	**Surface Aggregate Projecting**		
Image Name	**ac c b c a d eaf a SAP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index	**F**	Within of Joint	
Remarks			

PACP Code	**MSA**		
Description	**Abandoned Survey**		
Image Name	**fe cf d d baa d a ebee a MSA jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Blocked by intruding tap**		

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset: Joint

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8013 to 04-8008	04-8013	04-8008	Concrete Pipe (non-reinforced)	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA		0	0
Pre-Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
North A St	City of Arvin	Main Highway - urban	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/01/2010	05:03 PM	Upstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		149
Media Label	Reverse Setup	Work Order No	Additional Info	
NS14-1650	NO	-	Length unknown - Upstream manhole location unknown	

Results:

Overall Rating	Structural Rating	Maintenance Rating
102	101	1
Overall Index	Structural Index	Maintenance Index
3	3.06	1
Overall Quick	Structural Quick	Maintenance Quick
423E	423E	1100

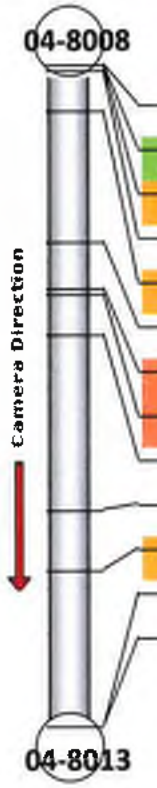
- Water @ a consistently high water level at least 40%.

Recommendations

Open Trench Pipe Replacement
160ft

Abandoned (Yes)

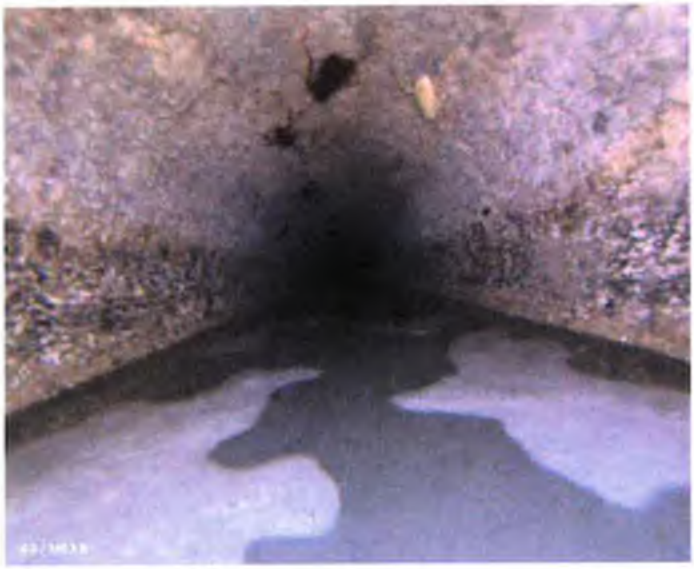
Grade	Dist (ft)	Observation
-	0	[AMH] Manhole Remarks: Begin survey
-	0	[MWL] Water Level 40% of cross sectional area (40%)
1	0	[VC] Vermin Cockroach NOT within 8" of joint
3	1.5	[SAP] Surface Aggregate Projecting from 8 to 4 o'clock NOT within 8" of joint Start continuous
-	10.6	[MWL] Water Level 50% of cross sectional area (60% water level)
3	39.9	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint Joint 40
-	50.4	[MGP] General Photo 50% Water Level
4	51.8	[FM] Fracture Multiple from 11 to 1 o'clock within 8" of joint WL = 40%
4	60.8	[FM] Fracture Multiple from 12 to 1 o'clock within 8" of joint WL = 40%
-	100.5	[MGP] General Photo WL = 50%
-	114.2	[TBA] Tap Break-in Active at 9 o'clock
3	149.3	[SAP] Surface Aggregate Projecting from 8 to 4 o'clock NOT within 8" of joint End
-	149.3	[MSA] Abandoned Survey Remarks: Unknown



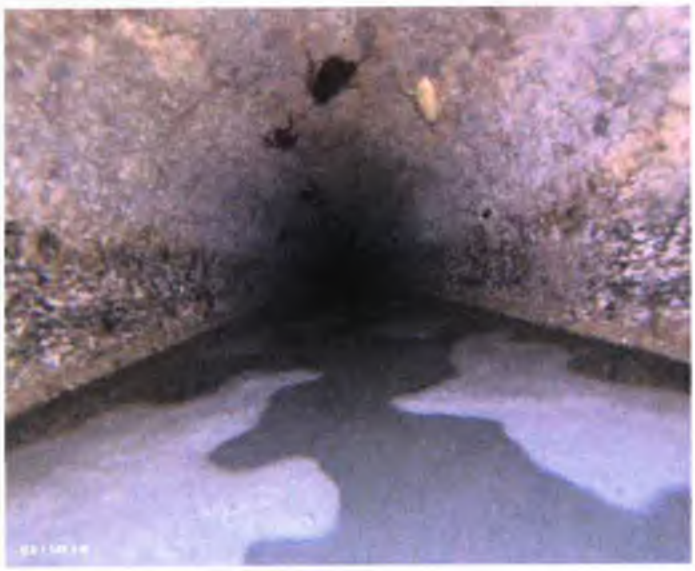
Joint every 3 ft

Condition Observations:

Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	40% of cross sectional area				40	☐		
1	0	VC	Vermin Cockroach	NOT within 8" of joint					☐		
3	1.5	SAP	Surface Aggregate Projecting	from 8 to 4 o'clock NOT within 8" of joint Start	S01				☐	8	4
-	10.6	MWL	Water Level	50% of cross sectional area				50	☐		
3	39.9	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	
-	50.4	MGP	General Photo						☐		
4	51.8	FM	Fracture Multiple	from 11 to 1 o'clock within 8" of joint					☑	11	1
4	60.8	FM	Fracture Multiple	from 12 to 1 o'clock within 8" of joint					☑	12	1
-	100.5	MGP	General Photo						☐		
-	114.2	TBA	Tap Break-in Active	at 9 o'clock		4			☐	9	
3	149.3	SAP	Surface Aggregate Projecting	from 8 to 4 o'clock NOT within 8" of joint End	F01				☐	8	4
-	149.3	MSA	Abandoned Survey	Remarks: Unknown					☐		



PACP Code:	**AMH**		
Description:	**Manhole**		
Image Name:	**0711e891-7614-4558-af86-2efd1735e90a_0-AMH.jpg**		
Distance (ft):	**0**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Begin survey**		



PACP Code:	**MWL**		
Description:	**Water Level**		
Image Name:	**21825b54-72d0-4c4c-b2b5-e1b5a2ca8ea1_0-MWL.jpg**		
Distance (ft):	**0**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:	**40**		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

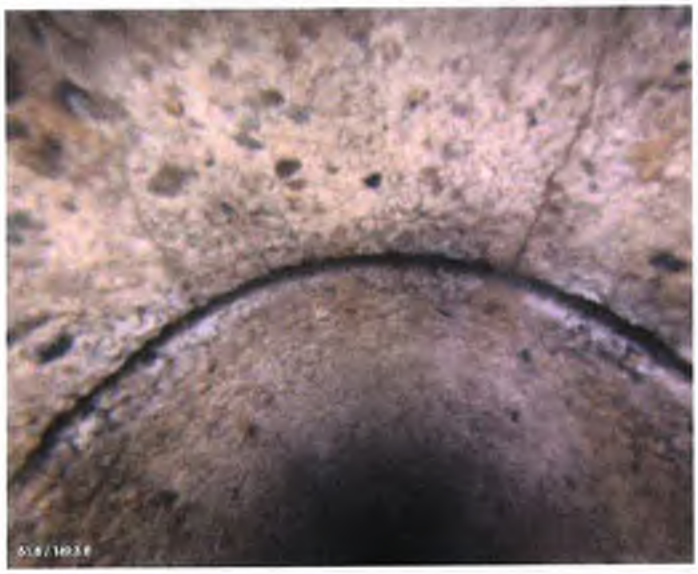
PACP Code:	**VC**		
Description:	**Vermin Cockroach**		
Image Name:	**8ab57056-b4cd-4411-bb01-74ae2b5c3fd9_0-VC.jpg**		
Distance (ft):	**0**		
Structural Grade:	**0**	Maintenance Grade	**1**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	SAP		
Description:	Surface Aggregate Projecting		
Image Name:	ff024a77-c4aa-4d38-8a0b-fb95c63d6632_1.5-SAP.jpg		
Distance (ft):	1.5		
Structural Grade:	3	Maintenance Grade	0
Percent Value:			
Clock At/From:	8	Clock To:	4
1st Value:		2nd Value:	
Continuous Index:	S01	Within 8" of Joint:	☐
Remarks:			

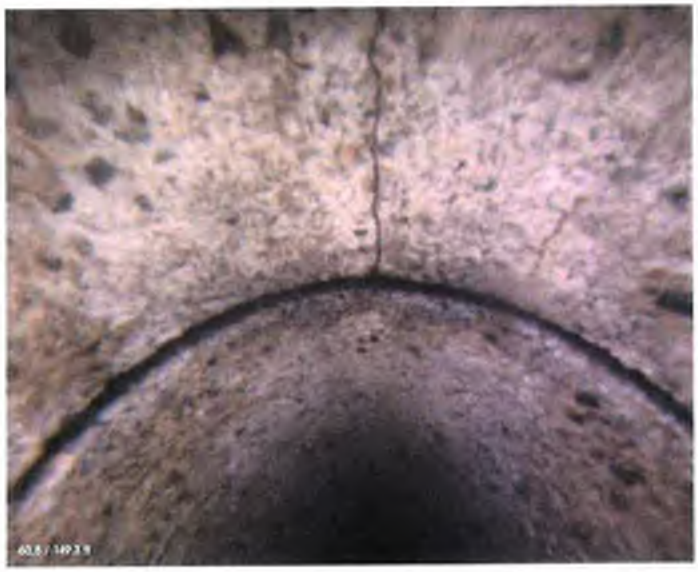
PACP Code:	MWL		
Description:	Water Level		
Image Name:	36d0eeb3-3dea-46fa-8cce-4aa7285bc19b_10.6-MWL.jpg		
Distance (ft):	10.6		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	50		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	FL		
Description:	Fracture Longitudinal		
Image Name:	31ab95f6-adcf-4985-aca7-7f45a7a6661e_39.9-FL.jpg		
Distance (ft):	39.9		
Structural Grade:	3	Maintenance Grade	0
Percent Value:			
Clock At/From:	12	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	MGP		
Description:	General Photo		
Image Name:	f24dc46d-39eb-4c2c-9c81-6747a586db19_50.4-MGP.jpg		
Distance (ft):	50.4		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	FM		
Description:	Fracture Multiple		
Image Name:	9d2e4b8b-8e07-40ae-a2ed-6cae8a435de5_51.8-FM.jpg		
Distance (ft):	51.8		
Structural Grade:	4	Maintenance Grade	0
Percent Value:			
Clock At/From:	11	Clock To:	1
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	FM		
Description:	Fracture Multiple		
Image Name:	e19431c2-9d2d-4cda-b3f5-aaa821eb79ea_60.8-FM.jpg		
Distance (ft):	60.8		
Structural Grade:	4	Maintenance Grade	0
Percent Value:			
Clock At/From:	12	Clock To:	1
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	MGP		
Description:	General Photo		
Image Name:	278e331e-11fc-4b74-ae1b-dd6ed5974066_100.5-MGP.jpg		
Distance (ft):	100.5		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	TBA		
Description:	Tap Break-in Active		
Image Name:	085e5eb4-c180-4e17-9ddb-769b783b9f24_114.2-TBA.jpg		
Distance (ft):	114.2		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	9	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	SAP		
Description:	Surface Aggregate Projecting		
Image Name:	bc59ce81-e0f7-46d7-91d5-b4bf6a3d6a3b_149.3-SAP.jpg		
Distance (ft):	149.3		
Structural Grade:	3	Maintenance Grade	0
Percent Value:			
Clock At/From:	8	Clock To:	4
1st Value:		2nd Value:	
Continuous Index:	F01	Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MSA**		
Description:	**Abandoned Survey**		
Image Name:	**7e6e2266-9372-429e-810c-104ebe8d2215_149.3-MSA.jpg**		
Distance (ft):	**149.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Unknown**		

04-8009 to 04-8008

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

rd Street
Pittsburgh PA

Asset

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
to	04-8009	04-8008	Concrete Pipe non reinforced		
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA			
Pre Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location

Street	City	Location	Details
North A St	City of Arvin	Main Highway urban	

Inspection

Surveyed By	Certificate No	Date	Time	Direction
JJC	U		PM	Upstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		
Media Label	Reverse Setup	Work Order No	Additional Info	
NS	NO		Length unknown Upstream manhole location unknown	

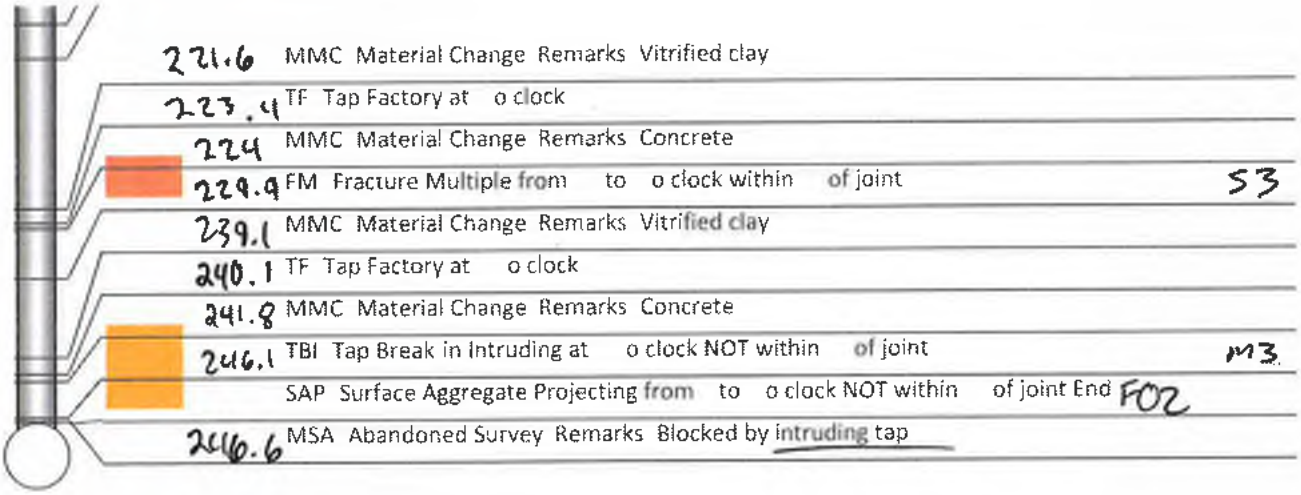
Results

Overall Rating	Structural Rating	Maintenance Rating
Overall Index	**Structural Index**	**Maintenance Index**
Overall Quick	**Structural Quick**	**Maintenance Quick**
J	J	

Camera Direction

Grade	Dist ft	Observation	
		AMH Manhole Remarks Begin survey	
		MWL Water Level of cross sectional area	
	0.2	SAP Surface Aggregate Projecting from to o clock NOT within of joint Start	S01
	0.9	FL Fracture Longitudinal at o clock within of joint	S3
		VC Vermin Cockroach NOT within of joint	M1
	15.7	FL Fracture Longitudinal at o clock within of joint	S3
	36.6	FL Fracture Longitudinal at o clock within of joint	S3
		MGP General Photo	
	53.2	TF Tap Factory at o clock	N/A
	60.8	FM Fracture Multiple from to o clock within of joint	S3
	69.9	FL Fracture Longitudinal at o clock within of joint	S3
	80.9	DAE Deposits Attached Encrustation of cross sectional area from to o clock NOT within	M3
		MGO General Observation Remarks Begin using rear camera due to poor quality images from fr	
		MMC Material Change Remarks Vitrified clay	
	93	TF Tap Factory at o clock	N/A
	93.3	SSS Surface Spalling at o clock NOT within of joint	S2
	93.41	FM Fracture Multiple from to o clock within of joint	S3
		MMC Material Change Remarks Concrete	
		MGP General Photo	
		MMC Material Change Remarks Vitrified clay	
	113.6	TF Tap Factory at o clock	
		MMC Material Change Remarks Concrete	
		MMC Material Change Remarks Vitrified clay	
	118	TB Tap Break in at o clock	
	119	TF Tap Factory at o clock	
		MMC Material Change Remarks Concrete	
-	122.6	FL Fracture Longitudinal at o clock within of joint	S3
		TB Tap Break in at o clock	
	149.8	FL Fracture Longitudinal at o clock within of joint	S3
		MGP General Photo	
		MMC Material Change Remarks Vitrified clay	
		TF Tap Factory at o clock	
		MMC Material Change Remarks Concrete	
	174.7	TBI Tap Break in Intruding at o clock NOT within of joint	M3
	194.8	FM Fracture Multiple from to o clock within of joint	
		MMC Material Change Remarks Vitrified clay	
	196.6	TF Tap Factory at o clock	
		MMC Material Change Remarks Concrete	
		MGP General Photo	
	204	TB Tap Break in at o clock	

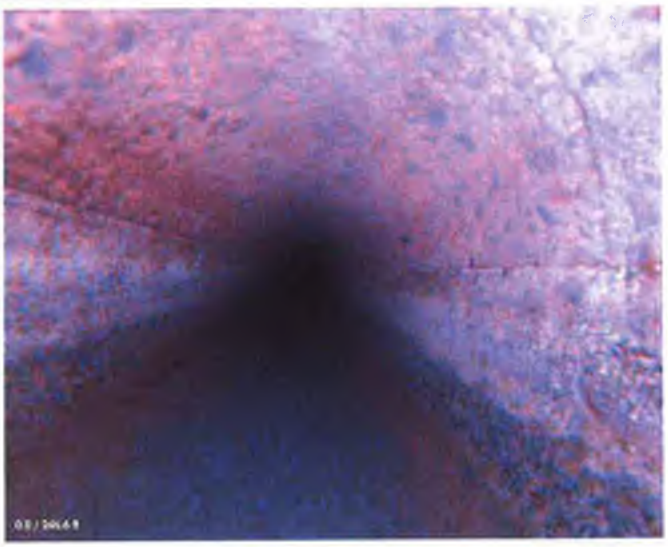
Reccomendation
Open Trench Spot Repair (J246 - J249)
CIPP Entire length (425)



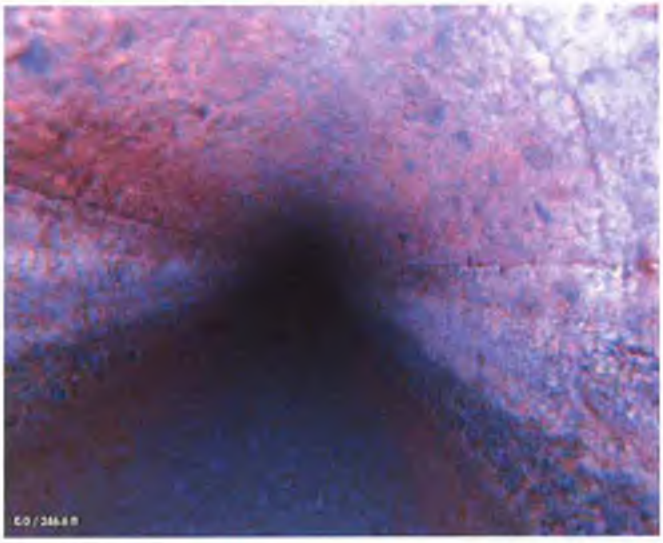
Condition Observations

Grade	Dist ft	Observation		Description	Cont	Values st	nd		of Joint	Clock From	To
		AMH	Manhole	Remarks Begin survey					☐		
		MWL	Water Level	of cross sectional area					☐		
		SAP	Surface Aggregate Projecting	from to o clock NOT within of joint Start	S				☐		
		FL	Fracture Longitudinal	at o clock within of joint					☑		
		VC	Vermin Cockroach	NOT within of joint					☐		
		FL	Fracture Longitudinal	at o clock within of joint					☑		
		FL	Fracture Longitudinal	at o clock within of joint					☑		
		MGP	General Photo						☐		
		TF	Tap Factory	at o clock					☐		
		FM	Fracture Multiple	from to o clock within of joint					☑		
		FL	Fracture Longitudinal	at o clock within of joint					☑		
		DAE	Deposits Attached Encrustation	of cross sectional area from to o clock NOT within of joint					☐		
		MGO	General Observation	Remarks Begin using rear camera due to poor quality images from front camera Clocking angles are from front camera point of view					☐		
		MMC	Material Change	Remarks Vitrified clay					☐		
		TF	Tap Factory	at o clock					☐		
		SSS	Surface Spalling	at o clock NOT within of joint					☐		
		FM	Fracture Multiple	from to o clock within of joint					☑		
		MMC	Material Change	Remarks Concrete					☐		
		MGP	General Photo						☐		
		MMC	Material Change	Remarks Vitrified clay					☐		
		TF	Tap Factory	at o clock					☐		
		MMC	Material Change	Remarks Concrete					☐		
		MMC	Material Change	Remarks Vitrified clay					☐		
		TB	Tap Break in	at o clock					☐		
		TF	Tap Factory	at o clock					☐		
		MMC	Material Change	Remarks Concrete					☐		

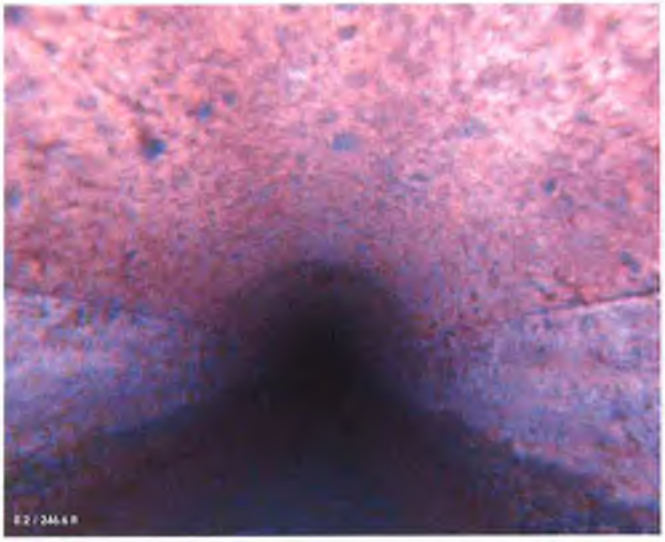
		FL	Fracture Longitudinal	at o clock within of joint					☑		
		TB	Tap Break in	at o clock					☐		
		FL	Fracture Longitudinal	at o clock within of joint					☑		
		MGP	General Photo						☐		
		MMC	Material Change	Remarks Vitrified clay					☐		
		TF	Tap Factory	at o clock					☐		
		MMC	Material Change	Remarks Concrete					☐		
		TBI	Tap Break in Intruding	at o clock NOT within of joint					☐		
		FM	Fracture Multiple	from to o clock within of joint					☑		
		MMC	Material Change	Remarks Vitrified clay					☐		
		TF	Tap Factory	at o clock					☐		
		MMC	Material Change	Remarks Concrete					☐		
		MGP	General Photo						☐		
		TB	Tap Break in	at o clock					☐		
		MMC	Material Change	Remarks Vitrified clay					☐		
		TF	Tap Factory	at o clock					☐		
		MMC	Material Change	Remarks Concrete					☐		
		FM	Fracture Multiple	from to o clock within of joint					☑		
		MMC	Material Change	Remarks Vitrified clay					☐		
		TF	Tap Factory	at o clock					☐		
		MMC	Material Change	Remarks Concrete					☐		
		TBI	Tap Break in Intruding	at o clock NOT within of joint					☐		
		SAP	Surface Aggregate Projecting	from to o clock NOT within of joint End	F				☐		
		MSA	Abandoned Survey	Remarks Blocked by intruding tap					☐		



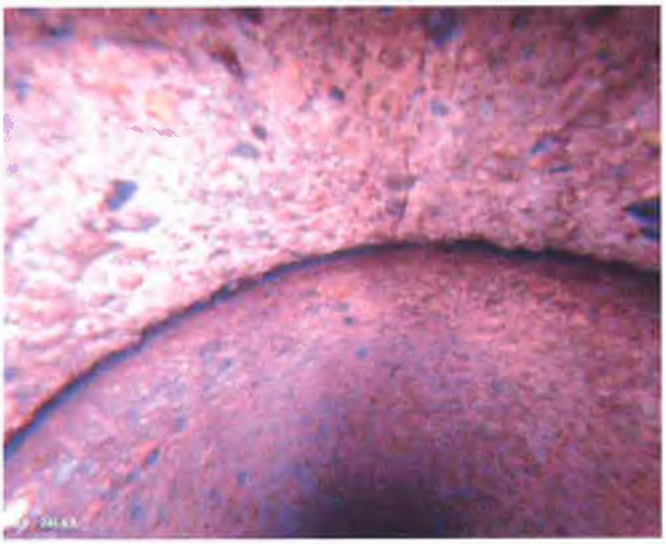
PACP Code	AMH		
Description	Manhole		
Image Name	ac b ccbf d bc c e aafde AMH jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	Begin survey		



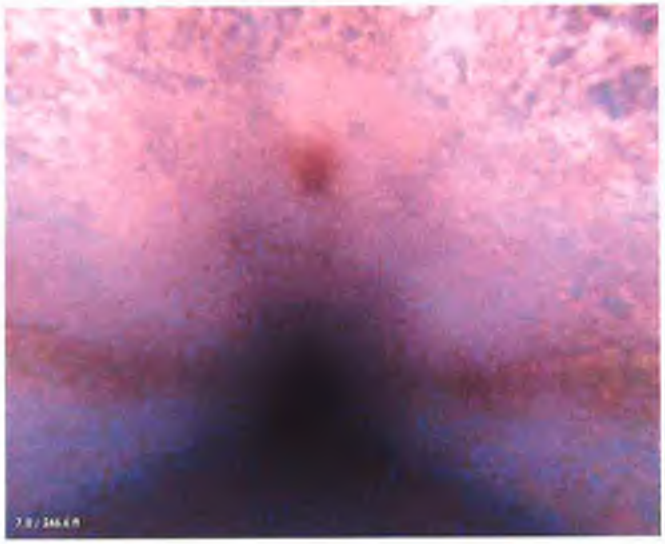
PACP Code	**MWL**		
Description	**Water Level**		
Image Name	**eeb ea d bd a dcd efee MWL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



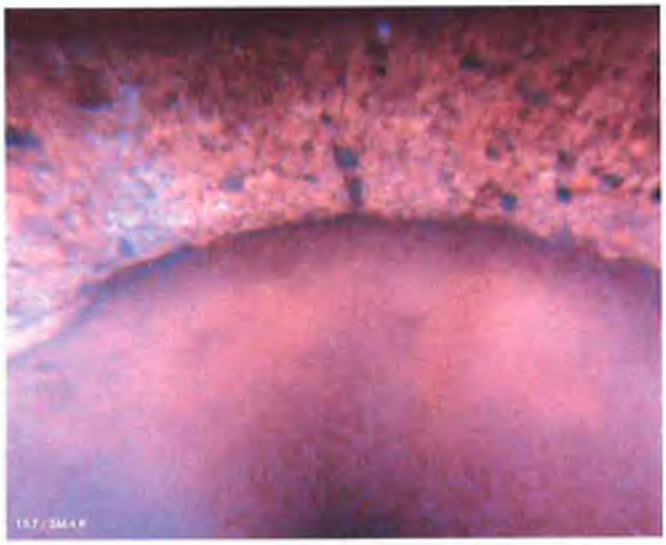
PACP Code	**SAP**		
Description	**Surface Aggregate Projecting**		
Image Name	**e cc a f b ede a SAP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index	**S**	Within of Joint	☐
Remarks			



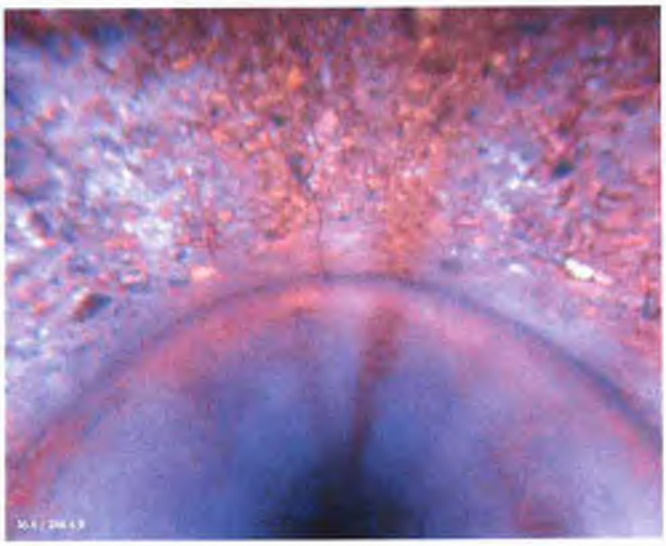
PACP Code	**FL**		
Description	**Fracture Longitudinal**		
Image Name	**e ee aba c c f f b FL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			



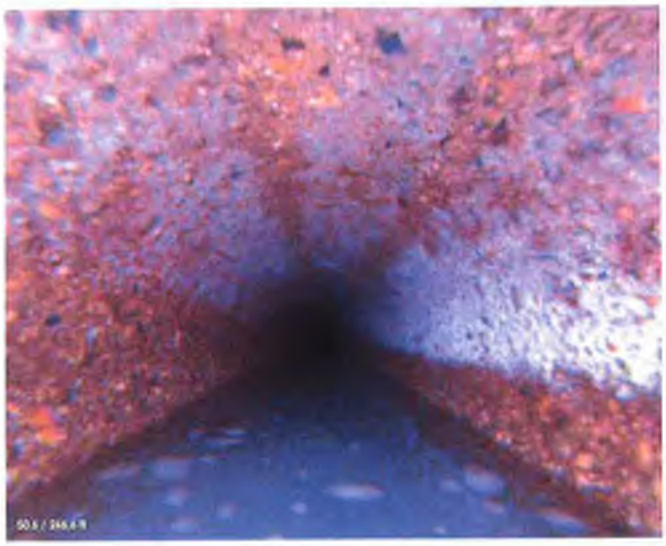
PACP Code	VC		
Description	**Vermin Cockroach**		
Image Name	a cfdda a fe f e cedd dd VC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



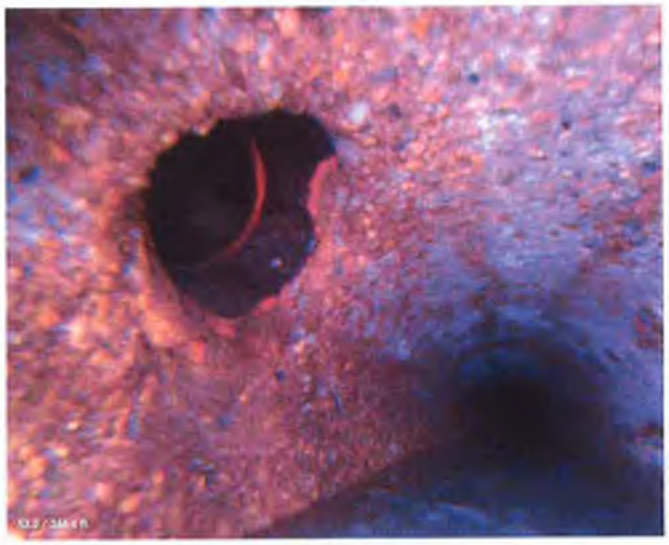
PACP Code	FL		
Description	**Fracture Longitudinal**		
Image Name	ac f e af b cc d c FL jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			



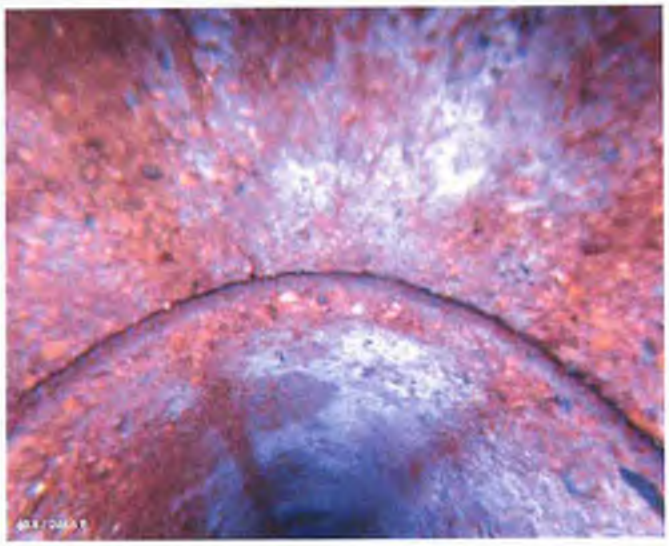
PACP Code	FL		
Description	**Fracture Longitudinal**		
Image Name	ea d b d c f fb FL jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			



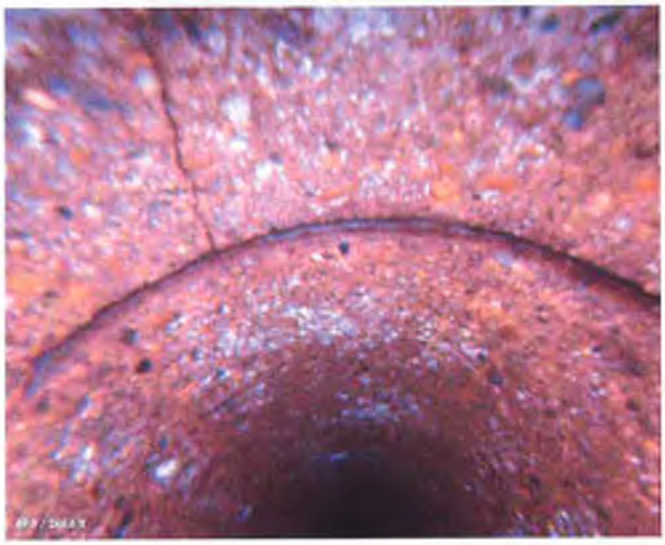
PACP Code	MGP		
Description	General Photo		
Image Name	bfd c a e f c MGP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



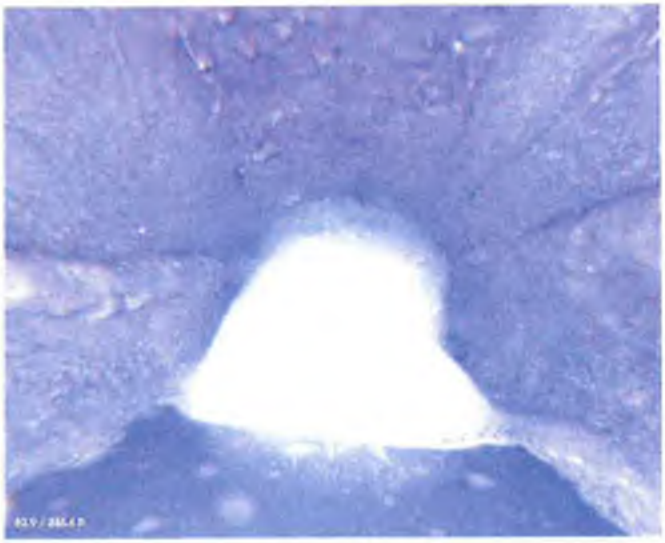
PACP Code	TF		
Description	Tap Factory		
Image Name	b c dcf c b aa TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



PACP Code	FM		
Description	Fracture Multiple		
Image Name	a bbabd f bf c aa eed f FM jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			

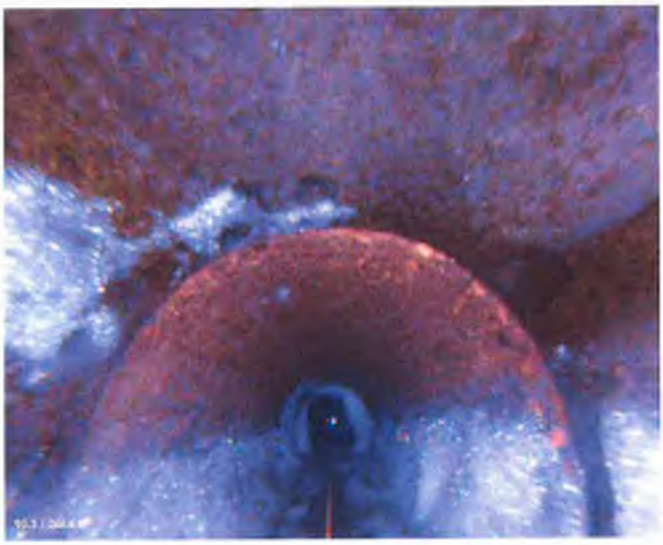


PACP Code	FL		
Description	Fracture Longitudinal		
Image Name	f b ad bb a d d FL jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			

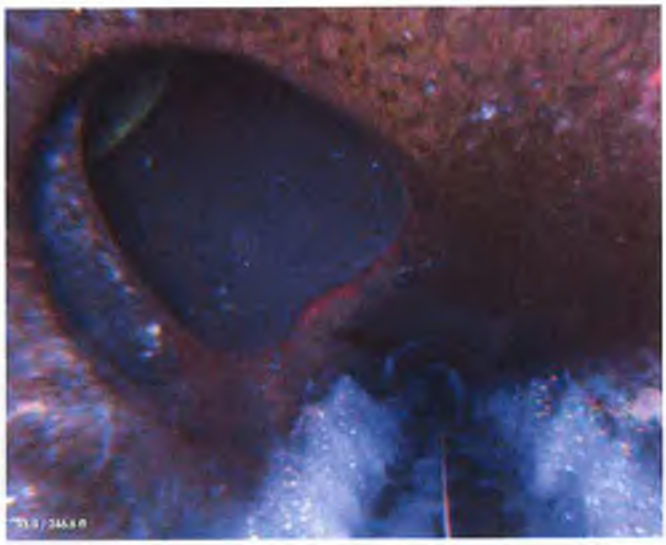


PACP Code	DAE		
Description	Deposits Attached Encrustation		
Image Name	a c f d e bc b d abfe DAE jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

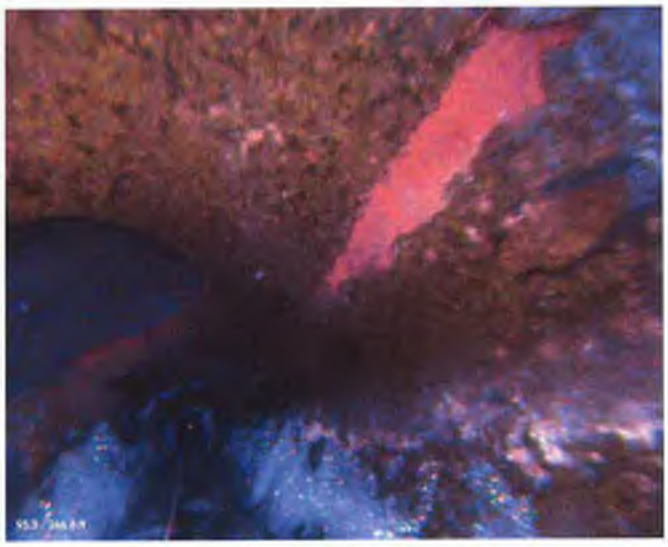
PACP Code	MGO		
Description	General Observation		
Image Name	d f e cab bb a d cc b b b MGO jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	Begin using rear camera due to poor quality images from front camera Clocking angles are from front camera point of view		



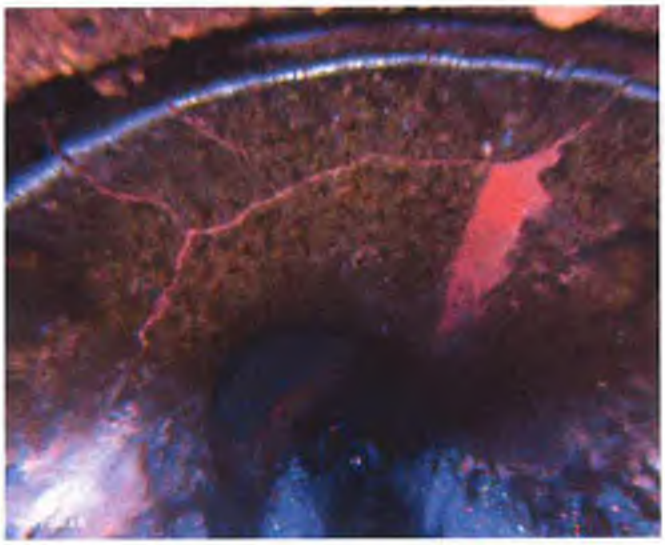
PACP Code	**MMC**		
Description	**Material Change**		
Image Name	**bf d fed cd d f MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Vitrified clay**		



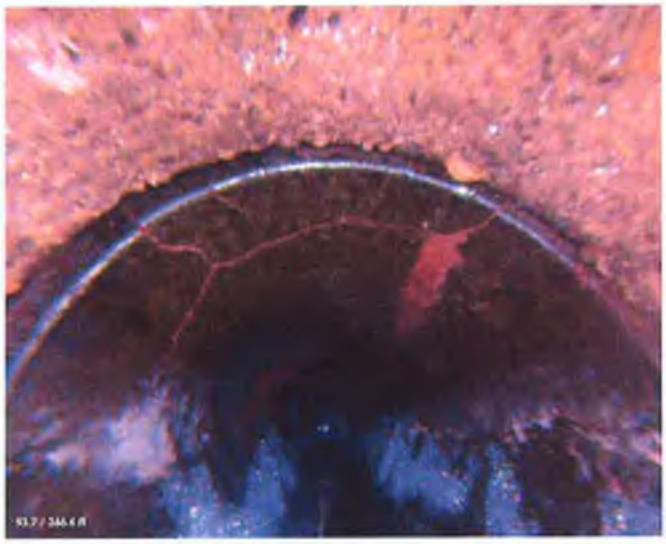
PACP Code	**TF**		
Description	**Tap Factory**		
Image Name	**e f b b de dcad c b TF jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			



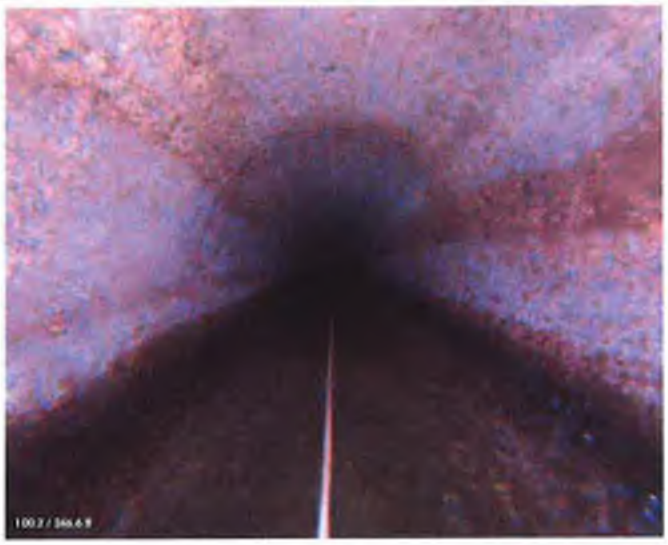
PACP Code	**SSS**		
Description	**Surface Spalling**		
Image Name	**f fcef a d dc af e c SSS jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			



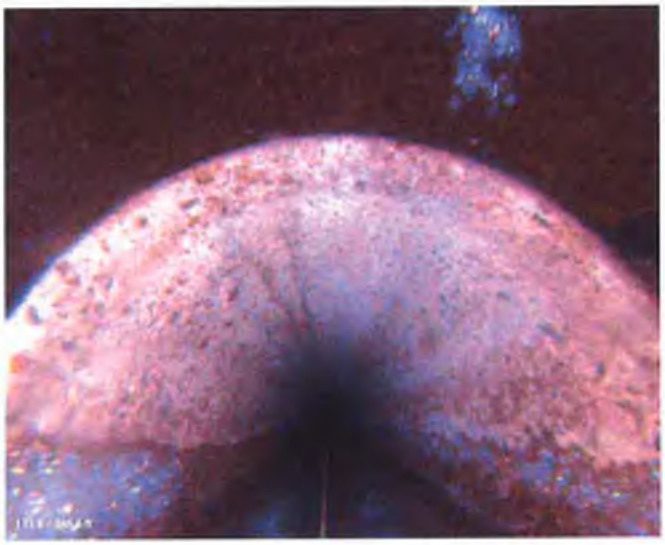
PACP Code	FM		
Description	**Fracture Multiple**		
Image Name	ac b a b f FM jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			



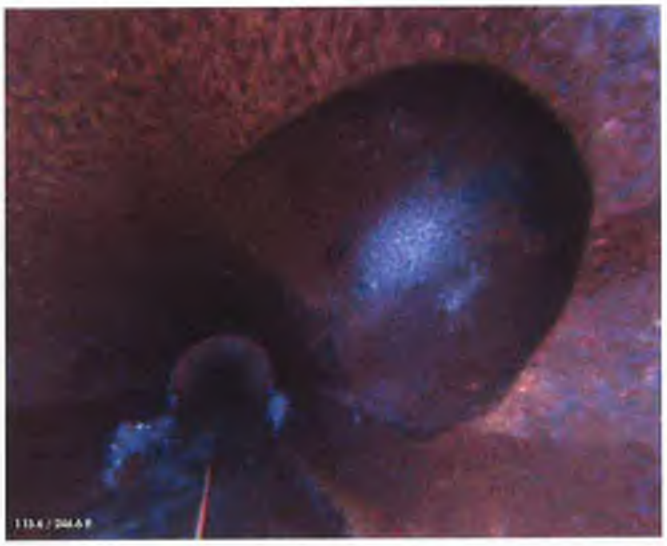
PACP Code	MMC		
Description	**Material Change**		
Image Name	c e d a a e a ce c MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**Concrete**		



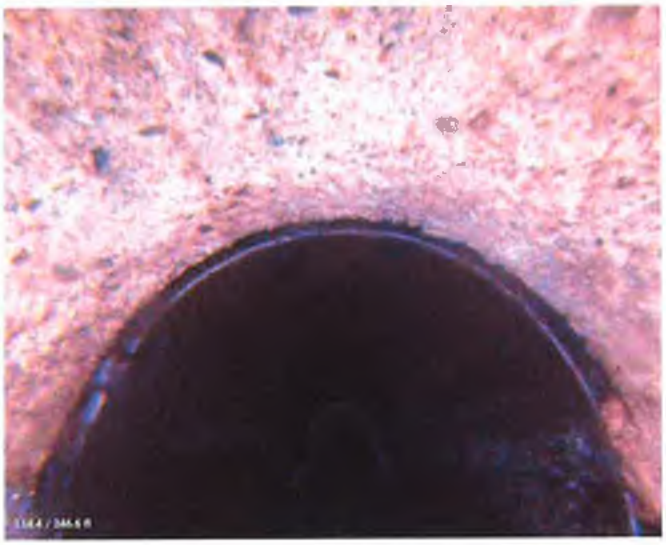
PACP Code	MGP		
Description	**General Photo**		
Image Name	f f d e b d b d b a MGP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



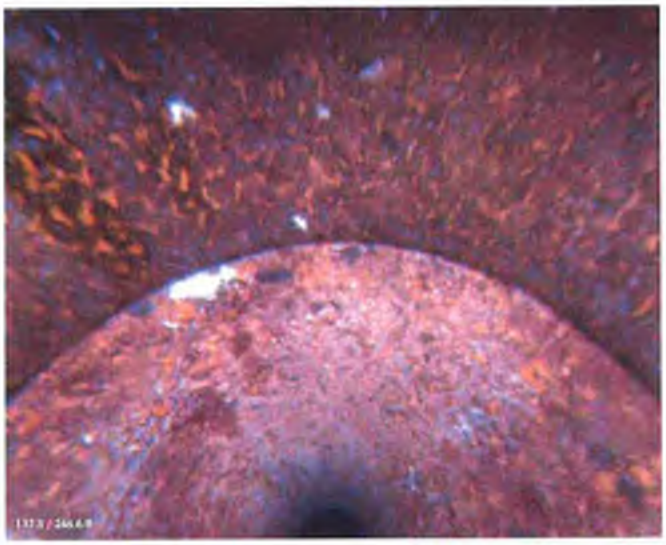
PACP Code	**MMC**		
Description	**Material Change**		
Image Name	**b b fd be e d MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**Vitrified clay**		



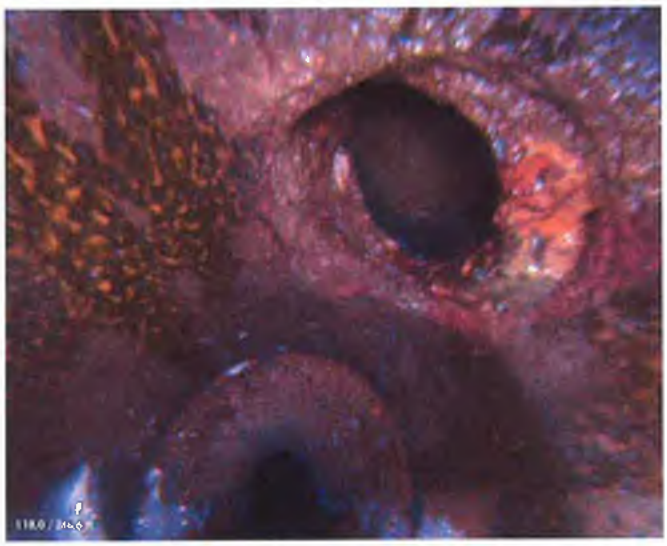
PACP Code	**TF**		
Description	**Tap Factory**		
Image Name	**b be edf aa d fddda c TF jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



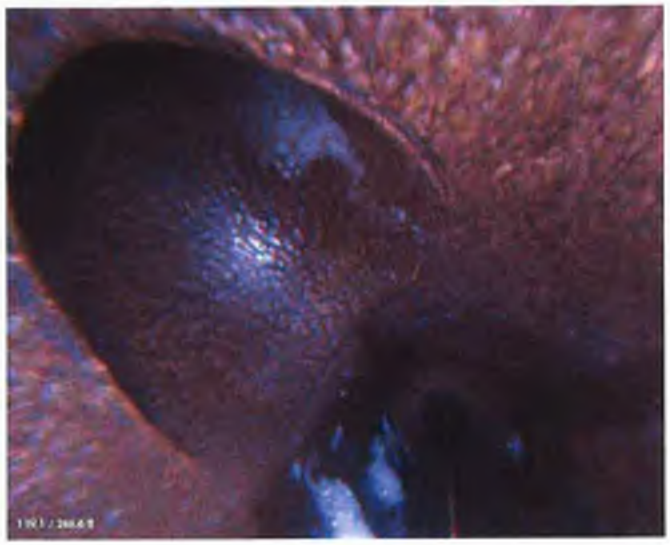
PACP Code	**MMC**		
Description	**Material Change**		
Image Name	**faa e fd f af b daeee b fa a MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**Concrete**		



PACP Code	MMC		
Description	Material Change		
Image Name	e da f b a b e f cb MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	Vitrified clay		

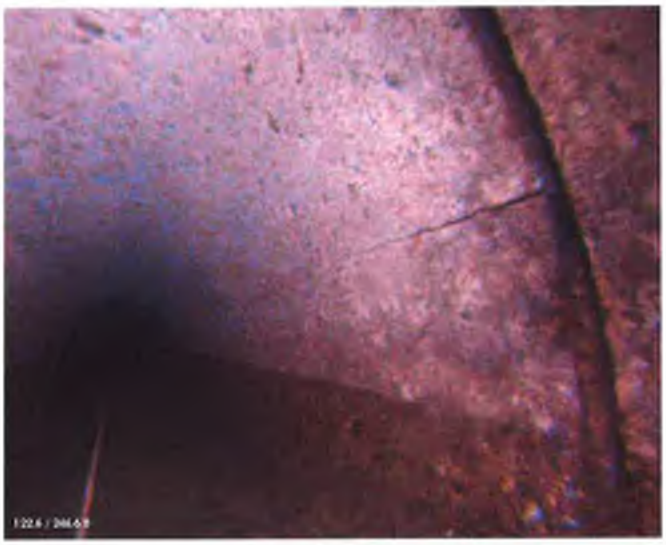


PACP Code	TB		
Description	Tap Break in		
Image Name	a e c c bd e ed TB jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			



PACP Code	TF		
Description	Tap Factory		
Image Name	c a ca b a aa f f TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

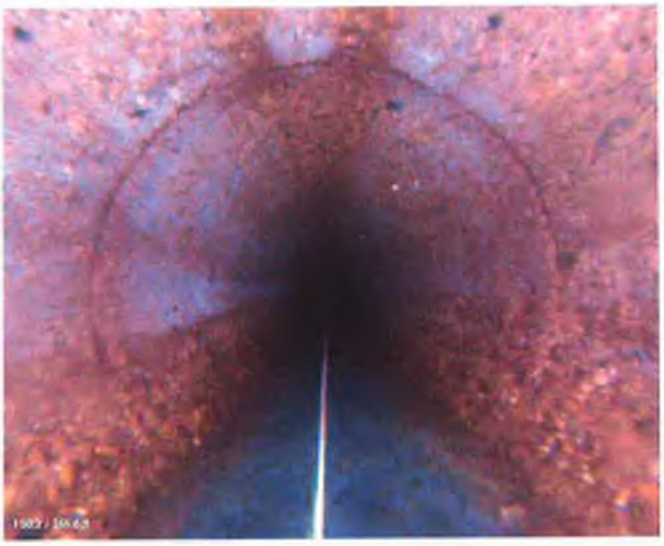
PACP Code	**MMC**		
Description	**Material Change**		
Image Name	**bdcc b d b f e ac a ef MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**Concrete**		



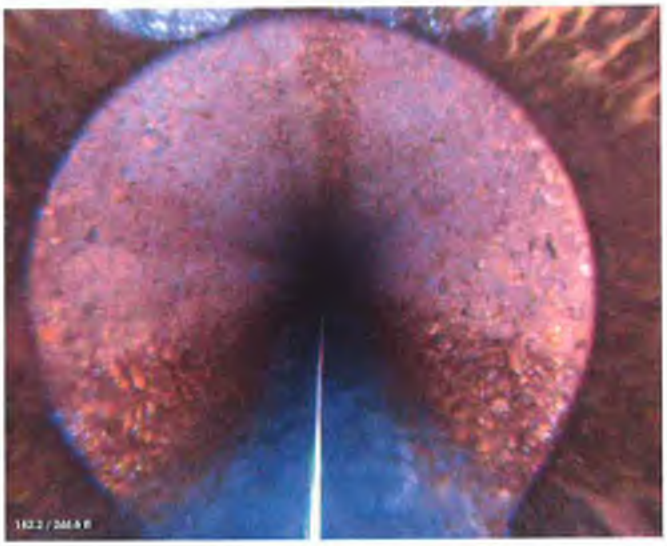
PACP Code	**FL**		
Description	**Fracture Longitudinal**		
Image Name	**bfde db b c ba d FL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			

PACP Code	**TB**		
Description	**Tap Break in**		
Image Name	**cb b f bacdd a TB jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

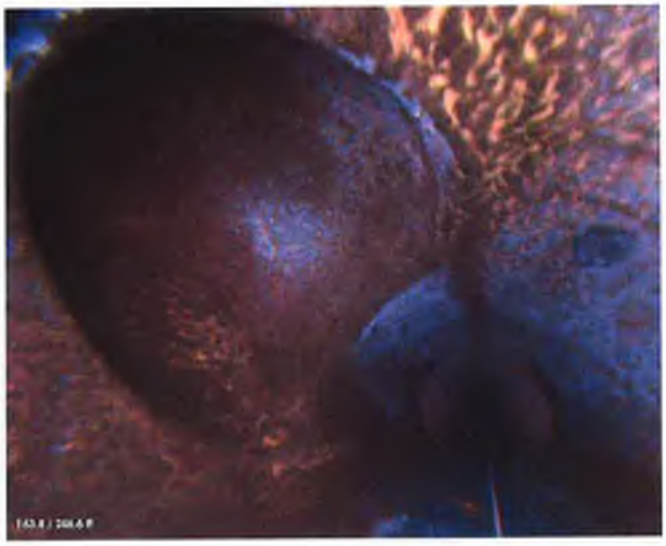
PACP Code	FL		
Description	**Fracture Longitudinal**		
Image Name	**aa f ff b d de e FL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			



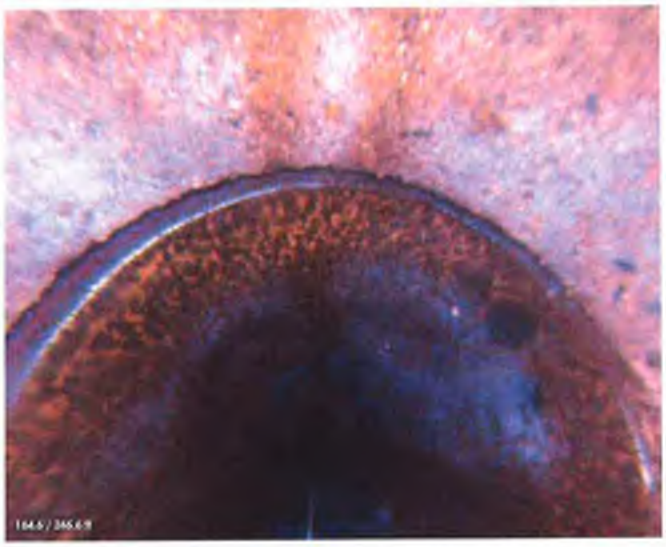
PACP Code	MGP		
Description	**General Photo**		
Image Name	**c b e df e d ce b MGP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



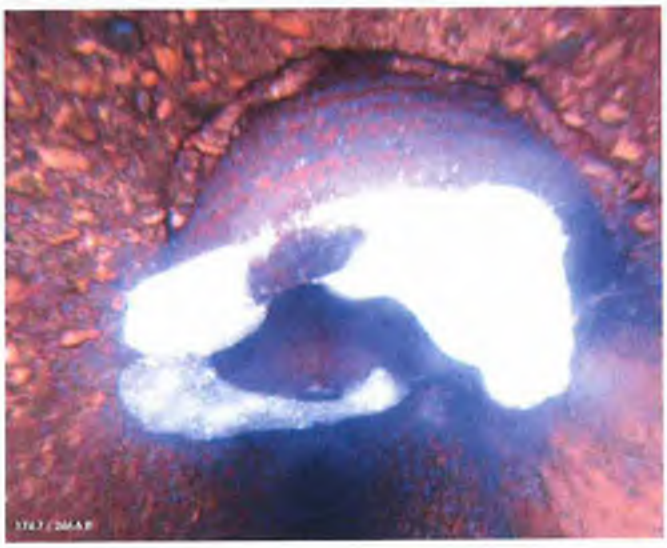
PACP Code	MMC		
Description	**Material Change**		
Image Name	**cdebb f f a d a d f MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**Vitrified clay**		



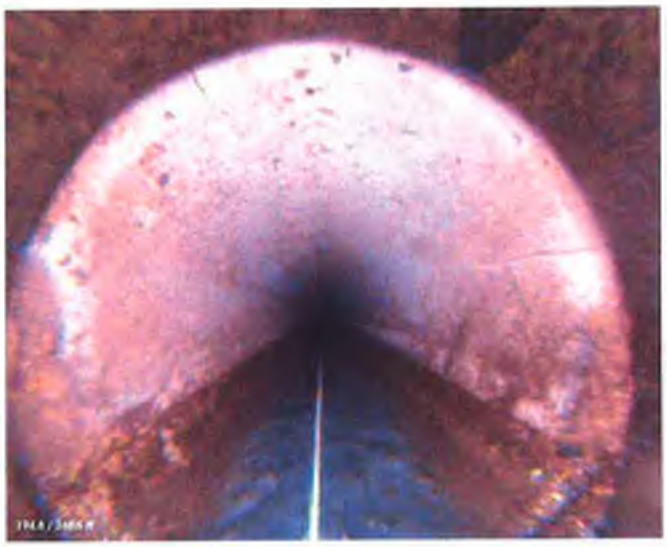
PACP Code	TF		
Description	**Tap Factory**		
Image Name	a c bbdf e c TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			



PACP Code	**MMC**		
Description	**Material Change**		
Image Name	dff fbc fa b a ed bede MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Concrete**		

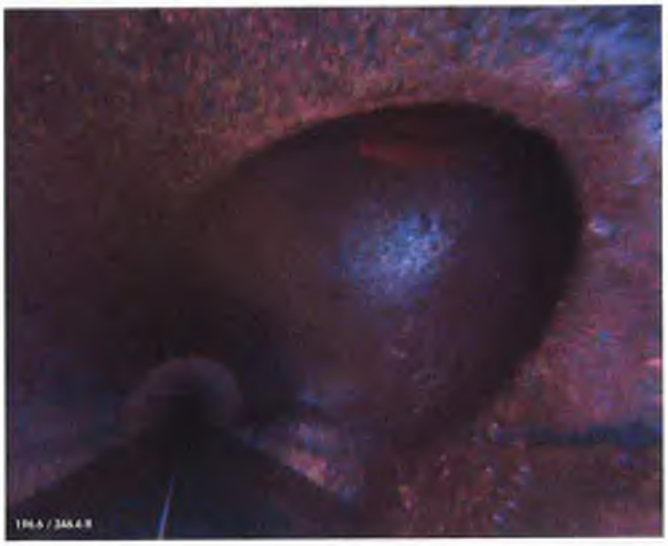


PACP Code	**TBI**		
Description	**Tap Break in Intruding**		
Image Name	fabb d e a db bfc a fe TBI jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

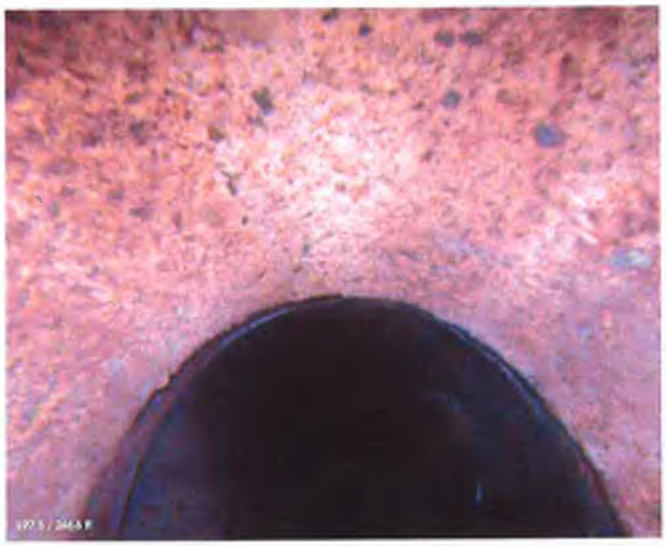


PACP Code	FM		
Description	**Fracture Multiple**		
Image Name	ad fb bae b b e fc bb FM jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☑
Remarks			

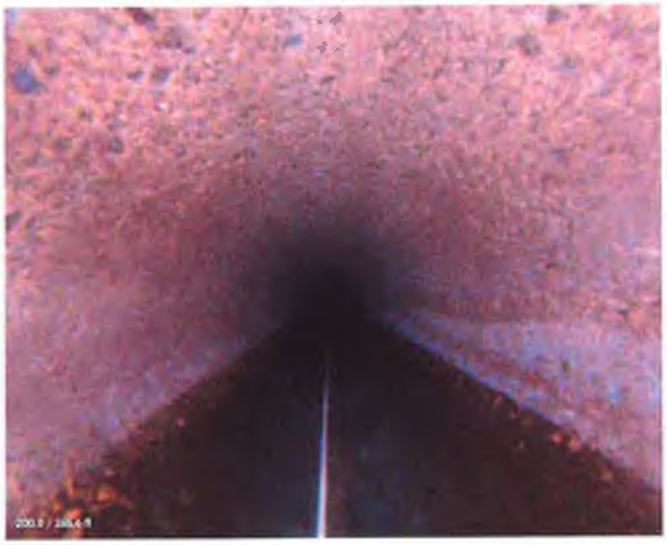
PACP Code	MMC		
Description	**Material Change**		
Image Name	aae a b fb d a cd b f MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**Vitrified clay**		



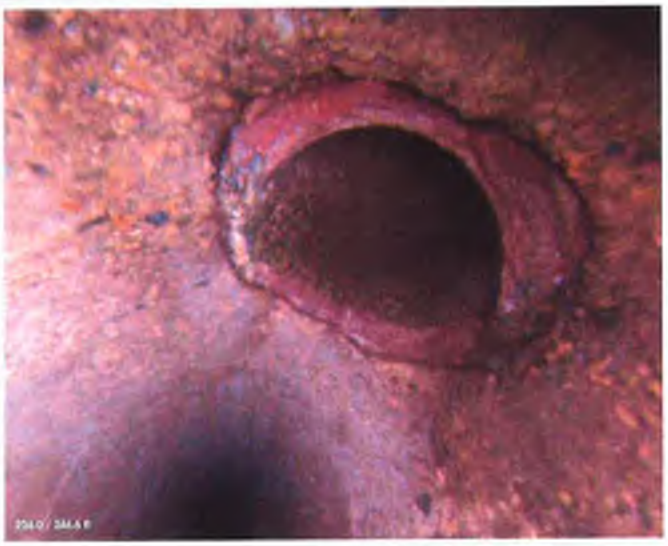
PACP Code	TF		
Description	**Tap Factory**		
Image Name	b a c e ddcc fb TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



PACP Code	MMC		
Description	Material Change		
Image Name	b a bf db c ace MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	Concrete		



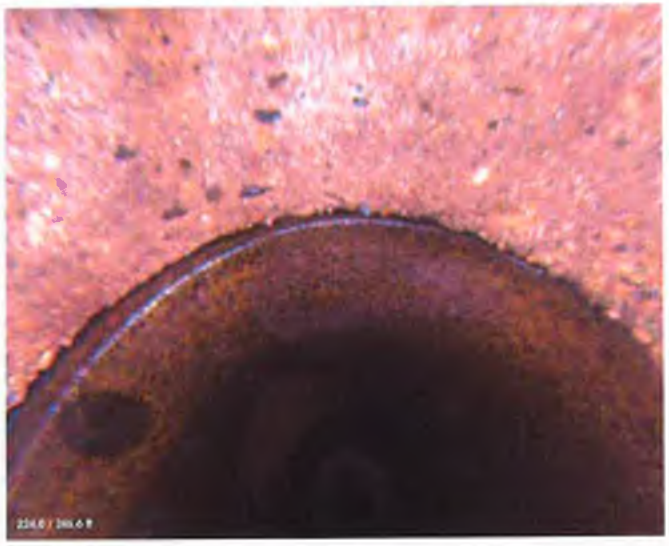
PACP Code	MGP		
Description	General Photo		
Image Name	f acd bc a c f a aa d MGP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



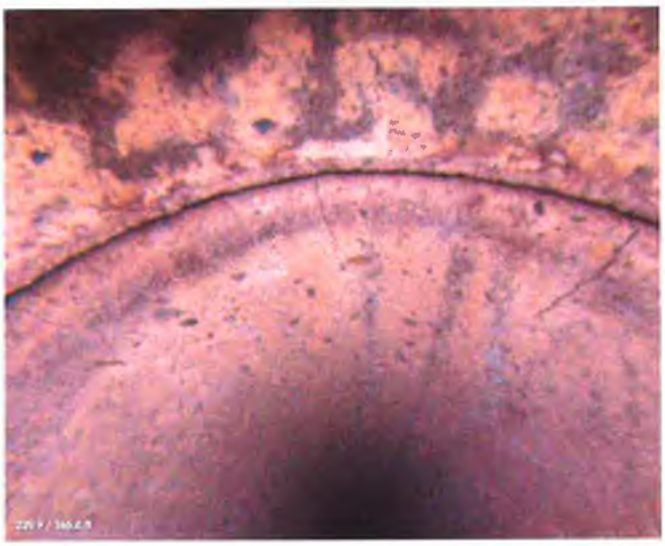
PACP Code	TB		
Description	Tap Break in		
Image Name	ad cbb ec b b df bfb d TB jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	MMC		
Description	Material Change		
Image Name	c d b b c a bc d MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	Vitrified clay		

PACP Code	TF		
Description	Tap Factory		
Image Name	b f b db a c c f c e TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks			

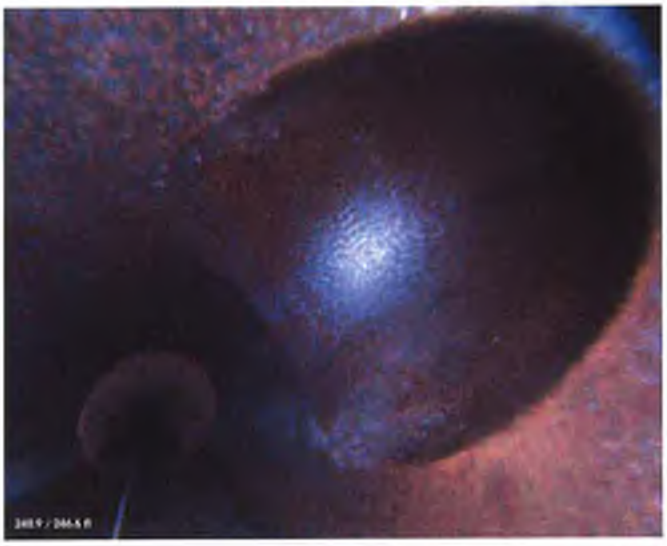


PACP Code	MMC		
Description	Material Change		
Image Name	da dc d e c b ba a a ba MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	Concrete		

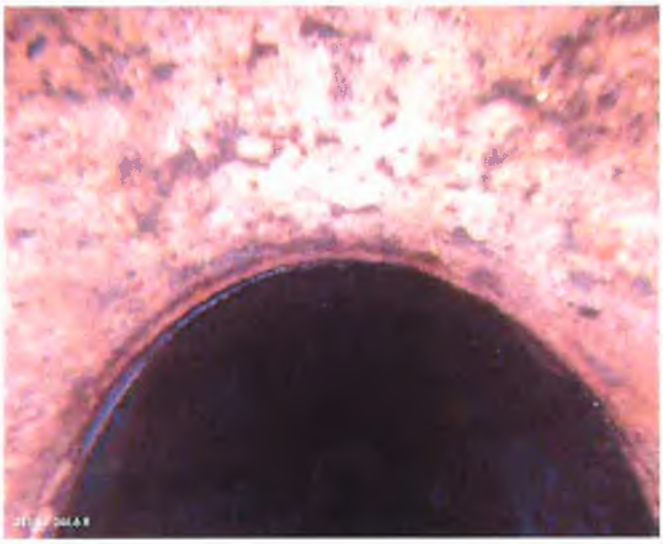


PACP Code	FM		
Description	**Fracture Multiple**		
Image Name	f c f ef ac ad f d FM jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	✔
Remarks			

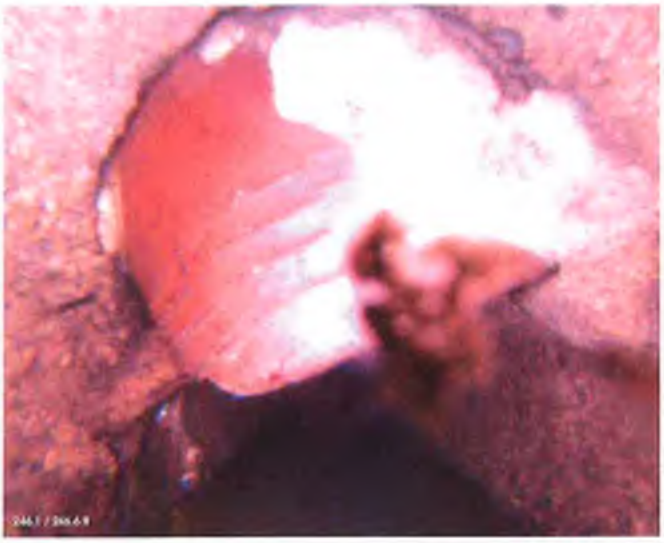
PACP Code	MMC		
Description	**Material Change**		
Image Name	d aeb c b e b bc c MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**Vitrified clay**		



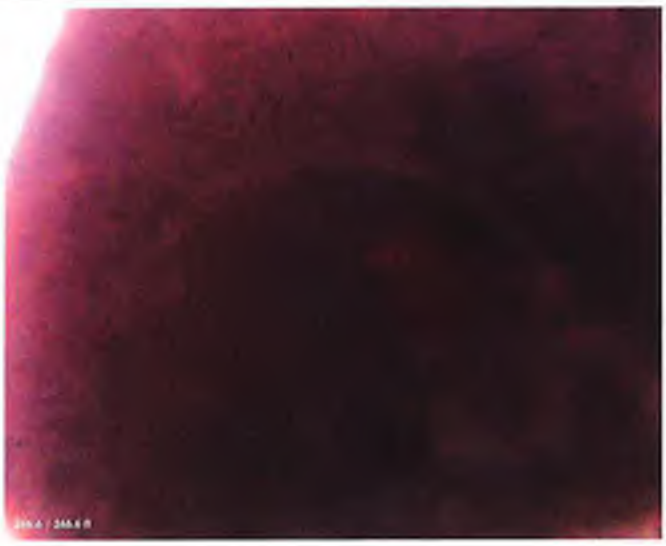
PACP Code	TF		
Description	**Tap Factory**		
Image Name	b a f f de a bd d TF jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



PACP Code	MMC		
Description	Material Change		
Image Name	c d b cadb d f d bfcbc MMC jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	Concrete		



PACP Code	TBI		
Description	Tap Break in Intruding		
Image Name	b a b a f e b TBI jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			



PACP Code	SAP		
Description	Surface Aggregate Projecting		
Image Name	d dcb e bfdb d e d SAP jpg		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index	F	Within of Joint	☐
Remarks			

PACP Code	**MSA**		
Description	**Abandoned Survey**		
Image Name	**e c d c a eb cfaf MSA jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	
Remarks	**Blocked by intruding tap**		

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset:

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8010 to 04-8008	04-8010	04-8008	Not Known	8	8
Shape	**Sewer Use**	**Drainage Area**	**Lining Method**	**Total Length**	**Joint Length**
Circular	Sanitary	NA		286	0
Pre-Cleaning	**Clean Date**	**Flow Control**	**Purpose**	**Year Laid**	**Year Renewed**
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
North A St	City of Arvin	Main Highway - urban	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/01/2010	05:01 PM	Upstream
Owner	**Customer**	**Weather**	**PO Number**	**Length Surveyed**
City of Arvin	Veolia	Dry		286
Media Label	**Reverse Setup**	**Work Order No**	**Additional Info**	
NS6-1470	NO	-	Length unknown - Upstream manhole location unknown	

Results:

Overall Rating	Structural Rating	Maintenance Rating
217	209	8
Overall Index	**Structural Index**	**Maintenance Index**
3.01	3.07	2
Overall Quick	**Structural Quick**	**Maintenance Quick**
453K	453K	3122

- more than half of the pipe carries 30% flow

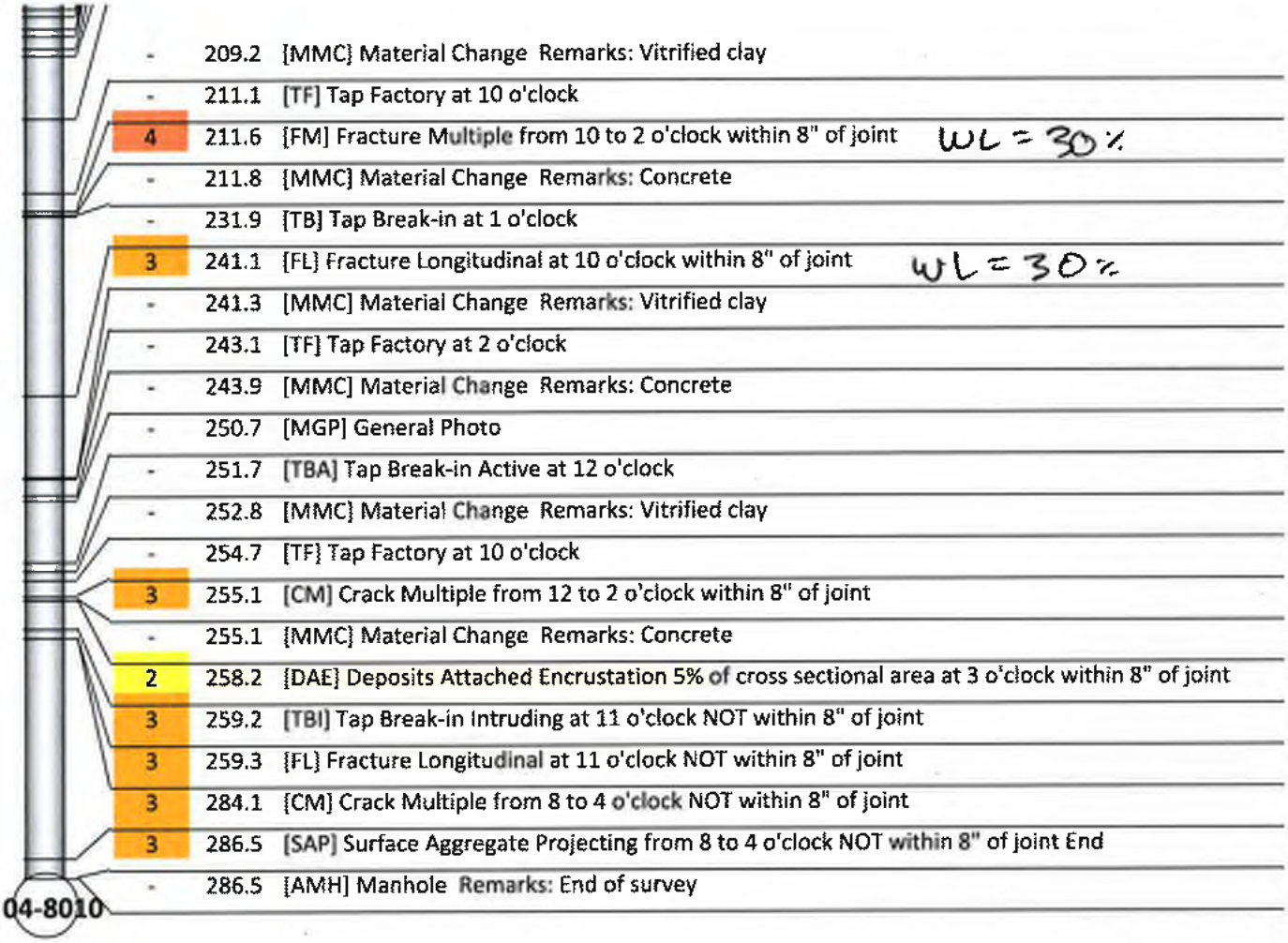
Recommendation

Open Trench Pipe Replacement (287)

04-8008

Camera Direction

Grade	Dist (ft)	Observation
-	0	[AMH] Manhole Remarks: Begin survey
-	0	[MWL] Water Level 40% of cross sectional area 40
3	0	[SAP] Surface Aggregate Projecting from 8 to 4 o'clock NOT within 8" of joint Start
1	0.3	[VC] Vermin Cockroach NOT within 8" of joint
3	15.3	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint J15.5 - WL = 30%
-	48.2	[MMC] Material Change Remarks: Vitrified clay WL = 20%
-	49.6	[TF] Tap Factory at 2 o'clock
-	50	[MGP] General Photo
3	50.5	[CM] Crack Multiple from 9 to 3 o'clock within 8" of joint J48-51 WL=30%
-	50.7	[MMC] Material Change Remarks: Concrete
-	53.8	[MMC] Material Change Remarks: ~~Concrete~~ VC
-	55.1	[TF] Tap Factory at 10 o'clock
-	56.2	[MMC] Material Change Remarks: Concrete
4	80	[FM] Fracture Multiple from 12 to 1 o'clock within 8" of joint J77-80
-	85.6	[MWL] Water Level 25% of cross sectional area
4	97.6	[FM] Fracture Multiple from 9 to 1 o'clock within 8" of joint J95-98
-	98.1	[MMC] Material Change Remarks: Vitrified clay
-	99.5	[TF] Tap Factory at 2 o'clock
-	100.4	[MMC] Material Change Remarks: Concrete
-	100.7	[MGP] General Photo
-	121.5	[MMC] Material Change Remarks: Vitrified clay
2	122.8	[TFD] Tap Factory Defective at 10 o'clock NOT within 8" of joint Remarks: Fractures inside tap
-	124	[MMC] Material Change Remarks: Concrete
-	150.2	[MGP] General Photo WL = 25%
-	151.6	[TB] Tap Break-in at 2 o'clock
-	153.8	[MMC] Material Change Remarks: Vitrified clay
-	155.1	[TF] Tap Factory at 2 o'clock
4	156.1	[FM] Fracture Multiple from 12 to 3 o'clock within 8" of joint
-	156.7	[MMC] Material Change Remarks: Concrete
-	159.3	[MMC] Material Change Remarks: Vitrified clay WL = 30%
-	160.6	[TFC] Tap Factory Capped at 10 o'clock
-	161.7	[MMC] Material Change Remarks: Concrete
-	188.4	[MMC] Material Change Remarks: Vitrified clay
-	188.4	[MGO] General Observation Remarks: Suds. Begin using rear camera due to poor quality images fr
-	189.1	[MMC] Material Change Remarks: Vitrified clay
-	190.7	[TF] Tap Factory at 2 o'clock
4	191.5	[FM] Fracture Multiple from 10 to 2 o'clock within 8" of joint J 191-194
-	192.9	[TB] Tap Break-in at 1 o'clock
-	193.7	[TBA] Tap Break-in Active at 12 o'clock
-	200.8	[MGP] General Photo



Condition Observations:

Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	40% of cross sectional area				40	☐		
3	0	SAP	Surface Aggregate Projecting	from 8 to 4 o'clock NOT within 8" of joint Start	S01				☐	8	4
1	0.3	VC	Vermin Cockroach	NOT within 8" of joint					☐		
3	15.3	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	
-	48.2	MMC	Material Change	Remarks: Vitrified clay					☐		
-	49.6	TF	Tap Factory	at 2 o'clock		4			☐	2	
-	50	MGP	General Photo						☐		
3	50.5	CM	Crack Multiple	from 9 to 3 o'clock within 8" of joint					☑	9	3
-	50.7	MMC	Material Change	Remarks: Concrete					☐		
-	53.8	MMC	Material Change	Remarks: Concrete					☐		
-	55.1	TF	Tap Factory	at 10 o'clock		4			☐	10	
-	56.2	MMC	Material Change	Remarks: Concrete					☐		
4	80	FM	Fracture Multiple	from 12 to 1 o'clock within 8" of joint					☑	12	1
-	85.6	MWL	Water Level	25% of cross sectional area				25	☐		
4	97.6	FM	Fracture Multiple	from 9 to 1 o'clock within 8" of joint					☑	9	1

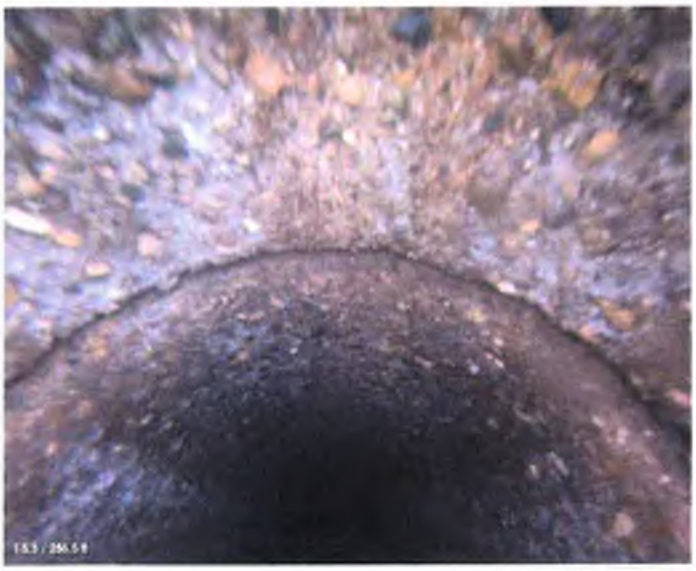
3	259.2	TBI	Tap Break-in Intruding	at 11 o'clock NOT within 8" of joint		4	1		☐	11	
3	259.3	FL	Fracture Longitudinal	at 11 o'clock NOT within 8" of joint					☐	11	
3	284.1	CM	Crack Multiple	from 8 to 4 o'clock NOT within 8" of joint					☐	8	4
3	286.5	SAP	Surface Aggregate Projecting	from 8 to 4 o'clock NOT within 8" of joint End	F01				☐	8	4
-	286.5	AMH	Manhole	Remarks: End of survey					☐		

PACP Code:	AMH		
Description:	Manhole		
Image Name:	2119f03a-e638-4cf8-a365-273195e09929_0-AMH.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Begin survey		

PACP Code:	MWL		
Description:	Water Level		
Image Name:	65215b5d-6c14-4511-b9bd-4d9b37bc0ba1_0-MWL.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	40		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

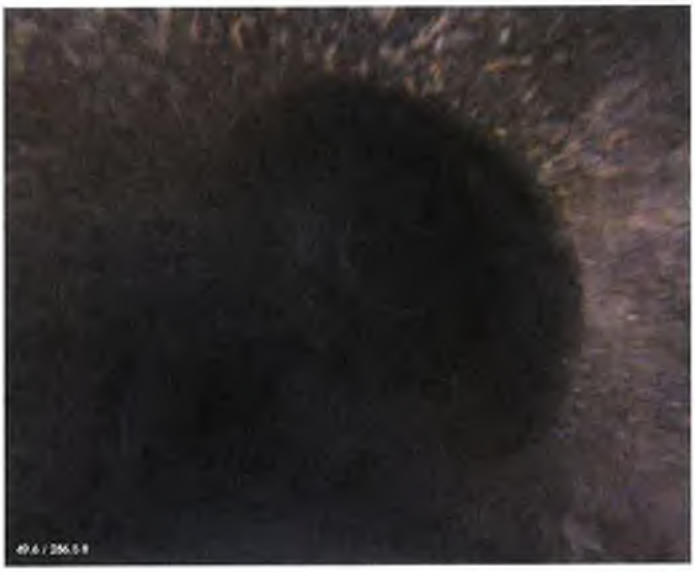
PACP Code:	SAP		
Description:	**Surface Aggregate Projecting**		
Image Name:	**678f64ef-217d-40a7-a5f1-c4cc1bcbe8ec_0-SAP.jpg**		
Distance (ft):	**0**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**8**	Clock To:	**4**
1st Value:		2nd Value:	
Continuous Index:	**S01**	Within 8" of Joint:	☐
Remarks:			

PACP Code:	VC		
Description:	**Vermin Cockroach**		
Image Name:	**2bcdd625-58b3-4617-a61e-6c2d95e48912_0.3-VC.jpg**		
Distance (ft):	**0.3**		
Structural Grade:	**0**	Maintenance Grade	**1**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



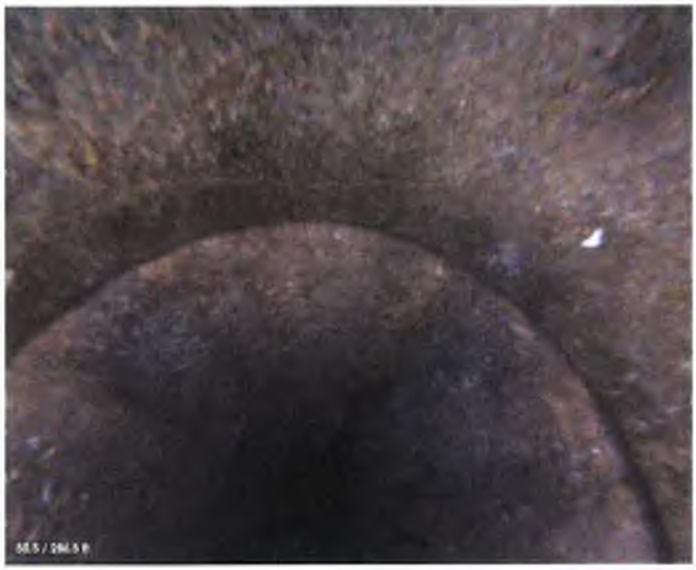
PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**93caf5a9-ccc7-4b66-ba1f-b28cf300c1b9_15.3-FL.jpg**		
Distance (ft):	**15.3**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**51389c41-fe4c-4ce7-ab99-926232d1e1a3_48.2-MMC.jpg**		
Distance (ft):	**48.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	**TF**		
Description:	**Tap Factory**		
Image Name:	**0c59f414-3cfd-4841-95ef-a932b99f3190_49.6-TF.jpg**		
Distance (ft):	**49.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

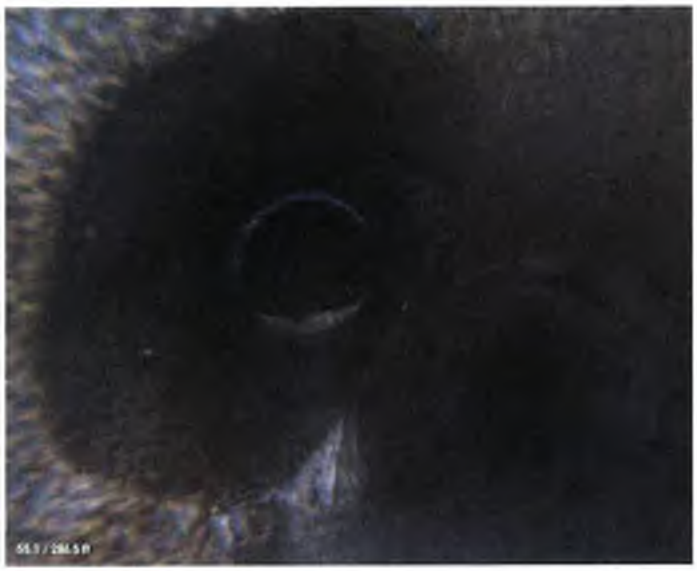
PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**2e525f6f-fe17-4bec-8bb5-bc045560a619_50-MGP.jpg**		
Distance (ft):	**50**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**CM**		
Description:	**Crack Multiple**		
Image Name:	**7ecef0f1-be6b-40ed-ac11-72d5475f7a13_50.5-CM.jpg**		
Distance (ft):	**50.5**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**9**	Clock To:	**3**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**67f6a4aa-5e44-41ec-b0a1-ab7622df16a6_50.7-MMC.jpg**		
Distance (ft):	**50.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**aee7214a-acd3-4ee2-b5ec-c8aab8394d16_53.8-MMC.jpg**		
Distance (ft):	**53.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

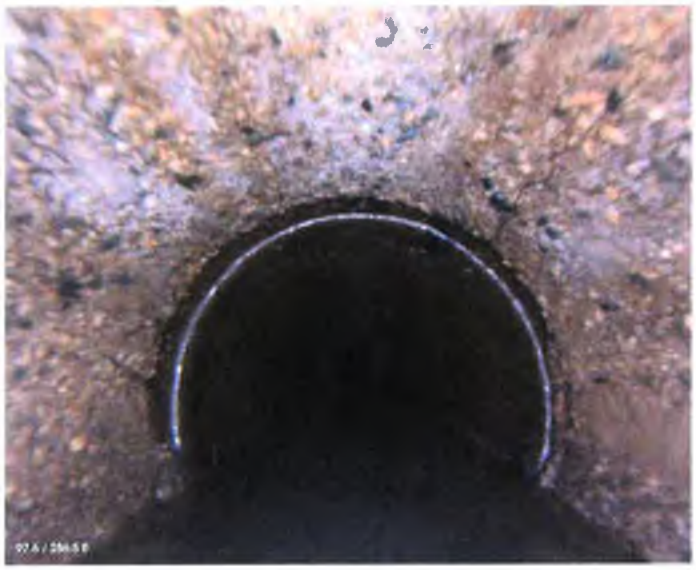


PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**bec21050-dba1-415a-9146-5a1c189170c6_55.1-TF.jpg**		
Distance (ft):	**55.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**90504309-88ed-4482-81ac-13889d343451_56.2-MMC.jpg**		
Distance (ft):	**56.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**e79ed94d-2d5a-427f-8e17-744fbf732718_80-FM.jpg**		
Distance (ft):	**80**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	**1**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

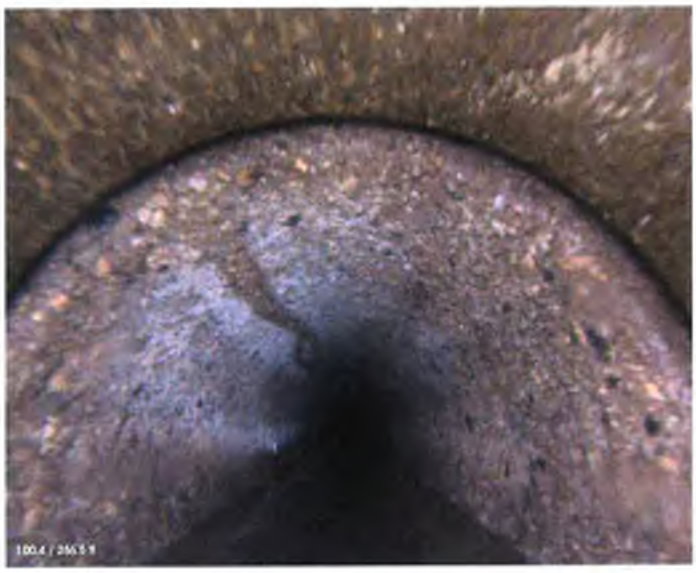
PACP Code:	MWL		
Description:	Water Level		
Image Name:	c6618a77-94ef-494a-9db9-60cfaa15bf72_85.6-MWL.jpg		
Distance (ft):	85.6		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	25		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	FM		
Description:	Fracture Multiple		
Image Name:	d497b8a7-e00a-45b5-a5cd-3bf9370a2c77_97.6-FM.jpg		
Distance (ft):	97.6		
Structural Grade:	4	Maintenance Grade	0
Percent Value:			
Clock At/From:	9	Clock To:	1
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	MMC		
Description:	Material Change		
Image Name:	6d817fba-58a5-4011-8cad-eecf60e75b5e_98.1-MMC.jpg		
Distance (ft):	98.1		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Vitrified clay		

PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**3c8eaaa9-9bf8-4894-ab22-a47758b076cc_99.5-TF.jpg**		
Distance (ft):	**99.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**e7093559-5107-4dd6-819f-4272362ad047_100.4-MMC.jpg**		
Distance (ft):	**100.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**d4c74977-3ba9-4b67-b0f3-5f2b4c28d8e6_100.7-MGP.jpg**		
Distance (ft):	**100.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**ded96e4c-4d28-4ee7-b961-706cb23b3317_121.5-MMC.jpg**		
Distance (ft):	**121.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

PACP Code:	**TFD**		
Description:	**Tap Factory Defective**		
Image Name:	**9e6aec25-a04f-4f09-ba30-20234dd9a1e1_122.8-TFD.jpg**		
Distance (ft):	**122.8**		
Structural Grade:	**0**	Maintenance Grade	**2**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Fractures inside tap**		

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**b4b35ae2-c167-4bf0-83d1-a5ba4c6c46cd_124-MMC.jpg**		
Distance (ft):	**124**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**dba350b7-9a4d-46c9-aa08-7892641b5b1c_150.2-MGP.jpg**		
Distance (ft):	**150.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**TB**		
Description:	**Tap Break-in**		
Image Name:	**186592e2-e326-4d54-9b27-dfeb7ae12cf0_151.6-TB.jpg**		
Distance (ft):	**151.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

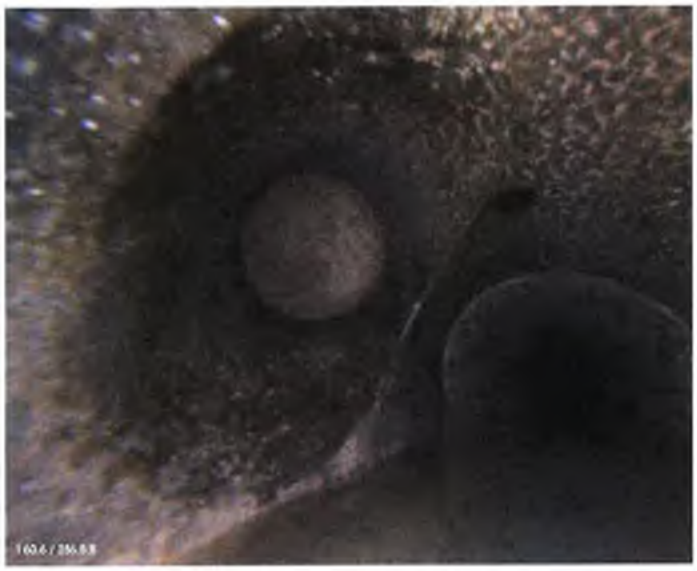
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**201b94f2-ba17-43b0-a300-87f82126e2bc_153.8-MMC.jpg**		
Distance (ft):	**153.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**5973aeac-267b-4f27-aefa-4f9e02c8531c_155.1-TF.jpg**		
Distance (ft):	**155.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	FM		
Description:	**Fracture Multiple**		
Image Name:	**16aac2c5-a65e-4e2d-bfac-09c4264b9761_156.1-FM.jpg**		
Distance (ft):	**156.1**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	**3**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	MMC		
Description:	**Material Change**		
Image Name:	**17c09fa9-6752-4ff0-9ece-170f2ad04b08_156.7-MMC.jpg**		
Distance (ft):	**156.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

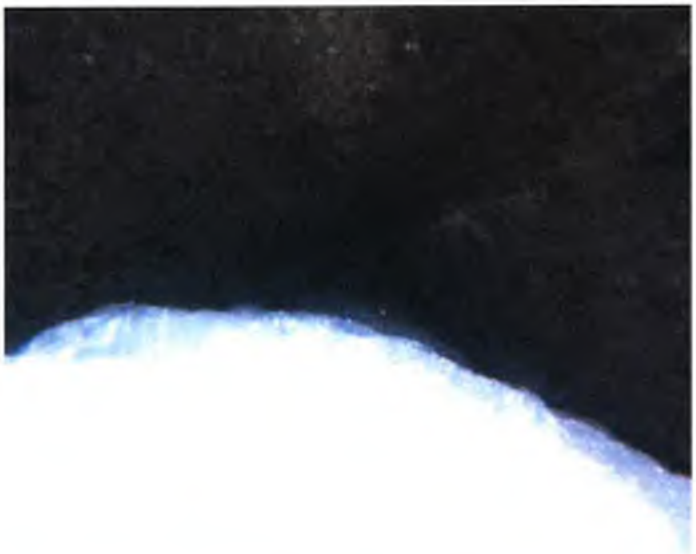
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**f729dbad-34cb-4b74-9042-149c35edc899_159.3-MMC.jpg**		
Distance (ft):	**159.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



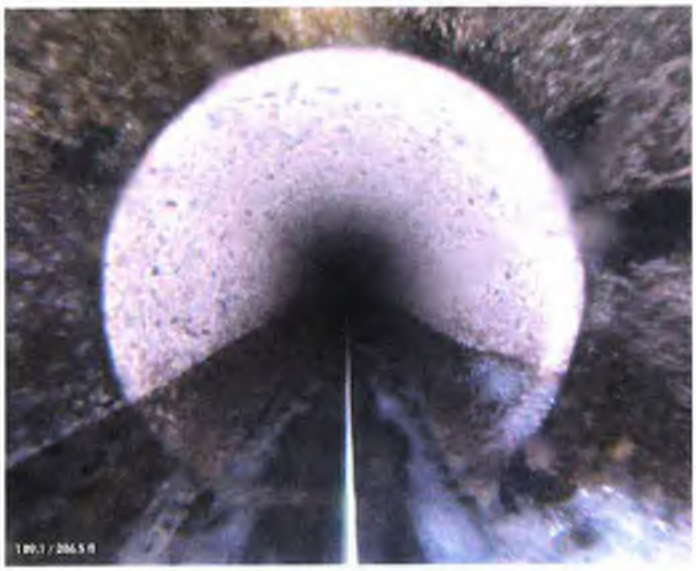
PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**84ec1abc-08a0-4703-bd5b-1db0d0fda0c6_160.6-TFC.jpg**		
Distance (ft):	**160.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**554428a0-141f-4a99-8cd3-7c6e52552d07_161.7-MMC.jpg**		
Distance (ft):	**161.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

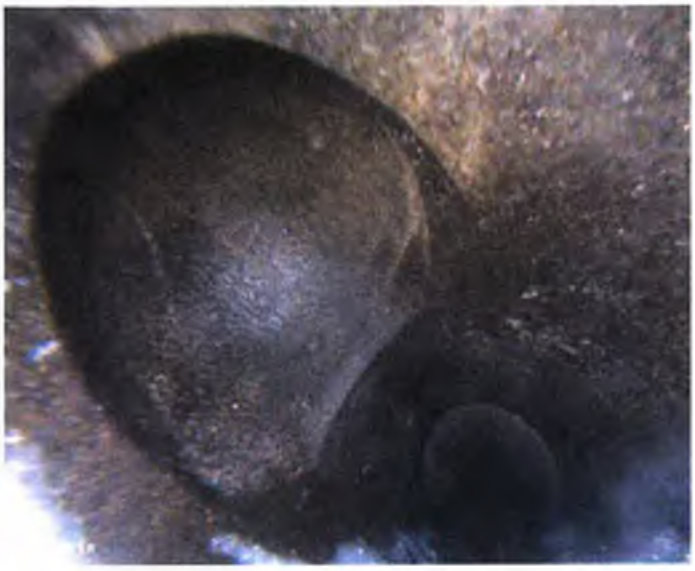
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**c6c66f01-894d-45f9-bb4d-6ca7842741f1_188.4-MMC.jpg**		
Distance (ft):	**188.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



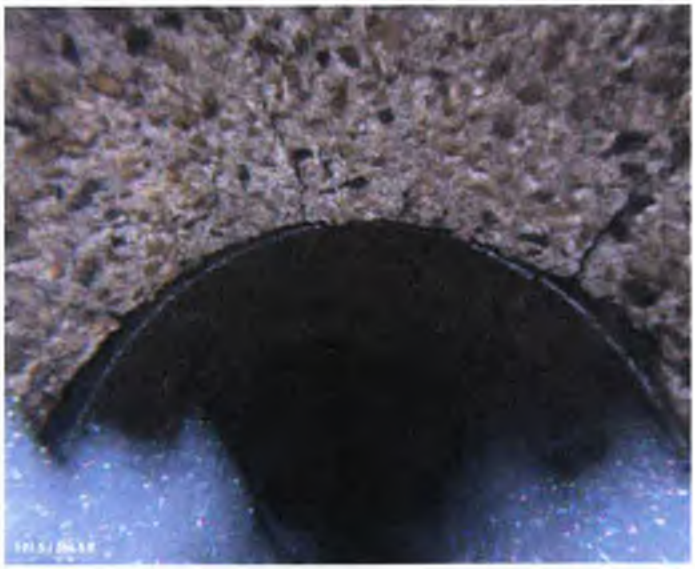
PACP Code:	**MGO**		
Description:	**General Observation**		
Image Name:	**4db5ec38-9c74-4e39-8c72-c936d549f25d_188.4-MGO.jpg**		
Distance (ft):	**188.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Suds. Begin using rear camera due to poor quality images from front camera. Clocking angles are from front camera point of view.**		



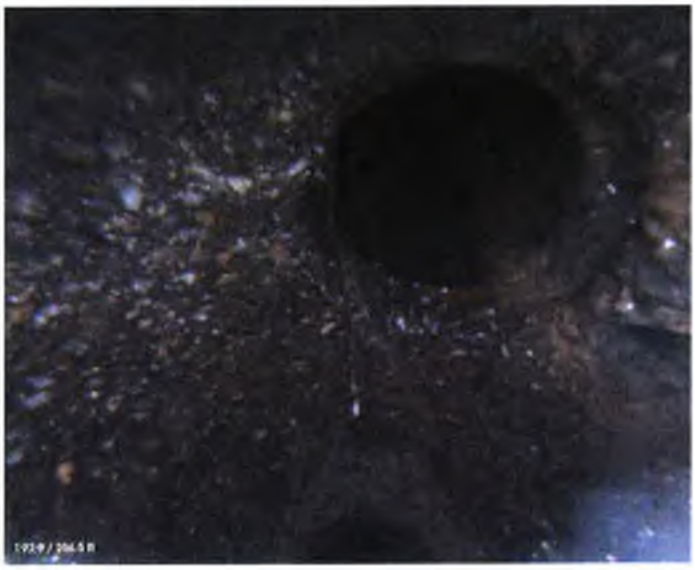
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**2a20e3ab-42e7-449f-83bc-608284aacd9f_189.1-MMC.jpg**		
Distance (ft):	**189.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



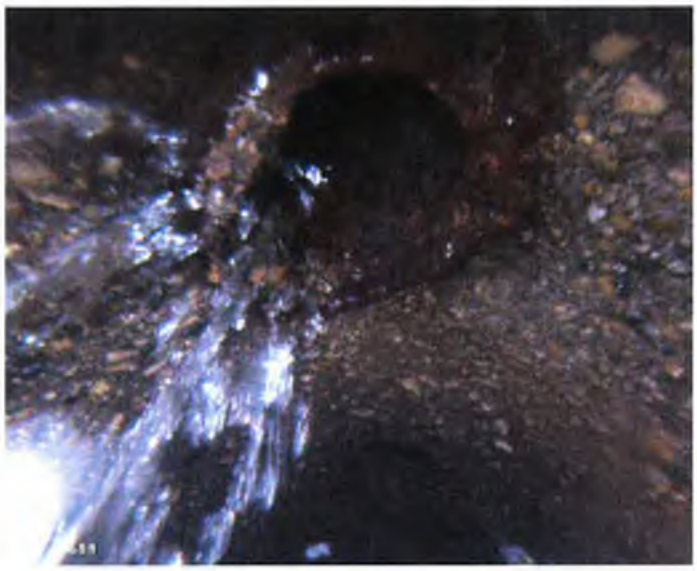
PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**65433a6b-d723-4204-bb3a-7d048eed6f14_190.7-TF.jpg**		
Distance (ft):	**190.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	FM		
Description:	**Fracture Multiple**		
Image Name:	**2e9f62dd-7e97-4738-8dd6-b5650539d116_191.5-FM.jpg**		
Distance (ft):	**191.5**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	**2**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



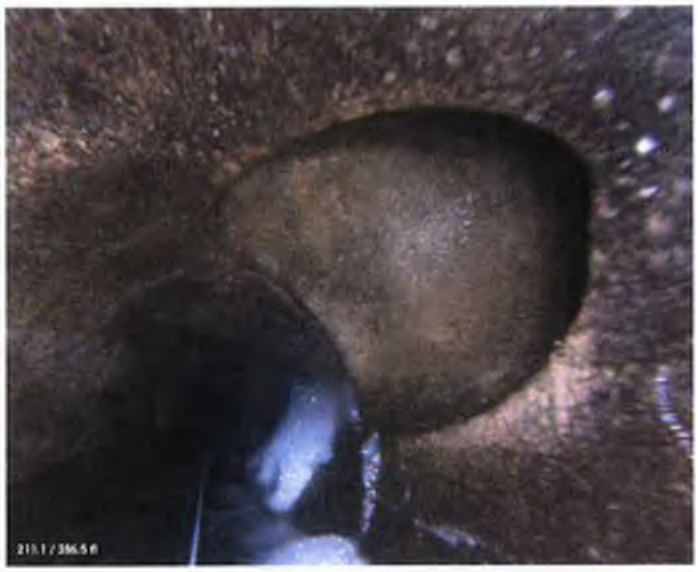
PACP Code:	TB		
Description:	**Tap Break-in**		
Image Name:	**8284be5e-5823-4730-af61-f48b48f70f74_192.9-TB.jpg**		
Distance (ft):	**192.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**1**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



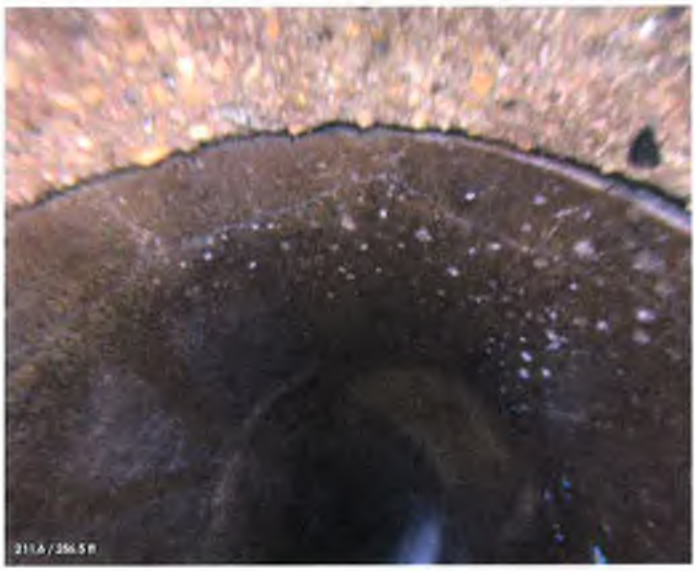
PACP Code:	**TBA**		
Description:	**Tap Break-in Active**		
Image Name:	**259760aa-3396-4bcc-a777-5682f889659c_193.7-TBA.jpg**		
Distance (ft):	**193.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**7f40221b-f728-4a35-8c9a-072cf920c386_200.8-MGP.jpg**		
Distance (ft):	**200.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

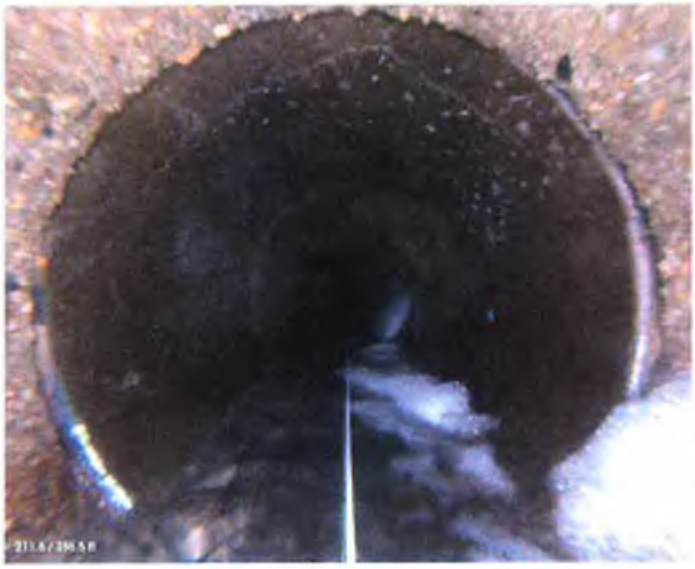
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**2bc8ec8c-05c3-49e8-bd26-ef0968bbfac1_209.2-MMC.jpg**		
Distance (ft):	**209.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**84052faa-275e-4dee-8b73-7711cc3bac45_211.1-TF.jpg**		
Distance (ft):	**211.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



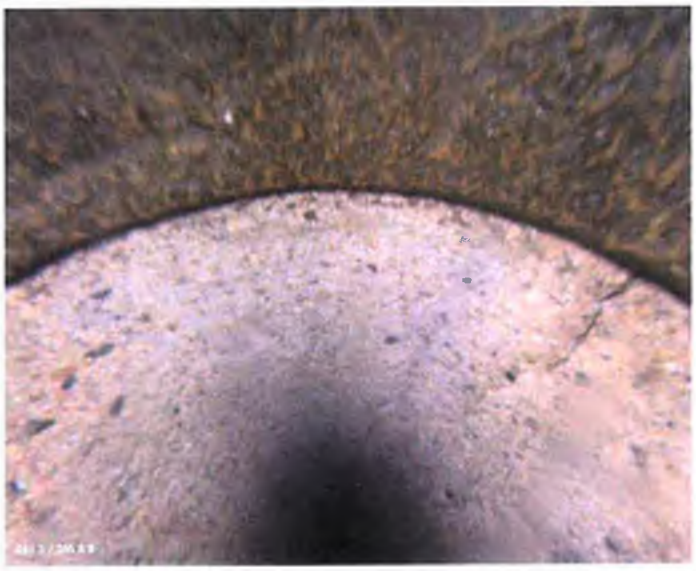
PACP Code:	FM		
Description:	**Fracture Multiple**		
Image Name:	**29f93bd8-b57a-4265-9b7c-f0f65596fa1d_211.6-FM.jpg**		
Distance (ft):	**211.6**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	**2**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



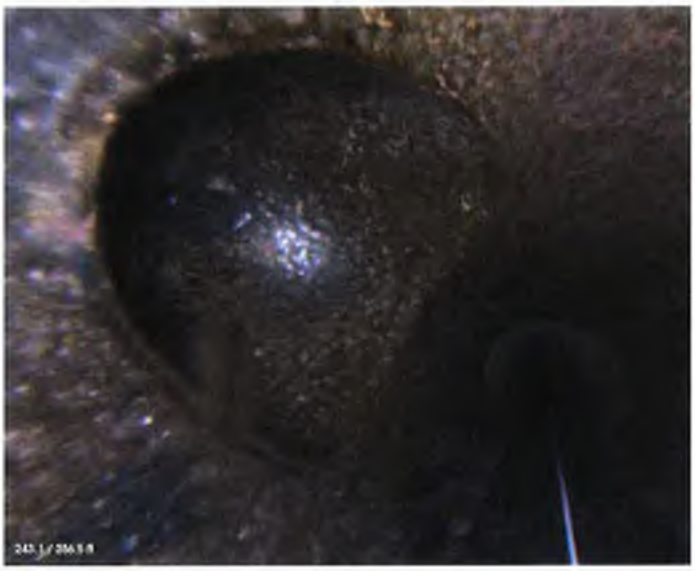
PACP Code:	MMC		
Description:	**Material Change**		
Image Name:	**a4377d3b-b8fd-4cf2-b2fd-3fe6f83fdfeb_211.8-MMC.jpg**		
Distance (ft):	**211.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	TB		
Description:	**Tap Break-in**		
Image Name:	**d2a626bc-a71b-4d48-9d71-4150beba138f_231.9-TB.jpg**		
Distance (ft):	**231.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**1**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

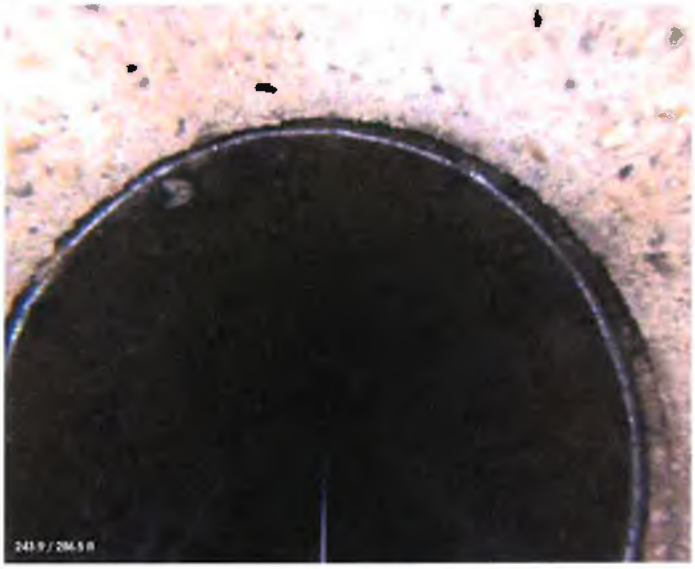
PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**2a3249b7-9cf5-4047-8916-d9720feb546d_241.1-FL.jpg**		
Distance (ft):	**241.1**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



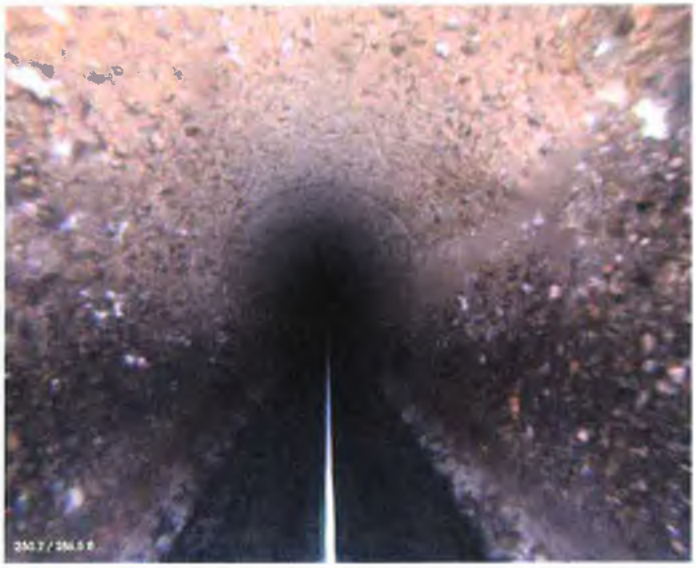
PACP Code:	MMC		
Description:	**Material Change**		
Image Name:	**3f16ef42-71d0-46b9-a4ef-20da120347ea_241.3-MMC.jpg**		
Distance (ft):	**241.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	TF		
Description:	Tap Factory		
Image Name:	c6d1d847-ce1c-463f-918f-e5bfa3392491_243.1-TF.jpg		
Distance (ft):	243.1		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

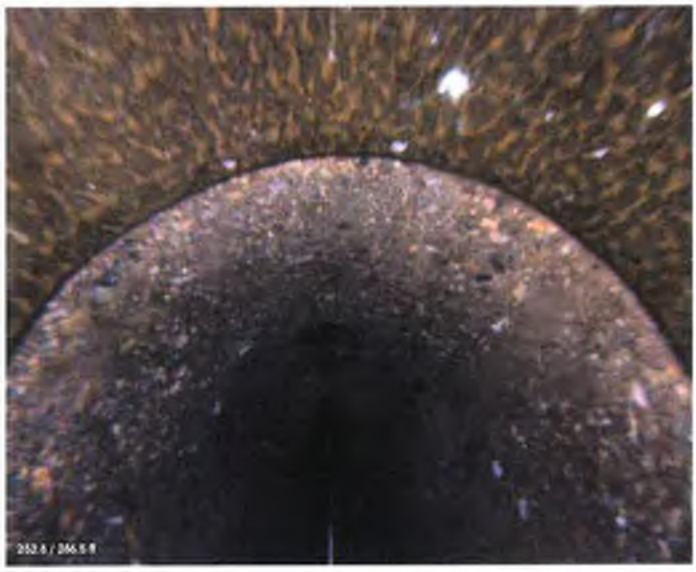


PACP Code:	MMC		
Description:	Material Change		
Image Name:	7d9de871-eca7-43f6-a9bc-538878c4e9dd_243.9-MMC.jpg		
Distance (ft):	243.9		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Concrete		

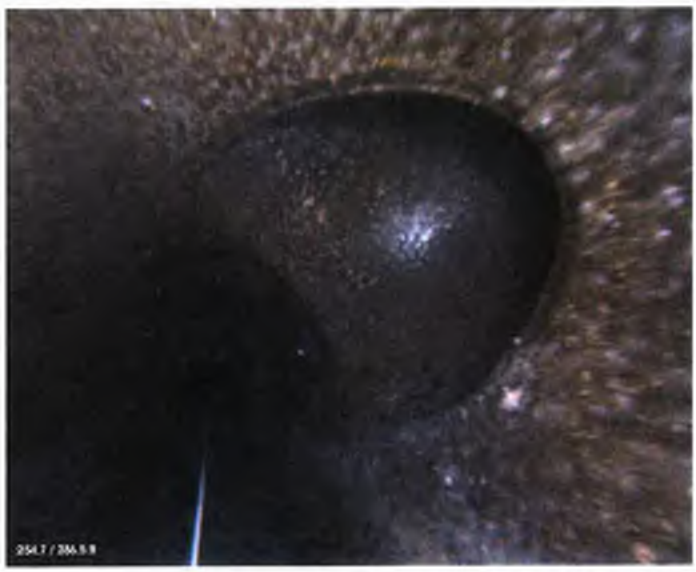


PACP Code:	MGP		
Description:	General Photo		
Image Name:	3b733080-cde1-4e18-9803-4215a53a222e_250.7-MGP.jpg		
Distance (ft):	250.7		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

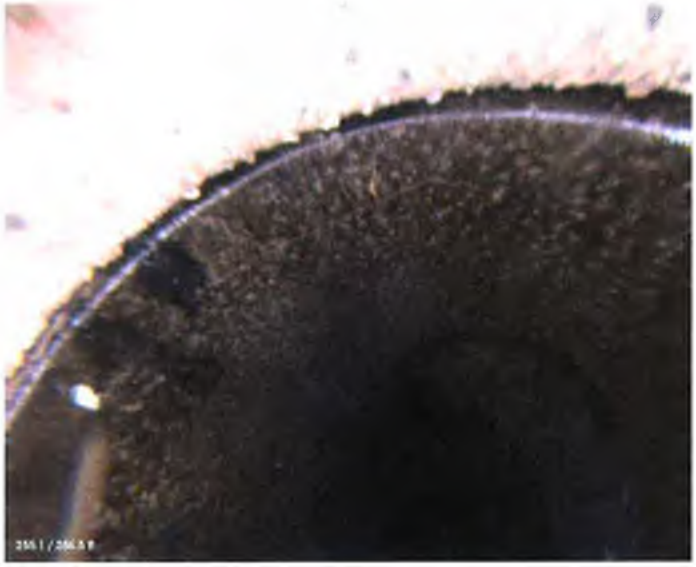
PACP Code:	**TBA**		
Description:	**Tap Break-in Active**		
Image Name:	**6fc29174-fb70-49c2-bc5e-8b24af836137_251.7-TBA.jpg**		
Distance (ft):	**251.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



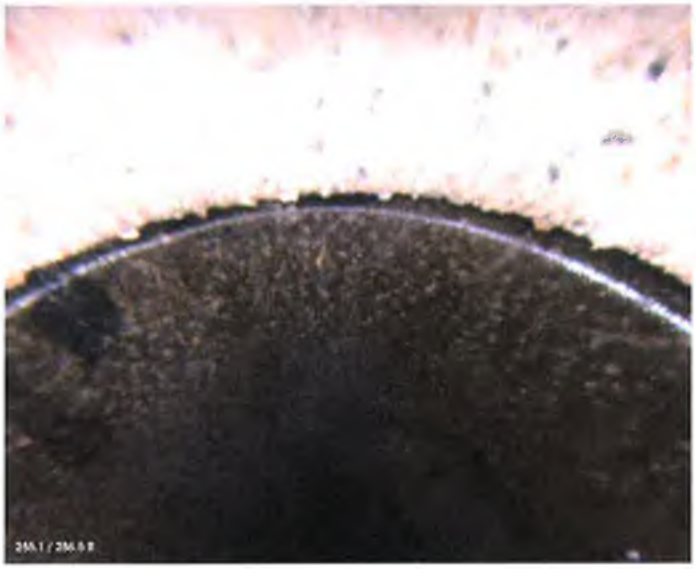
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**d586912e-6b9f-4c58-991e-92482b7d872e_252.8-MMC.jpg**		
Distance (ft):	**252.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	**TF**		
Description:	**Tap Factory**		
Image Name:	**d6cb777b-5777-4111-be8d-1cf8cd6050b8_254.7-TF.jpg**		
Distance (ft):	**254.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**CM**		
Description:	**Crack Multiple**		
Image Name:	**af0a8d37-79e9-43d0-9752-1e20e308fcd0_255.1-CM.jpg**		
Distance (ft):	**255.1**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	**2**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



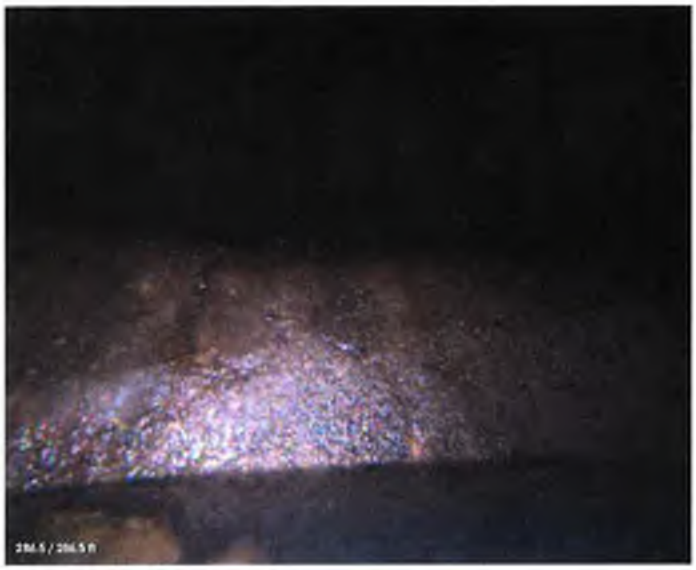
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**e482bed2-b49f-47c9-9254-7b1ac8244cc2_255.1-MMC.jpg**		
Distance (ft):	**255.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**DAE**		
Description:	**Deposits Attached Encrustation**		
Image Name:	**4c853bba-89e0-450f-954e-61e860aef6c0_258.2-DAE.jpg**		
Distance (ft):	**258.2**		
Structural Grade:	**0**	Maintenance Grade	**2**
Percent Value:	**5**		
Clock At/From:	**3**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

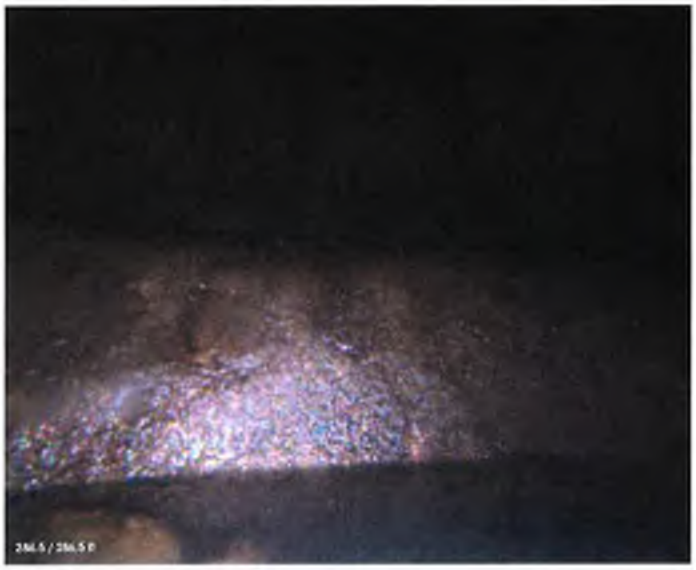
PACP Code:	**TBI**		
Description:	**Tap Break-in Intruding**		
Image Name:	**6b47a21d-dcdd-4337-89fb-aee4f1628efb_259.2-TBI.jpg**		
Distance (ft):	**259.2**		
Structural Grade:	**0**	Maintenance Grade	**3**
Percent Value:			
Clock At/From:	**11**	Clock To:	
1st Value:	**4**	2nd Value:	**1**
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**FL**		
Description:	**Fracture Longitudinal**		
Image Name:	**8ceef9ad-88ff-4b06-a4f9-d2c3d4fe3841_259.3-FL.jpg**		
Distance (ft):	**259.3**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**CM**		
Description:	**Crack Multiple**		
Image Name:	**50bd6c24-66e9-4a7a-905e-2678c9102848_284.1-CM.jpg**		
Distance (ft):	**284.1**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**8**	Clock To:	**4**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**070ce6e6-416b-4a7f-b7a5-b089d8b768b2_286.5-SAP.jpg**		
Distance (ft):	**286.5**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**8**	Clock To:	**4**
1st Value:		2nd Value:	
Continuous Index:	**F01**	Within 8" of Joint:	☐
Remarks:			



PACP Code:	**AMH**		
Description:	**Manhole**		
Image Name:	**0cc2ac4e-6a27-4131-be4d-4d55782d427e_286.5-AMH.jpg**		
Distance (ft):	**286.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**End of survey**		

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset:

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8012 to 04-8010	04-8012	04-8010	Concrete Pipe (non-reinforced)	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA		0	0
Pre-Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
North A St	City of Arvin	Main Highway - urban	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/02/2010	11:36 AM	Upstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		108
Media Label	Reverse Setup	Work Order No	Additional Info	
NS14-1652	NO	-	Length unknown - Upstream manhole location unknown	

Results:

Overall Rating	Structural Rating	Maintenance Rating
67	65	2
Overall Index	Structural Index	Maintenance Index
2.91	2.95	2
Overall Quick	Structural Quick	Maintenance Quick
3C22	3C21	2100

- overall, no large dislocations,
- water level remained at 5%.
- minor cracks and surface wave
- taps not large in distribution

Recommendation

CIPP entire length of pipe

Grade	Dist (ft)	Observation

04-8010

Joint every 3 ft

-	0	[AMH] Manhole Remarks: Begin survey
-	0	[MWL] Water Level 5% of cross sectional area (5%)
2	0.6	[CL] Crack Longitudinal at 10 o'clock within 8" of joint minor crack
3	1.6	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint Start
-	23.1	[TB] Tap Break-in at 1 o'clock
- 9.	30.9	[MMC] Material Change Remarks: Vitrified clay
-	32.1	[TFC] Tap Factory Capped at 2 o'clock
- 14	33.4	[MMC] Material Change Remarks: Concrete
-	42.9	[TB] Tap Break-in at 1 o'clock
- 27	50.7	[MGP] General Photo
-	65.7	[TB] Tap Break-in at 2 o'clock
- 2.	66.5	[MMC] Material Change Remarks: Vitrified clay
-	67.8	[TFC] Tap Factory Capped at 10 o'clock
-	69.2	[MMC] Material Change Remarks: Concrete
2	83.8	[DAE] Deposits Attached Encrustation 5% of cross sectional area from 3 to 9 o'clock within 8" of joi
- 40	88.5	[TFC] Tap Factory Capped at 2 o'clock
-	100.3	[MGP] General Photo
-	104.8	[MMC] Material Change Remarks: Vitrified clay
3	104.8	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint End
-	105.9	[TF] Tap Factory at 12 o'clock
-	106.9	[AEP] End of Pipe Remarks: Pipe is sealed off

Camera Direction

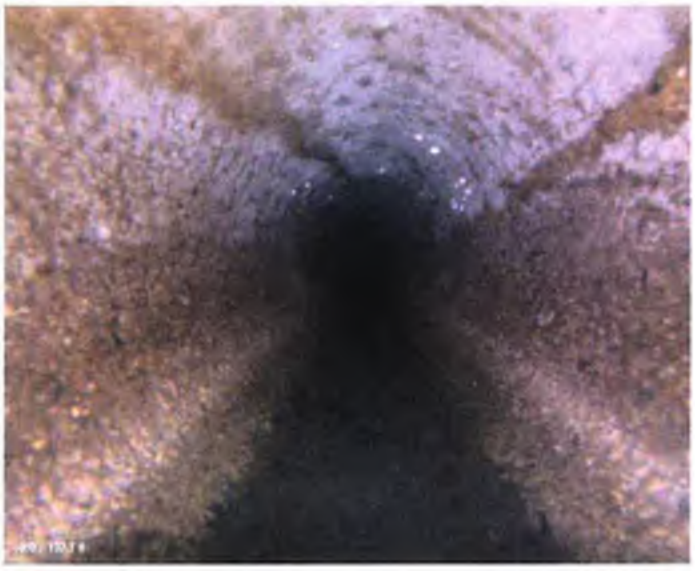
04-8012

Lateral Distribution OK

Condition Observations:

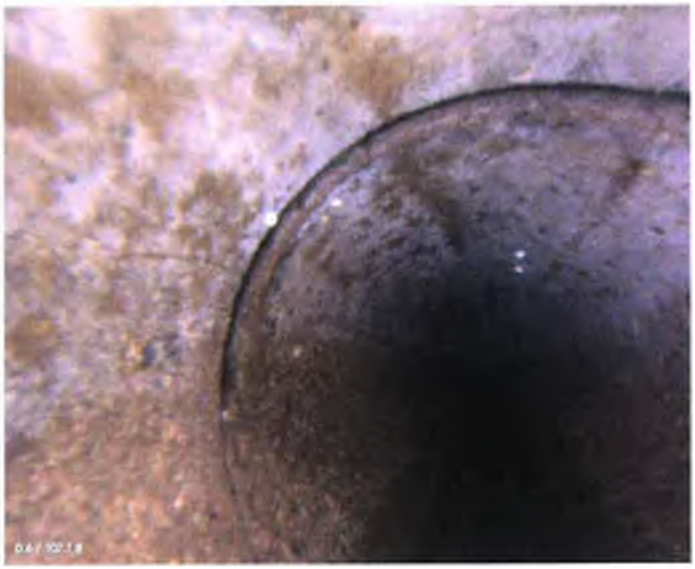
Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	5% of cross sectional area				5	☐		
2	0.6	CL	Crack Longitudinal	at 10 o'clock within 8" of joint					☑	10	
3	1.6	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint Start	S01				☐	7	5
-	23.1	TB	Tap Break-in	at 1 o'clock		4			☐	1	
-	30.9	MMC	Material Change	Remarks: Vitrified clay					☐		
-	32.1	TFC	Tap Factory Capped	at 2 o'clock		4			☐	2	
-	33.4	MMC	Material Change	Remarks: Concrete					☐		
-	42.9	TB	Tap Break-in	at 1 o'clock		4			☐	1	
-	50.7	MGP	General Photo						☐		
-	65.7	TB	Tap Break-in	at 2 o'clock		4			☐	2	
-	66.5	MMC	Material Change	Remarks: Vitrified clay					☐		
-	67.8	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	
-	69.2	MMC	Material Change	Remarks: Concrete					☐		

2	83.8	DAE	Deposits Attached Encrustation	5% of cross sectional area from 3 to 9 o'clock within 8" of joint				5	☑	3	9
-	88.5	TFC	Tap Factory Capped	at 2 o'clock		4			☐	2	
-	100.3	MGP	General Photo						☐		
-	104.8	MMC	Material Change	Remarks: Vitrified clay					☐		
3	104.8	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint End	F01				☐	7	5
-	105.9	TF	Tap Factory	at 12 o'clock		4			☐	12	
-	106.9	AEP	End of Pipe	Remarks: Pipe is sealed off					☐		

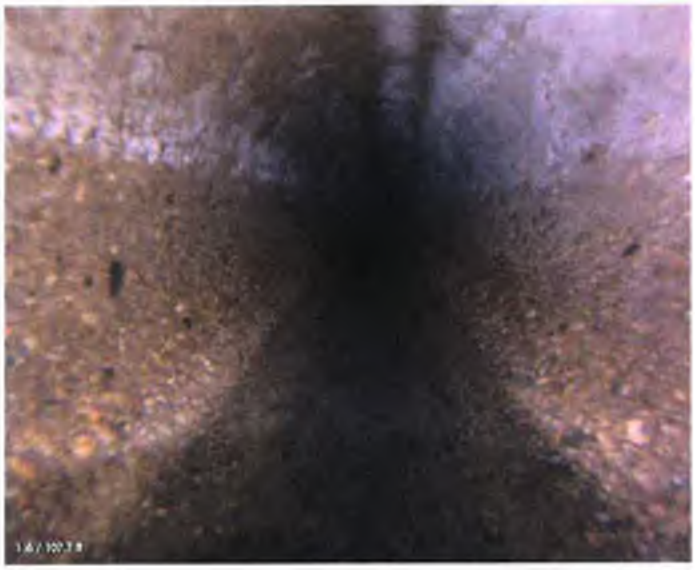


PACP Code:	AMH		
Description:	Manhole		
Image Name:	d14b6c24-4e7e-49bb-88cc-a4374d527da4_0-AMH.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Begin survey		

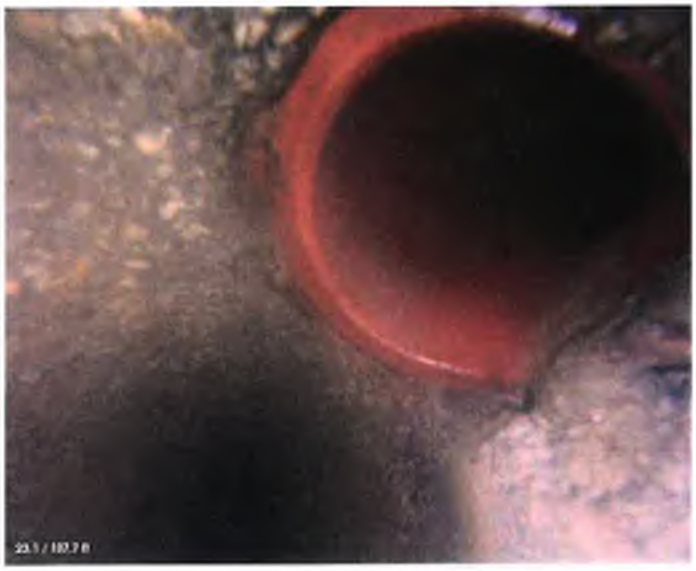
PACP Code:	MWL		
Description:	Water Level		
Image Name:	7625d91c-734b-4bda-b227-af5af286febd_0-MWL.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	5		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	CL		
Description:	Crack Longitudinal		
Image Name:	1a1df95e-8f3b-4f7a-9445-2ffa2797b807_0.6-CL.jpg		
Distance (ft):	0.6		
Structural Grade:	2	Maintenance Grade	0
Percent Value:			
Clock At/From:	10	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

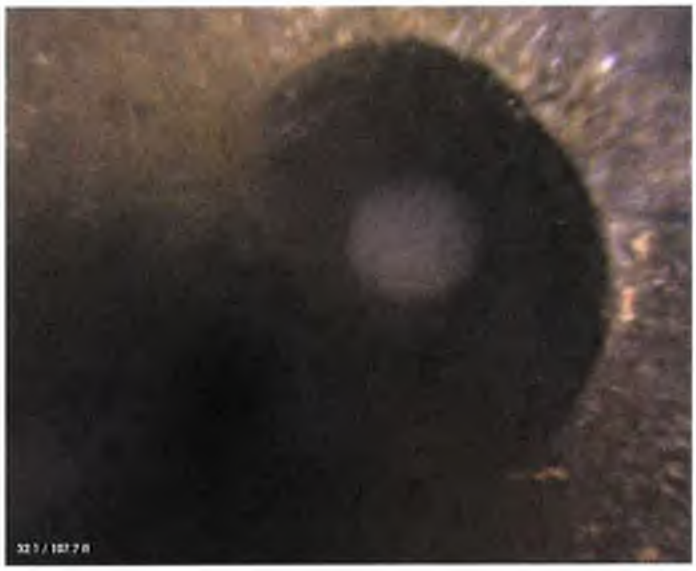


PACP Code:	SAP		
Description:	Surface Aggregate Projecting		
Image Name:	60526e5c-4746-4a07-b841-1a853971dfeb_1.6-SAP.jpg		
Distance (ft):	1.6		
Structural Grade:	3	Maintenance Grade	0
Percent Value:			
Clock At/From:	7	Clock To:	5
1st Value:		2nd Value:	
Continuous Index:	S01	Within 8" of Joint:	☐
Remarks:			



PACP Code:	TB		
Description:	Tap Break-in		
Image Name:	de1e3e85-28c8-4112-b87d-c49615eda910_23.1-TB.jpg		
Distance (ft):	23.1		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	1	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**9141e370-15d0-4e41-85fd-120a200c94dc_30.9-MMC.jpg**		
Distance (ft):	**30.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



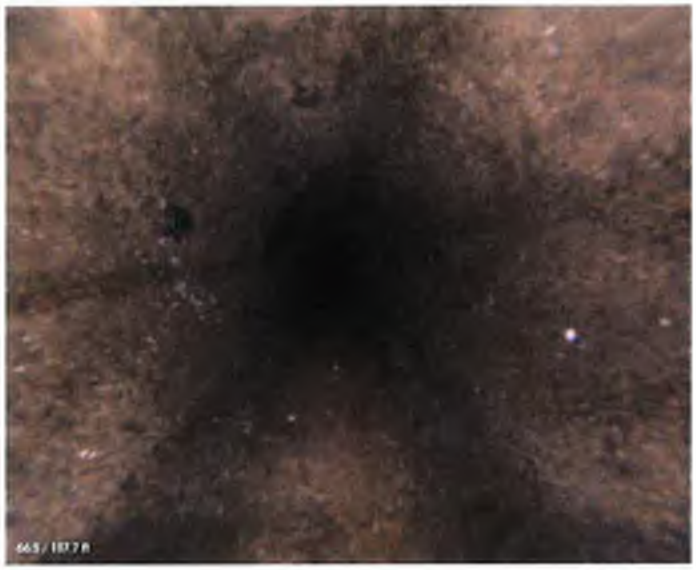
PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**bfe4818d-dc59-4a2d-9a5a-5cf3c1161521_32.1-TFC.jpg**		
Distance (ft):	**32.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**22f43056-86b1-4eb2-8d5e-2ef0367c54bb_33.4-MMC.jpg**		
Distance (ft):	**33.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

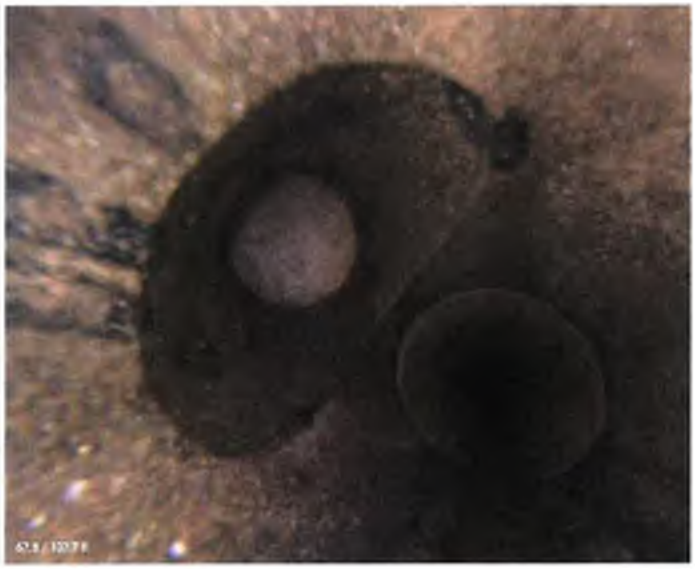
PACP Code:	TB		
Description:	Tap Break-in		
Image Name:	7444b2ad-645b-4097-89e6-cc7ba3dee963_42.9-TB.jpg		
Distance (ft):	42.9		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	1	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	MGP		
Description:	General Photo		
Image Name:	aefa3e7b-c134-4585-b9fc-8af9f2c11f31_50.7-MGP.jpg		
Distance (ft):	50.7		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	TB		
Description:	Tap Break-in		
Image Name:	f0ffee58-c965-43ce-8468-2181a26afdbc_65.7-TB.jpg		
Distance (ft):	65.7		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**dd7b2dcd-e963-49e0-b638-4d22bacbc81e_66.5-MMC.jpg**		
Distance (ft):	**66.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

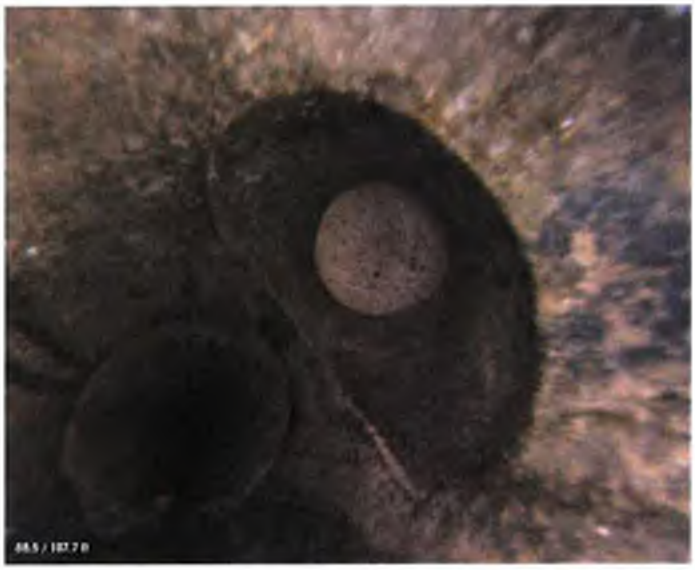


PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**8489c473-4b4e-4c35-9063-ce10e3f072ad_67.8-TFC.jpg**		
Distance (ft):	**67.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**a64e6f99-3a7b-4c8e-876c-caa45f32a8e5_69.2-MMC.jpg**		
Distance (ft):	**69.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

* maybe a concern for CIPP

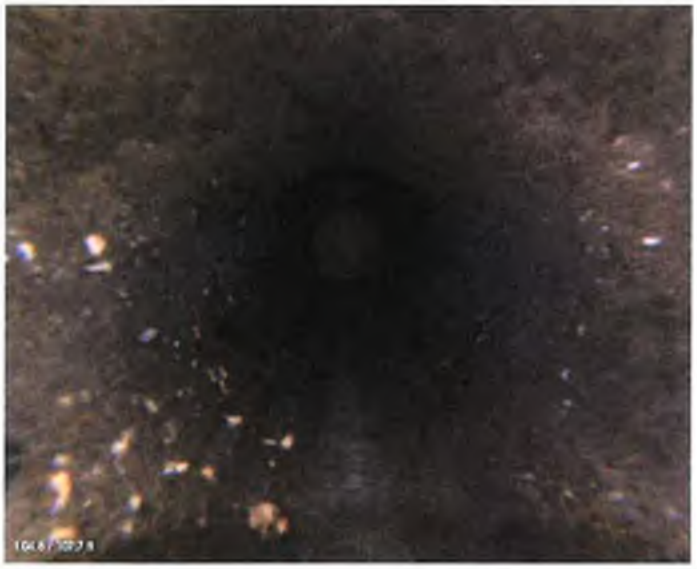
PACP Code:	DAE		
Description:	**Deposits Attached Encrustation**		
Image Name:	**48a7874f-e2a9-48c0-8a09-a3ad5ca40563_83.8-DAE.jpg**		
Distance (ft):	**83.8**		
Structural Grade:	**0**	Maintenance Grade	**2**
Percent Value:	**5**		
Clock At/From:	**3**	Clock To:	**9**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	TFC		
Description:	**Tap Factory Capped**		
Image Name:	**19a73e0c-b7e7-4e9a-a927-4820f9c6e9db_88.5-TFC.jpg**		
Distance (ft):	**88.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	MGP		
Description:	**General Photo**		
Image Name:	**b8330461-5898-4e6c-8ef8-5fcb918ef41e_100.3-MGP.jpg**		
Distance (ft):	**100.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

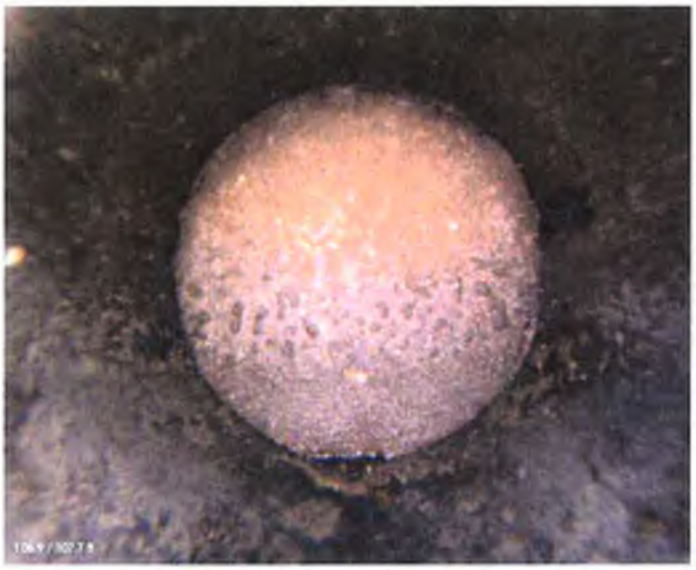
PACP Code:	MMC		
Description:	Material Change		
Image Name:	92875649-ea9b-4e9f-ad40-6b78aba96748_104.8-MMC.jpg		
Distance (ft):	104.8		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Vitrified clay		



* surface concern

PACP Code:	SAP		
Description:	Surface Aggregate Projecting		
Image Name:	fa17da5f-2133-41b5-a761-40bfa6b01164_104.8-SAP.jpg		
Distance (ft):	104.8		
Structural Grade:	3	Maintenance Grade	0
Percent Value:			
Clock At/From:	7	Clock To:	5
1st Value:		2nd Value:	
Continuous Index:	F01	Within 8" of Joint:	☐
Remarks:			

PACP Code:	TF		
Description:	Tap Factory		
Image Name:	b3c75b24-a2bc-4785-9af1-564aee6eb520_105.9-TF.jpg		
Distance (ft):	105.9		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	12	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**AEP**		
Description:	**End of Pipe**		
Image Name:	**75c55ce5-1eb7-4926-bd77-0a79e848b227_106.9-AEP.jpg**		
Distance (ft):	**106.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Pipe is sealed off**		

• Sealed off pipe, still OK with CIPP pipe

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset:

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8011 to 04-8010	04-8011	04-8010	Concrete Pipe (non-reinforced)	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA		0	0
Pre-Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
North A St	City of Arvin	Main Highway - urban	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/02/2010	11:37 AM	Upstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		99
Media Label	Reverse Setup	Work Order No	Additional Info	
NS19-1455	NO	-	Length unknown - Upstream manhole location unknown	

Results:

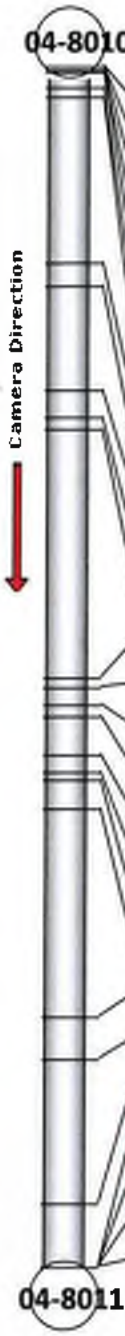
Overall Rating	Structural Rating	Maintenance Rating
71	63	8
Overall Index	Structural Index	Maintenance Index
3.09	3	4
Overall Quick	Structural Quick	Maintenance Quick
513C	3C00	5131

- at start WL = 5%
- Joints relitivley non-dislocated (some but no large offsets)
- ~~may not be suitable for CIPP~~
- water level has been consistentley at 5%.
- Spot Repair for intruding pipe and settlement obstruction

Recommendation

- Spot repair (J90 - 96) (6ft)
- CIPP entire length of pipe (+197ft)

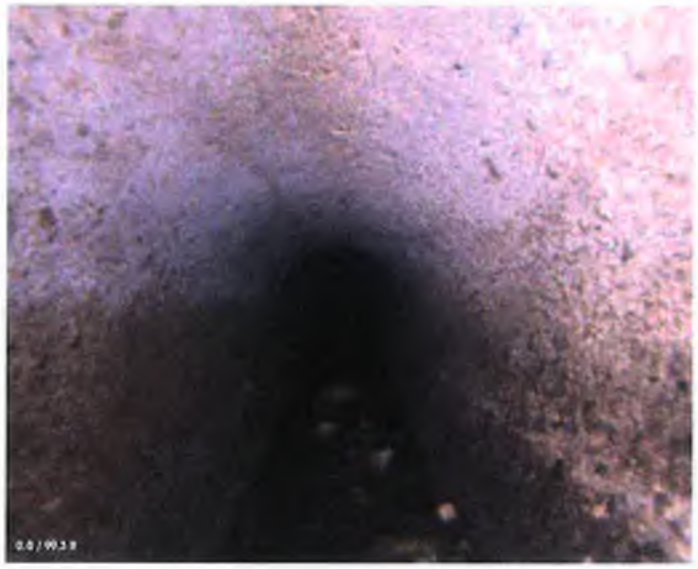
Grade	Dist (ft)	Observation
-	0	[AMH] Manhole Remarks: Begin survey
-	0	[MWL] Water Level 5% of cross sectional area 5 %
3	0	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint Start SAP
3	0.3	[FL] Fracture Longitudinal at 1 o'clock within 8" of joint ~~[illegible]~~ JO - 0.5
-	0.4	[MMC] Material Change Remarks: Vitrified clay
-	1.7	[TF] Tap Factory at 10 o'clock
-	2.9	[MMC] Material Change Remarks: Concrete
-	16.3	[TFC] Tap Factory Capped at 10 o'clock
-	18.2	[MGO] General Observation Remarks: Begin using rear camera due to poor quality images from fr
-	27.1	[MMC] Material Change Remarks: Vitrified clay
-	29	[TF] Tap Factory at 10 o'clock
-	29.9	[MMC] Material Change Remarks: Concrete
-	50.6	[MGP] General Photo
-	51.3	[MMC] Material Change Remarks: Vitrified clay
-	52.7	[TF] Tap Factory at 10 o'clock
-	53.7	[MMC] Material Change Remarks: Concrete
-	56.9	[MMC] Material Change Remarks: Vitrified clay
-	58.3	[TF] Tap Factory at 2 o'clock
-	59	[MMC] Material Change Remarks: Concrete
-	61.3	[TB] Tap Break-in at 1 o'clock
-	78.6	[TBA] Tap Break-in Active at 12 o'clock
-	82.1	[TFC] Tap Factory Capped at 9 o'clock
-	94.1	[TFC] Tap Factory Capped at 2 o'clock
3	99.3	[TBI] Tap Break-in Intruding at 12 o'clock NOT within 8" of joint
5	99.3	[DSF] Deposits Settled Fine 90% of cross sectional area from 12 to 10 o'clock NOT within 8" of joint
3	99.3	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint End
-	99.3	[MSA] Abandoned Survey Remarks: Blocked by Deposits and intruding tap



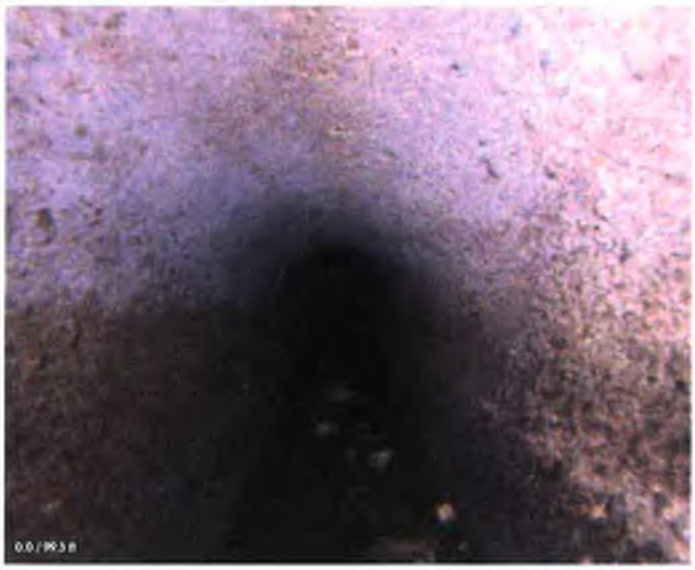
Condition Observations:

Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	5% of cross sectional area				5	☐		
3	0	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint Start	S01				☐	7	5
3	0.3	FL	Fracture Longitudinal	at 1 o'clock within 8" of joint					☑	1	
-	0.4	MMC	Material Change	Remarks: Vitrified clay					☐		
-	1.7	TF	Tap Factory	at 10 o'clock		4			☐	10	
-	2.9	MMC		Remarks: Concrete					☐		
-	16.3	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	

-	18.2	MGO	General Observation	Remarks: Begin using rear camera due to poor quality images from front camera. Clocking angles are from front camera point of view.					☐		
-	27.1	MMC	Material Change	Remarks: Vitrified clay					☐		
-	29	TF	Tap Factory	at 10 o'clock		4			☐	10	
-	29.9	MMC	Material Change	Remarks: Concrete					☐		
-	50.6	MGP	General Photo						☐		
-	51.3	MMC		Remarks: Vitrified clay					☐		
-	52.7	TF	Tap Factory	at 10 o'clock		4			☐	10	
-	53.7	MMC	Material Change	Remarks: Concrete					☐		
-	56.9	MMC	Material Change	Remarks: Vitrified clay					☐		
-	58.3	TF	Tap Factory	at 2 o'clock		4			☐	2	
-	59	MMC	Material Change	Remarks: Concrete					☐		
-	61.3	TB	Tap Break-in	at 1 o'clock		4			☐	1	
-	78.6	TBA	Tap Break-in Active	at 12 o'clock		4			☐	12	
-	82.1	TFC	Tap Factory Capped	at 9 o'clock		4			☐	9	
-	94.1	TFC	Tap Factory Capped	at 2 o'clock		4			☐	2	
3	99.3	TBI	Tap Break-in Intruding	at 12 o'clock NOT within 8" of joint		5	1		☐	12	
5	99.3	DSF	Deposits Settled Fine	90% of cross sectional area from 12 to 10 o'clock NOT within 8" of joint				90	☐	12	10
3	99.3	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint End	F01				☐	7	5
-	99.3	MSA	Abandoned Survey	Remarks: Blocked by Deposits and intruding tap					☐		

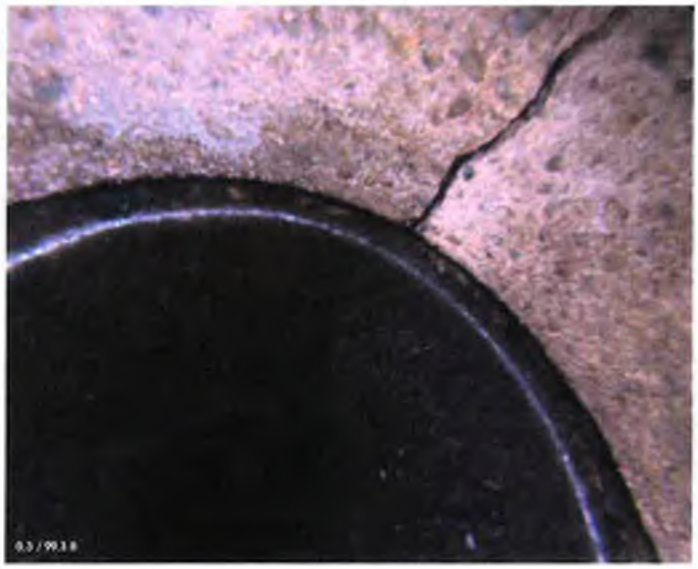


PACP Code:	AMH		
Description:	Manhole		
Image Name:	5c6b9714-637b-4d1f-b29e-1537669efffa_0-AMH.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Begin survey		

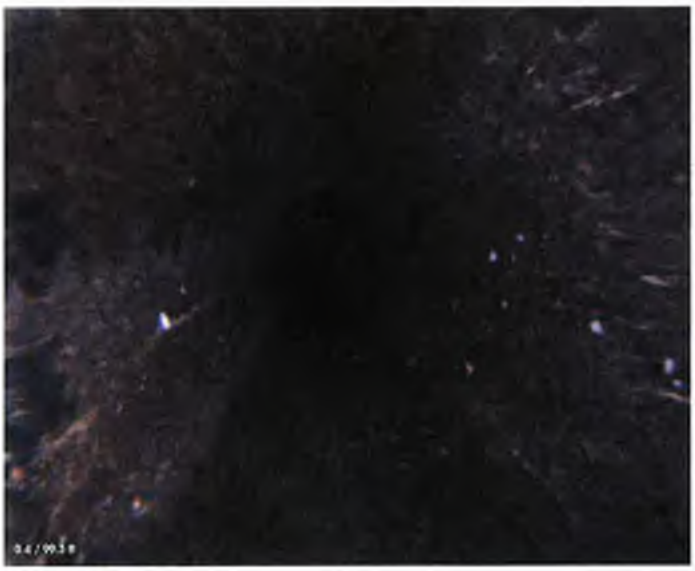


PACP Code:	**MWL**		
Description:	**Water Level**		
Image Name:	**dda6b3aa-6842-4d24-8b9e-20d0380c18fd_0-MWL.jpg**		
Distance (ft):	**0**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:	**5**		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**1876d128-8973-4292-8cf9-6d26fdb25f96_0-SAP.jpg**		
Distance (ft):	**0**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**7**	Clock To:	**5**
1st Value:		2nd Value:	
Continuous Index:	**S01**	Within 8" of Joint:	☐
Remarks:			



PACP Code:	**FL**		
Description:	**Fracture Longitudinal**		
Image Name:	**30f7b47c-4dd8-41e8-83be-a274da581248_0.3-FL.jpg**		
Distance (ft):	**0.3**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**1**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**309d1c37-4c37-44d3-8e45-b781d2670c33_0.4-MMC.jpg**		
Distance (ft):	**0.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

PACP Code:	TF		
Description:	**Tap Factory**		
Image Name:	**5ecc30af-64b7-43dd-b720-308762352e72_1.7-TF.jpg**		
Distance (ft):	**1.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

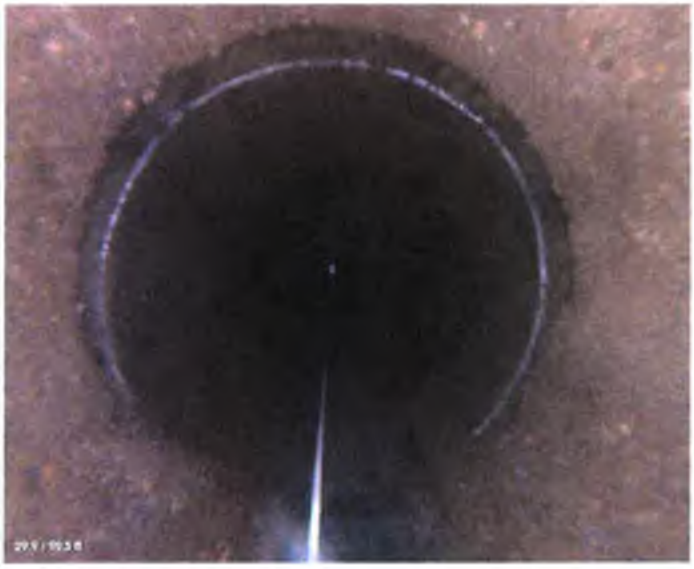
PACP Code:	**MMC**		
Description:			
Image Name:	**bd304c1b-ad27-41d1-a378-ded4b8ae9f0b_2.9-MMC .jpg**		
Distance (ft):	**2.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**c233d9d6-ad47-4d2e-81bb-2e2dbb96b006_16.3-TFC.jpg**		
Distance (ft):	**16.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MGO**		
Description:	**General Observation**		
Image Name:	**26720404-b36c-401f-bc3c-9afcc07a8cbe_18.2-MGO.jpg**		
Distance (ft):	**18.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Begin using rear camera due to poor quality images from front camera. Clocking angles are from front camera point of view.**		

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**fc50d23a-c696-47a8-81a0-be468b5f8c99_27.1-MMC.jpg**		
Distance (ft):	**27.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

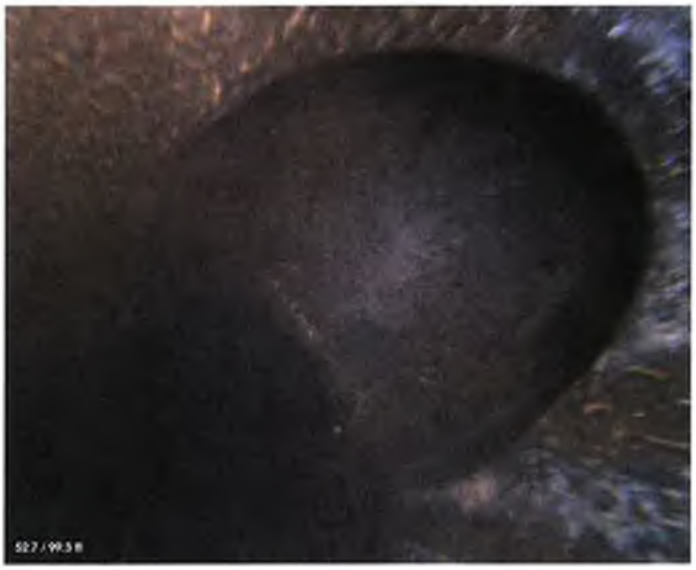
PACP Code:	**TF**		
Description:	**Tap Factory**		
Image Name:	**c1cdc4e7-82f4-4f15-991a-9d3f8f08960d_29-TF.jpg**		
Distance (ft):	**29**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



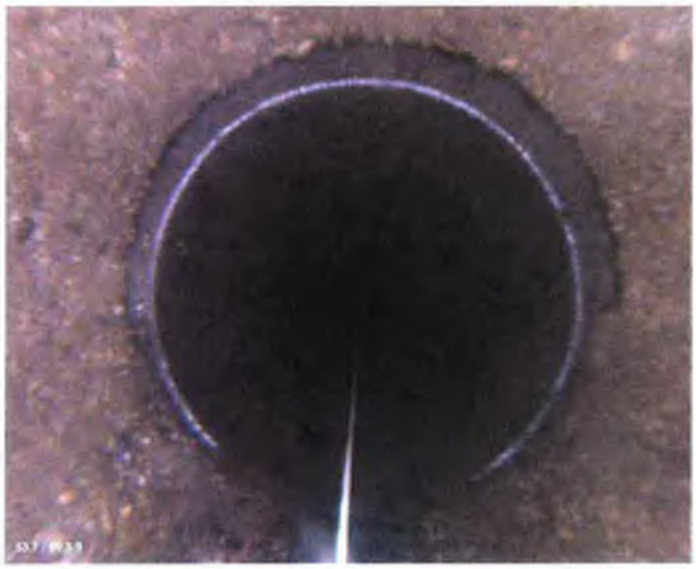
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**00cf985c-31fb-4e6a-aecf-7724f6f5b239_29.9-MMC.jpg**		
Distance (ft):	**29.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**0d90726b-17ec-4120-a1e3-a866c24387a9_50.6-MGP.jpg**		
Distance (ft):	**50.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

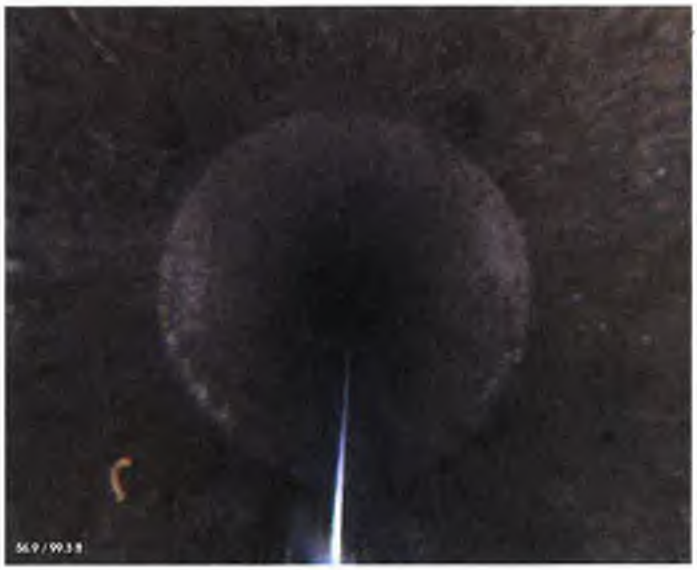
PACP Code:	**MMC**		
Description:			
Image Name:	**e82323c7-9536-401a-a5c9-30a3a305f06d_51.3-MMC .jpg**		
Distance (ft):	**51.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



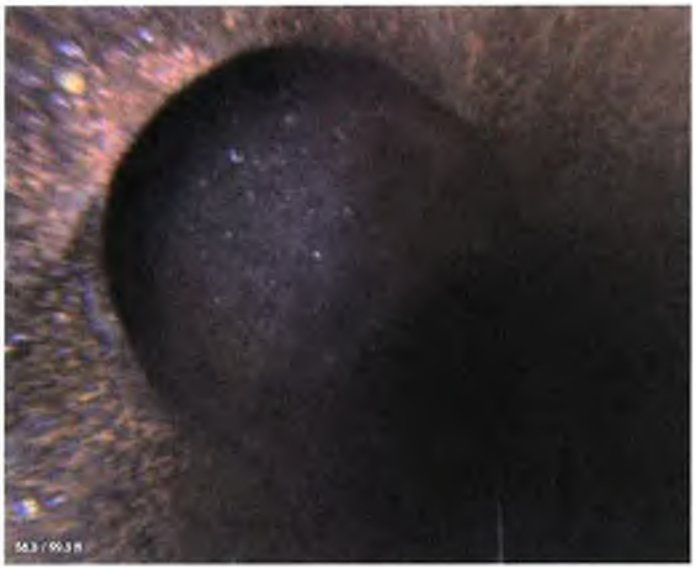
PACP Code:	**TF**		
Description:	**Tap Factory**		
Image Name:	**e065e8fa-2b68-4bb2-aa2e-a9814b78138c_52.7-TF.jpg**		
Distance (ft):	**52.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



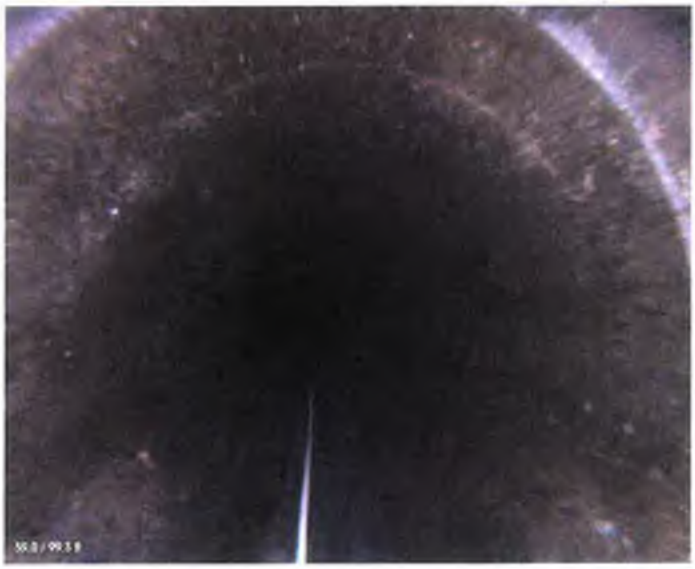
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**ab25b29b-92e8-4fa9-9c62-970ce31d958c_53.7-MMC.jpg**		
Distance (ft):	**53.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		



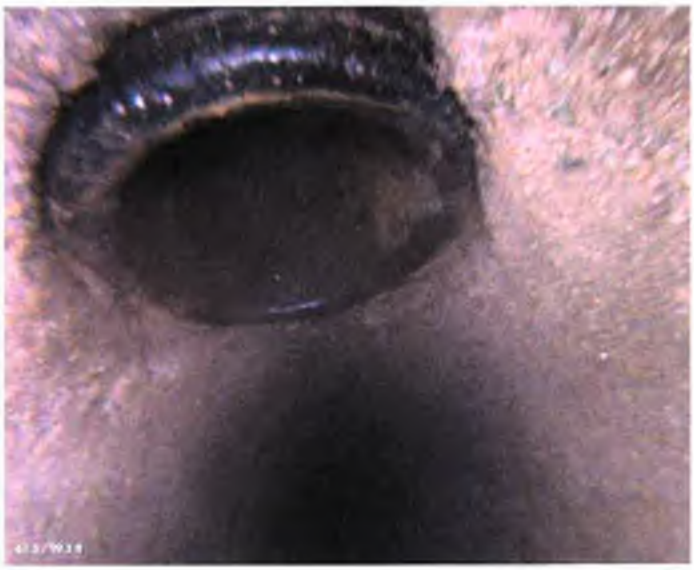
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**68ea5d8a-0031-4e0b-8207-c6380b7f7b4c_56.9-MMC.jpg**		
Distance (ft):	**56.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



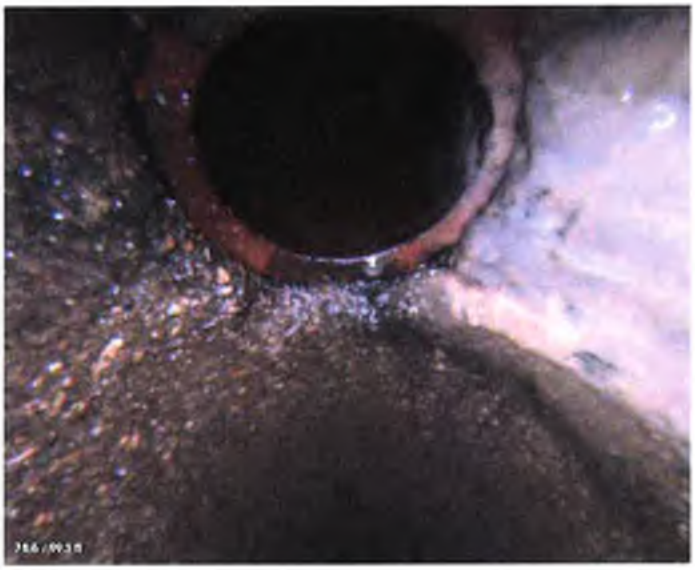
PACP Code:	**TF**		
Description:	**Tap Factory**		
Image Name:	**9650cb5c-c320-4c56-8439-cb00d4adcabb_58.3-TF.jpg**		
Distance (ft):	**58.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**6899e5a8-b51a-497e-9e6b-a8782e9868ff_59-MMC.jpg**		
Distance (ft):	**59**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

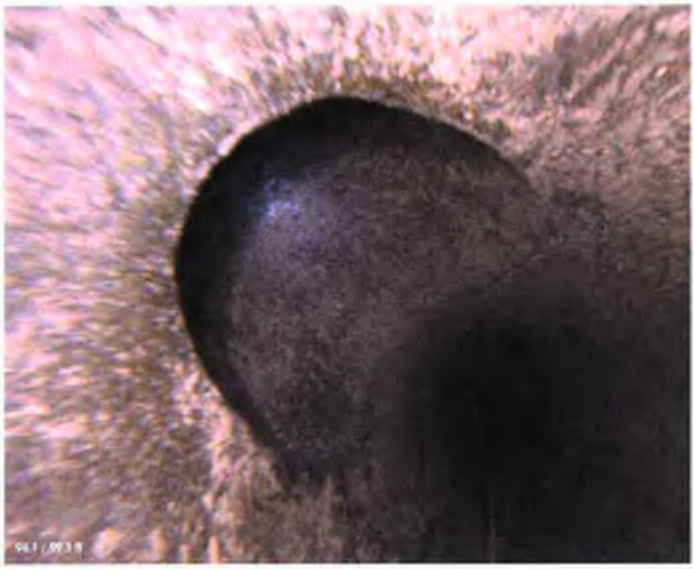


PACP Code:	TB		
Description:	Tap Break-in		
Image Name:	d9f402fd-ad49-4fc8-9653-99c89e9965c2_61.3-TB.jpg		
Distance (ft):	61.3		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	1	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	TBA		
Description:	Tap Break-in Active		
Image Name:	b4660e74-b3ff-49cc-8496-253910f6bb95_78.6-TBA.jpg		
Distance (ft):	78.6		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	12	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	TFC		
Description:	Tap Factory Capped		
Image Name:	362f0cdd-b788-4ad6-9592-f0bedeb1b40a_82.1-TFC.jpg		
Distance (ft):	82.1		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	9	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	TFC		
Description:	Tap Factory Capped		
Image Name:	e2cbc0ef-bbd9-4c23-80b2-33e193359518_94.1-TFC.jpg		
Distance (ft):	94.1		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:	2	Clock To:	
1st Value:	4	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	TBI		
Description:	Tap Break-in Intruding		
Image Name:	0a70a3ca-8ed5-4179-bfba-e4da161d95a7_99.3-TBI.jpg		
Distance (ft):	99.3		
Structural Grade:	0	Maintenance Grade	3
Percent Value:			
Clock At/From:	12	Clock To:	
1st Value:	5	2nd Value:	1
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	DSF		
Description:	Deposits Settled Fine		
Image Name:	7a7a8a3d-b99a-45f5-b2a0-8519caa49131_99.3-DSF.jpg		
Distance (ft):	99.3		
Structural Grade:	0	Maintenance Grade	5
Percent Value:	90		
Clock At/From:	12	Clock To:	10
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**8861369f-e141-4cbe-8b01-380dc441c684_99.3-SAP.jpg**		
Distance (ft):	**99.3**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**7**	Clock To:	**5**
1st Value:		2nd Value:	
Continuous Index:	**F01**	Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MSA**		
Description:	**Abandoned Survey**		
Image Name:	**db599d11-fa84-475b-a092-c57f6d28a9ae_99.3-MSA.jpg**		
Distance (ft):	**99.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Blocked by Deposits and intruding tap**		

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset:

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8008 to 04-8003	04-8008	04-8003	Concrete Pipe (non-reinforced)	8	8
Shape	**Sewer Use**	**Drainage Area**	**Lining Method**	**Total Length**	**Joint Length**
Circular	Sanitary	NA		327	0
Pre-Cleaning	**Clean Date**	**Flow Control**	**Purpose**	**Year Laid**	**Year Renewed**
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
North A St	City of Arvin	Main Highway - urban	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/01/2010	05:00 PM	Downstream
Owner	**Customer**	**Weather**	**PO Number**	**Length Surveyed**
City of Arvin	Veolia	Dry		327
Media Label	**Reverse Setup**	**Work Order No**	**Additional Info**	
NS19-1453	NO	-	Length unknown - Upstream manhole location unknown	

Results:

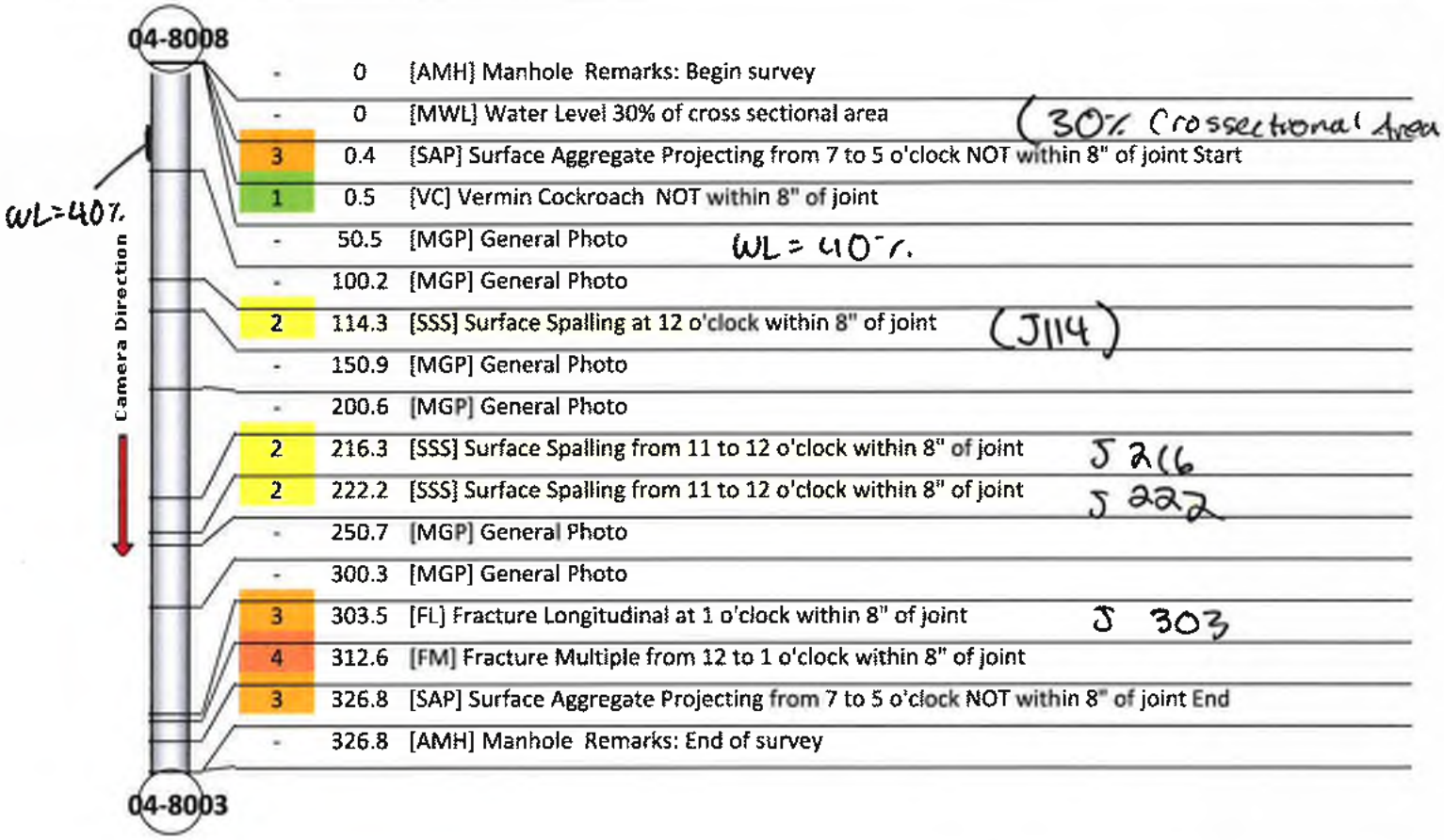
Overall Rating	Structural Rating	Maintenance Rating
209	208	1
Overall Index	**Structural Index**	**Maintenance Index**
2.94	2.97	1
Overall Quick	**Structural Quick**	**Maintenance Quick**
413L	413L	1100

- J.5 - 3.5 -> Drops in Joint (maybe due to depris)
- J0 - 90 -> WL = 30% or more

  J90 - 99 -> low

  J99 - 270 -> still relitivley at 30% water Level
- noting that there are multiple sags throughout pipeline and waterlevel stays > 30% for more than half the pipe (multiple spot repairs would not be suitable)
- open trench replacement 327 ft

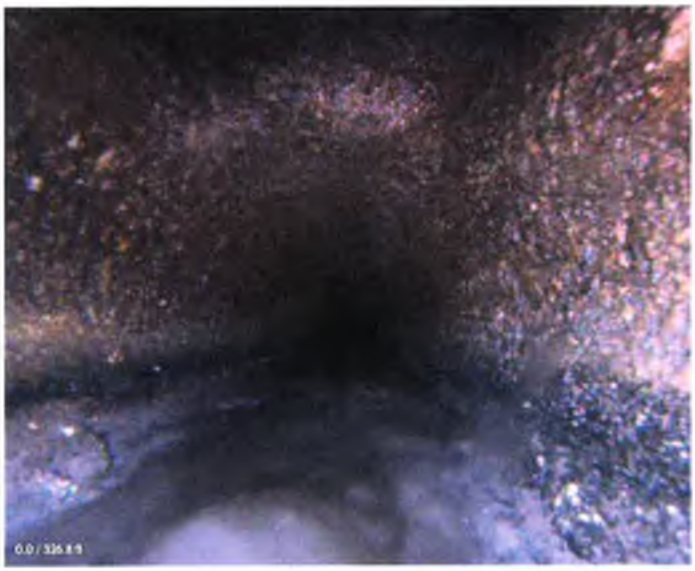
Grade	Dist (ft)	Observation



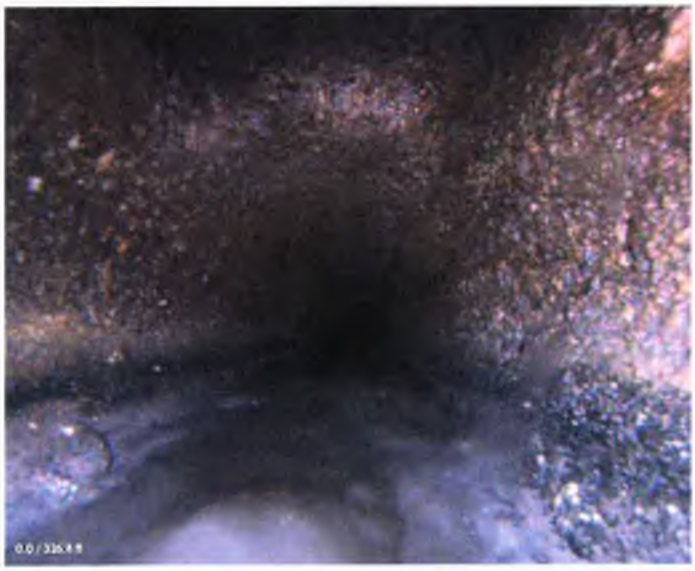
Condition Observations:

Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	30% of cross sectional area				30	☐		
3	0.4	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint Start	S01				☐	7	5
1	0.5	VC	Vermin Cockroach	NOT within 8" of joint					☐		
-	50.5	MGP	General Photo						☐		
-	100.2	MGP	General Photo						☐		
2	114.3	SSS	Surface Spalling	at 12 o'clock within 8" of joint					☑	12	
-	150.9	MGP	General Photo						☐		
-	200.6	MGP	General Photo						☐		
2	216.3	SSS	Surface Spalling	from 11 to 12 o'clock within 8" of joint					☑	11	12
2	222.2	SSS	Surface Spalling	from 11 to 12 o'clock within 8" of joint					☑	11	12
-	250.7	MGP	General Photo						☐		
-	300.3	MGP	General Photo						☐		
3	303.5	FL	Fracture Longitudinal	at 1 o'clock within 8" of joint					☑	1	
4	312.6	FM	Fracture Multiple	from 12 to 1 o'clock within 8" of joint					☑	12	1
3	326.8	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint End	F01				☐	7	5

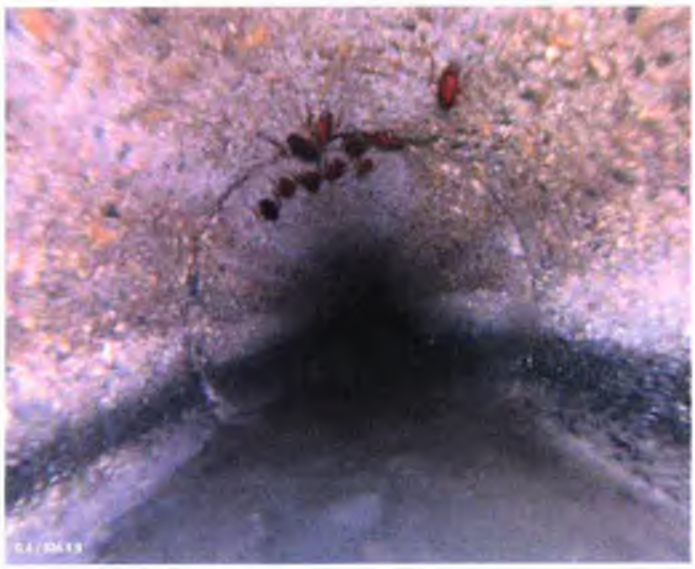
-	326.8	AMH	Manhole	Remarks: End of survey					☐		



PACP Code:	AMH		
Description:	Manhole		
Image Name:	6563ca04-8cc1-4197-876b-07ddad21bb71_0-AMH.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Begin survey		

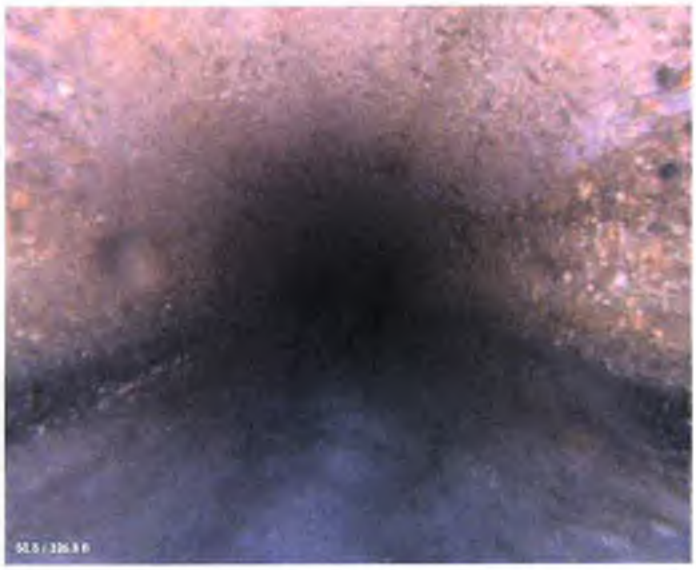


PACP Code:	MWL		
Description:	Water Level		
Image Name:	5b373343-9eee-4c4b-8ded-81f680c66b88_0-MWL.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	30		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

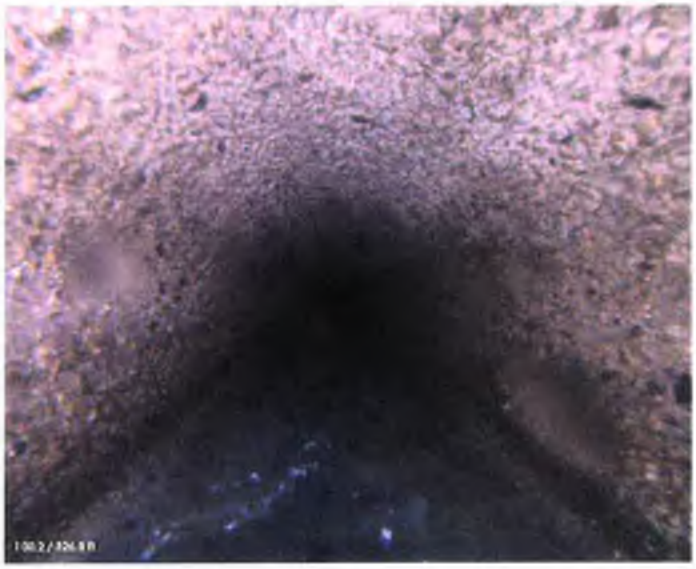


PACP Code:	SAP		
Description:	Surface Aggregate Projecting		
Image Name:	af6ce635-06f7-4be6-a2f1-231927b2f86b_0.4-SAP.jpg		
Distance (ft):	0.4		
Structural Grade:	3	Maintenance Grade	0
Percent Value:			
Clock At/From:	7	Clock To:	5
1st Value:		2nd Value:	
Continuous Index:	S01	Within 8" of Joint:	☐
Remarks:			

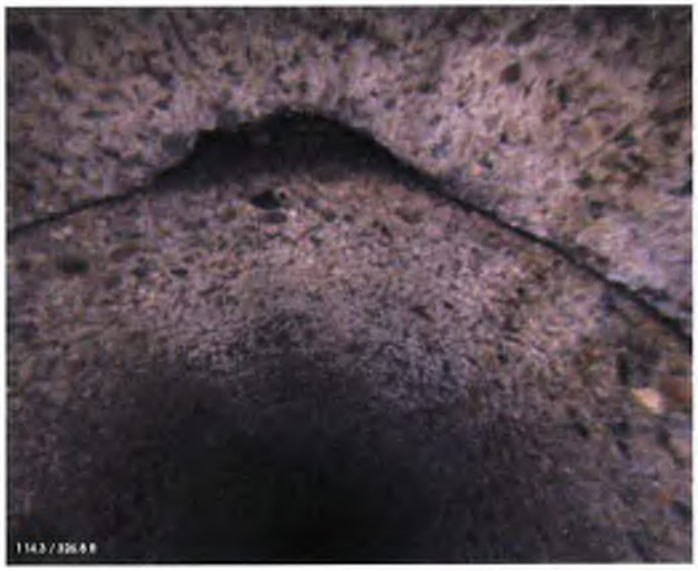
PACP Code:	VC		
Description:	Vermin Cockroach		
Image Name:	4a01b571-ebb1-4c1c-9be0-79ec358c1978_0.5-VC.jpg		
Distance (ft):	0.5		
Structural Grade:	0	Maintenance Grade	1
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	MGP		
Description:	General Photo		
Image Name:	f3bca8b0-1cfa-4a71-8dce-a73f60b41f09_50.5-MGP.jpg		
Distance (ft):	50.5		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	MGP		
Description:	General Photo		
Image Name:	468081d1-0970-4dcc-981d-797aca33e124_100.2-MGP.jpg		
Distance (ft):	100.2		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

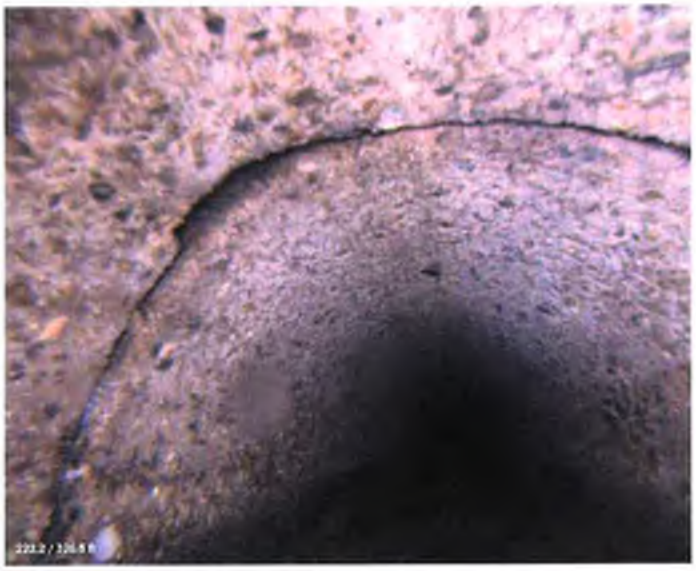


PACP Code:	**SSS**		
Description:	**Surface Spalling**		
Image Name:	**44e8aeab-9009-4f78-9379-aeed94aa70d0_114.3-SSS.jpg**		
Distance (ft):	**114.3**		
Structural Grade:	**2**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**03550d4e-cb66-4d66-83f1-c4a440b3e97d_150.9-MGP.jpg**		
Distance (ft):	**150.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

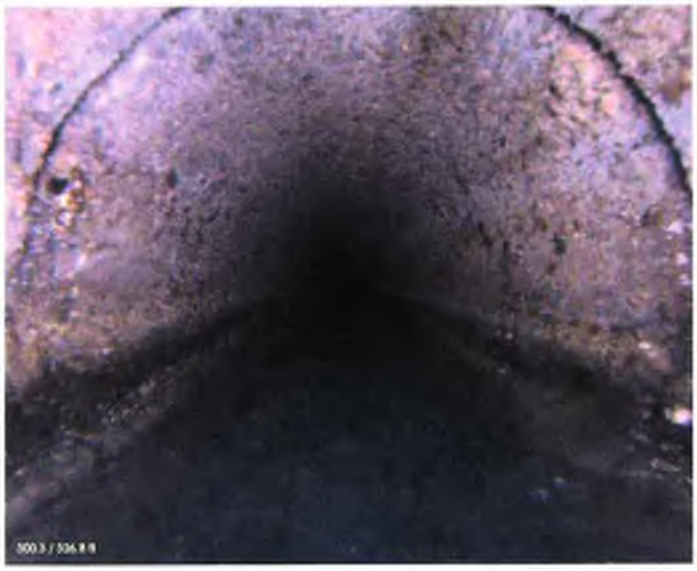
PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**7762f33b-7e0d-4ba6-88f0-dca29d428f7c_200.6-MGP.jpg**		
Distance (ft):	**200.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	SSS		
Description:	**Surface Spalling**		
Image Name:	**6aecd67e-4d62-4560-a96f-7ef4070fb374_216.3-SSS.jpg**		
Distance (ft):	**216.3**		
Structural Grade:	**2**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	**12**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

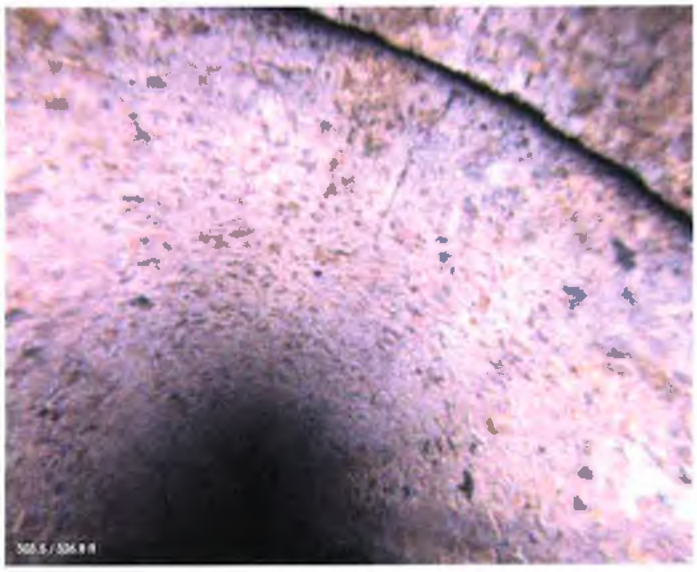


PACP Code:	SSS		
Description:	**Surface Spalling**		
Image Name:	**b36107fe-1f63-4acb-a9bb-fab3020f2f17_222.2-SSS.jpg**		
Distance (ft):	**222.2**		
Structural Grade:	**2**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	**12**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

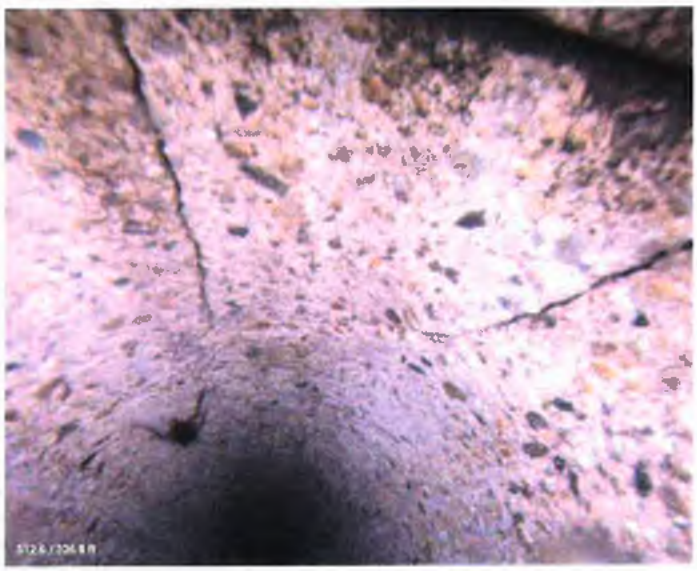
PACP Code:	MGP		
Description:	**General Photo**		
Image Name:	**471cca41-2e71-41f1-95f5-7c96eb72ce40_250.7-MGP.jpg**		
Distance (ft):	**250.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**558e409d-8256-4720-bb46-c94d53615070_300.3-MGP.jpg**		
Distance (ft):	**300.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**FL**		
Description:	**Fracture Longitudinal**		
Image Name:	**d99067e0-0415-48c4-9a3d-ba02eefce5cb_303.5-FL.jpg**		
Distance (ft):	**303.5**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**1**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**d66590e1-9d27-4b32-bd0f-693c099b32a1_312.6-FM.jpg**		
Distance (ft):	**312.6**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	**1**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**7613b38c-781b-4469-9e24-ccab26e585a6_326.8-SAP.jpg**		
Distance (ft):	**326.8**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**7**	Clock To:	**5**
1st Value:		2nd Value:	
Continuous Index:	**F01**	Within 8" of Joint:	☐
Remarks:			

PACP Code:	**AMH**		
Description:	**Manhole**		
Image Name:	**05389c26-765d-4f08-94b1-dd006f3569d8_326.8-AMH.jpg**		
Distance (ft):	**326.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**End of survey**		

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/28/2009	Weather:	Dry		
Pipe Length (ft):	375	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12016	Surveyor:	JJC	PSR:	04-8004 to 04-8003
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	C St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS9-837
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Reinforced Concrete Pipe
Drain Area:		Lining:	
Category:			
Comment:	re-try		
Location Details:		Direction of Survey:	Upstream

US MH: 04-8004 DS MH: 04-8003 Total Length Surveyed (ft): 375

- water level relitively low
- consistent material change.
- flow capacity does not need to be increased (under 10%)
- concrete seems in ok condition BUT may have worn over time
- minor joint dislocations
- Needs cleaning!!!
- 7 current tap factories (check to see if additional have been added)

04-8003

Joint every 3ft

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level 10%	13	NA
1.06	SAV	Surface Aggregate Visible	24	S 3
7.2	CM	Crack Multiple @ Joint 7 WL 10%	44	S 3
22.36	SSS	Surface Spalling minor WL 10%	84	S 2
43.62	CM	Crack Multiple @ Joint 44	136	S 3
55.98	MMC	Material Change @ Joint 56	169	NA
57.61	TF	Tap Factory	181	NA
60.32	TFC	Tap Factory Capped	196	NA
61.21	MMC	Material Change @ Joint 61 (Concrete	207	NA
100.72	MGP	General Photo	294	NA
103.99	MMC	Material Change @ 5104	309	NA
105.5	TF	Tap Factory (Crack @ Tap Factory	320	NA
105.5	CL	Crack Longitudinal	330	S 2
106.62	MMC	Material Change @ 107 (Concrete	342	NA
111.61	TB	Tap Break-in • bad conditions	360	NA
114.33	TB	Tap Break-in • bad conditions	375	NA
115.83	MMC	Material Change @ 116 Vitrified Clay	388	NA
117.24	TFC	Tap Factory Capped	399	NA
118.41	MMC	Material Change Concrete • joint blockage (CLEAN)	411	NA
121.42	MMC	Material Change Vitrified Clay	425	NA
122.78	TFC	Tap Factory Capped • cleaning? Cheetah look	436	NA
124.06	MMC	Material Change Concrete	448	NA
148.68	MMC	Material Change Vitrified Clay (CLEAN)	505	NA
149.99	TF	Tap Factory	516	NA
151.12	MMC	Material Change Concrete	528	NA
163.28	MMC	Material Change Vitrified Clay	560	NA
164.78	TFC	Tap Factory Capped Cleaning	572	NA
165.84	MMC	Material Change	583	NA
175.07	MMC	Material Change Vitrified Clay	610	NA
176.5	TF	Tap Factory	621	NA
177.7	MMC	Material Change Concrete	633	NA
192.92	MMC	Material Change Vitrified Clay	672	NA
194.59	TFC	Tap Factory Capped	683	NA
195.72	MMC	Material Change	695	NA
200.58	MGP	General Photo	713	NA
207.79	MMC	Material Change Minor Joint Dislocation (vitrified Clay)	735	NA
209.28	TFC	Tap Factory Capped	747	NA
210.42	MMC	Material Change Concrete	758	NA
222.73	MMC	Material Change Vitrified Clay	791	NA

Camera Direction

Condition OK (No Dislocation)

minor aggregate

180-Debris

No Dislocation Cleaning, maybe lining

Concrete Work

Debris

Surface aggregate showing

Dislocated Joint @ 276

Surface Aggregate 274 285

330 - 345

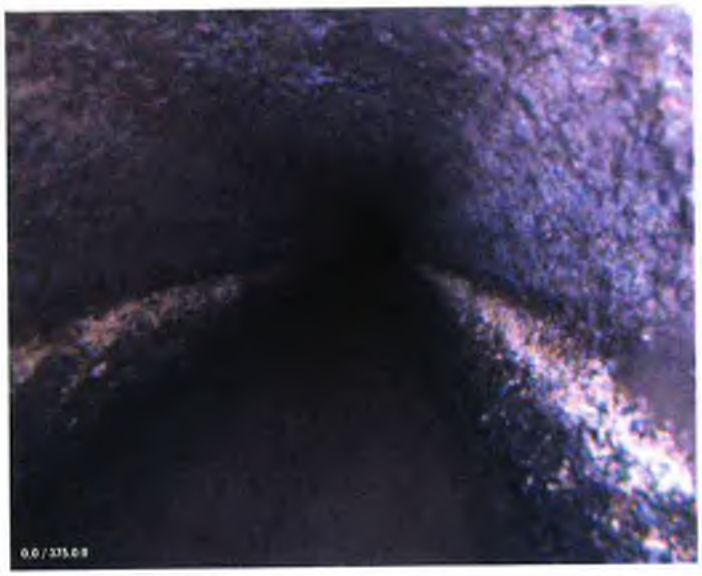
signs of high water level 345

224.16	TFC	Tap Factory Capped		802	NA
225.13	MMC	Material Change	Concrete	814	NA
234.71	MMC	Material Change	Vitrified Clay	841	NA
235.52	TFC	Tap Factory Capped		851	NA
237	MMC	Material Change	Concrete	864	NA
238.45	TB	Tap Break-In	OK condition	875	NA
250.35	MGP	General Photo		908	NA
273.45	MMC	Material Change	Vitrified Clay	962	NA
274.87	TFC	Tap Factory Capped		973	NA
277.59	TFC	Tap Factory Capped		989	NA
278.52	MMC	Material Change	Concrete	1000	NA
297.88	TB	Tap Break-In		1047	NA
308.15	TB	Tap Break-In	not best condition	1077	NA
324.37	CL	Crack Longitudinal	on Joint	1120	S 2
324.37	MMC	Material Change	Vitrified Clay	1130	NA
326.02	TF	Tap Factory		1141	NA
328.61	TFC	Tap Factory Capped		1155	NA
329.75	MMC	Material Change	330 Concrete	1167	NA
352.33	DAE	Deposits Attached Encrustation		1221	M 3
352.33	DAE	Deposits Attached Encrustation		1231	M 3
359.56	TB	Tap Break-In	Not in Good Condition	1255	NA
359.56	DAE	Deposits Attached Encrustation		1264	M 3
359.56	DAE	Deposits Attached Encrustation		1272	M 3
361.95	TF	Tap Factory	material change (VC)	1285	NA
364.43	TF	Tap Factory		1299	NA
371.57	LR	Alignment Right	NEEDS to be cleaned (Joint 371) Blockage	1323	M 2
375.05	SAV	Surface Aggregate Visible		1338	S 3
375.05	AMH	Manhole		1346	NA

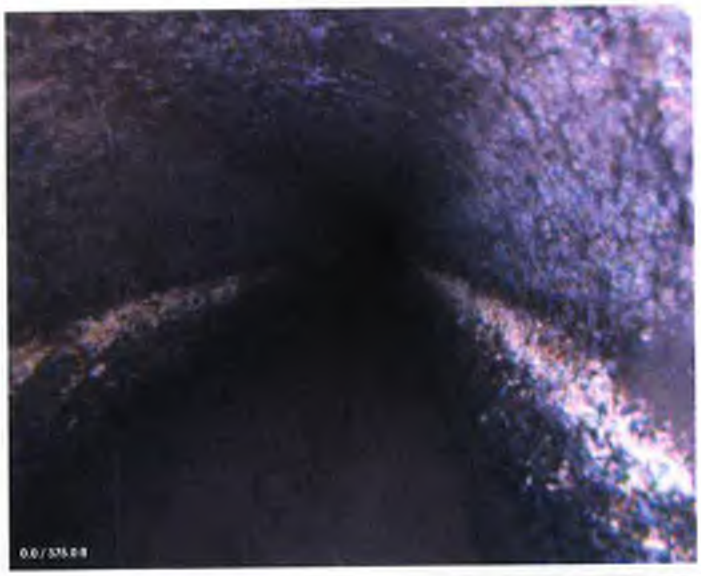
297-243

clean

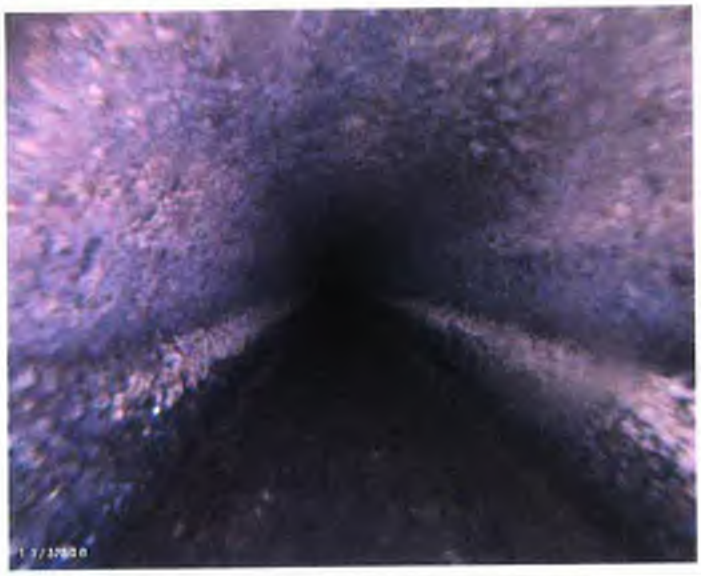
04-8004



PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



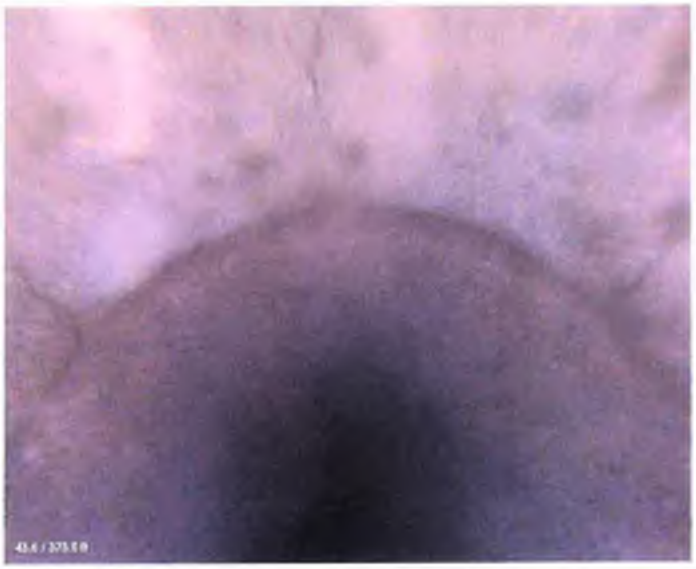
PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



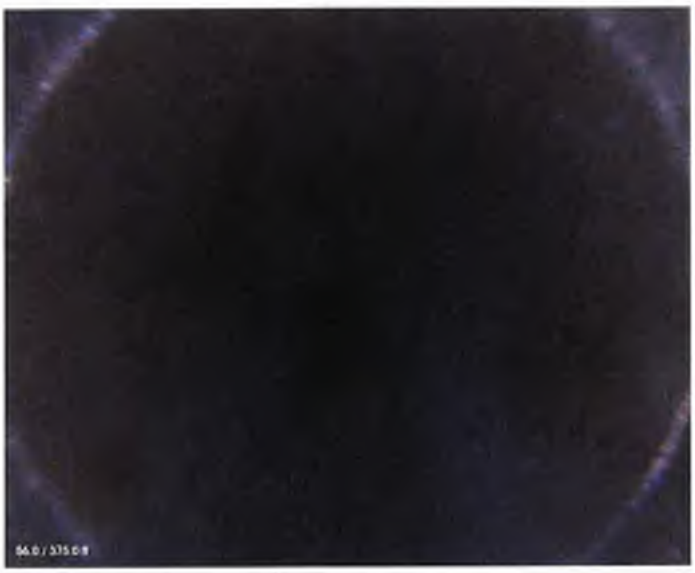
PACP Code:	SAV
Description:	Surface Aggregate Visible
Distance (ft):	1.06
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	False
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	7.2
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	12
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	22.36
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	43.62
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	MMC
Description:	Material Change
Distance (ft):	55.98
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

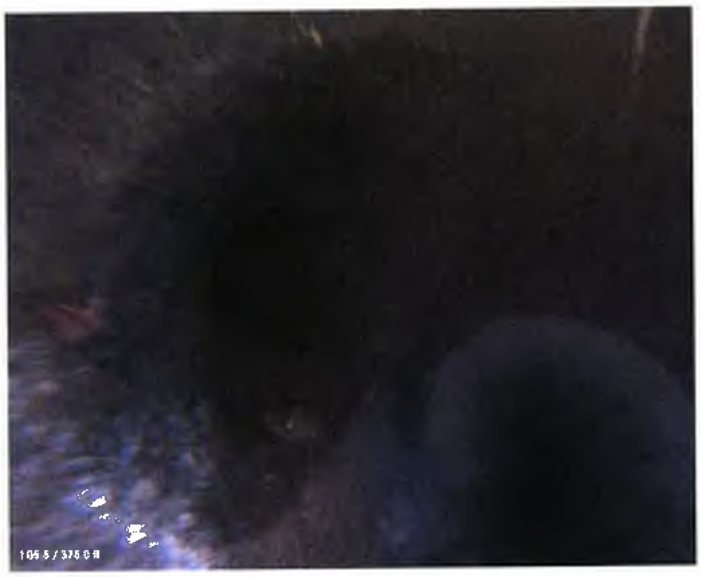
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	57.61
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	60.32
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	61.21
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

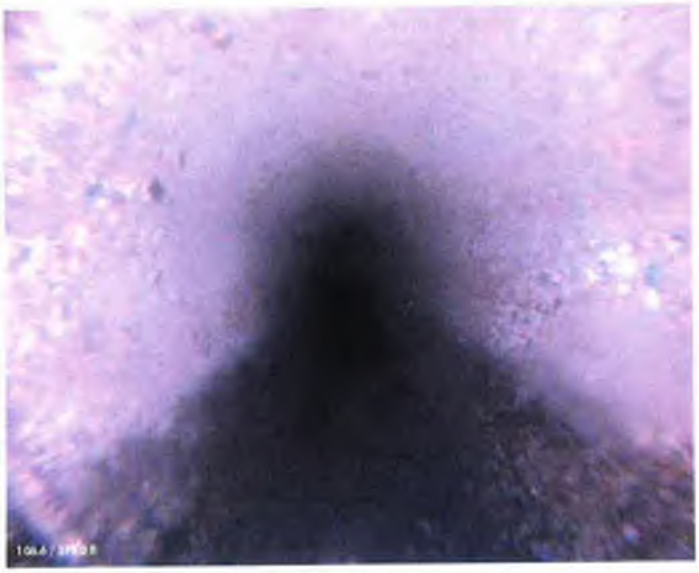
PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.72
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	103.99
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

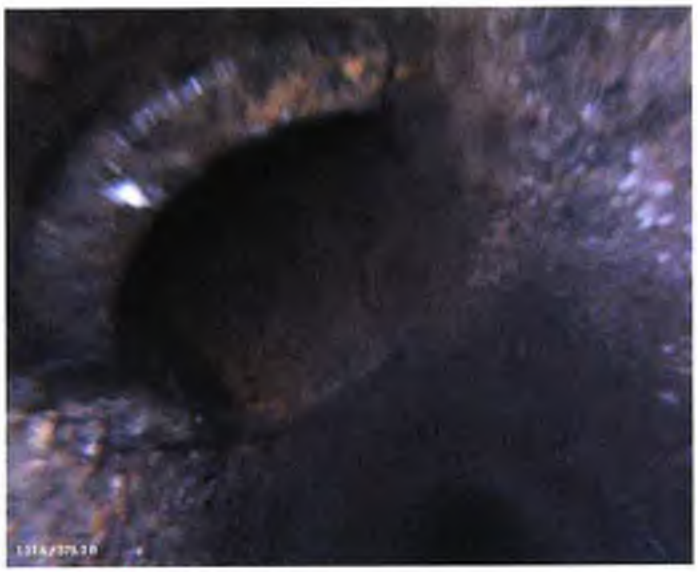


PACP Code:	TF
Description:	Tap Factory
Distance (ft):	105.5
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	105.5
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

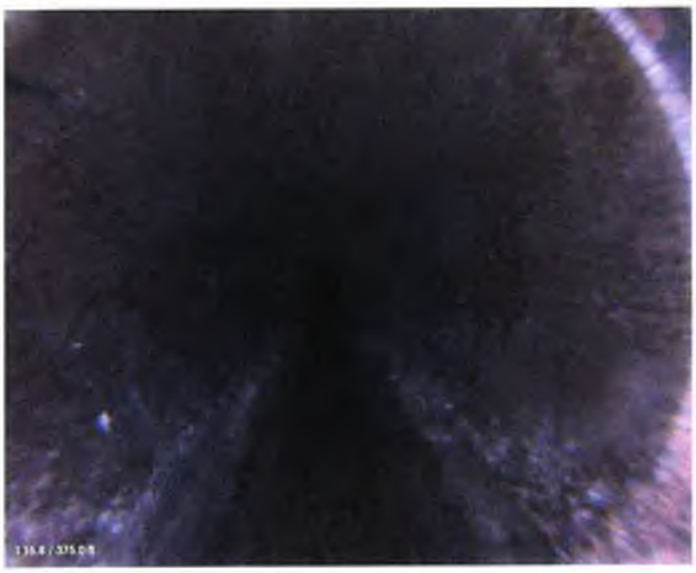


PACP Code:	MMC
Description:	Material Change
Distance (ft):	106.62
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

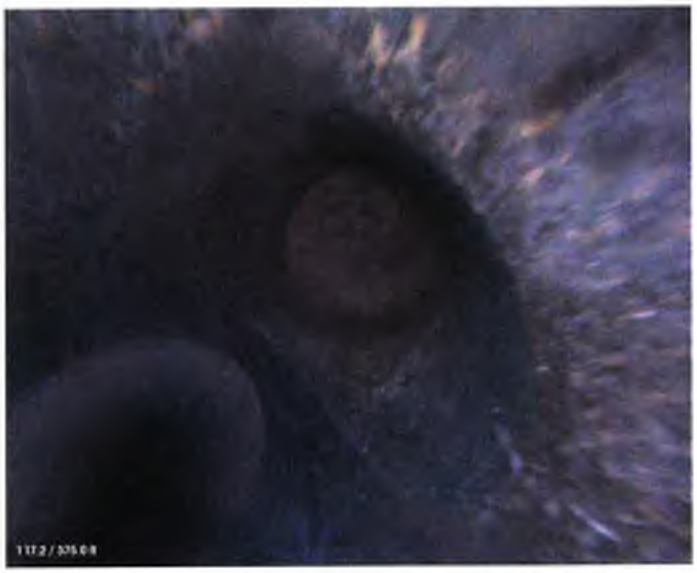


PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	111.61
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	114.33
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



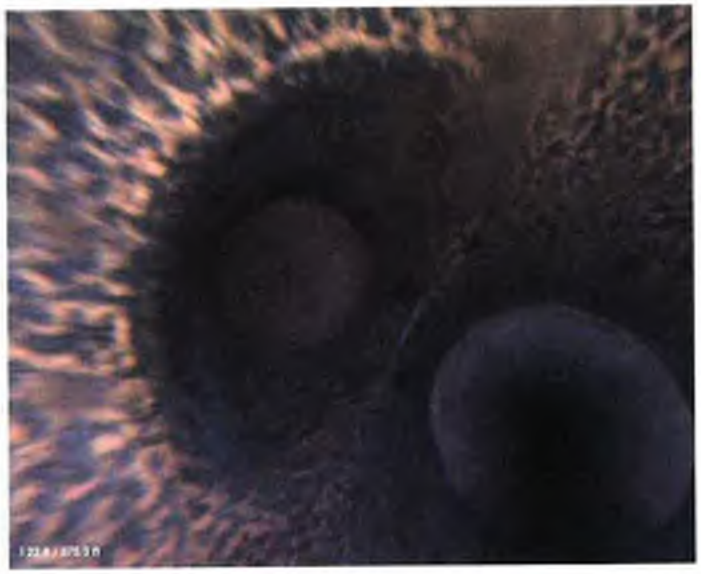
PACP Code:	MMC
Description:	Material Change
Distance (ft):	115.83
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay



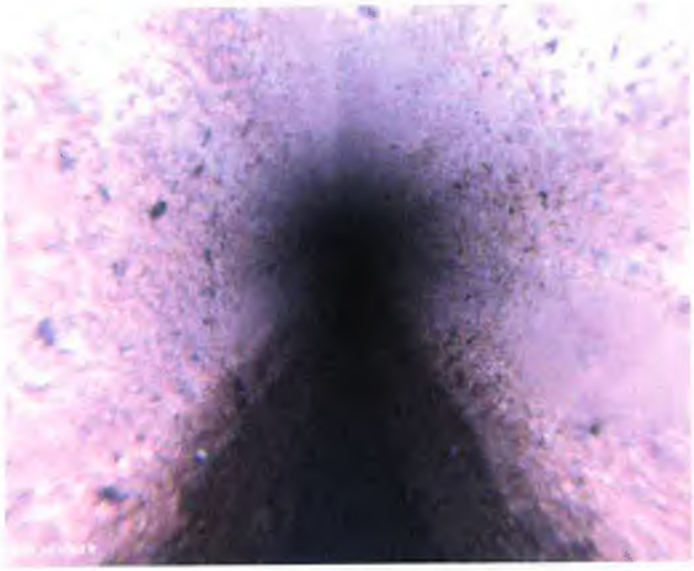
PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	117.24
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	118.41
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

PACP Code:	MMC
Description:	Material Change
Distance (ft):	121.42
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay



PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	122.78
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MMC
Description:	Material Change
Distance (ft):	124.06
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

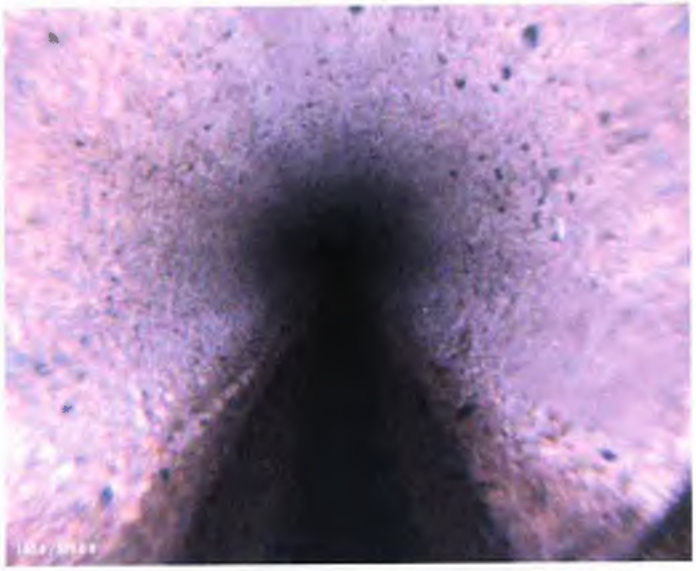
PACP Code:	MMC
Description:	Material Change
Distance (ft):	148.68
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	149.99
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	151.12
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

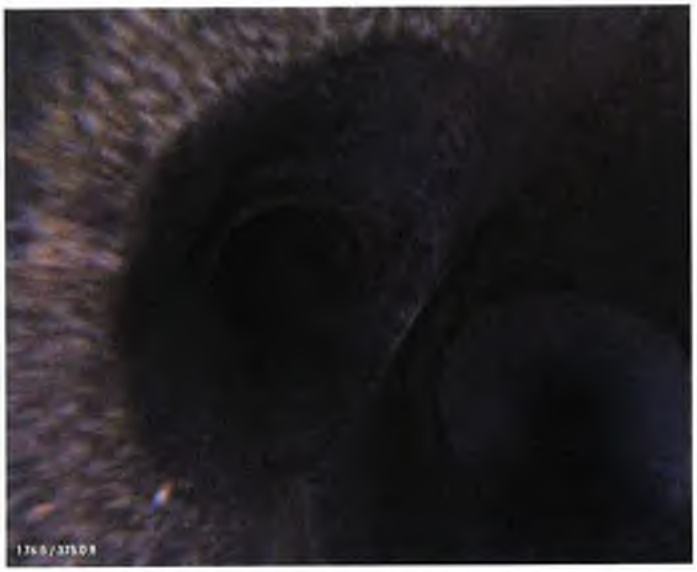
PACP Code:	MMC
Description:	Material Change
Distance (ft):	163.28
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	164.78
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

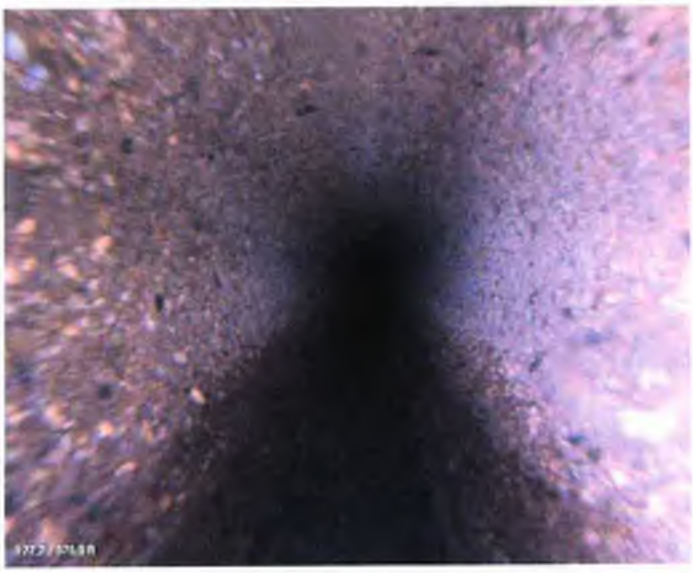


PACP Code:	MMC
Description:	Material Change
Distance (ft):	165.84
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

PACP Code:	MMC
Description:	Material Change
Distance (ft):	175.07
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay



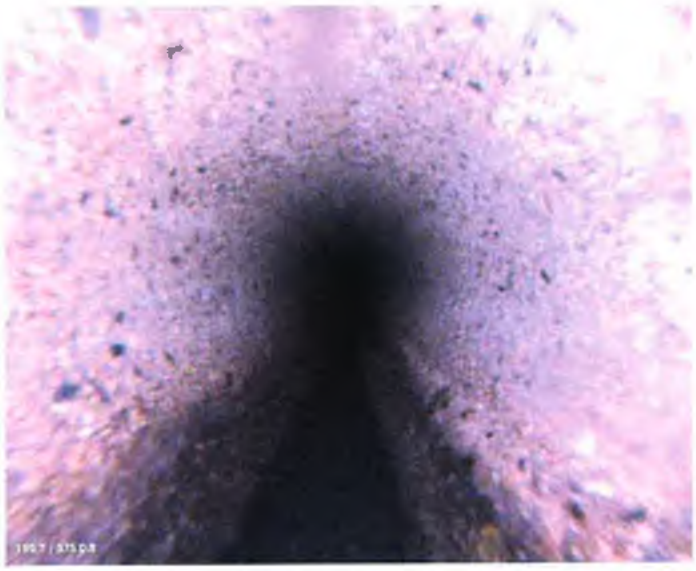
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	176.5
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



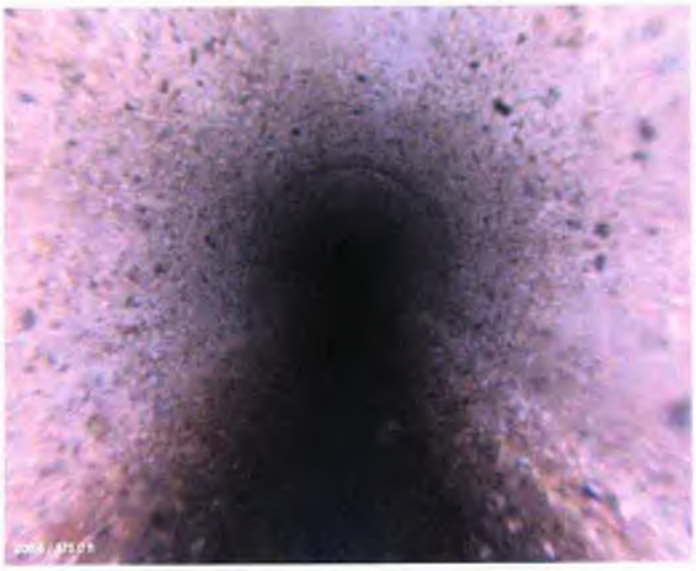
PACP Code:	MMC
Description:	Material Change
Distance (ft):	177.7
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

PACP Code:	MMC
Description:	Material Change
Distance (ft):	192.92
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	194.59
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



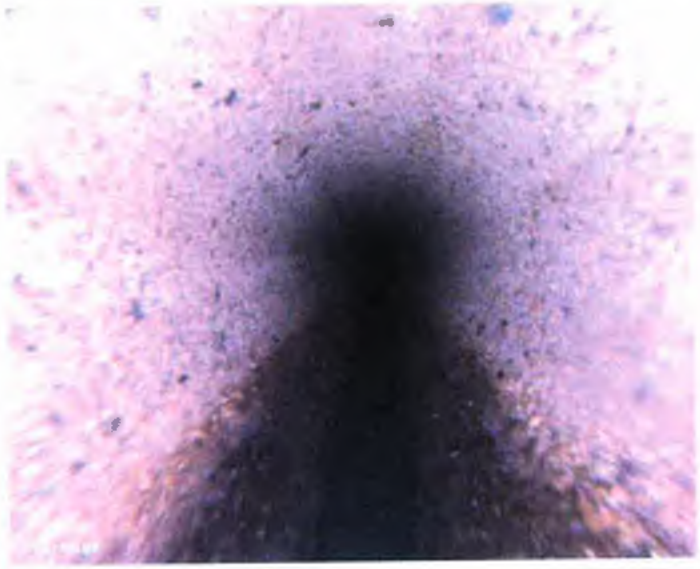
PACP Code:	MMC
Description:	Material Change
Distance (ft):	195.72
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete



PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.58
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	207.79
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

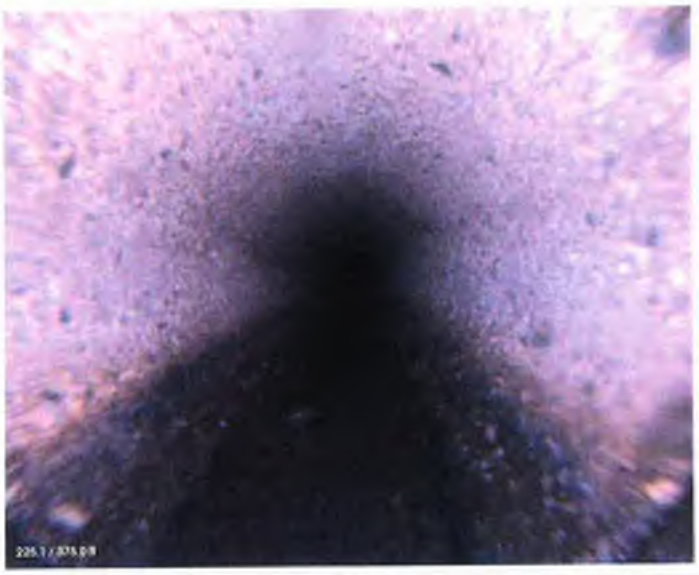
PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	209.28
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MMC
Description:	Material Change
Distance (ft):	210.42
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

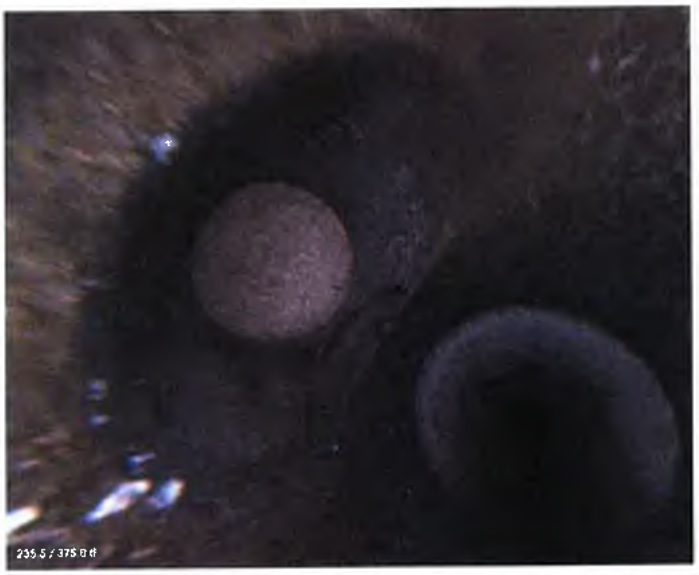
PACP Code:	MMC
Description:	Material Change
Distance (ft):	222.73
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	224.16
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



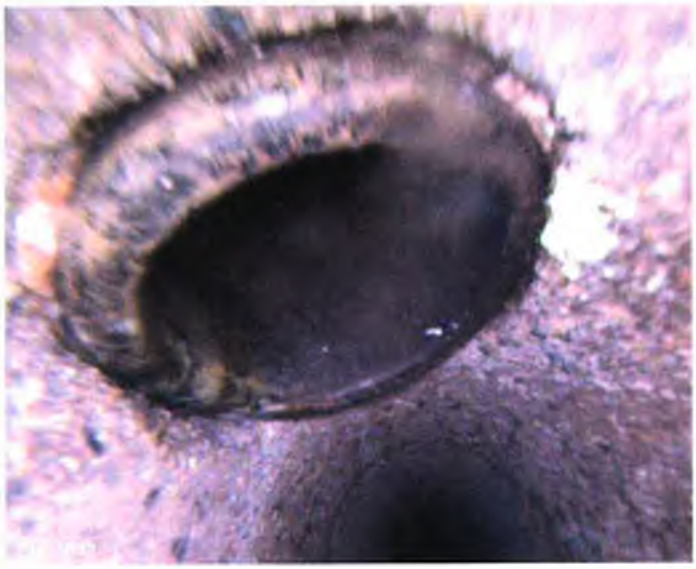
PACP Code:	MMC
Description:	Material Change
Distance (ft):	225.13
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

PACP Code:	MMC
Description:	Material Change
Distance (ft):	234.71
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

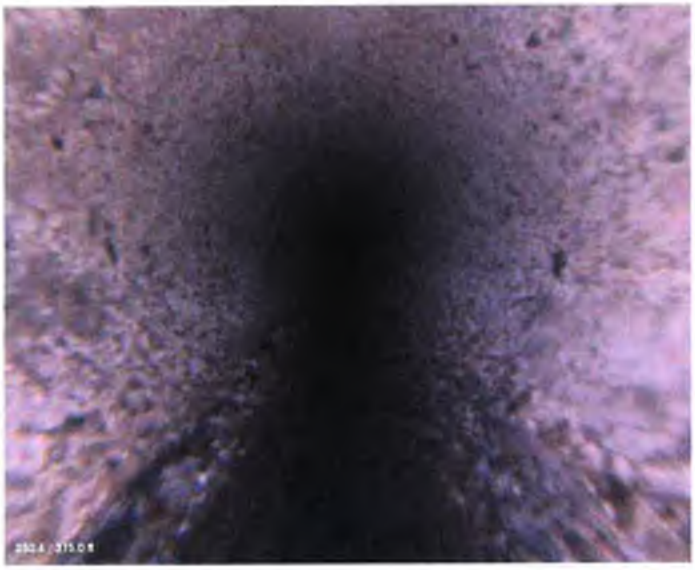


PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	235.52
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	237
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

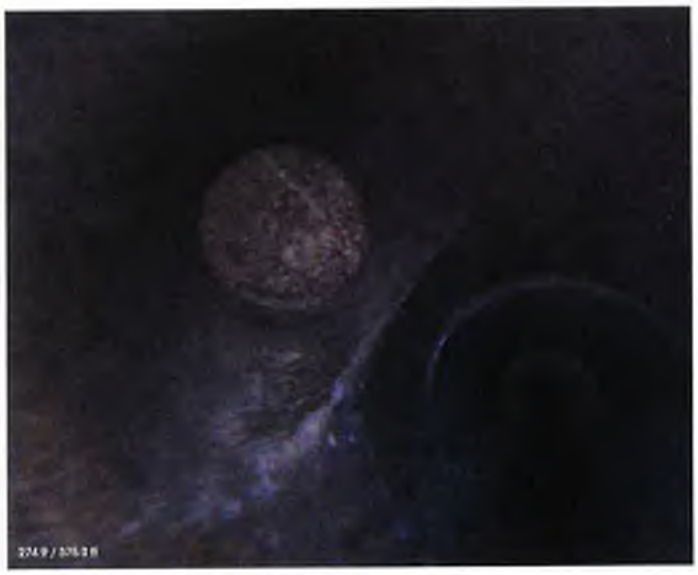


PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	238.45
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	11
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

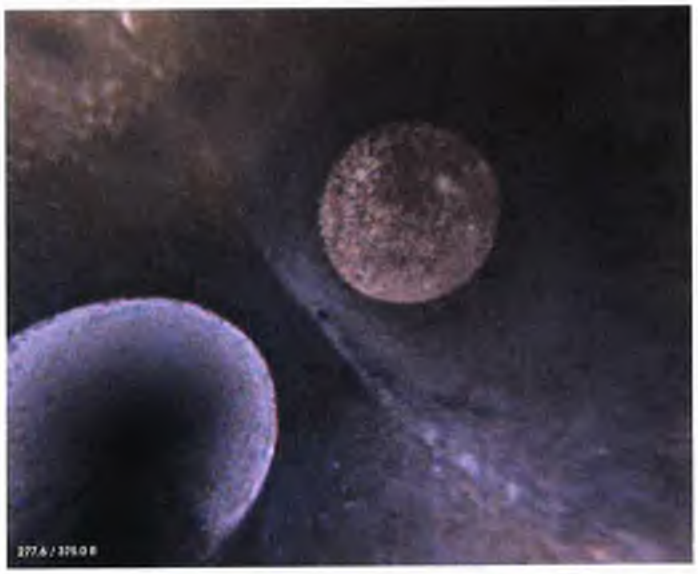


PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.35
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

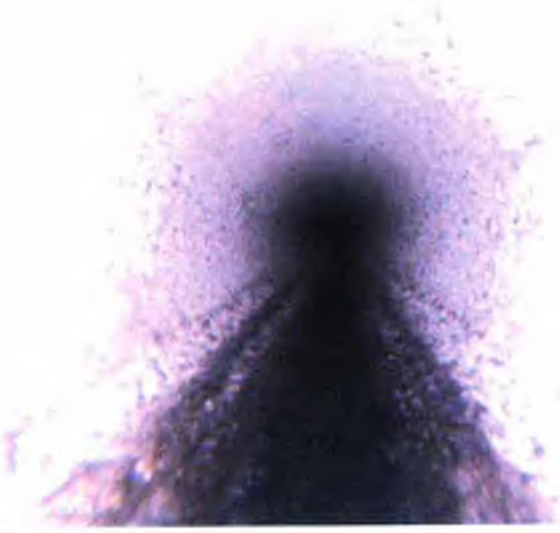
PACP Code:	MMC
Description:	Material Change
Distance (ft):	273.45
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay



PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	274.87
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



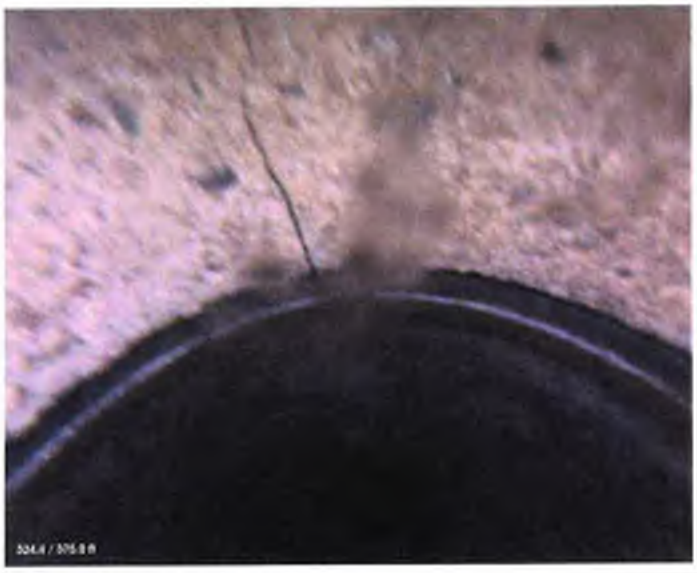
PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	277.59
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MMC
Description:	Material Change
Distance (ft):	278.52
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	297.88
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	11
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

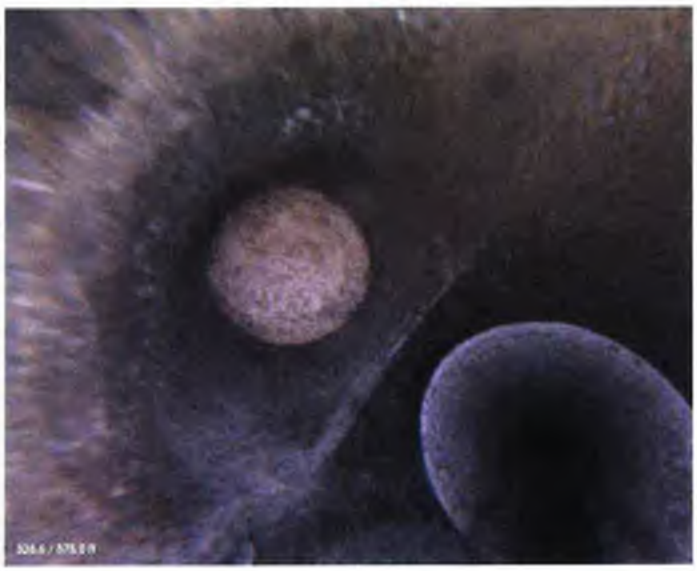
PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	308.15
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



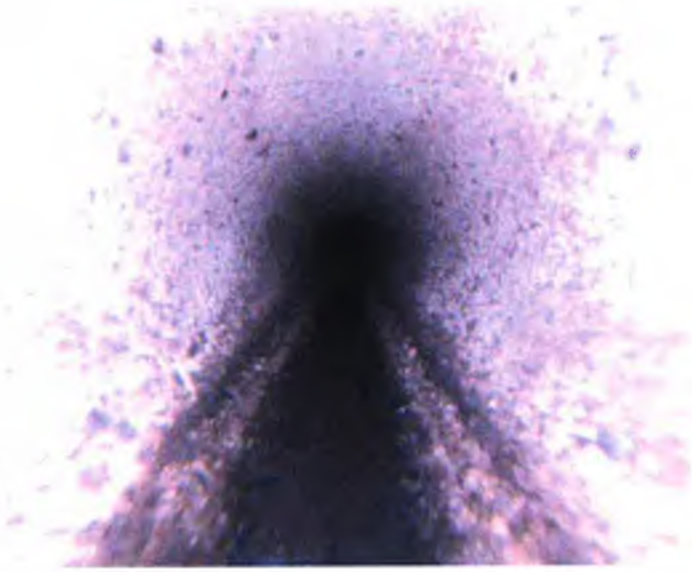
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	324.37
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	324.37
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

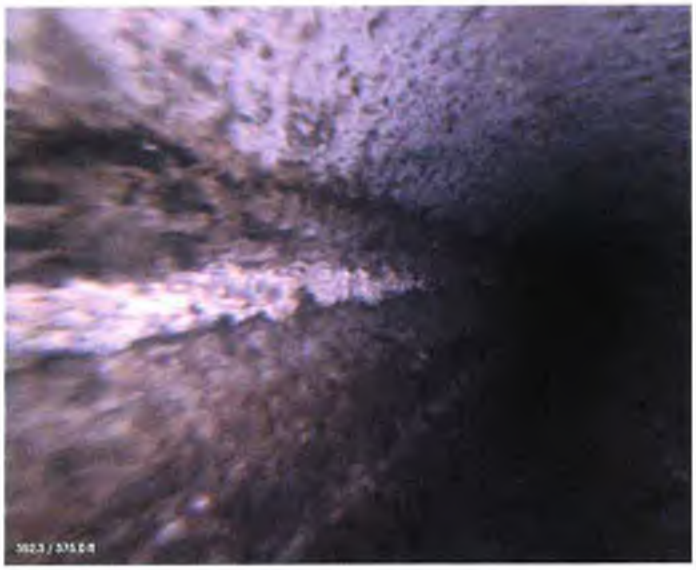
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	326.02
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



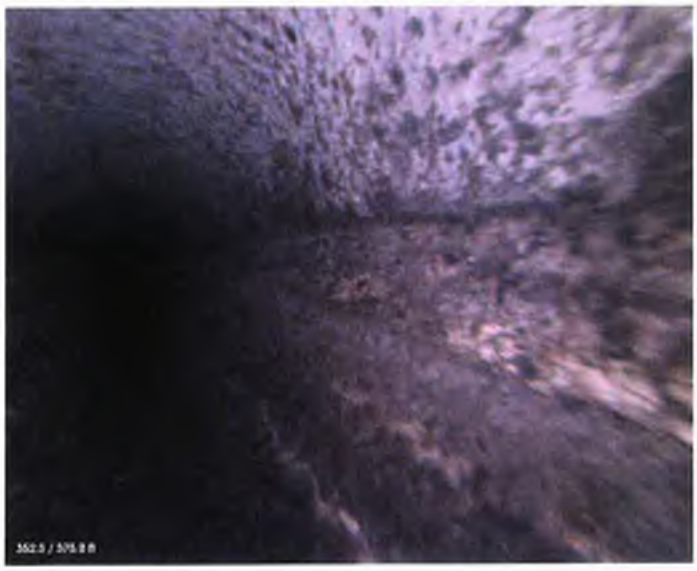
PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	328.61
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MMC
Description:	Material Change
Distance (ft):	329.75
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

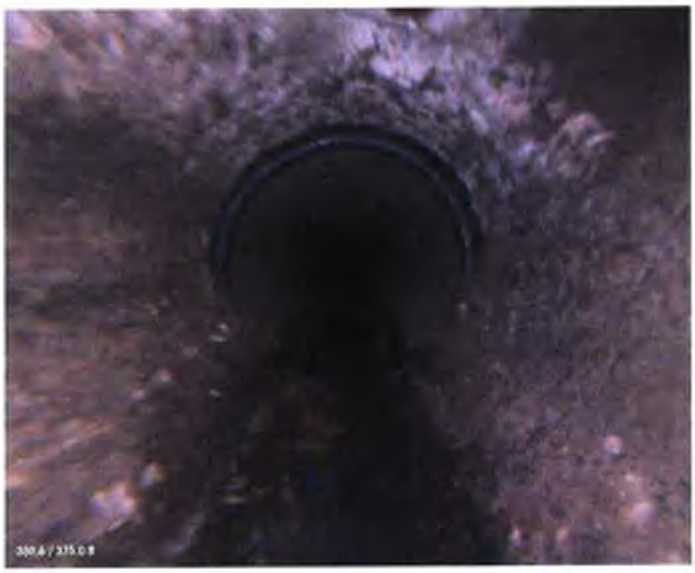


PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	352.33
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	S02
Within 8" of Joint:	False
Remarks:	

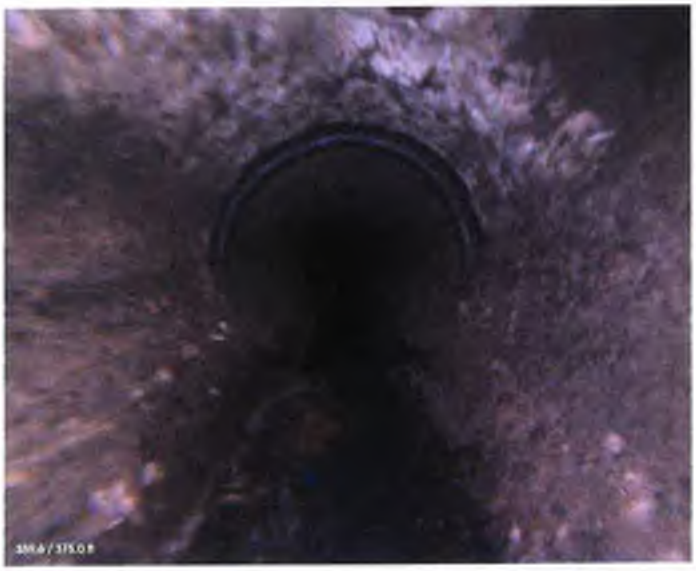


PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	352.33
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	S03
Within 8" of Joint:	False
Remarks:	

PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	359.56
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

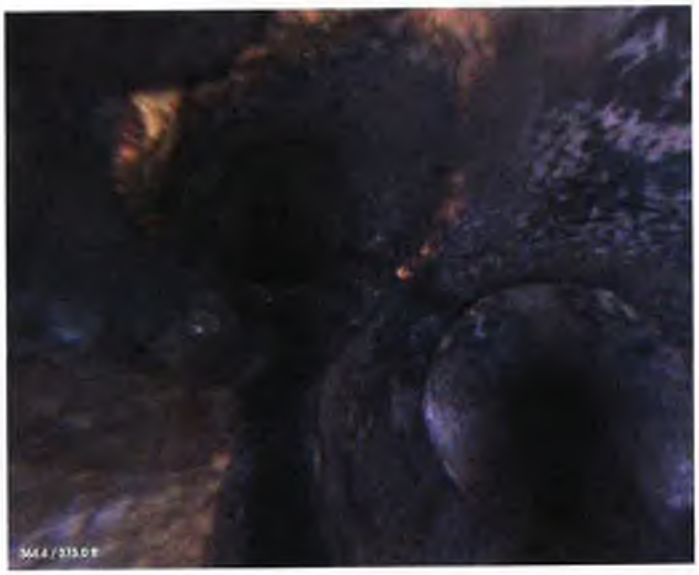


PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	359.56
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	F02
Within 8" of Joint:	False
Remarks:	



PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	359.56
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	F03
Within 8" of Joint:	False
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	361.95
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	364.43
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	LR
Description:	Alignment Right
Distance (ft):	371.57
Structural Grade:	NA
O&M Grade:	2
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	SAV
Description:	Surface Aggregate Visible
Distance (ft):	375.05
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	False
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	375.05
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Profile/Photo Observation Report

RedZone Robotics

Date:	10/28/2009	Weather:	Dry		
Pipe Length (ft):	0	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12016	Surveyor:	JJC	PSR:	04-8005 to 04-8003
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

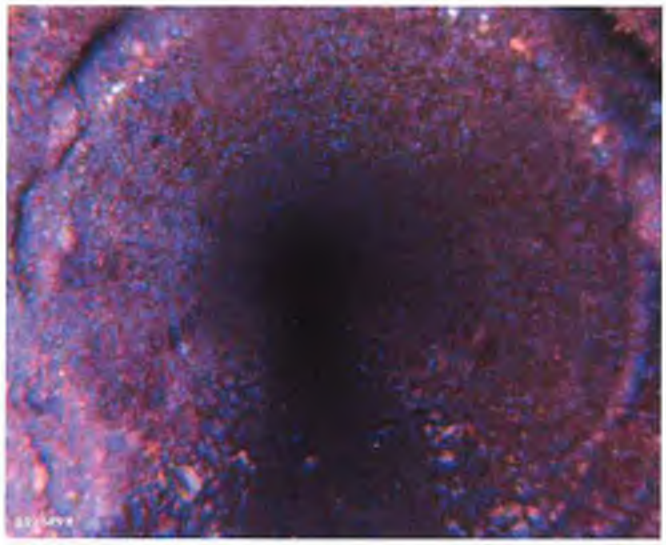
Street:	C St. Alley	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS9-839
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Reinforced Concrete Pipe
Drain Area:		Lining:	
Category:			
Comment:	Reverse		
Location Details:		Direction of Survey:	Downstream

US MH: 04-8005 DS MH: 04-8003 Total Length Surveyed (ft): 55

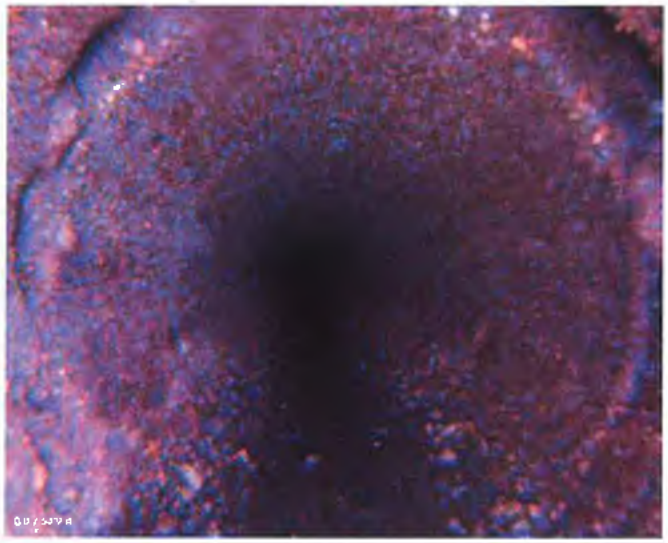
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level	13	NA
0	SAP	Surface Aggregate Projecting	21	S 3
0	SSS	Surface Spalling	30	S 2
32.14	MMC	Material Change	103	NA
32.86	TF	Tap Factory	112	NA
35.46	TF	Tap Factory	127	NA
37.41	MMC	Material Change	140	NA
49.6	DAE	Deposits Attached Encrustation	173	M 3
54.06	TBI	Tap Break-in Intruding	192	M 3
54.94	SAP	Surface Aggregate Projecting	202	S 3
54.94	MSA	Abandoned Survey	210	NA

Recommend

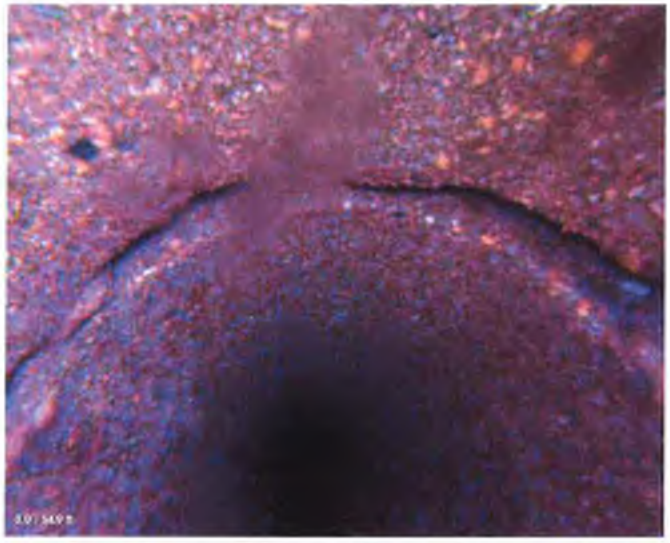
- go in and cut intrusion pipe
- CIPP Lining
- chance it might be pipe replacement



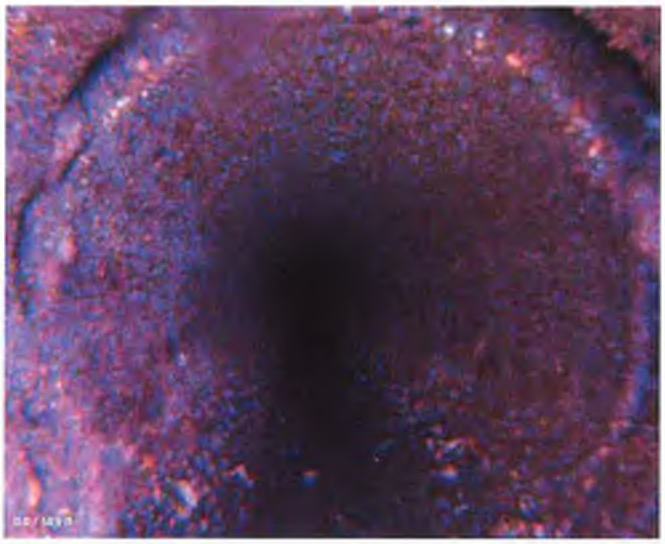
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



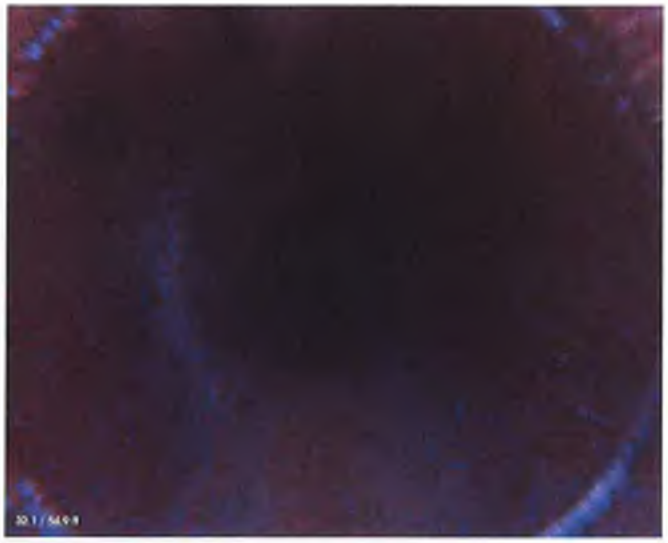
PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



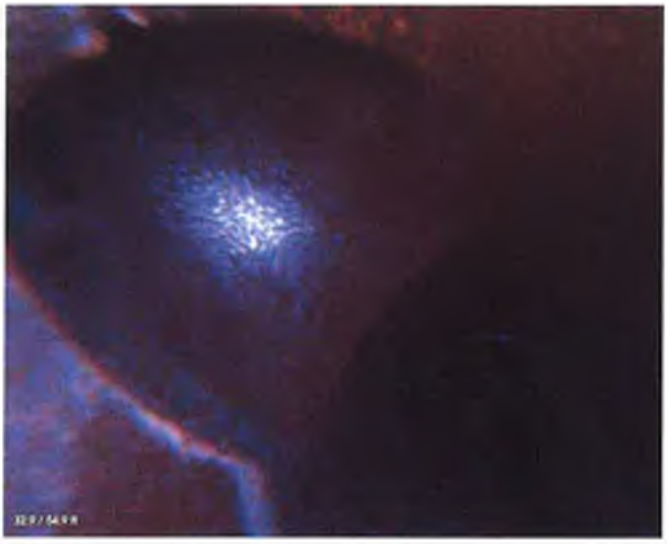
PACP Code:	SAP
Description:	Surface Aggregate Projecting
Distance (ft):	0
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	False
Remarks:	



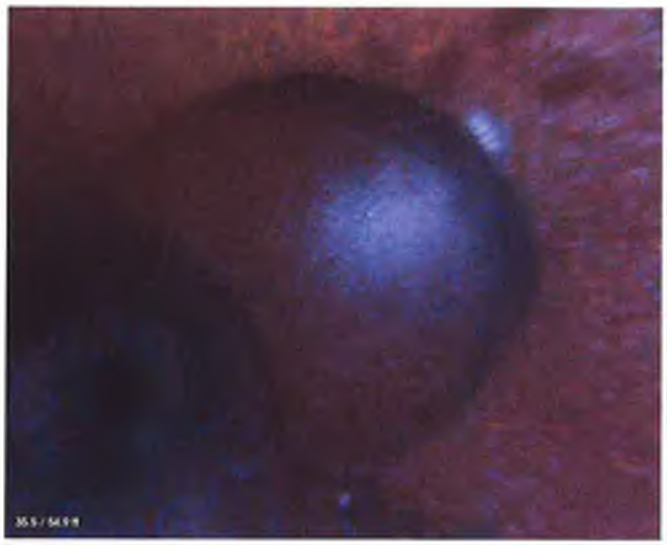
PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	0
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	MMC
Description:	Material Change
Distance (ft):	32.14
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

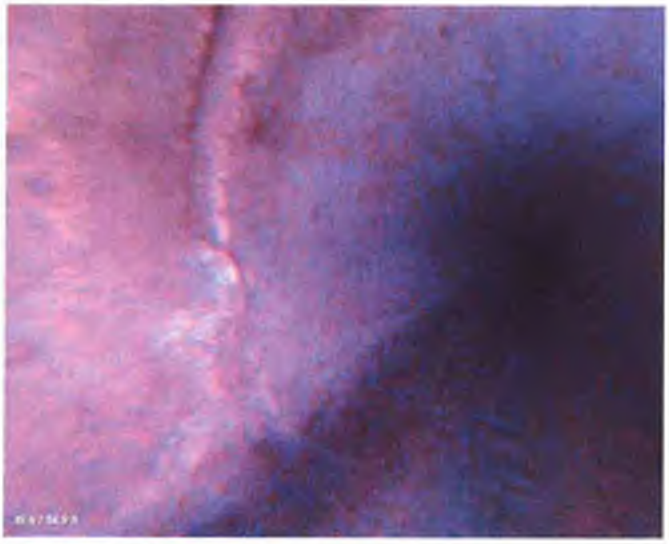


PACP Code:	TF
Description:	Tap Factory
Distance (ft):	32.86
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	35.46
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	37.41
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete



PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	49.6
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	8
Clock To:	9
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	TBI
Description:	Tap Break-in Intruding
Distance (ft):	54.06
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	12
Clock To:	
1st Value:	4
2nd Value:	5
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	SAP
Description:	Surface Aggregate Projecting
Distance (ft):	54.94
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	False
Remarks:	

PACP Code:	MSA
Description:	Abandoned Survey
Distance (ft):	54.94
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Blocked by intruding tap

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset:

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8007 to 04-8005	04-8007	04-8005	Concrete Pipe (non-reinforced)	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA		0	0
Pre-Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
C St. Alley	City of Arvin	Light Highway	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/02/2010	11:43 AM	Upstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		112
Media Label	Reverse Setup	Work Order No	Additional Info	
NS22-924	NO	-	Length unknown - Upstream manhole location unknown	

Results:

Overall Rating	Structural Rating	Maintenance Rating
79	74	5
Overall Index	Structural Index	Maintenance Index
3.04	2.96	5
Overall Quick	Structural Quick	Maintenance Quick
5141	413C	5100

- Surface Aggregate Projecting (Continuous) "Lining Needed"
- no sags
- minor joint dislocations (acceptable for CIPP)
- Recommendation (from 04-8005 MH)
  - Spot Repairs: (9ft)
    J 71.5 - 74.5 , J 110.5 to J 116.5
  - CIPP Lining (entire length) "133 ft"

Grade	Dist (ft)	Observation

Joint every 3 ft

04-8005

-	0	[AMH] Manhole Remarks: Begin survey
-	0	[MWL] Water Level 5% of cross sectional area (5%)
3	0	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint Start SAP
1	6.2	[CC] Crack Circumferential from 11 to 1 o'clock NOT within 8" of joint J 3.5 - 6.5
3	15.5	[FL] Fracture Longitudinal at 1 o'clock within 8" of joint
-	16.5	[TB] Tap Break-in at 1 o'clock
-	16.9	[TFC] Tap Factory Capped at 1 o'clock
-	18	[MMC] Material Change Remarks: Concrete
-	50.2	[MGP] General Photo WL is Low
-	54.4	[MMC] Material Change Remarks: Vitrified clay
-	55.9	[TFC] Tap Factory Capped at 2 o'clock
-	57	[MMC] Material Change Remarks: Concrete
-	66	[MMC] Material Change Remarks: Vitrified clay
-	67.4	[TFC] Tap Factory Capped at 10 o'clock
-	68.5	[MMC] Material Change Remarks: Concrete
4	74.5	[FM] Fracture Multiple from 11 to 1 o'clock within 8" of joint Spot Repair J71.5 - 74.5
-	86.8	[MMC] Material Change Remarks: Vitrified clay
-	88.2	[TF] Tap Factory at 2 o'clock
-	89.3	[MMC] Material Change Remarks: Concrete
-	100.1	[MGP] General Photo
5	111.5	[DSF] Deposits Settled Fine 90% of cross sectional area from 10 to 2 o'clock NOT within 8" of joint J110.5 to J116.5
3	112.3	[SAP] Surface Aggregate Projecting from 7 to 5 o'clock NOT within 8" of joint End
-	112.3	[MSA] Abandoned Survey Remarks: Blocked by debris

04-8007

Camera Direction

WL = 5%

95.5 Joint Dislocation

Condition Observations:

Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	5% of cross sectional area				5	☐		
3	0	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint Start	S01				☐	7	5
1	6.2	CC	Crack Circumferential	from 11 to 1 o'clock NOT within 8" of joint					☐	11	1
3	15.5	FL	Fracture Longitudinal	at 1 o'clock within 8" of joint					☑	1	
-	16.5	TB	Tap Break-in	at 1 o'clock		4			☐	1	
-	16.9	TFC	Tap Factory Capped	at 1 o'clock		4			☐	1	
-	18	MMC	Material Change	Remarks: Concrete					☐		
-	50.2	MGP	General Photo						☐		
-	54.4	MMC	Material Change	Remarks: Vitrified clay					☐		
-	55.9	TFC	Tap Factory Capped	at 2 o'clock		4			☐	2	
-	57	MMC	Material Change	Remarks: Concrete					☐		

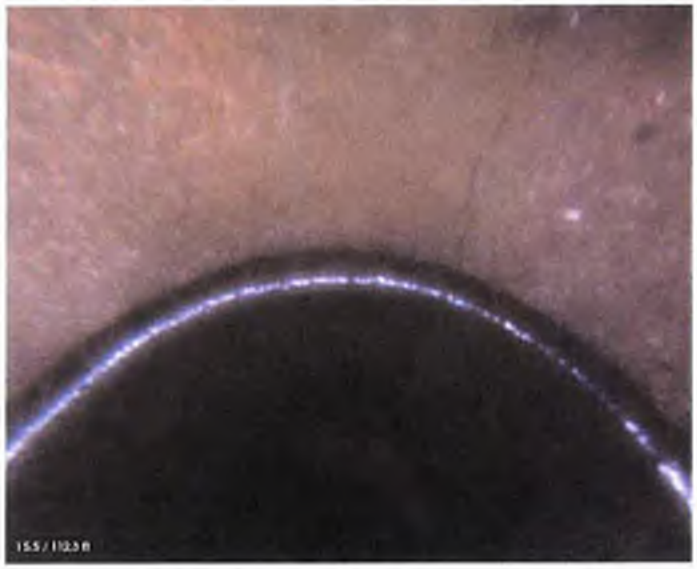
-	66	MMC	Material Change	Remarks: Vitrified clay					☐		
-	67.4	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	
-	68.5	MMC	Material Change	Remarks: Concrete					☐		
4	74.5	FM	Fracture Multiple	from 11 to 1 o'clock within 8" of joint					☑	11	1
-	86.8	MMC	Material Change	Remarks: Vitrified clay					☐		
-	88.2	TF	Tap Factory	at 2 o'clock		4			☐	2	
-	89.3	MMC	Material Change	Remarks: Concrete					☐		
-	100.1	MGP	General Photo						☐		
5	111.5	DSF	Deposits Settled Fine	90% of cross sectional area from 10 to 2 o'clock NOT within 8" of joint				90	☐	10	2
3	112.3	SAP	Surface Aggregate Projecting	from 7 to 5 o'clock NOT within 8" of joint End	F01				☐	7	5
-	112.3	MSA	Abandoned Survey	Remarks: Blocked by debris					☐		

PACP Code:	AMH		
Description:	Manhole		
Image Name:	579e16e4-6ccc-44bd-91e7-36592f636fb8_0-AMH.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Begin survey		

PACP Code:	MWL		
Description:	Water Level		
Image Name:	d8aa40e0-e64c-4edb-b63d-8b4ed7ce441d_0-MWL.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	5		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**bd389fd4-3367-491b-9c1b-56c4ebb19bfb_0-SAP.jpg**		
Distance (ft):	**0**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**7**	Clock To:	**5**
1st Value:		2nd Value:	
Continuous Index:	**S01**	Within 8" of Joint:	☐
Remarks:			

PACP Code:	**CC**		
Description:	**Crack Circumferential**		
Image Name:	**c1fa4f92-c277-45c7-9aeb-607b284e8bf9_6.2-CC.jpg**		
Distance (ft):	**6.2**		
Structural Grade:	**1**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	**1**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**FL**		
Description:	**Fracture Longitudinal**		
Image Name:	**34409be3-dbb3-467b-bcdd-737c82d8389e_15.5-FL.jpg**		
Distance (ft):	**15.5**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**1**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**TB**		
Description:	**Tap Break-in**		
Image Name:	**9d8efcce-9f2c-446c-8a9d-260cf4334e76_16.5-TB.jpg**		
Distance (ft):	**16.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**1**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**ce9c36b3-88f0-4e84-909d-c0f1aebecd58_16.9-TFC.jpg**		
Distance (ft):	**16.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**1**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**e1db45a4-3aa9-4b02-9160-72a9f7d3337d_18-MMC.jpg**		
Distance (ft):	**18**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**b4ef4804-7267-4a2e-a9bc-c0ef0aab4b1d_50.2-MGP.jpg**		
Distance (ft):	**50.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

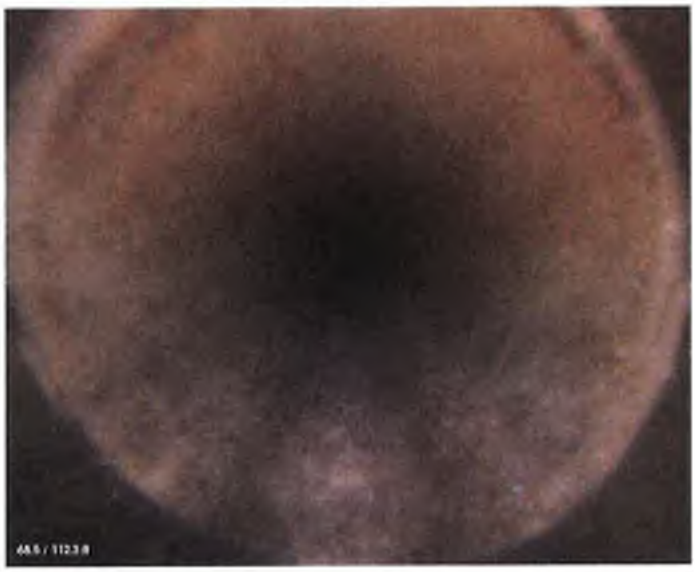
PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**cec44507-333f-4069-bba3-c45f52a8b7b0_54.4-MMC.jpg**		
Distance (ft):	**54.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**6dbd7917-459f-4766-b0f9-4ed3987d6863_55.9-TFC.jpg**		
Distance (ft):	**55.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**0ac684bc-5ba6-4dad-a3b4-95d0a1bbf89d_57-MMC.jpg**		
Distance (ft):	**57**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**5412f0c7-4535-407d-bfcf-e380dd30e545_66-MMC.jpg**		
Distance (ft):	**66**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**c5a1e68e-ecaf-4b53-b771-e8f30f22dbef_67.4-TFC.jpg**		
Distance (ft):	**67.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**f63e9ad2-86fa-4df2-bdce-369f97acc501_68.5-MMC.jpg**		
Distance (ft):	**68.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

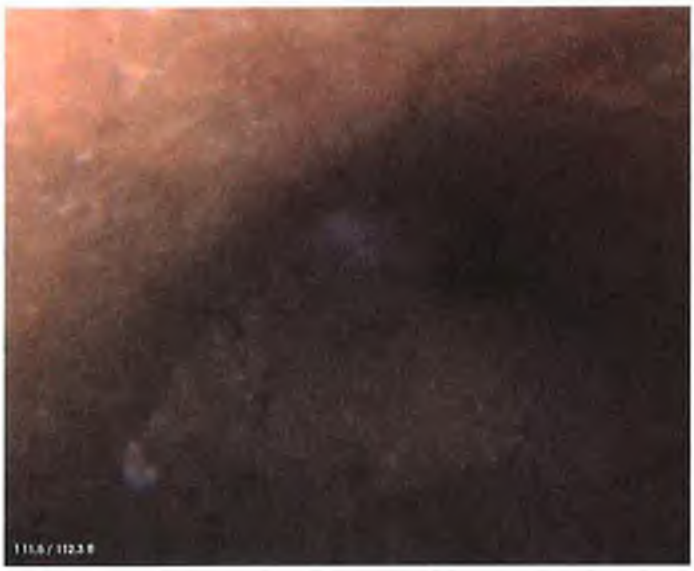
PACP Code:	**FM**		
Description:	**Fracture Multiple**		
Image Name:	**8f0cb20c-143b-46df-8c24-9ca7ae9e4b93_74.5-FM.jpg**		
Distance (ft):	**74.5**		
Structural Grade:	**4**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	**1**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**0f696554-653e-48f5-9241-d7ccdecd3990_86.8-MMC.jpg**		
Distance (ft):	**86.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

PACP Code:	**TF**		
Description:	**Tap Factory**		
Image Name:	**2930eeaf-9c76-4cbd-a46d-056acec4c034_88.2-TF.jpg**		
Distance (ft):	**88.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**9030681c-5f29-4e93-8154-821b890e1c86_89.3-MMC.jpg**		
Distance (ft):	**89.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**cf932bd7-7aa2-4f02-ba9e-4070aaf8dcd3_100.1-MGP.jpg**		
Distance (ft):	**100.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**DSF**		
Description:	**Deposits Settled Fine**		
Image Name:	**138ce4c0-c901-417e-80b1-c4c7ee49ef2f_111.5-DSF.jpg**		
Distance (ft):	**111.5**		
Structural Grade:	**0**	Maintenance Grade	**5**
Percent Value:	**90**		
Clock At/From:	**10**	Clock To:	**2**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**SAP**		
Description:	**Surface Aggregate Projecting**		
Image Name:	**c85fed60-5cbb-480f-8349-887af7660c74_112.3-SAP.jpg**		
Distance (ft):	**112.3**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**7**	Clock To:	**5**
1st Value:		2nd Value:	
Continuous Index:	**F01**	Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MSA**		
Description:	**Abandoned Survey**		
Image Name:	**d950ca49-144e-4677-9aa5-f60b34474cb7_112.3-MSA.jpg**		
Distance (ft):	**112.3**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Blocked by debris**		

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

91 43rd Street
Pittsburgh, PA 15201
(412) 476-8980

Asset:

Pipe Segment	Upstream MH	Downstream MH	Material	Height	Width
04-8006 to 04-8005	04-8006	04-8005	Concrete Pipe (non-reinforced)	8	8
Shape	Sewer Use	Drainage Area	Lining Method	Total Length	Joint Length
Circular	Sanitary	NA		0	0
Pre-Cleaning	Clean Date	Flow Control	Purpose	Year Laid	Year Renewed
Jetting		Not Controlled	Not Known		

Location:

Street	City	Location	Details
C St. Alley	City of Arvin	Light Highway	

Inspection:

Surveyed By	Certificate No	Date	Time	Direction
JJC	U-907-5518	12/02/2010	11:45 AM	Upstream
Owner	Customer	Weather	PO Number	Length Surveyed
City of Arvin	Veolia	Dry		119
Media Label	Reverse Setup	Work Order No	Additional Info	
NS6-1472	NO	-	Length unknown - Upstream manhole location unknown	

Results:

Overall Rating	Structural Rating	Maintenance Rating
13	6	7
Overall Index	Structural Index	Maintenance Index
2.6	3	2.33
Overall Quick	Structural Quick	Maintenance Quick
3322	3200	3122

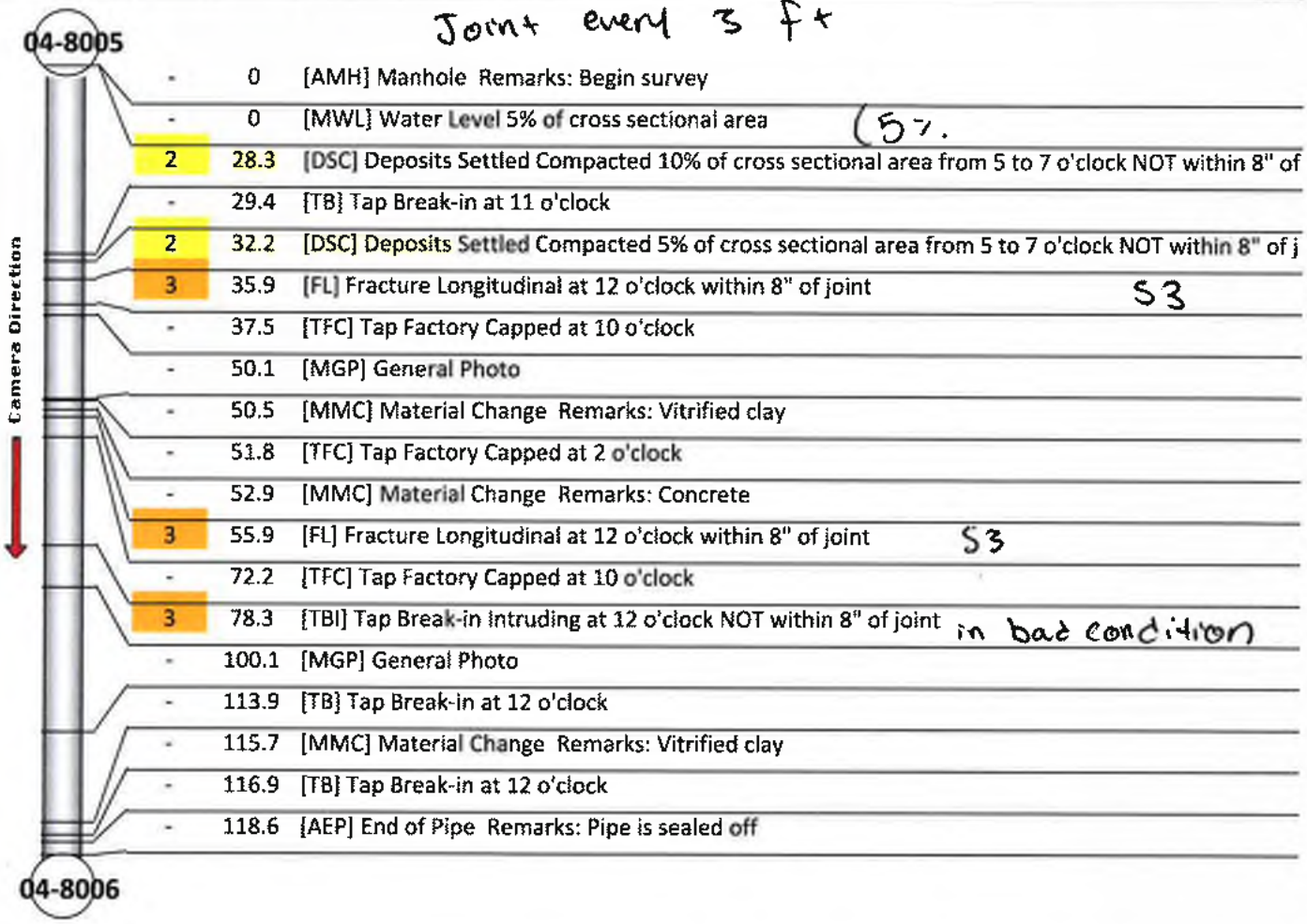
- pipe is sealed off
- no major joint dislocations
- tap break in in bad condition
- 2 fractures (small)

Recommendation

- CIPP Lining 120 ft

yellow -> maintnence Flowing Upstream

Joint every 3 ft



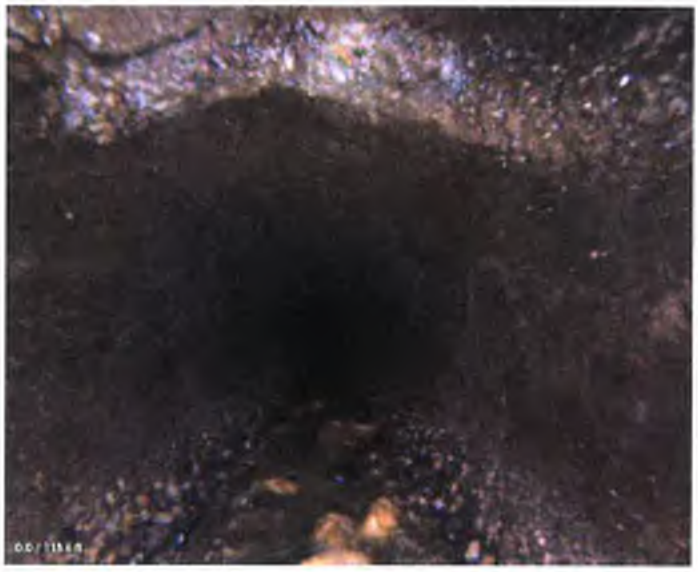
Grade	Dist (ft)	Observation
-	0	[AMH] Manhole Remarks: Begin survey
-	0	[MWL] Water Level 5% of cross sectional area (5%.
2	28.3	[DSC] Deposits Settled Compacted 10% of cross sectional area from 5 to 7 o'clock NOT within 8" of
-	29.4	[TB] Tap Break-in at 11 o'clock
2	32.2	[DSC] Deposits Settled Compacted 5% of cross sectional area from 5 to 7 o'clock NOT within 8" of j
3	35.9	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint S3
-	37.5	[TFC] Tap Factory Capped at 10 o'clock
-	50.1	[MGP] General Photo
-	50.5	[MMC] Material Change Remarks: Vitrified clay
-	51.8	[TFC] Tap Factory Capped at 2 o'clock
-	52.9	[MMC] Material Change Remarks: Concrete
3	55.9	[FL] Fracture Longitudinal at 12 o'clock within 8" of joint S3
-	72.2	[TFC] Tap Factory Capped at 10 o'clock
3	78.3	[TBI] Tap Break-in Intruding at 12 o'clock NOT within 8" of joint in bad condition
-	100.1	[MGP] General Photo
-	113.9	[TB] Tap Break-in at 12 o'clock
-	115.7	[MMC] Material Change Remarks: Vitrified clay
-	116.9	[TB] Tap Break-in at 12 o'clock
-	118.6	[AEP] End of Pipe Remarks: Pipe is sealed off

Condition Observations:

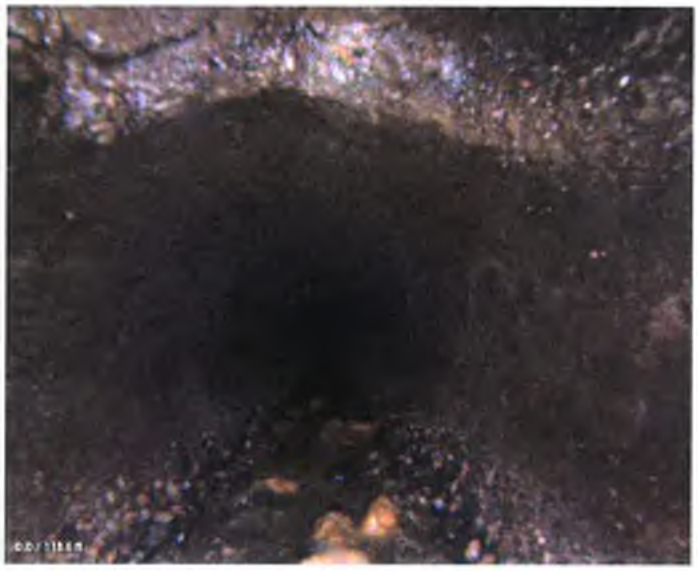
Grade	Dist (ft)	Observation		Description	Cont	Values 1st	Values 2nd	Values %	8" of Joint	Clock From	Clock To
-	0	AMH	Manhole	Remarks: Begin survey					☐		
-	0	MWL	Water Level	5% of cross sectional area				5	☐		
2	28.3	DSC	Deposits Settled Compacted	10% of cross sectional area from 5 to 7 o'clock NOT within 8" of joint				10	☐	5	7
-	29.4	TB	Tap Break-in	at 11 o'clock		4			☐	11	
2	32.2	DSC	Deposits Settled Compacted	5% of cross sectional area from 5 to 7 o'clock NOT within 8" of joint				5	☐	5	7
3	35.9	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	
-	37.5	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	
-	50.1	MGP	General Photo						☐		
-	50.5	MMC	Material Change	Remarks: Vitrified clay					☐		
-	51.8	TFC	Tap Factory Capped	at 2 o'clock		4			☐	2	
-	52.9	MMC	Material Change	Remarks: Concrete					☐		
3	55.9	FL	Fracture Longitudinal	at 12 o'clock within 8" of joint					☑	12	
-	72.2	TFC	Tap Factory Capped	at 10 o'clock		4			☐	10	
3	78.3	TBI	Tap Break-in Intruding	at 12 o'clock NOT within 8" of joint		4	1		☐	12	
-	100.1	MGP	General Photo						☐		

• lining of pipe needs improvement 2/9 • multiple deposits (Cleaning)

-	113.9	TB	Tap Break-in	at 12 o'clock		4			☐	12	
-	115.7	MMC	Material Change	Remarks: Vitrified clay					☐		
-	116.9	TB	Tap Break-in	at 12 o'clock		5			☐	12	
-	118.6	AEP	End of Pipe	Remarks: Pipe is sealed off					☐		

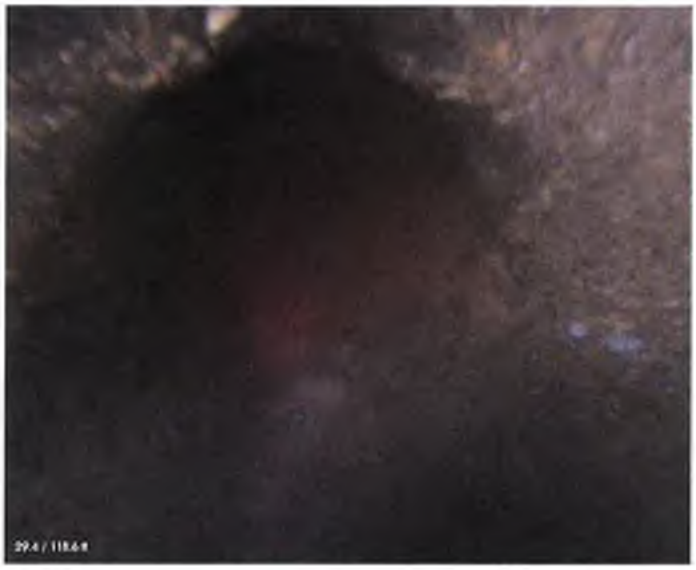


PACP Code:	AMH		
Description:	Manhole		
Image Name:	5505c07d-586a-476c-9ea2-b111e6df6754_0-AMH.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	Begin survey		



PACP Code:	MWL		
Description:	Water Level		
Image Name:	5c4502af-125f-41f7-a596-bbee667d9bff_0-MWL.jpg		
Distance (ft):	0		
Structural Grade:	0	Maintenance Grade	0
Percent Value:	5		
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

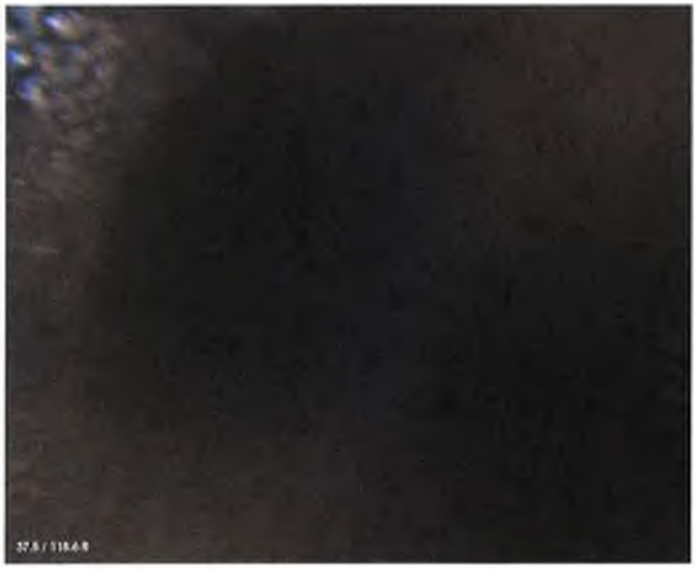
PACP Code:	DSC		
Description:	**Deposits Settled Compacted**		
Image Name:	**95914d6c-7099-45d5-999e-cb04ad6e1d71_28.3-DSC.jpg**		
Distance (ft):	**28.3**		
Structural Grade:	**0**	Maintenance Grade	**2**
Percent Value:	**10**		
Clock At/From:	**5**	Clock To:	**7**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	TB		
Description:	**Tap Break-in**		
Image Name:	**f13d193a-cf21-42e9-a843-7207ff75832f_29.4-TB.jpg**		
Distance (ft):	**29.4**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**11**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

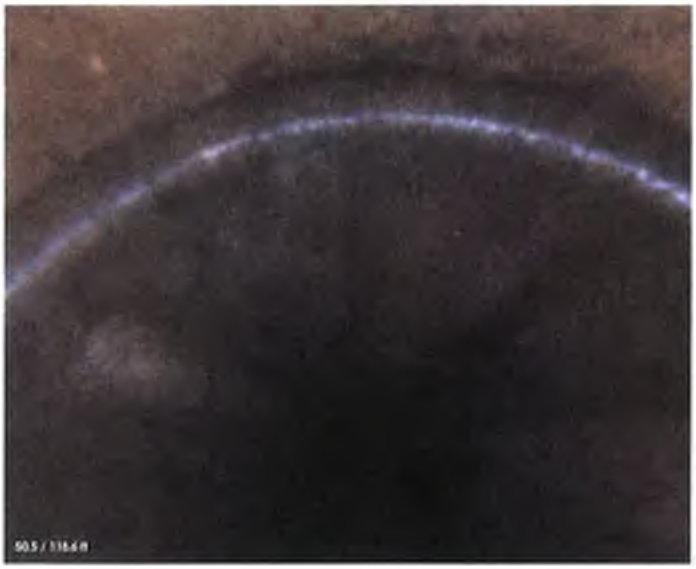
PACP Code:	DSC		
Description:	**Deposits Settled Compacted**		
Image Name:	**c221e6b6-8d88-45ba-9f09-42e684250772_32.2-DSC.jpg**		
Distance (ft):	**32.2**		
Structural Grade:	**0**	Maintenance Grade	**2**
Percent Value:	**5**		
Clock At/From:	**5**	Clock To:	**7**
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**e9ffe3dd-a326-4e40-90c8-88562ed0d7a8_35.9-FL.jpg**		
Distance (ft):	**35.9**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**3e2a777d-3fbb-4934-b003-db58ea66b0e0_37.5-TFC.jpg**		
Distance (ft):	**37.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**0dd676fb-4cfe-43a7-8d1f-d26e23da7258_50.1-MGP.jpg**		
Distance (ft):	**50.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

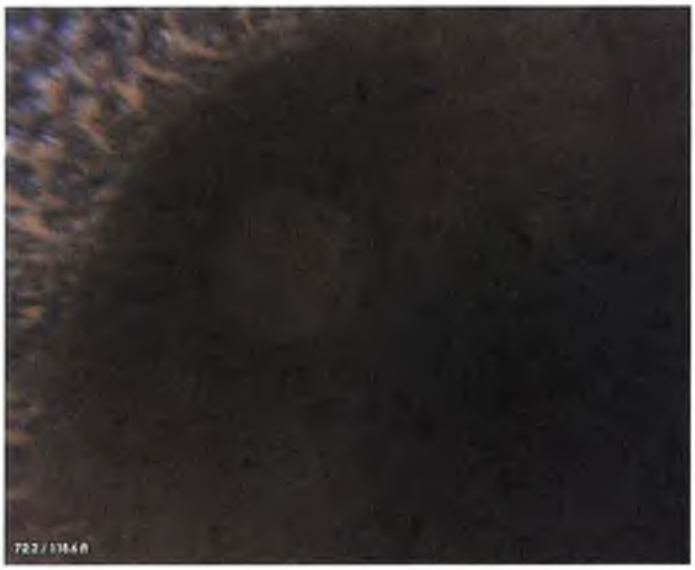


PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**893eabde-c61c-4839-8834-b7f920810b6a_50.5-MMC.jpg**		
Distance (ft):	**50.5**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		

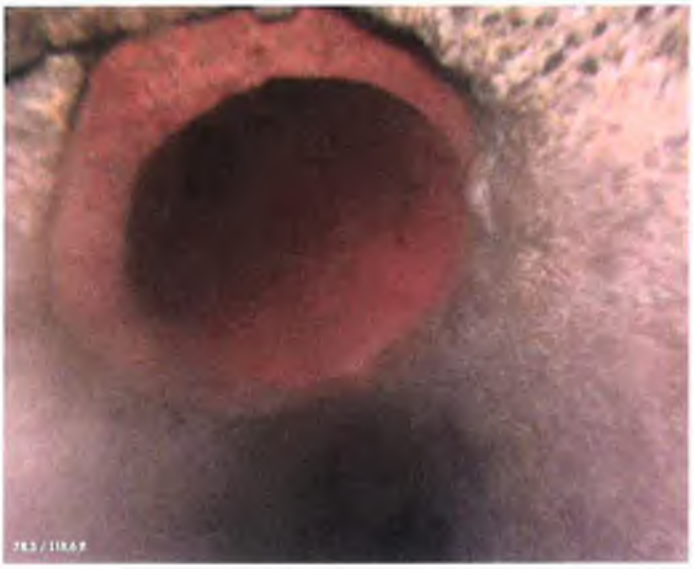
PACP Code:	**TFC**		
Description:	**Tap Factory Capped**		
Image Name:	**01d3fc9e-24a3-41a9-9ffe-9b29bec07f23_51.8-TFC.jpg**		
Distance (ft):	**51.8**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**2**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**7dfc6198-b719-492f-a88a-5d71752f5107_52.9-MMC.jpg**		
Distance (ft):	**52.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Concrete**		

PACP Code:	FL		
Description:	**Fracture Longitudinal**		
Image Name:	**ee0f1391-f1a8-435d-8006-fb4badf7d389_55.9-FL.jpg**		
Distance (ft):	**55.9**		
Structural Grade:	**3**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☑
Remarks:			



PACP Code:	TFC		
Description:	**Tap Factory Capped**		
Image Name:	**e6649270-b5d1-46df-be5a-e450fb33f9fc_72.2-TFC.jpg**		
Distance (ft):	**72.2**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**10**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

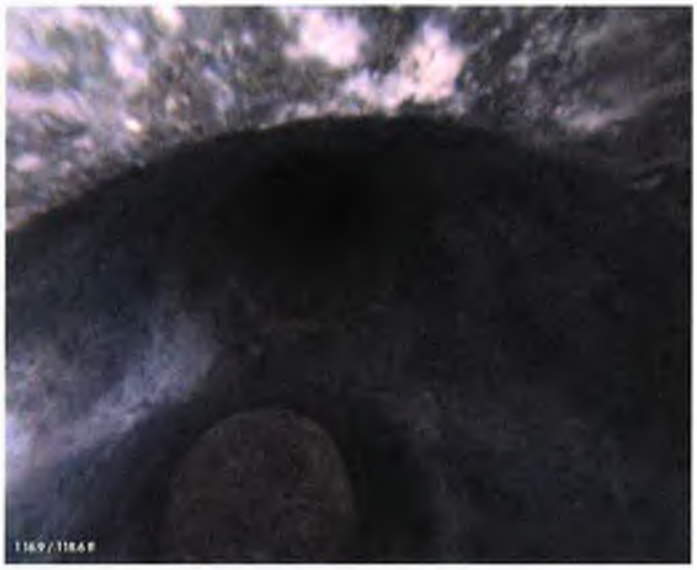


PACP Code:	TBI		
Description:	**Tap Break-in Intruding**		
Image Name:	**60077d1d-7e9f-4e74-9e8b-db2c29542515_78.3-TBI.jpg**		
Distance (ft):	**78.3**		
Structural Grade:	**0**	Maintenance Grade	**3**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:	**4**	2nd Value:	**1**
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

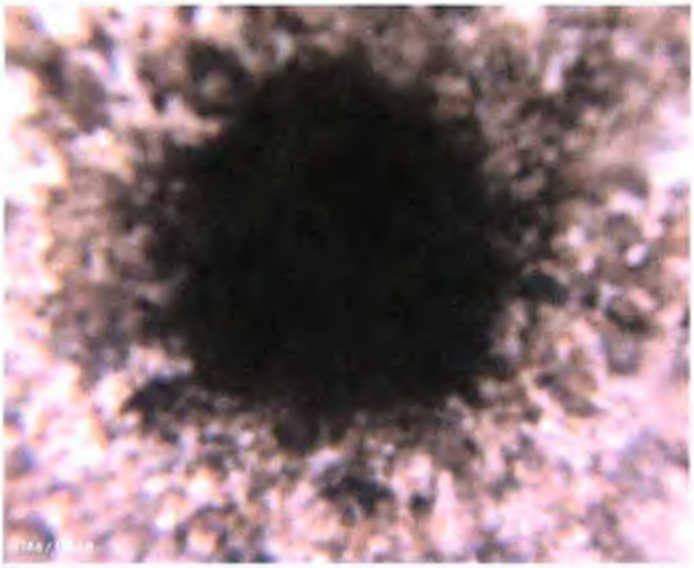
PACP Code:	**MGP**		
Description:	**General Photo**		
Image Name:	**36b68b4b-8800-4b06-86e7-df35cc371aa6_100.1-MGP.jpg**		
Distance (ft):	**100.1**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**TB**		
Description:	**Tap Break-in**		
Image Name:	**27ed0f8c-107c-4aa2-a45f-ba0f700cfd8f_113.9-TB.jpg**		
Distance (ft):	**113.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:	**4**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			

PACP Code:	**MMC**		
Description:	**Material Change**		
Image Name:	**e825a67b-7984-42a6-a492-57a1f7df0b80_115.7-MMC.jpg**		
Distance (ft):	**115.7**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Vitrified clay**		



PACP Code:	**TB**		
Description:	**Tap Break-in**		
Image Name:	**595d6005-60a9-4855-9994-a431a065ae6f_116.9-TB.jpg**		
Distance (ft):	**116.9**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:	**12**	Clock To:	
1st Value:	**5**	2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:			



PACP Code:	**AEP**		
Description:	**End of Pipe**		
Image Name:	**1b992f1b-0589-4fb8-af01-8c5167c379b8_118.6-AEP.jpg**		
Distance (ft):	**118.6**		
Structural Grade:	**0**	Maintenance Grade	**0**
Percent Value:			
Clock At/From:		Clock To:	
1st Value:		2nd Value:	
Continuous Index:		Within 8" of Joint:	☐
Remarks:	**Pipe is sealed off**		

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/28/2009	Weather:	Dry		
Pipe Length (ft):	0	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12016	Surveyor:	JJC	PSR:	04-8003 to 04-8002
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	C St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS23-716
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Reinforced Concrete Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 04-8003 DS MH: 04-8002 Total Length Surveyed (ft): 187

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level (20%)	13	NA
1.76	SAP	Surface Aggregate Projecting (continuous)	25	S 3
3.19	VC	Vermin Cockroach	36	M 1
50.73	MGP	General Photo WL = 30% poor visibility	141	NA
60.38	CM	Crack Multiple 060	168	S 3
73.92	TB	Tap Break-in	206	NA
100.17	MGP	General Photo	268	NA
150.24	MGP	General Photo WL = 15%	376	NA
172.28	FC	Fracture Circumferential	428	S 2
190.41	CC	Crack Circumferential	473	S 1
190.41	MSA	Abandoned Survey	481	NA
190.41	SAP	Surface Aggregate Projecting	489	S 3

Sag

~~[illegible]~~

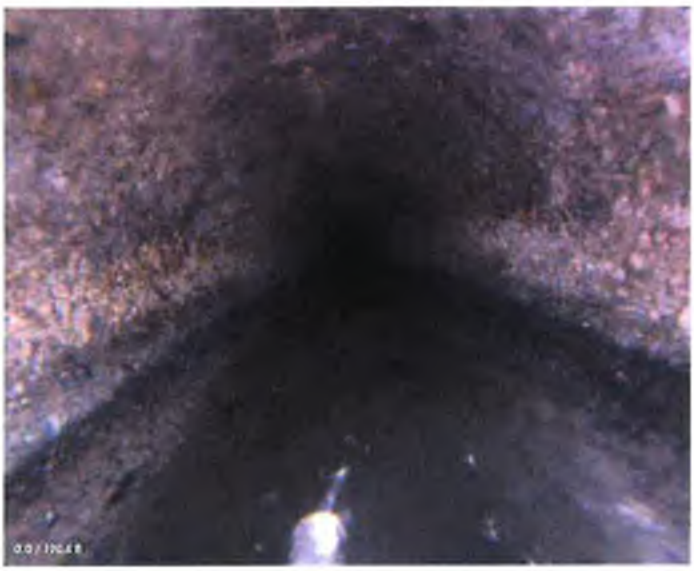
J182 - 192 ft to MH 04-8002

- Sag at the end of the pipe (SA)
- no dislocation and pipe WL is low enough @ 20%.

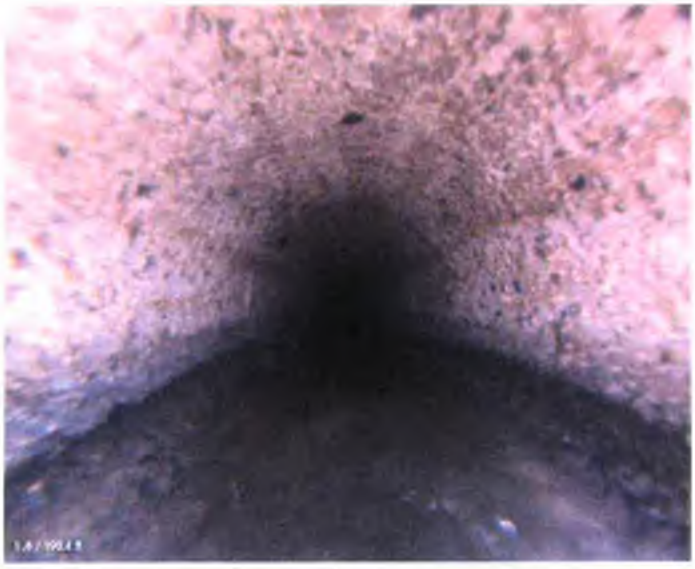
Recommendation

- Spot Repair J182 - MH 4-8002
- CIPP entire length - 192 ft

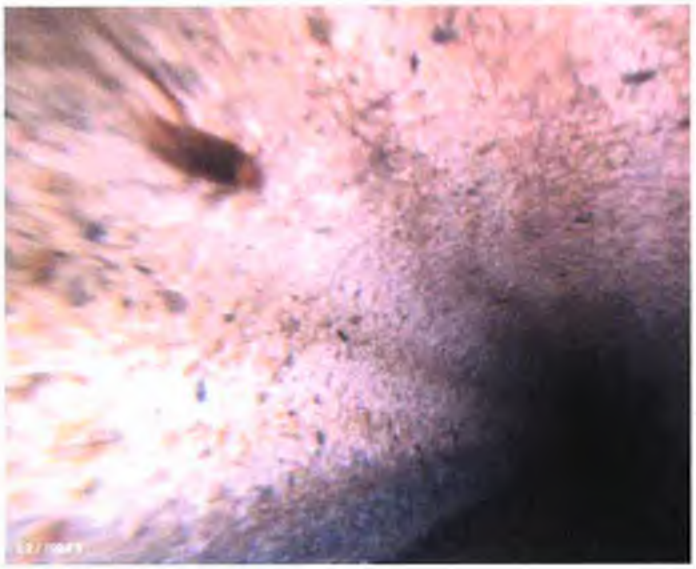
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



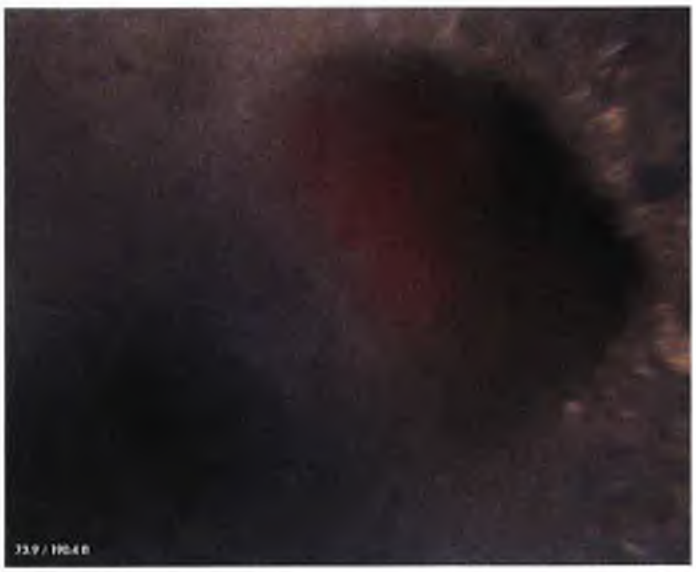
PACP Code:	SAP
Description:	Surface Aggregate Projecting
Distance (ft):	1.76
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	False
Remarks:	



PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	3.19
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

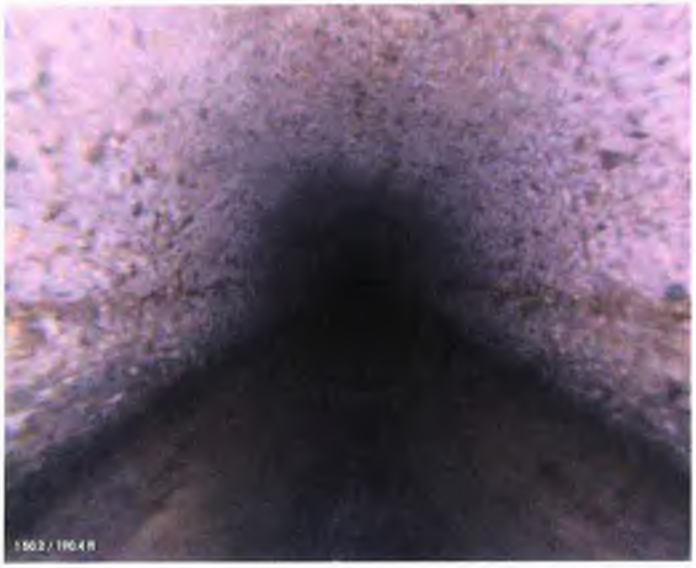
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.73
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	60.38
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	11
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

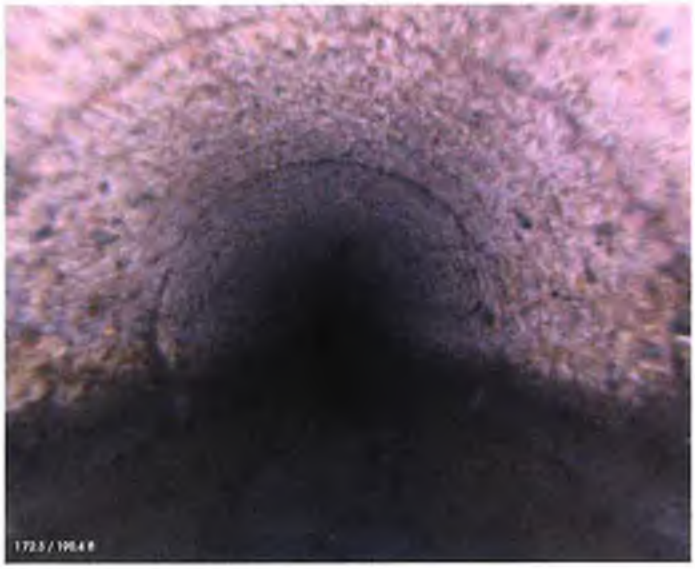


PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	73.92
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.17
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

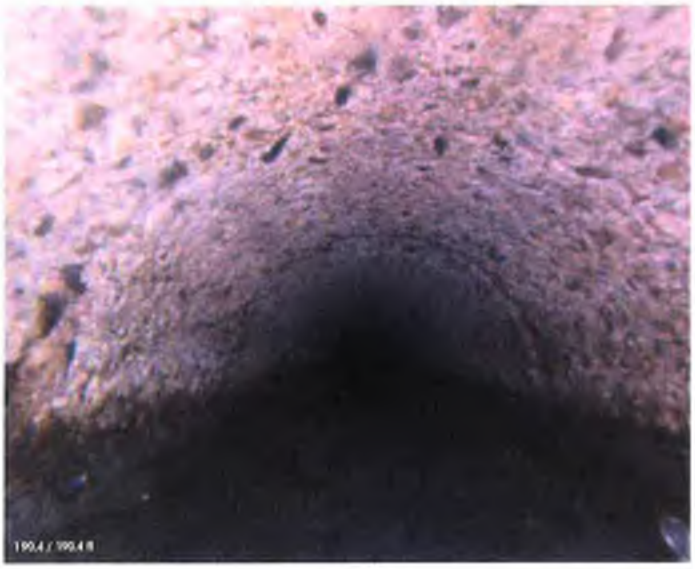


PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.24
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

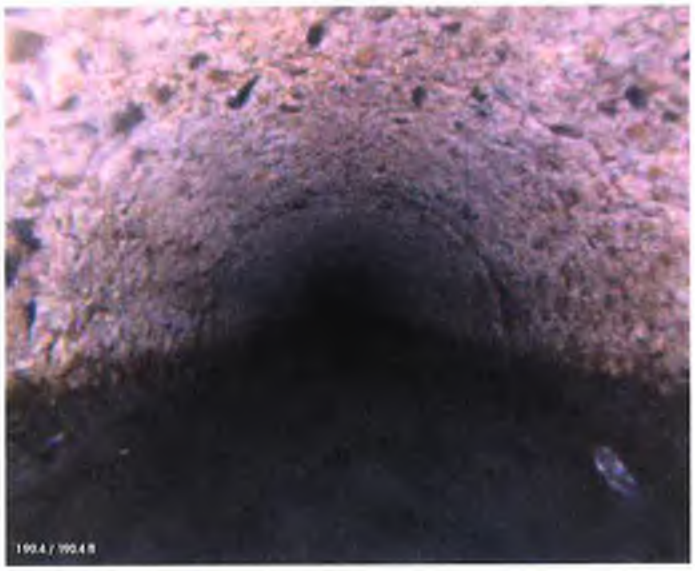


PACP Code:	FC
Description:	Fracture Circumferential
Distance (ft):	172.28
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	190.41
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MSA
Description:	Abandoned Survey
Distance (ft):	190.41
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Poor mobility



PACP Code:	SAP
Description:	Surface Aggregate Projecting
Distance (ft):	190.41
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	False
Remarks:	

Profile/Photo Observation Report

RedZone Robotics

Date:	10/28/2009	Weather:	Dry		
Pipe Length (ft):	200	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12016	Surveyor:	JJC	PSR:	04-8002 to 04-8001
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Bear Mountain Blvd.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS23-720
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Reinforced Concrete Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 04-8002 DS MH: 04-8001 Total Length Surveyed (ft): 200

Joint every 3 ft

04-8002

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level 40%	13	NA
0.04	SAV	Surface Aggregate Visible Continuous	21	S 3
8.4	VC	Vermin Cockroach	46	M 1
16.7	CL	Crack Longitudinal J16.5	72	S 2
50.39	MGP	General Photo WL = 30%	150	NA
77.54	CM	Crack Multiple J77.5 WL=30%	213	S 3
92.52	CM	Crack Multiple J92.5 WL=30%	252	S 3
100.12	MGP	General Photo J117	277	NA
117.02	CL	Crack Longitudinal WL = 40%	319	S 2
141.27	CL	Crack Longitudinal	378	S 2
150.05	MGP	General Photo WL = 30%	404	NA
187	FC	Fracture Circumferential J187-190	486	S 2
200.36	AMH	Manhole	521	NA
200.36	SAV	Surface Aggregate Visible	530	S 3

Camera Direction

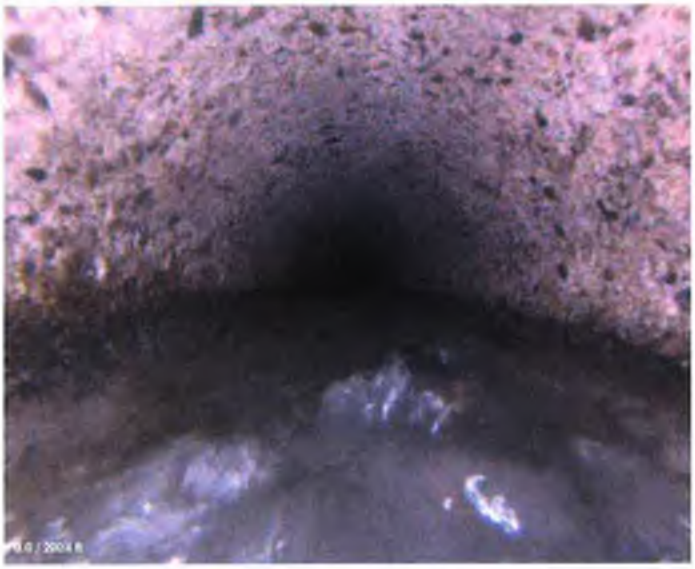
170 WL = 40%

* due to low amount of cracks and fractures but the high water levels >30% for more than half the pipe,

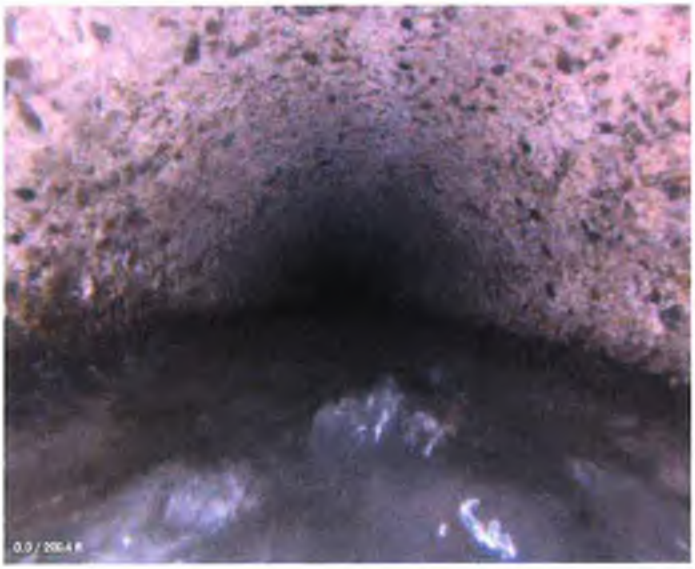
Recommendation

- Open Trench Replacement 200 Ft

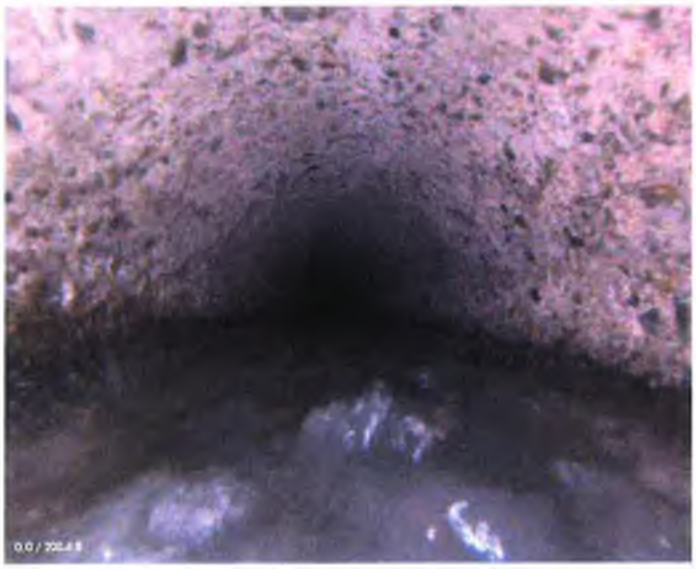
04-8001



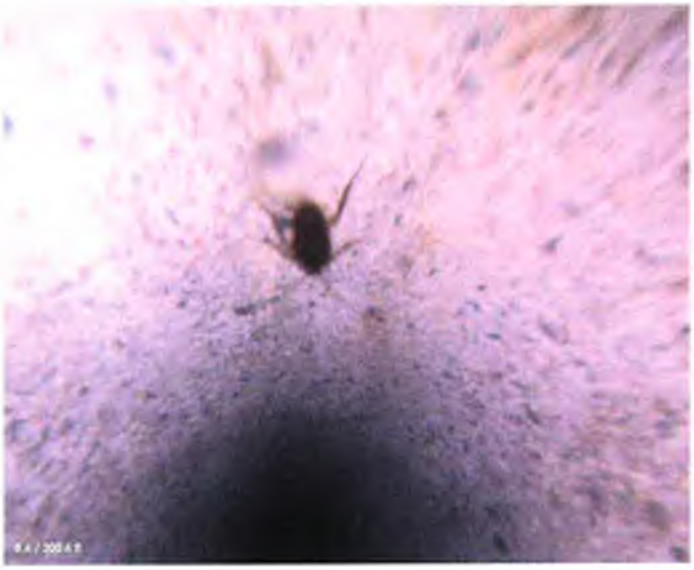
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

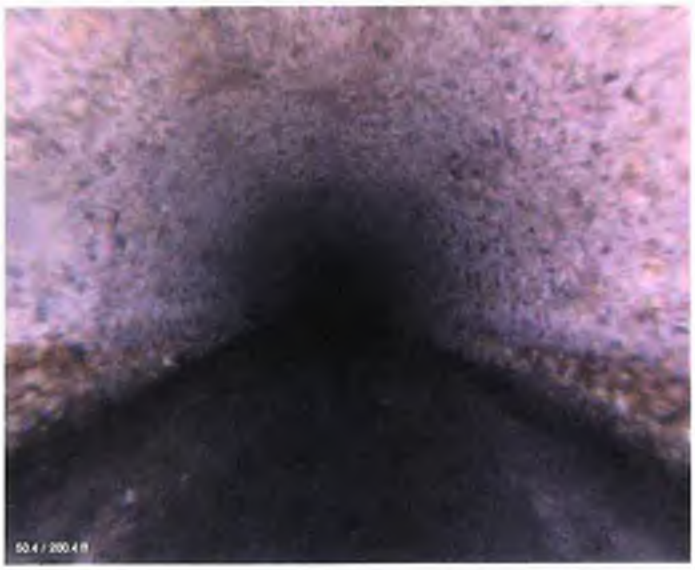


PACP Code:	SAV
Description:	Surface Aggregate Visible
Distance (ft):	0.04
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	False
Remarks:	

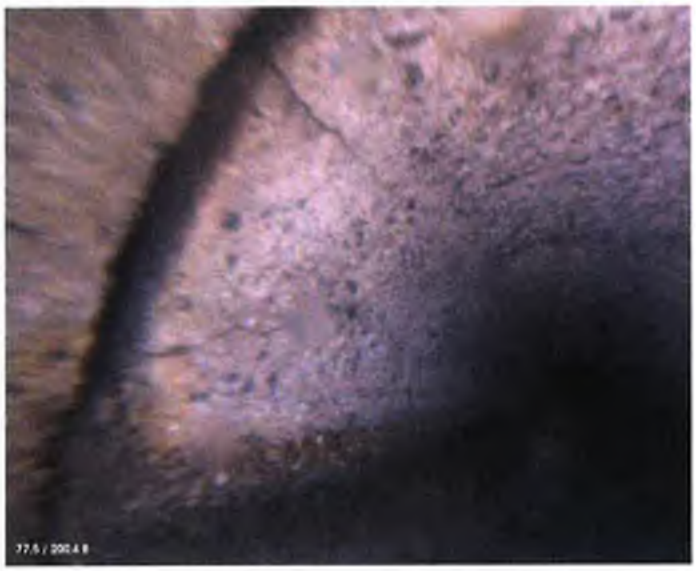


PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	8.4
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

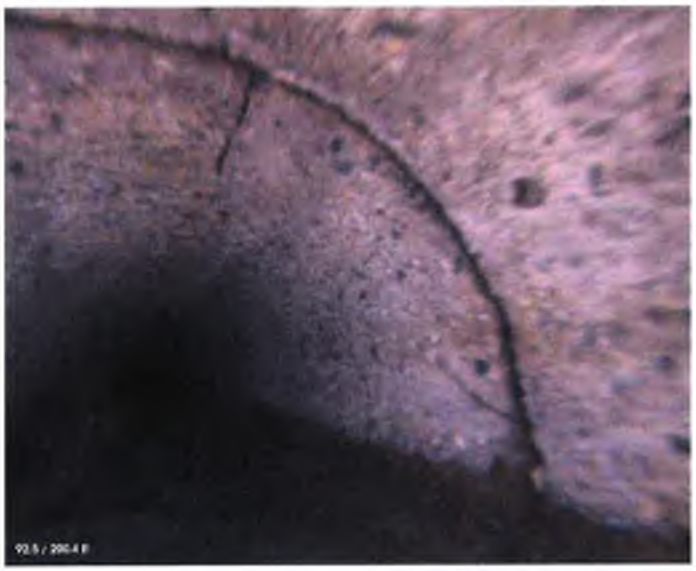
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	16.7
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



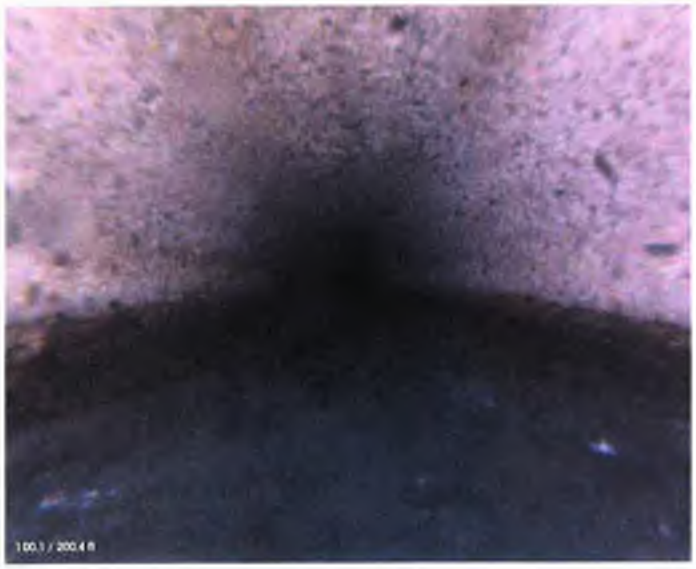
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.39
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



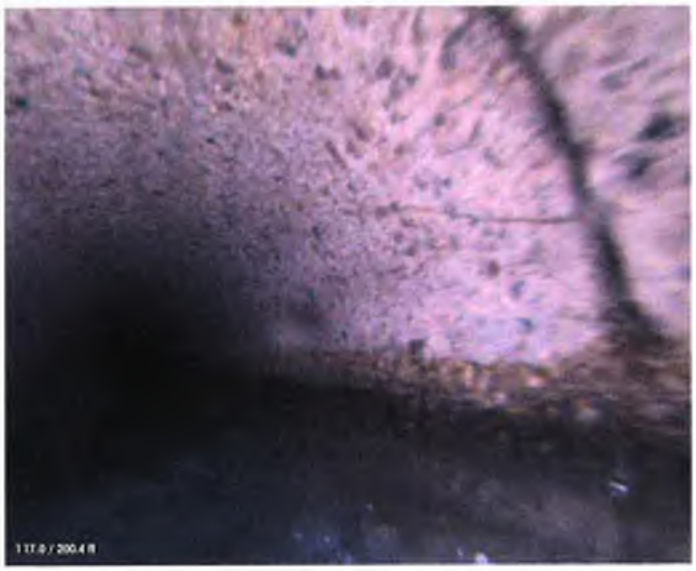
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	77.54
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	9
Clock To:	10
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



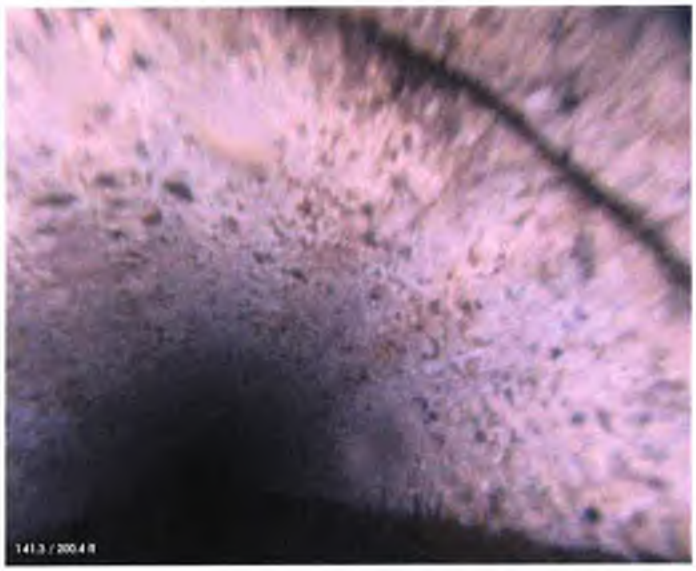
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	92.52
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	12
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.12
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

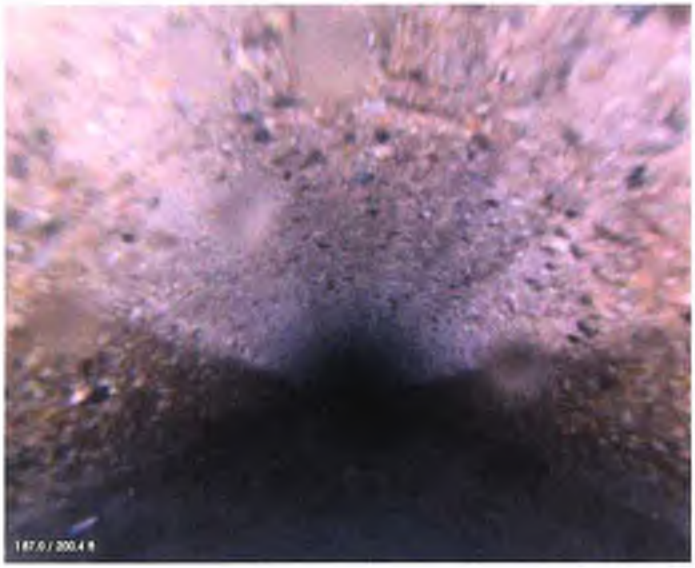


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	117.02
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

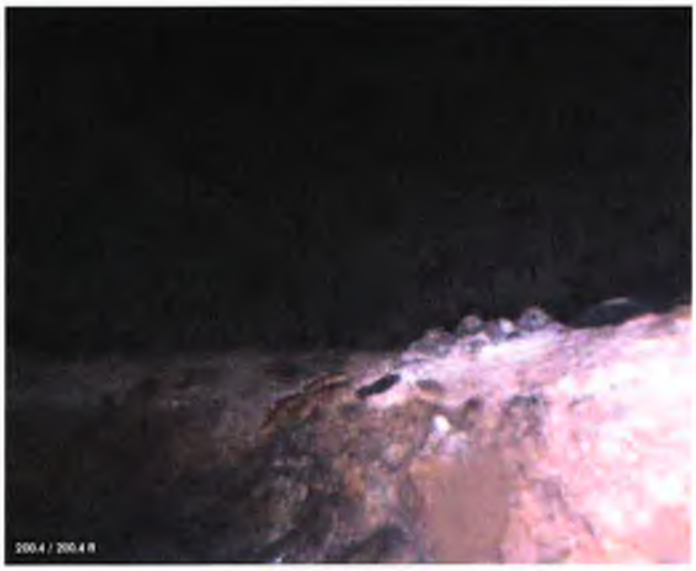


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	141.27
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

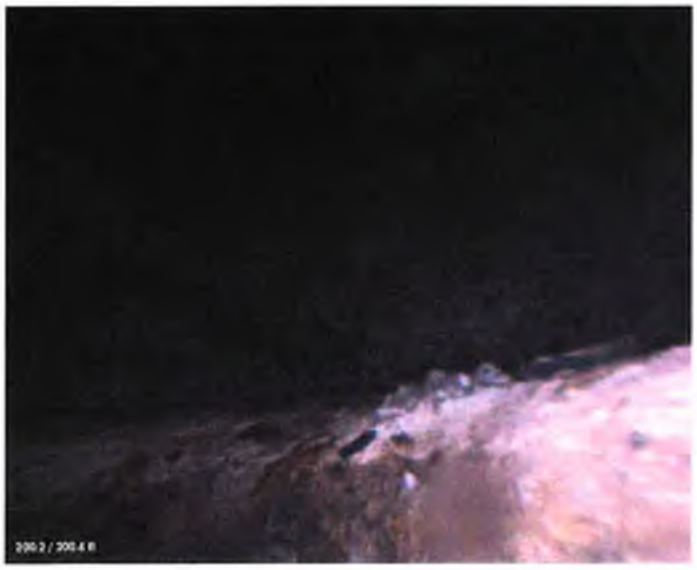
PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.05
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	FC
Description:	Fracture Circumferential
Distance (ft):	187
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	200.36
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey



PACP Code:	SAV
Description:	Surface Aggregate Visible
Distance (ft):	200.36
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	False
Remarks:	

Profile/Photo Observation Report

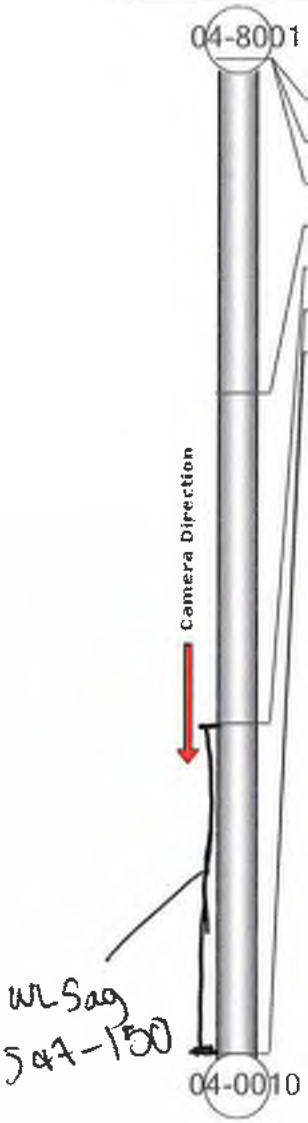
RedZone ROBOTICS

Date:	11/02/2009	Weather:	Dry		
Pipe Length (ft):	150	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12023	Surveyor:	JJC	PSR:	04-8001 to 04-0010
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Stockton Rd.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS23-736
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Reinforced Concrete Pipe
Drain Area:		Lining:	
Category:			
Comment:	Reverse		
Location Details:		Direction of Survey:	Downstream

US MH: 04-8001 DS MH: 04-0010 Total Length Surveyed (ft): 150

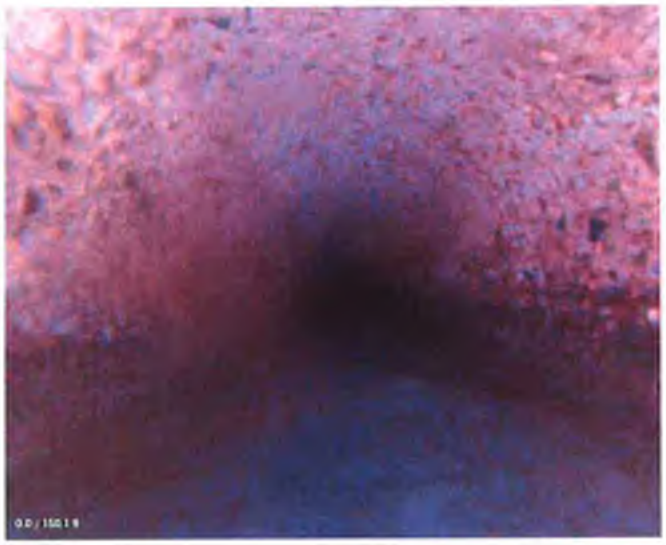
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level	13	NA
0.04	SAP	Surface Aggregate Projecting	21	S 3
50.38	MGP	General Photo 20% WL	131	NA
100.26	MGP	General Photo WL 30% (increasing)	239	NA
150.11	SAP	Surface Aggregate Projecting	347	S 3
150.11	AMH	Manhole	355	NA



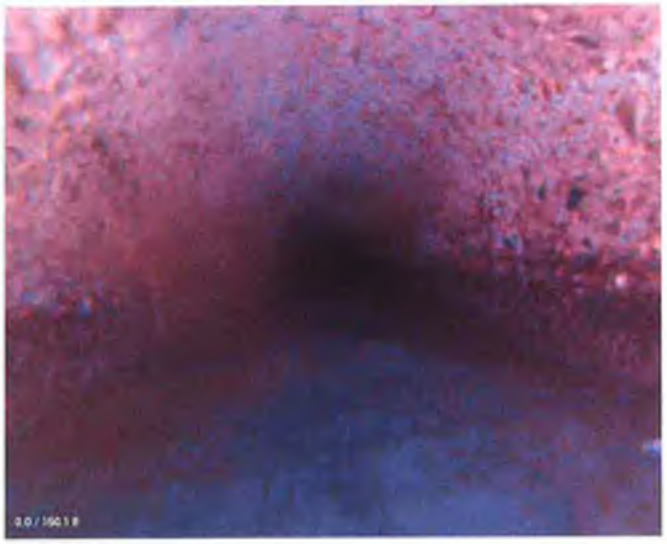
Recommendation:

Open Trench Replacement

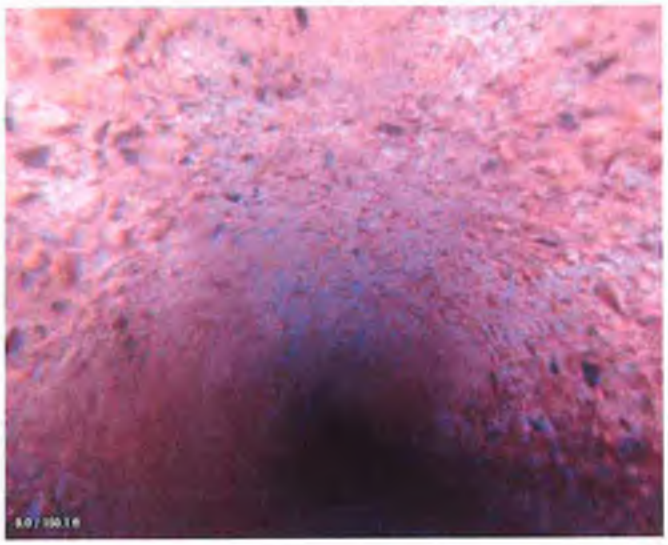
150ft



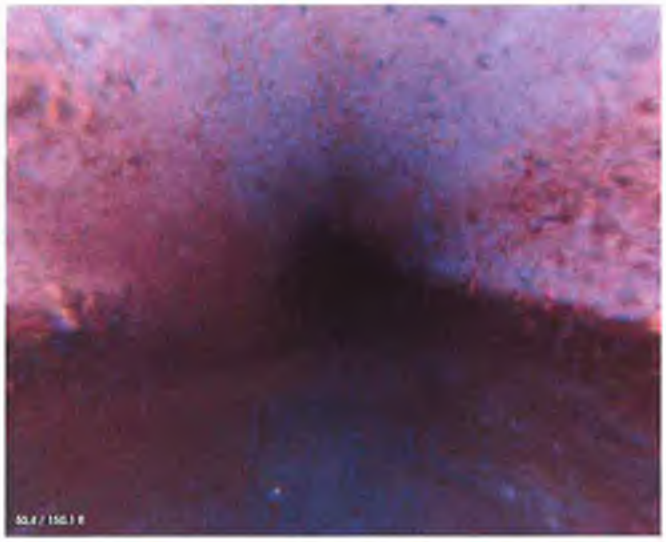
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



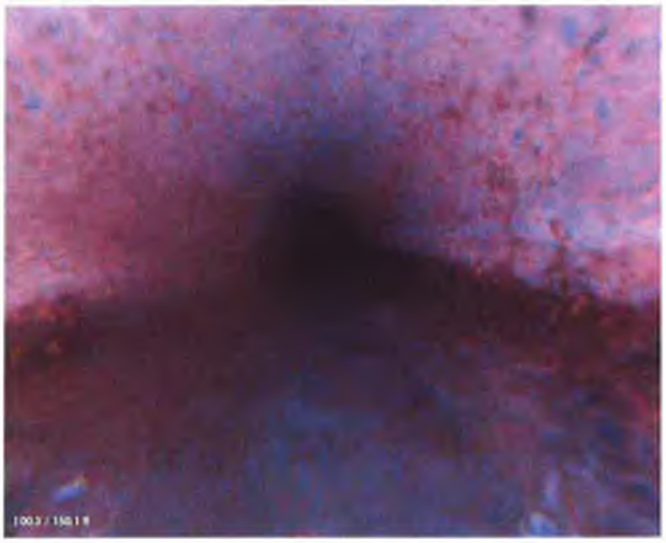
PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



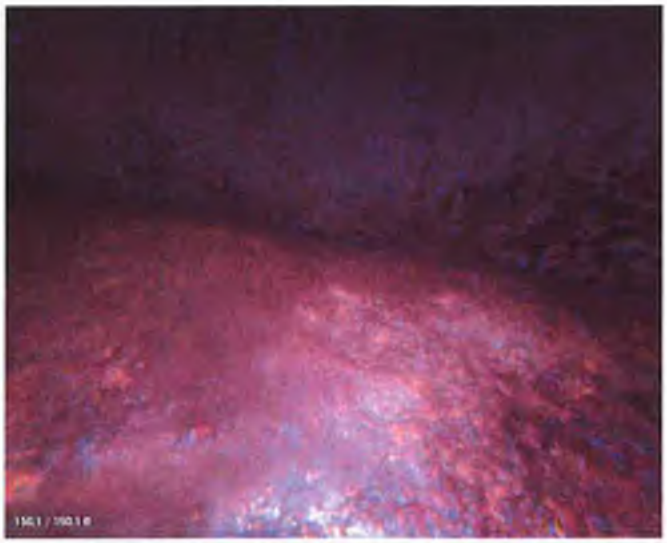
PACP Code:	SAP
Description:	Surface Aggregate Projecting
Distance (ft):	0.04
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	False
Remarks:	



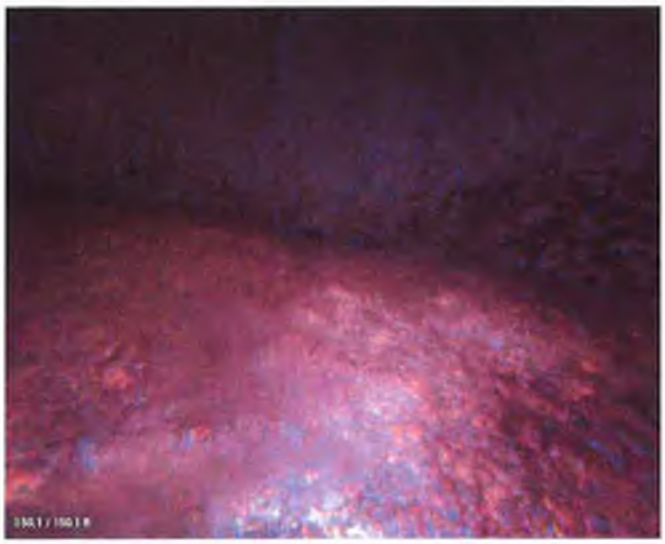
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.38
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.26
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	SAP
Description:	Surface Aggregate Projecting
Distance (ft):	150.11
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	False
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	150.11
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/28/2009	Weather:	Dry		
Pipe Length (ft):	324	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12016	Surveyor:	JJC	PSR:	04-7001 to 04-0010
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Bear Mountain Alley South	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Alley	Tape/Media #:	NS11-1197
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Reinforced Concrete Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

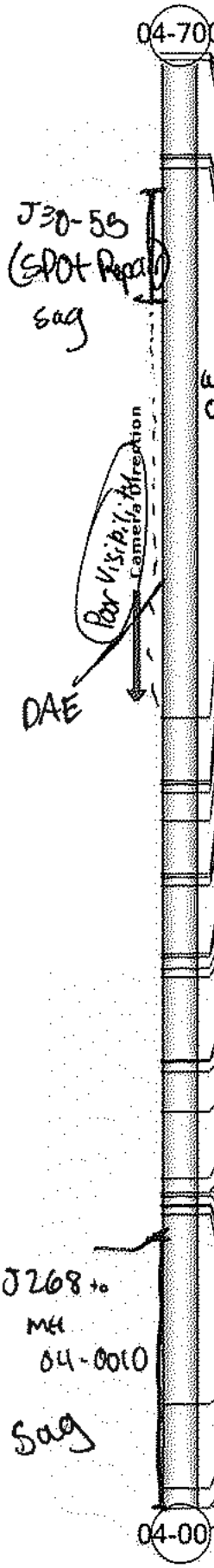
US MH: 04-7001 DS MH: 04-0010 Total Length Surveyed (ft): 324

- WL maintained at low levels except in 2 spots (82ft)
- SAP requires lining

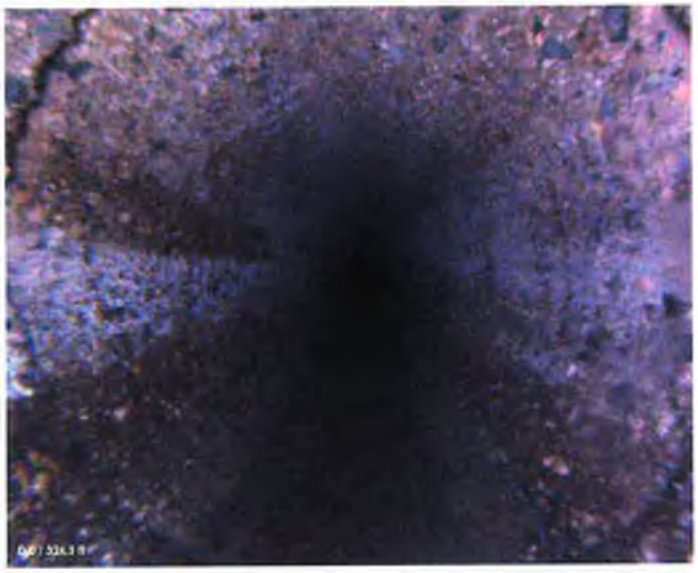
* Recommendation (from 04-7001)

- Spot Repair (530-55, J 268 to MH 04-0010) 82ft
- CIPP Lining (entire length) 324ft

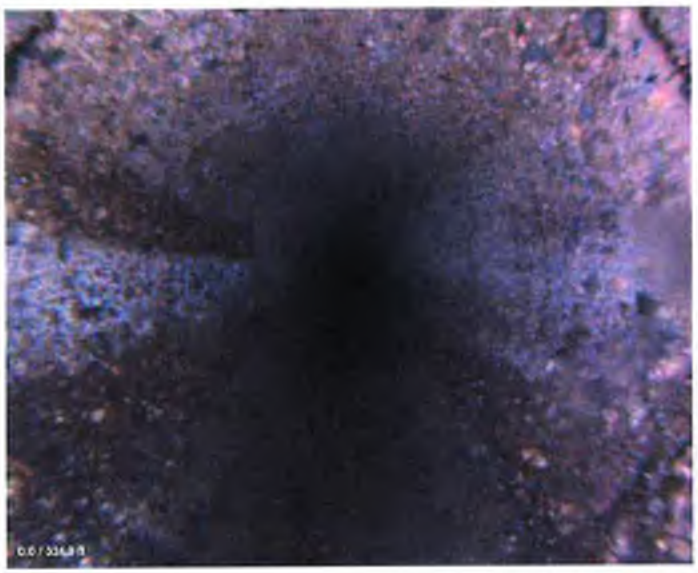
Joint every 3ft



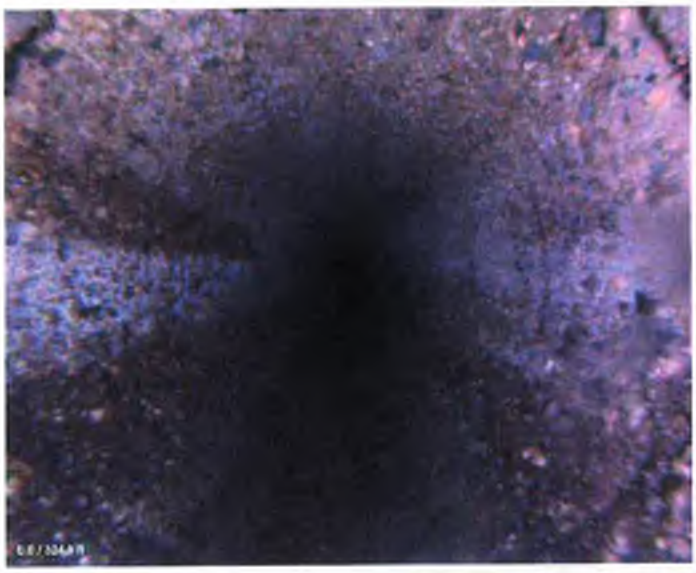
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level (5%)	13	NA
0	SAP	Surface Aggregate Projecting (continuous)	21	S 3
1.57	FM	Fracture Multiple J1.5 - 4.5	33	S 4
22.76	MMC	Material Change	84	NA
23.39	TF	Tap Factory	94	NA
25.49	MMC	Material Change	107	NA
25.49	MGO	General Observation (blurry)	115	NA
147.81	MGO	General Observation Improved visability	368	NA
161.99	MMC	Material Change	405	NA
162.6	TF	Tap Factory	414	NA
164.58	CL	Crack Longitudinal	427	S 2
164.58	MMC	Material Change	436	NA
170.89	MWL	Water Level (5%)	457	NA
182.84	CL	Crack Longitudinal J 183 - 186	489	S 2
182.84	MMC	Material Change	499	NA
183.45	TF	Tap Factory	509	NA
185.35	MMC	Material Change	522	NA
200.59	CM	Crack Multiple J197.5 - 205.5	560	S 3
200.59	MMC	Material Change	569	NA
201.14	TF	Tap Factory	578	NA
203.91	TF	Tap Factory	593	NA
205.87	MMC	Material Change	606	NA
224.15	MMC	Material Change	651	NA
224.81	TF	Tap Factory	661	NA
226.76	MMC	Material Change	674	NA
235.71	DAE	Deposits Attached Encrustation J235.5	700	M 3
250.57	MGP	General Photo WL = 15%	740	NA
254.01	DAE	Deposits Attached Encrustation J254	755	M 3
254.01	MMC	Material Change	765	NA
254.57	TF	Tap Factory	774	NA
256.47	CM	Crack Multiple	788	S 3
257.04	TF	Tap Factory	798	NA
258.92	MMC	Material Change	811	NA
300.93	MGP	General Photo WL = 30%	903	NA
319.8	SSS	Surface Spalling WL = 35%	949	S 2
324.34	SAP	Surface Aggregate Projecting	967	S 3
324.34	AMH	Manhole	976	NA



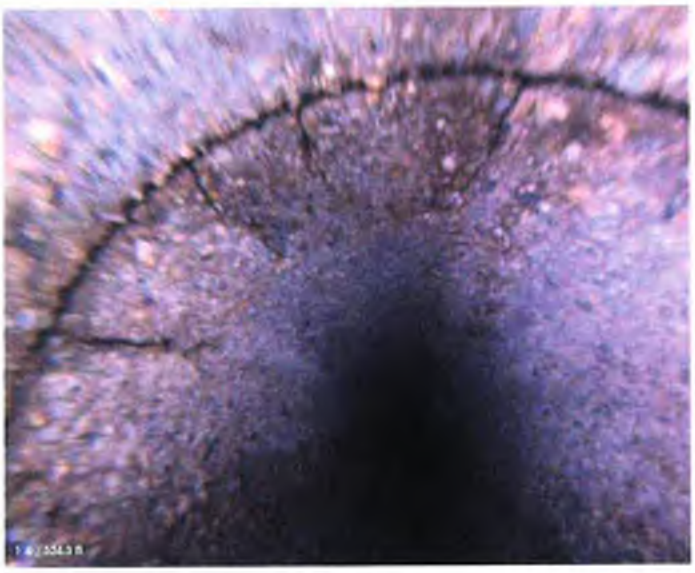
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	SAP
Description:	Surface Aggregate Projecting
Distance (ft):	0
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	False
Remarks:	



PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	1.57
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	22.76
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

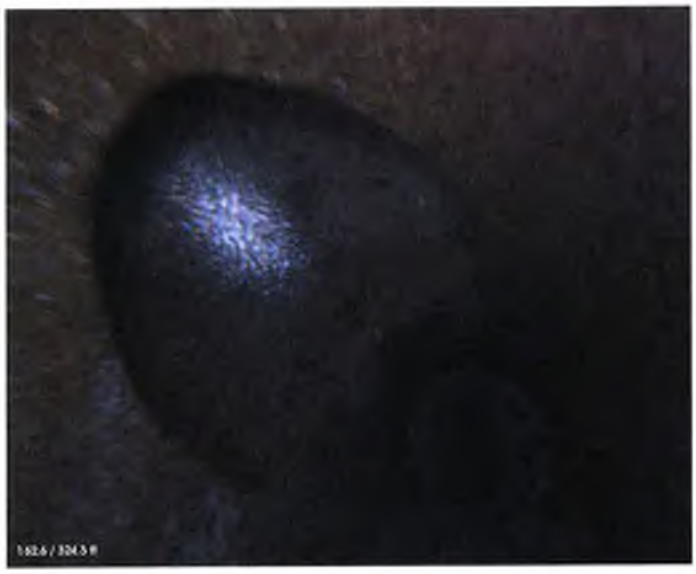
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	23.39
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	25.49
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

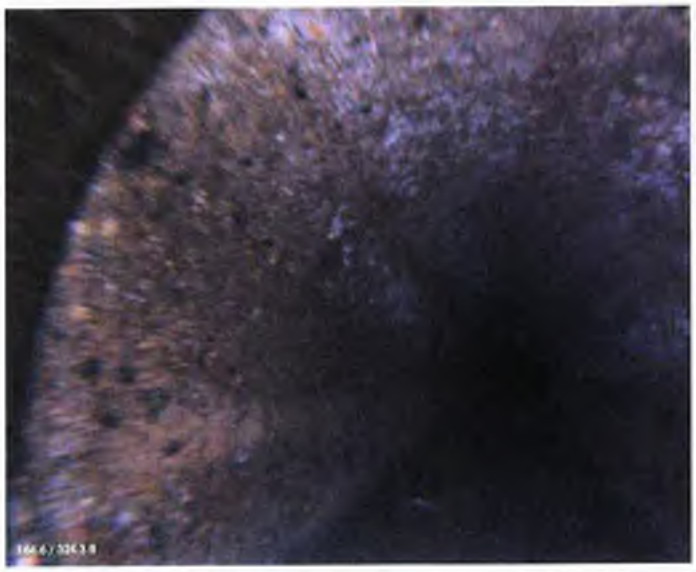
PACP Code:	MGO
Description:	General Observation
Distance (ft):	25.49
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Poor visibility due to fog on lens

PACP Code:	MGO
Description:	General Observation
Distance (ft):	147.81
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Improved visibility.

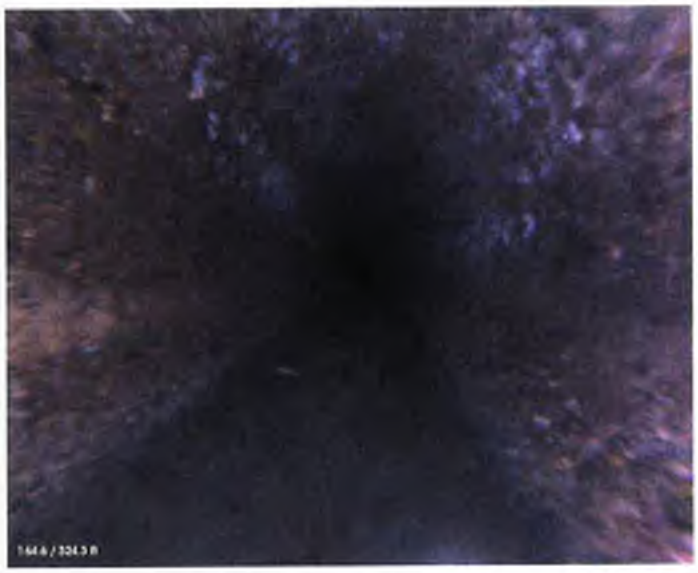
PACP Code:	MMC
Description:	Material Change
Distance (ft):	161.99
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay



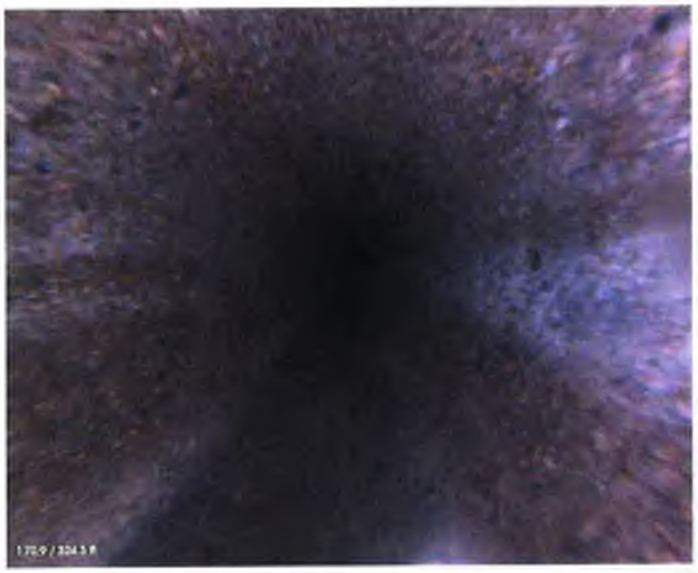
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	162.6
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



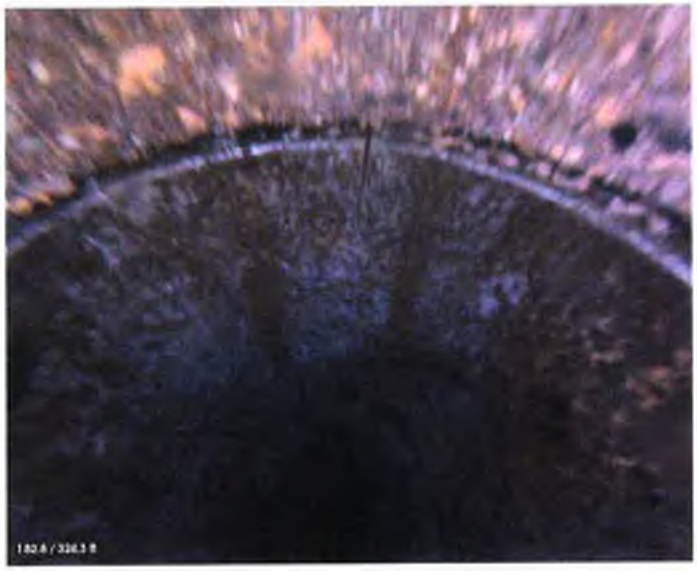
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	164.58
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	MMC
Description:	Material Change
Distance (ft):	164.58
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

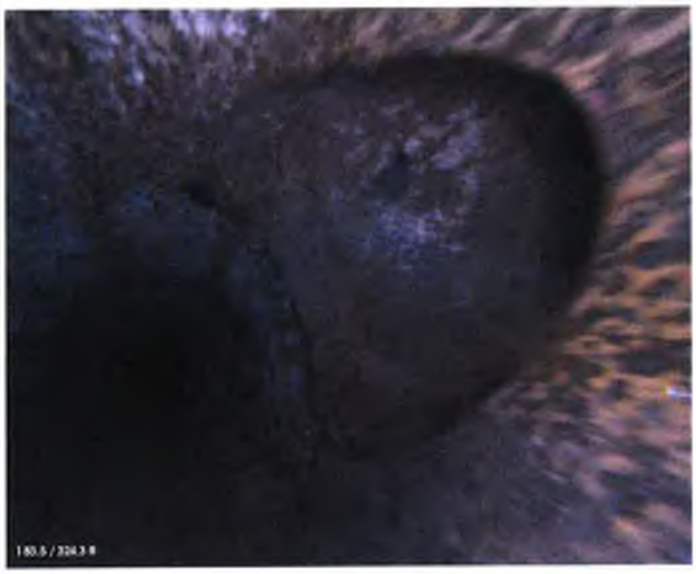


PACP Code:	MWL
Description:	Water Level
Distance (ft):	170.89
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



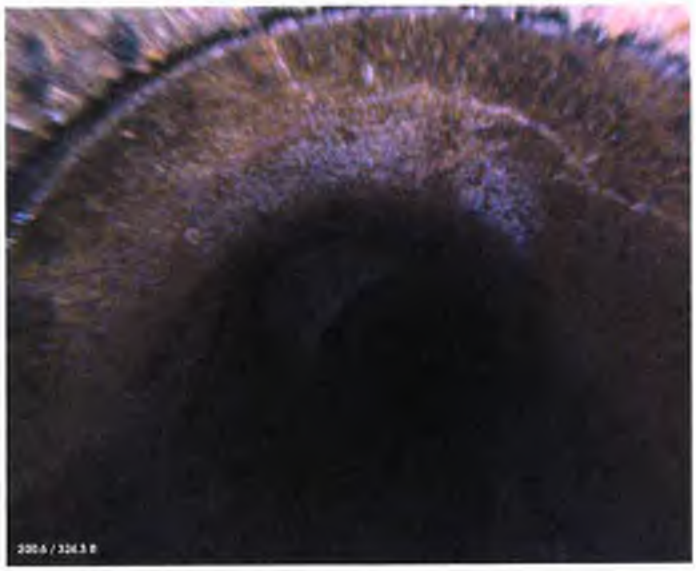
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	182.84
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	182.84
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	183.45
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

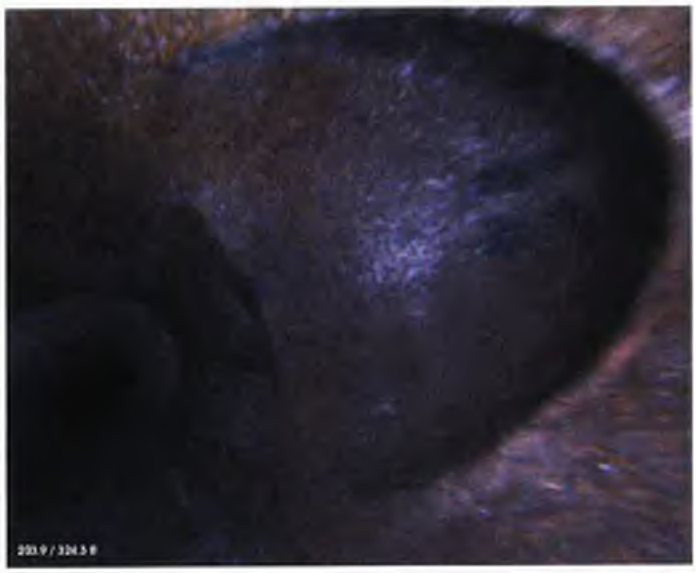
PACP Code:	MMC
Description:	Material Change
Distance (ft):	185.35
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete



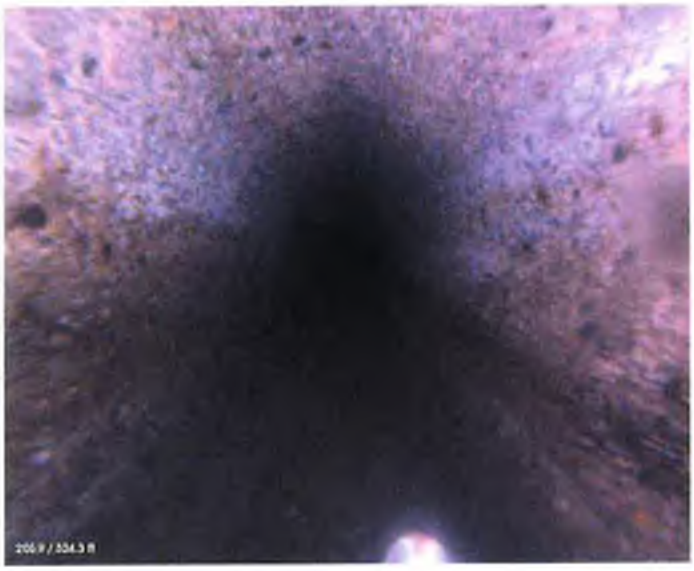
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	200.59
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	9
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	200.59
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	201.14
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

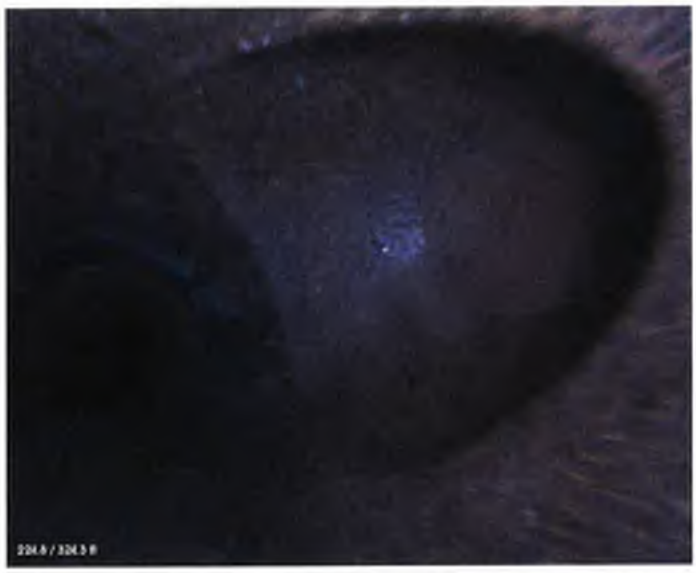


PACP Code:	TF
Description:	Tap Factory
Distance (ft):	203.91
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



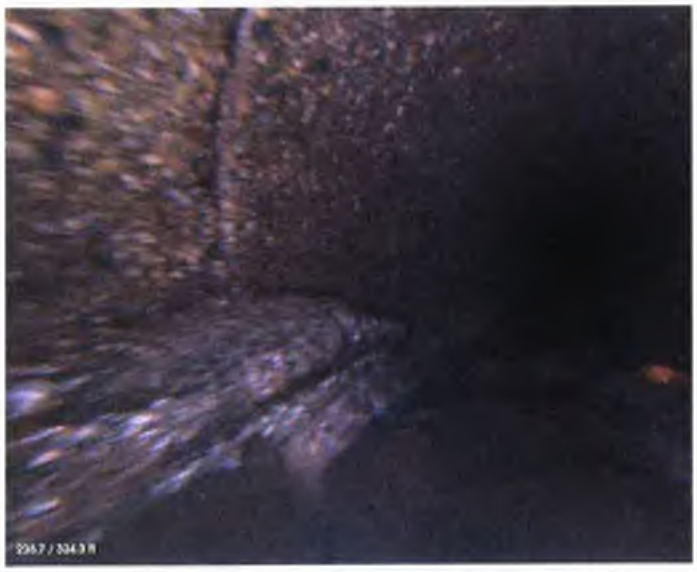
PACP Code:	MMC
Description:	Material Change
Distance (ft):	205.87
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete

PACP Code:	MMC
Description:	Material Change
Distance (ft):	224.15
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay



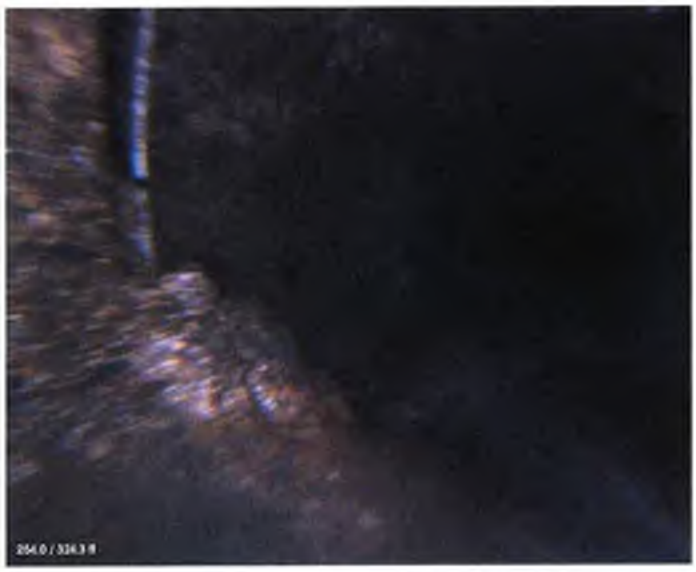
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	224.81
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	226.76
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete



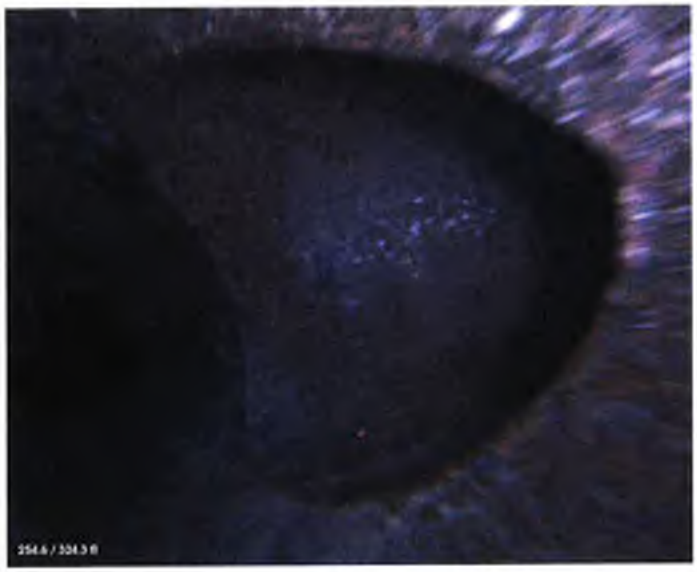
PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	235.71
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	8
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.57
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

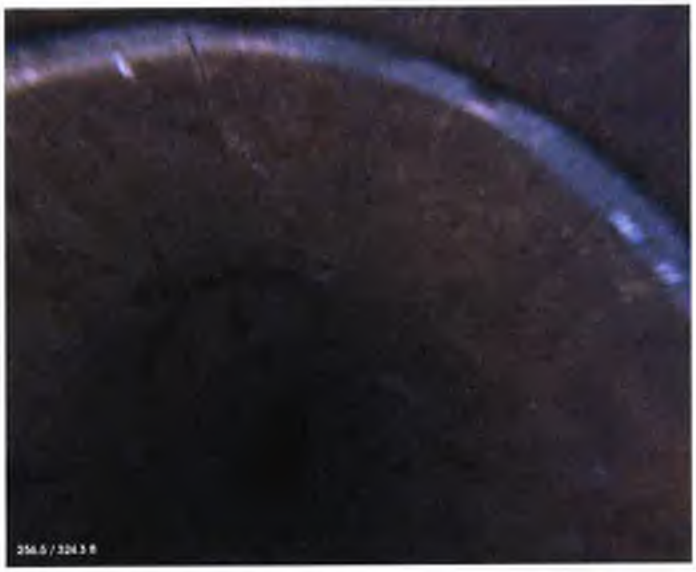


PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	254.01
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	7
Clock To:	8
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MMC
Description:	Material Change
Distance (ft):	254.01
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Vitrified clay

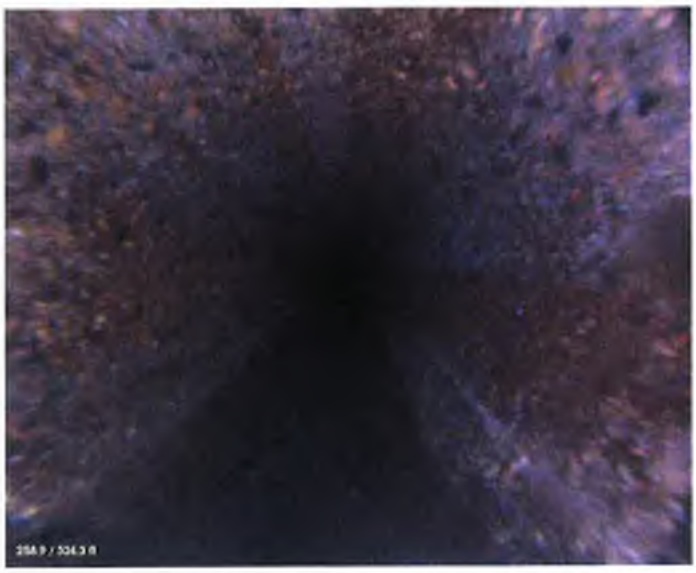


PACP Code:	TF
Description:	Tap Factory
Distance (ft):	254.57
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

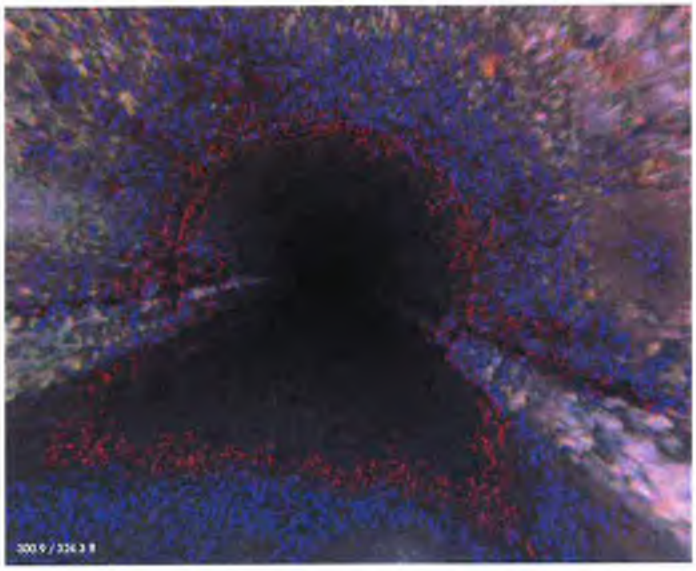


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	256.47
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	12
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

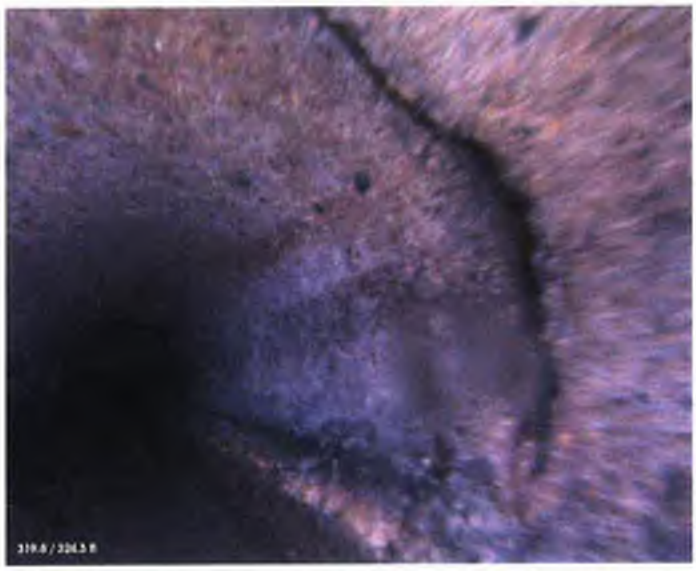
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	257.04
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MMC
Description:	Material Change
Distance (ft):	258.92
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Concrete



PACP Code:	MGP
Description:	General Photo
Distance (ft):	300.93
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	319.8
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	SAP
Description:	Surface Aggregate Projecting
Distance (ft):	324.34
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	False
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	324.34
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 04-7002 to 04-7001

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material:

Survey Direction:

US Manhole:

DS Manhole:

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no report / video on ~~[illegible]~~ file

Recommendation

Open Trench Pipe Replacement (294 ft)

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 9 / 30

MANHOLE NO.: 04 - 7002

Surveyed by: Danny and Johnny

Street: Alleyway

Cert. no.:

MH Location Details:
Alleyway just off of Derby Rd (east / west)
Could not open

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

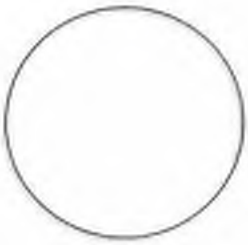
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 10 / 30

MANHOLE NO.: 04 - 7001

Surveyed by: Danny and Johnny

Street: Alleyway

Cert. no.:

MH Location Details:
Alleyway going east/west between Stockton and Derby Street

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown N/A

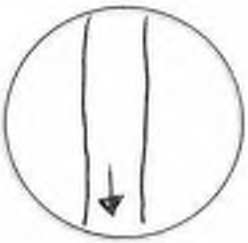
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Corroded cover and frame

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 11 / 30

MANHOLE NO.: 04 - 0010

Surveyed by: Danny and Johnny

Street: Alleyway

Cert. no.:

MH Location Details:

Alleyway going east/west between Stockton and Derby Street

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown N/A

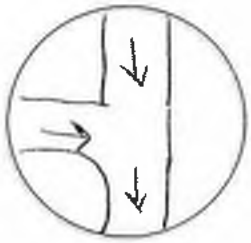
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Aggregate showing on walls, corroded stairs

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 19 / 2019

Sheet: ____ / ____

MANHOLE NO.: 04-9003

Surveyed by: Cahilu

Street: C St

Cert. no.:

MH Location Details:
next to hercules tires

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

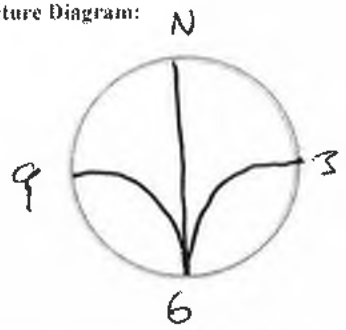
Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

II

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
cracks in wall, Roots, SAP

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 7 / 2019

Sheet: 19 / 26

MANHOLE NO.: 04 - 8005 **Surveyed by:** Danny and Johnny

Street: Alleyway (North/South) **Cert. no.:**

MH Location Details:

Inbetween Arvin Ave and Bear Mountain Boulevard

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown N/A

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

(drew backwards)

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Aggregate showing in walls

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 7 / 2019

Sheet: 16 / 26

MANHOLE NO.: 04 - 8004

Surveyed by: Danny and Johnny

Street: Alley Way (East / West)

Cert. no.:

MH Location Details:
Alley way between B street and C street

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / ~~Broken~~ / Corroded / ~~Cracked~~ / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / ~~Solid~~ **Condition:** ~~Broken~~ / Corroded / ~~Cracked~~ / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown NA

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Benches and Channel broken

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 7 / 2019

Sheet: 17 / 26

MANHOLE NO.: 04 _ 8008

Surveyed by: Danny and Johnny

Street: C street

Cert. no.:

MH Location Details:

Inbetween Arvin Ave and 4th Ave

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound N/A

Chimney Condition: Defective / Sound / Unknown N/A

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Aggregate Showing on Cone

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 7 / 2019

Sheet: 18 / 26

MANHOLE NO.: 04 – 8009 **Surveyed by:** Danny and Johnny

Street: Alleyway (East/West) **Cert. no.:**

MH Location Details:
Inbetween 4th Ave and Arvin Ave

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound [redacted]

Chimney Condition: Defective / Sound / Unknown [redacted]

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Crack in chimney and cone, aggregate showing H_2S gas

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04-8013

Surveyed by:

Street: 4th / C

Cert. no.:

MH Location Details:

Int. 4th / C

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Insp. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Broken

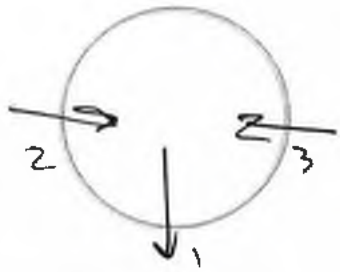
Cone Condition: Defective / Sound / Unknown Hrs

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair Frame/chimney/cone

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04-8014

Surveyed by: J - L

Street: 4th ave

Cert. no.:

MH Location Details:

232 4th - alley

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown → SAP

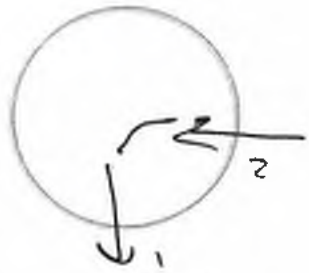
Cone Condition: Defective / Sound / Unknown → Cracking

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

- Repair surface chimney/cone
- Cracked wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04-8016

Surveyed by: J-L

Street: 4th ave.

Cert. no.:

MH Location Details:

129 4th ave

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

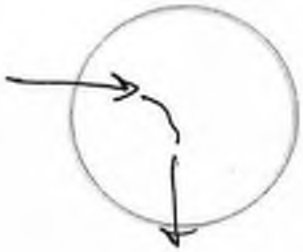
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04-8017

Surveyed by: J. L

Street: 5th Ave

Cert. no.:

MH Location Details:

Adj. to water tower

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Breaking

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown Crack at Cone, SAP

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair due to SAP, H_2S damage, Cracking

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: / / 2019

Sheet: ____ / ____

MANHOLE NO.: 04-8016

Surveyed by: J-L

Street: 5th ave.

Cert. no.:

MH Location Details:

Past Derby, before train tracks

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Defer. H_2S

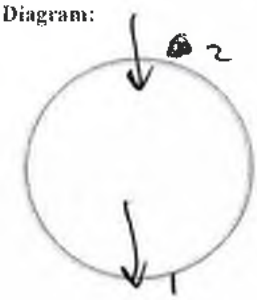
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown SAP, H_2S

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Sound Except Material Deterioration

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Appendix H: A Street Pipeline Project Reference Materials

A Street Pipeline Project Cost Estimate

Reach No.	Item	Action		Cost
Number	Reach			
1	04_6004_04_6003_9/14/2015_11:26	Spot Repair + Lining		$ 6,000.00
2	04_6003_04_6002_9/14/2015_11:26	Spot Repair + Lining		$ 50,000.00
3	04_6002_04_6002A_9/14/2015_11:26	Replacement		$ 82,000.00
4	04_6002A_04_6001_9/14/2015_11:26	Replacement		$ 81,000.00
5	04_5004_04_5003_9/14/2015_11:26	Replacement		$ 66,000.00
6	04_5003_04_5002_9/14/2015_11:26	Replacement		$ 79,000.00
7	04_5002_04_5001_9/14/2015_11:26	Spot Repair + Lining		$ 65,000.00
8	04_5001_04_0006_9/14/2015_11:26	Replacement		$ 82,000.00
9	04-0006_04-0005_7/15/2013_15:47	Replacement		$ 84,000.00
10	04_4001_04_0005_9/14/2015_11:26	Replacement		$ 81,000.00
11	04_4002_04_4001_9/14/2015_11:26	Replacement		$ 82,000.00
12	04_4003_04_4002_9/14/2015_11:26	Lining		$ 33,000.00
13	04_4004_04_4003_9/14/2015_11:26	Replacement		$ 71,000.00
	Manholes			
	04_4004	Replace		$ 8,000.00
	04_4003	Replace		$ 8,000.00
	04_4002	Replace		$ 8,000.00
	04_4001	Replace		$ 8,000.00
	04_0005	Replace		$ 8,000.00
	04_0006	Replace		$ 8,000.00
	04_5001	Replace		$ 8,000.00
	04_5002	Replace		$ 8,000.00
	04_5003	Replace		$ 8,000.00
	04_5004	Replace		$ 8,000.00
	04_6004	Replace		$ 8,000.00
	04_6002	Replace		$ 8,000.00
	04_6002A	Replace		$ 8,000.00
	Total Construction Cost			$ 966,000.00
	Engineering & Construction Management		25%	$ 242,000.00
	Contingencies		20%	$ 193,000.00
	Administrative		5%	$ 48,000.00
	CIP Estimate			**$ 1,449,000.00**

CCTV Observation Report

Harris & Associates

Date: 11/17/19
Pipe Length
Customer: Veolia
Owner: City of Arvin
Surveyor:
Weather: Dry
Pre Clean: Jetting
Shape: Circular
Reach: 04-6004 to 04-6003

Street: Tucker-Orange Alley
City: Arvin
Use: Sanitary
US Manhole: 04-6004
Flow Control: Not Controlled
Dia/Height (in): 8
Material: Concrete Pipe
DS Manhole: 04-6003
Survey Direction: Upstream
Total Length Surveyed: 256

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole		N/A
0	SSS	Surface Spalling		S2
10.3	TF	Tap Factory		N/A
18.4	TB	Tap Break-In		N/A
43	TFC	Tap Factory Capped		N/A
45.6	TFC	Tap Factory Capped		N/A
63.1	TF	Tap Factory		N/A
65.6	TFC	Tap Factory Capped		N/A
68.2	TB	Tap Break In WL=10%		N/A
110.5	TFC	Tap Factory Capped		N/A
113.2	TFC	Tap Factory Capped		N/A
116.4	TB	Tap Break In		N/A
148.9	TB	Tap Break In		N/A
160.9	TF	Tap Factory		N/A
184.3	TBA	Tap Break In Active		N/A
193.5	TF	Tap Factory		N/A
200.5	DAE	Deposit Attached Encrustation		M2
220.1	TFC	Tap Factory Capped		N/A
237.5	TF	Tap Factory		N/A
242.5	TB	Tap Break-In		N/A
252.7	TB	Tap Break In		N/A
252.7	RML	Roots Medium Lateral		M2

J250-262

Recommendation

Spot Repair 15 ft (J 250-262 from MH 04-6003
J 161-164 from MH 04-6004)

CIPP Lining

Second CCTV Video
(same direction, cleaned and removed debris from 256 Section)

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 04-6004 to 04-6003

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material:

Survey Direction:

US Manhole:

DS Manhole:

Total Length Surveyed: 276

Position	Code	Observation	Video (sec)	Grade
Ø	AMH	Manhole		N/A
Ø	MWL	Water Level (10%)		N/A
Ø	SSS	Surface Spalling		SQ
8.4	TF	Tap Factory		N/A
10	DSF	Deposits Settled Fine		M2
17.0	TB	Tap Break In		N/A
42.1	TFC	Tap Factory Capped		N/A
44.5	TFC	Tap Factory Capped		N/A
61.9	TF	Tap Factory		N/A
64.8	TF	Tap Factory		N/A
67.3	TB	Tap Break In		N/A
109.7	TFC	Tap Factory Capped		N/A
112.0	TFC	Tap Factory Capped		N/A
115.3	TB	Tap Break In		N/A
147.9	TB	Tap Break In		N/A
160.2	TF	Tap Factory		N/A
160.8	JOM	Joint Offset Medium		M3
184	TBA	Tap Break In Active		N/A
193.2	TF	Tap Factory		
199.5	DAE	Deposit Attached Encrustation		M2
219.5	TFC	Tap Factory Capped		N/A
237.1	TF	Tap Factory		N/A
247.1	TB	Tap Break-In		N/A
252.5	TB	Tap Break In		N/A
252.5	RFL	Roots Fine		M2
257.9	TFC	Tap Factory Capped		N/A
260.2	TFD	Tap Factory Defective (collaped)		M4
272.8	TF	Tap Factory		N/A

J158-164

J258-264

* 2 videos in folder

Joint

CCTV Observation Report

Harris & Associates

Date: 11/17/15
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean: Jet
Shape: Circular
Reach: 04-6003 to 04-6002

Street: Tucker - orange
City: Arvin
Use: Sanitary

Flow Control: Not Controlled
Dia/Height (in): 8
Material: Concrete Pipe

Survey Direction: Downstream

US Manhole: 04-6003 to
DS Manhole: 04-6002
Total Length Surveyed: 201

0
42
Sag
54
Joint every 3ft

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (10%)		
16.9	TF	Tap Factory		
45	CC	Crack Circumfrential (WL=20%)		S2
49.4	TFA	Tap Factory Active		
55.5	TB	Tap Break In (WL=20%)		
82.2	TF	Tap Factory		
87.9	TF	Tap Factory		
107	DAE	Deposit Attached Encrustation @ joint		
108.8	TB	Tap Break In		
117.7	TFC	Tap Factory Capped		
141.1	CC	Crack Circumfrential		S2
141.6	TF	Tap Factory		
176.2	MWLS	Water Level Sag (J170-204)		
177.4	TFC	Tap Factory Capped		
189	DAE	Deposit Attached Encrustation		M3
195.1	TF	Tap Factory		
199.1	MWLS	Water Level Sag "still going"		
201	TBI	Tap Break in Intruding		
		Abandon Survey		
201	SSS	Surface Spalling		

Total Distance = 333ft

Recommendation

Spot Repair J170-204

CIPP Entire Length 333 ft

CCTV Observation Report

Harris & Associates

Date: 11/19/15
Pipe Length
Customer:

Owner: City of Arvin
Surveyor:
Weather:

Pre Clean:
Shape: Circular
Reach: 04-6003 to 04-6002

Street:
City:
Use:

Flow Control: Not Controlled
Dia/Height (in): 8
Material: Concrete pipe

Survey Direction: Upstream

US Manhole: 04-6003

DS Manhole: 04-6002

Total Length Surveyed: 131.5

Joint every 3 ft

Position	Code	Observation	Video (sec)	Grade
Upstream Video (2015)				
0	MWL	Water Level (10%)		
0	SSS	Surface Spalling (Continuous)		S2
4.5	OBR	Obstacle Rock		M2
54	OBR	Obstacle Rock		M2
64.8	TFA	Tap Factory Active		
76.8	TFC	Tap Factory Capped		
86.8	TB	Tap Break In		
85.3	TFA	Tap Factory Active		
91.5	DAE	Deposit Attached Encrustation		M3
124.2	TFC	Tap Factory Capped		
126.8	TFC	Tap Factory Capped		
131.5	TFI	Tap Factory Intruding		S2

CCTV Observation Report

Harris & Associates

Date: 11/19/15
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean: Jet
Shape: Circular
Reach: 04-6002 to 04-6002A

Street: Orange Alley
City: Arvin
Use: Sanitary
US Manhole: 04-6002

Flow Control: Not Controlled
Dia/Height (in): 8
Material: Concrete Pipe
DS Manhole: 04-6002A

Survey Direction: Downstream
Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0	MH	Manhole		
0	MWL	Waterlavel (10%)		
0	SSS	Surface spalling		
52.1	TB	Tap Break In		
57	CC	Crack Circumfrential		53
57.7	TFC	Tap Factory Capped		
83.7	CC	Crack Circumfrential		
115	MWLS	Water Level Sag (J115-127)		
115	CC	Crack Circumfrential		33
116.9	TF	Tap Factory Capped		
140.7	TF	Tap Factory		
189.7	CC	Crack Circumfrential		
191.6	TF	Tap Factory		
201.6	CC	Crack Circumfrential		
203.2	TF	Tap Tap Factory		
203.2	BVV	Broken Void Visible - at Lat connect		
219	DAE	Deposit Attached Encrustation		
251.2	TFA	Tap Factory Active		
265.8	TFC	Tap Factory Capped		
268.3	TFA	Tap Factory Active		
305.7	CC	Crack Circumfrential		
307.1	TF	Tap Factory		
327.7	TFC	Tap Factory Capped		
341.8		manhole		

J 200-230 Water Level Sag

- too many drops in the joints

Recommendation

Open Trench Pipe Replacement --> 342 ft

CCTV Observation Report

Harris & Associates

Date: 11/19/15
Pipe Length
Customer:

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean: Jet
Shape: Circular
Reach: 04-6002A to 04-6001

Street: Orange Alley
City: Arvin
Use: Sanitary
US Manhole: 04-6002A

Flow Control: Not Controlled
Dia/Height (in): 8
Material: Concrete Pipe
DS Manhole: 04-6001

Survey Direction: Downstream
Total Length Surveyed:

	Position	Code	Observation	Video (sec)	Grade
	0		Manhole		
	0	MWL	Water Level (10%)		
	4	TBI	Tap Break In Intruding		
J39-65	38	MWLS	Water Level Sag (35%)		
Water Level	45.8	TF	Tap Factory		
Sag	49.8	CC	Crack Circumfrential		S3
	51.4	TF	Tap Factory		
J83-91	105.1	TFC	Tap Factory Capped		
Sag	107.9	TB	Tap Break In		
	110.9	TFC	Tap Factory Capped		
	127.5	TBI	Tap Break In Intruding		
J151-171	139.8	TB	Tap Break In		
Sag	171.1	TFC	Tap Factory Capped		
	185.6	TF	Tap Factory		
J237-244	230.5	TFC	Tap Factory Capped		
Sag	238.8	TF	Tap Factory		
J315-331	275.8	CC	Crack Circumfrential		S3
	277.9	TFA	Tap Factory Active		
	295.3	TF	Tap Factory		
	320	SSS	Surface Spalling		
	330.8	AR	Alignment Right		
	330.8	SSS	Surface Spalling		
	330.8	JOM	Joint Offset Medium		
	336		Manhole		

Recommendation

- multiple sags, surface spalling and alignments

Open Trench Pipe Replacement
336ft

CCTV Observation Report

Harris & Associates

Date: 11/18/19
Pipe Length
Customer: Vecolia

Owner: City of Avon
Surveyor:
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 04-5004 to 04-5003

Street: Orange Haven Alley
City: Avon
Use: Sanitary
US Manhole: 04-5004

Flow Control:
Dia/Height (in): 8"
Material: Concrete Pipe
DS Manhole: 04-5003

Survey Direction: Upstream
Total Length Surveyed:

	Position	Code	Observation	Video (sec)	Grade
0	0	MH	Manhole		
	0	MWL	Water Level (20%)		
	0	SSS	Surface Spalling (continuous)		S3
Spot Repair	5.1	TB	Tap Break In (WL=25%)		
	10.9	TFC	Tap Factory Capped		
	13.3	TFA	Tap Factory Active		
	49.5	DAE	Deposit Attached Encrustation (20%)		M3
30	55.3	TFC	Tap Factory Capped		
	64.5	TF	Tap Factory		
	70.2	TBI	Tap Break In Intruding		
	117.6	TFC	Tap Factory Capped		
	120.8	TF	Tap Factory		
	128.5	TBI	Tap Break In Intruding		
	155.9	TF	Tap Factory		
	158	TF	Tap Factory		
	190	DAE	Deposit Attached Encrustation		M3
	205.5	TB	Tap Break In		
	218.2	TFC	Tap Factory Capped		
	229.9	TFC	Tap Factory Capped		
	230	DAE	Deposit Attached Encrustation		
	238.7	TB	Tap Break In		
5231	241.7	TF	Tap Factory		
	241.8	JOM	Joint offset Medium		M3
	243.7	TF	Tap Factory		
	246.6	DAE	Deposit Attached Encrustation		
	268	TBI	Tap Break In Intruding		
	269	TBI	Tap Break In Intruding		
	273.1	TF	Tap Factory		
5261	274.1	AI	Alignment Left		
	274.1	SSS	Surface Spalling		
	275		End of Survey		

Recommendations

Open Trench Pipe Replacement 275 ft

CAD Length
329.75

04-5003 to 04-5002

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach:

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction: Both
US Manhole:	DS Manhole:	Total Length Surveyed:

	Position	Code	Observation	Video (sec)	Grade
Downstream					
	0	SAV	Surface Aggregate Visible		S3
	11.1	DAE	Deposit Attached Encrustation		M2
	11.1		Abandon survey (could not pass DAE)		
Upstream	0	MWL	Water Level 40%		
	40	MWL	WL = 40%		
	44.2	TFC	Tap Factory Capped		
	44	SAV	Surface Aggregate Visible (WL=40%)		S3
	44.5	TFA	Tap Factory Active		
	44.5	TB	Tap Break In		
	94.7	TFC	Tap Factory Capped (WL=30%)		
	100.2	TFC	Tap Factory Capped		
	104.4	TBI	Tap Break In Intruding		M3
	110.5	TBI	Tap Breaks In Intruding WL=40%		M3
	122.4	TBI	(Multiple) Tap Break In Intruding Abandon Survey (due to immobility of Camera)		

Recommendation

~~Open~~

Open Trench Pipe Replacement
330Ft

CCTV Observation Report

Harris & Associates

Date: 9/14/15
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 04-5002 to 04-5001

Street: Orange Haven Alley
City: Arvin
Use: Sanitary
US Manhole: 04-5002

Flow Control: Not Controlled
Dia/Height (in): 8
Material: Concrete Pipe
DS Manhole: 04-5001

Survey Direction: Downstream
Total Length Surveyed: 345

	Position	Code	Observation	Video (sec)	Grade
	0	MH	Manhole		
	0	MWL	Water Level (15%)		
	0.5	SSS	Surface Spalling		53
	0.5	DAE	Deposit Attached Encrustation		
	60	TFC	Tap Factory Capped		
	68.7	TF	Tap Factory		
	73.4	TBI	Tap Break In Intruding		
	116.3	TFC	Tap Factory Capped		
	132.8	CC	Crack Circumfrential		
	134.2	TF	Tap Factory		
J53	169.4	TF	Tap Factory		
	196.1	TF	Tap Factory		
Sag	222.8	TF	Tap Factory		
	258.6	TF	Tap Factory		
J63	263	TBI	Tap Break In Intruding		
	279.3	TFC	Tap Factory Capped		
J140	324.1	TF	Tap Factory		
	329.2	TF	Tap Factory		
J165	344.7~345		Surface Spalling		
	345 - End of Manhole				
J245					
280					

Recommendation

- Spot Repair J53-63, J140-165, J245-280 → CIPP entire length

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 04-5001 to 04-0006

Street: Orange Haven Alley
City: City of Arvin
Use: Sanitary
US Manhole: 04-5001

Flow Control:
Dia/Height (in):
Material:
DS Manhole: 04-0006

Survey Direction: Upstream
Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0	MH	Manhole		
35.8	TFC	Tap Factory Capped		
39.4	TF	Tap Factory		
41.2	TF	Tap Factory		
89.5	TFC	Tap Factory Capped		
95.5	TF	Tap Factory		
180	TBI	Tap Break In Intruding		
130	SSS	Surface spalling		

*surface aggregate visible

Recommendation

- due to short video and blockage of CCTV, Open cut pipe replacement is the better option

open cut pipe replacement 340 ft

Rec: - Open trench replacement full (335')
• Multiple Sags

04-0006 to 04-0005

CCTV Observation Report

Harris & Associates

Date: 11/16/13
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 04-0006 to 04-0005

Street: A St.
City:
Use:

Flow Control:
Dia/Height (in): 10"
Material: VCP

Survey Direction:

US Manhole: 04-0006
DS Manhole: 04-0005
Total Length Surveyed: 334.8'

Position	Code	Observation	Video (sec)	Grade
0	AMH	Start MH		
0	MWL	20%		
6.6	MWLS	45% Sag Start → J18 (18')		
40.2	MWLS	Sag J32 → J57 (25')		
89.1	MWLS	Sag J70 → J120 (50')		
334.8	AMH	End MH		

7-8-19

CCTV Observation Report

Harris & Associates

Date: 11/18/15
Pipe Length
Customer: Vecka

Owner: Arvin
Surveyor: Chris Reynolds
Weather: Dry

Pre Clean: Setting
Shape: Circular
Reach: 04-4001 to 04-0005

Street: Laurel Haven Alley
City: Arvin
Use: Sanitary
US Manhole: 04-4001

Flow Control: Uncontrolled
Dia/Height (in): 8in
Material: Concrete Pipe
DS Manhole: 04-0005

Survey Direction: Downstream
Total Length Surveyed: 338

	Position	Code	Observation	Video (sec)	Grade
	0	MWLS	Water Level Sag (5%)		N/A
	2	DAE	Deposit Attached Encrustation		M3
	4.8	SSS	Surface Spalling *continuous		S2
	25.2	TFA	Tap Factory Active		N/A
J25-31	26.9	JOM	Joint Offset Medium		M3
	28.8	TFC	Tap Factory Capped		N/A
	35.5	DAE	Deposit Attached Encrustation		M2
	37	TBI	Tap Break In Intruding		M3
	82.6	TFC	Tap Factory Capped		N/A
	83	DAE	Deposit Attached Encrustation		M2
	85.3	TFC	Tap Factory Capped		N/A
	85	SAP	Surface Aggregate Projecting		
J139 - 147	140.6	FM	Fracture Multiple		S3
	142.3	BVV	Broken Void Visible (@lateral connection)		S4
	142.3	TF	Tap Factory		N/A
	144.5	TF	Tap Factory		N/A
J161 - 192	165.1	MWLS	Water Level Sag (@20%)		
	176	DAE	Deposit Attached Encrustation		M2
	179	DAE	Deposit Attached Encrustation		M2
	184.7	DAE	Deposit Attached Encrustation		M2
	186.2	TFA	Tap Factory Active		N/A
	186.3	MWLS	Water Level Sag (@5%)		N/A
	192.1	TF	Tap Factory		N/A
	217	DAE	Deposit Attached Encrustation		M2
	231	TFC	Tap Factory Capped		NA
	233.5	TF	Tap Factory		NA
J240 - 246 WLS	240	DAE	Deposit Attached Encrustation		M2
	284.3	TF	Tap Factory		NA
	285.4	JOM	Joint Offset Medium		M3
	286.5	TFA	Tap Factory Active		N/A
J-286 to 338	286.5	MWLS	Water Level Sag		NA
	336.5	MWLS	Water Level Sag		N/A

Total Spot Repair -> 102ft

Recommendation: Open Trench Pipe Replacement (338ft)

7-8-19

CCTV Observation Report

Harris & Associates

Date: 11/18/15
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor: Chris Reynolds
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 04-4002 to 04-4001

Street: Laurel Haven Alley
City: Arvin
Use: Sanitary
US Manhole: 04-4002

Flow Control: Uncontrolled
Dia/Height (in): 8
Material: Concrete Pipe
DS Manhole: 04-4001

Survey Direction: Downstream
Total Length Surveyed:

	Position	Code	Observation	Video (sec)	Grade
	0	MH	Manhole		N/A
	0	MWL	Water Level (5%)		N/A
	0	SSS	Surface Spalling *continuous		S2
	0	SAP	Surface Aggregate Projecting *continuous		S2
J49-54	49	FM	Fracture Multiple (Hinge)		S3
	50.1	TF	Tap Factory		N/A
J 78-105	80.2	MWLS	Water Level Sag (25%)		N/A
	98.8	TFC	Tap Factory Capped		N/A
	105.1	TBI	Tap Break In Intruding		M3
	115.4	TFC	Tap Factory Capped		N/A
	115.5	CC	Crack Circumfrential		S2
	117.8	TF	Tap Factory		N/A
	174.8	TFC	Tap Factory Capped		N/A
J176-179	176	JAM	Joint Angular Medium		M3
	177.6	TFC	Tap Factory Capped		N/A
	180.5	TB	Tap Break In		
	184.5	TBI	Tap Break In Intruding		M3
J211-217	212	CM	Crack Multiple (@9&12 clock)		S3
	213.3	TF	Tap Factory		N/A
	214.3	FC	Fracture Circumfrential		S3
	214.5	TFA	Tap Factory Active		N/A
	248.6	TB	Tap Break In		N/A
	260	TFC	Tap Factory Capped		N/A
J261-264	260.9	CM	Crack Multiple		S2
	262.7	TFC	Tap Factory Capped		N/A
	276	TBI	Tap Break In Intruding		M3
J318 to 342	319.7	TFC	Tap Factory Capped		N/A
	320	MWLS	Water Level Sag (30%)		N/A
	322	TFC	Tap Factory Capped		N/A
	324.7	TBI	Tap Break In Intruding		M3
	342	MWLS	Water Level Sag (30%)		N/A

Spot Repair
69 ft

Recommendation

open trench pipe replacement due to multiple spot repairs

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 04-4003 to 04-4002

Street: Laurel Haven
City:
Use:

Flow Control:
Dia/Height (in):
Material:

Survey Direction:

US Manhole:

DS Manhole:

Total Length Surveyed:

SR

Position	Code	Observation	Video (sec)	Grade
0	MH	Manhole		
48.7	TF	Tap Factory Active		
51.1	TF	Tap Factory Active		
74	OBR	Obstacle Rock		M3
82.8	TBI	Tap Break In Intruding		M3
89.1	TBI	Tap Break In Intruding		M3
92.9	TFC	Tap Factory Capped		
98.4	TFC	Tap Factory Capped		
131.3	TFD	Tap Factory Defective		M4
148.7	TFC	Tap Factory Capped		
150.5	TBA	Tap Break In Active (Intruding)		M3
153.4	TB	Tap Break In		
185	TB	Tap Break In		
187.5	TFC	Tap Factory Capped		
193.2	TF	Tap Factory		
193.5	RFB	Roots Fire Barrel		M2
243.8	TF	Tap Factory		
251.9	TFC	Tap Factory Capped		
281	TBI	Tap Break In Intruding		
284.8	TB	Tap Break In		
297	TFC	Tap Factory Capped		
308	TF	Tap Factory		
333	MH	Manhole		

Recommendation

· As long as intruding pipes can be grinded down, CIPP is suitable for repair

333 ft

04-4004 to 04-4003

CCTV Observation Report

Harris & Associates

Date:		Owner:	City of Aurora	Pre Clean:	
Pipe Length		Surveyor:		Shape:	Circular
Customer:	Veolia	Weather:	Dry	Reach:	04-4004 to 04-4003

Street:		Flow Control:	Not Controlled		
City:		Dia/Height (in):	8in		
Use:		Material:		Survey Direction:	Upstream
US Manhole:	04-4004	DS Manhole:	04-4003	Total Length Surveyed:	

SAV → Surface Aggregate Visible

Position	Code	Observation	Video (sec)	Grade
7.4	TBI	Tap Breaks In Intruding		M2
37.3	TF	Tap Factory		
38.3	CC	Cracks Circumferential		S3
82.1	TF	Tap Factory		
90.1	TBI	Tap Break In Intruding		
		Abandon Survey		
		- object stuck in TBI		

• given little information, these Taps would need to be reinstated, which we would not know of the other ones across this pipeline.

Recommendation

Open Trench Pipe Replacement 293.29

or

294

Harris & Associates

MANHOLE OBSERVATION FORM

Project:	Arvin Sewer Master Plan	Project No.:	1800032001
City:	Arvin, CA	Task Order No.:	3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 19 / 30

MANHOLE NO.: 04 - 4004

Surveyed by: Danny and Johnny

Street: Alleyway

Cert. no.:

MH Location Details:
Alleyway west of Derby street in between Laurel and Haven Drive

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: ~~Defective~~ / Sound / Unknown N/A

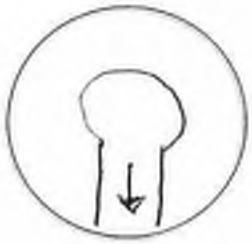
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Corroded Stairs, broken benches

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04-4002

Surveyed by: J-L

Street: Stockton Ave

Cert. no.:

MH Location Details:

321 Stockton Ave.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown H_2S, Cracking

Cone Condition: Defective / Sound / Unknown Cracking

Wall Condition: Defective / Sound / Unknown Cracking

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Needs repair frame down

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04-0005

Surveyed by: J. L

Street: Ave.

Cert. no.:

MH Location Details:

Adj. to Alley/Church

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown corroded / cracked

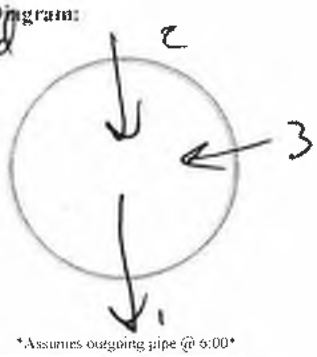
Cone Condition: Defective / Sound / Unknown I/I

Wall Condition: Defective / Sound / Unknown I/I

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney → wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: [redacted] / 30
18

MANHOLE NO.: 04 - 5004

Surveyed by: Danny and Johnny

Street: Off of Derby, in Alleyway **Cert. no.:**

MH Location Details:
Alleyway inbetween Orange Ave and Laurel Ave (East / West) for alleyway

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown N/A

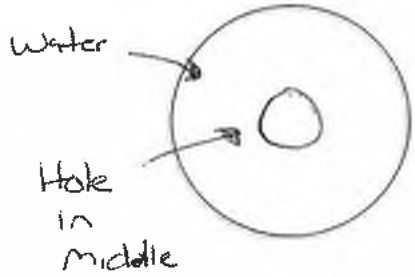
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Full of water, hole in center

Recommendation **Replace** / ~~**Repair**~~ / **Do-Nothing**

Level 2 Inspection Recommended? **Yes** / **No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 15 / 30

MANHOLE NO.: 04 _ 6001

Surveyed by: Danny and Johny

Street: On A street

Cert. no.:

MH Location Details:
Center of roadway across from alley way (west of there)

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

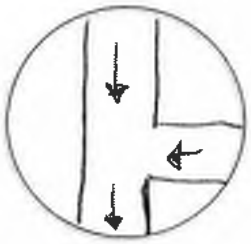
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
aggregate showing on walls

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 16 / 30

MANHOLE NO.: 04 - 6002

Surveyed by: Danny and Johny

Street: Stockton Ave

Cert. no.:

MH Location Details:
In middle of street inbetween alleyways and Tucker and Orange

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

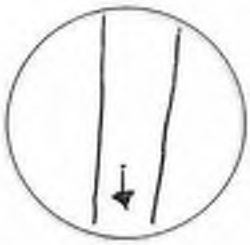
Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: ~~Defective~~ / ~~Sound~~ / Unknown

Okay

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Infiltration in walls. [redacted]

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 17 / 30

MANHOLE NO.: 04 - 6004

Surveyed by: Danny and Johnny

Street: Alleyway

Cert. no.:

MH Location Details:
Just west of Derby Street in alleyway. Alley going east/west between Tucker and Orange

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

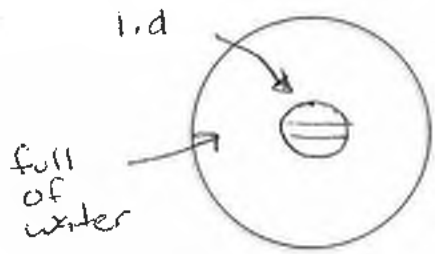
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Full of water, metal lid in middle

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04 - 0006

Surveyed by: J-L

Street: S. A St.

Cert. no.:

MH Location Details:

321 S. A St.

Access Type: Assumes Manhole; *Specify if other:* M H

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked, I/I

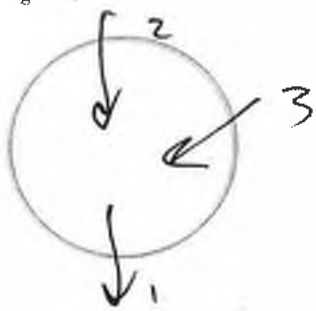
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown I/I, soil

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Chimney, wall Need repair

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Appendix I: Meyer Street Pipeline Project Reference Materials

Meyer Street Pipeline Project Cost Estimate

Reach No.	Item	Action		Cost
Number	Reach			
1	07-5001_07-0002_7/15/2013_15:47	Replacement		$ 80,000.00
2	07-0002_07-0001_7/15/2013 15:47	Replacement		$ 107,000.00
3	07-0001_03-0025_7/15/2013_15:47	Replacement		$ 181,000.00
4	04-1004_04-1003_11/11/2011_610.599976_	Replacement		$ 147,000.00
5	04-1009_04-1005_11/11/2011_337_D	Replacement		$ 81,000.00
6	04-1010_04-1009_11/11/2011_337.299988_	Replacement		$ 81,000.00
7	04-0003_04-0002_7/15/2013_15:47	Replacement		$ 88,000.00
8	04-1000_04-1001_11/9/2011_594.299988_U	Replacement		$ 82,000.00
9	04-0001_03-0025_7/15/2013_15:47	Replacement		$ 83,000.00
	Manholes			
	07_5001	Replace		$ 8,000.00
	07_0002	Replace		$ 8,000.00
	07_0001	Replace		$ 8,000.00
	04_1004	Replace		$ 8,000.00
	03_0025	Replace		$ 8,000.00
	04_1001	Replace		$ 8,000.00
	04_0001	Replace		$ 8,000.00
	04_0002	Replace		$ 8,000.00
	04_1000	Replace		$ 8,000.00
	04_1003	Replace		$ 8,000.00
	04_1005	Replace		$ 8,000.00
	04_1009	Replace		$ 8,000.00
	04_1010	Replace		$ 8,000.00
	04_0003	Replace		$ 8,000.00
	Total Construction Cost			$ 1,042,000.00
	Engineering & Construction Management		25%	$ 261,000.00
	Contingencies		20%	$ 208,000.00
	Administrative		5%	$ 52,000.00
	CIP Estimate			**$ 1,563,000.00**

Rec: - Full open trench replacement (355') 07-5001 to 07-0002
• Multiple sags, limited visibility → Est.

CCTV Observation Report

Harris & Associates

Date: 11/10/13
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 07-5001 to 07-0002

Street:
City:
Use:

Flow Control:
Dia/Height (in): 6"
Material: VCP

Survey Direction:

US Manhole: 07-5001

DS Manhole: 07-0002

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0	AMH	Start MH		
0	MWL	5% (10%)		
1.6	VC			S01
7.8	SSS			
28.7	TFA			
39.7	TFC			
43.1	TFC			
44.3	TBA	Intruding		
83.3	TFC			
86.3	TBA	Intruding		
135.6	TFC			
142	TBA	Intruding		
185.3	TFC			
188.5	TFC			
194.2	TBA			
197.6	TBA	Intruding ~40%		
233.1	DAGS			S02
237.9	TFC			
240.9	TFA			
267	MWLS	Sag J 267		

Camera underwater / light off
Can't see when above water

Hotspot

CCTV Observation Report

Harris & Associates

Date: 11/10/13
Pipe Length
Customer: Arvin

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean:
Shape: Circular
Reach: 07-0002 to 07-0001

Street: Mayer St
City:
Use:

Flow Control:
Dia/Height (in): 12in
Material: VCP

Survey Direction: Downstream

US Manhole: 07-0002

DS Manhole: 07-0001

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (5%)		N/A

Overall: Multiple Sags, no visible cracks

Recommendation: Open Trench Pipe Replacement

· sag at beginning

07-0001 to 03-0025

- Rec: - open trench replacement full
  - Length: estimated 696' (CAD)
  - Camera underwater - significant sag

CCTV Observation Report

Harris & Associates

Date: 11/10/13
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 07-0001 to 03-0025

Street: Meyer St.
City:
Use:

Flow Control:
Dia/Height (in): 12"
Material: AC (PVC?)
Survey Direction: DS

US Manhole: 07-0001
DS Manhole: 03-0025
Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0	AMH	Start		
0.6	MWL	5%		
83.6	AMH	unidentified MH		
190.9	TBA			
251.9	TBA			
346.7	TSA			
400'	MWLS	Sag 400 -		
444'	MCU	underwater		

Survey abandoned? Underwater for rest of run

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 04-1004 to 04-1003

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole:	DS Manhole:	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no CCTV or Report on file

Recommendation

Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 04-1009 to 04-1005

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole:	DS Manhole:	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no CCTV or report on file

Recommendation

- Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 04-1010 to 04-1009

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole:	DS Manhole:	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

no CCTV or Report on file

Recommendation

- Open Trench Pipe Replacement

[04-0003 to 04-0002]

Rec: - open trench replacement full (340')
• Multiple Sags

CCTV Observation Report

Harris & Associates

Date: 11/10/13
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 04-0003 to 04-0002

Street: Haven Dr.
City:
Use:

Flow Control:
Dia/Height (in): 12"
Material: VCP

Survey Direction: DS

US Manhole: 04-0003
DS Manhole: 04-0002
Total Length Surveyed: 340'

Position	Code	Observation	Video (sec)	Grade
0	AMH	Start MH		
0	MWL	10% (25%)		
91	MWLS	possible sag 91-125		
177'	MWLS/MCU	Sag/underwater 175-190 (15')		
205	MWLS/MCU	sag/underwater 205-225 (20')		
240	MWLS	sag 240 → 270 (30')		
	↳ MCU @ 260			
310	MWLS/MCU	sag 310 → Manhole		
~~[illegible]~~				
340.1	AMH	End MH		

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 04-1000 to 04-1001

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material: VCP

Survey Direction:

US Manhole: 04-1001

DS Manhole: 04-1000

Total Length Surveyed: ~450'

Position	Code	Observation	Video (sec)	Grade
		No Video/Report ; Open trench replacement		

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 04-0001 to 03-0025

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole:	DS Manhole:	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

no CCTV or Report on file

Recommendation
- Open Trench Pipe Replacement

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 9 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04-0003

Surveyed by: J-L

Street: S. Acala / Haven

Cert. no.:

MH Location Details:

Int. S. Acala / Haven

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

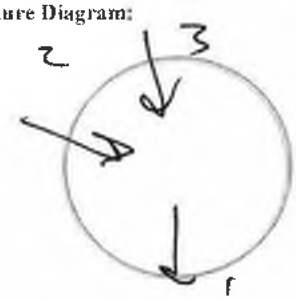
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney

Recommendation **Replace / Repair / Do-Nothing**

Level 2 Inspection Recommended? **Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 9 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 011-0002

Surveyed by: J. L

Street: Haven / S. Hill

Cert. no.:

MH Location Details:

Int. Haven / S. Hill
S. MH ↑N

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown corroded

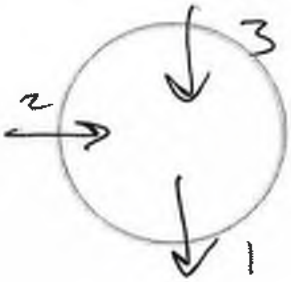
Cone Condition: Defective / Sound / Unknown corroded

Wall Condition: Defective / Sound / Unknown cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney → wall

Recommendation Replace / Repair / Do-Nothing

Level 2 Inspection Recommended? Yes / No

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04-1000

Surveyed by: J-L

Street: Haven/S. Hill

Cert. no.:

MH Location Details:

Int Haven/S. Hill

N. MH ↑N

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown corroded

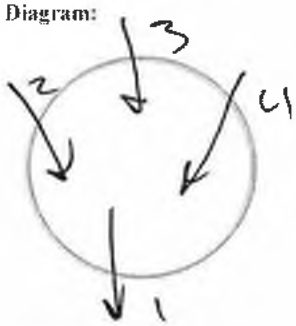
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

MANHOLE OBSERVATION FORM

Harris & Associates

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 2019

Sheet: 1 / 1

MANHOLE NO.: OU-1003

Surveyed by: J-L

Street: S. Hill / Laurel

Cert. no.:

MH Location Details:

Int S. Hill / Laurel

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

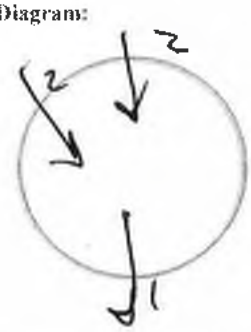
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown I/I

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Wall I/I Repair

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04 - 1005

Surveyed by: J-L

Street: Orange / S. Hill

Cert. no.:

MH Location Details:

Int. Orange / S. Hill

Access Type: Assumes Manhole; *Specify if other:* M H

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

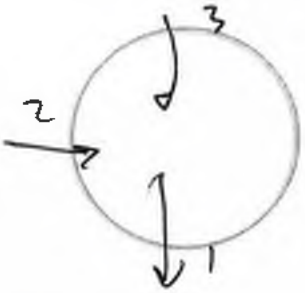
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown Cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair wall / chimney cracks

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

MANHOLE OBSERVATION FORM

Harris & Associates

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 9 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: OU - 1009

Surveyed by: J - L

Street: Tucker / S. Hill

Cert. no.:

MH Location Details:

Int Tucker / S. Hill

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

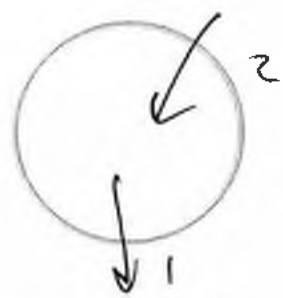
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown I/I Cracks

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair I/I wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04-1010

Surveyed by: J-L

Street: Tucker/S. Acala st

Cert. no.:

MH Location Details:

Int/Tucker/S. Acala

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown cracked

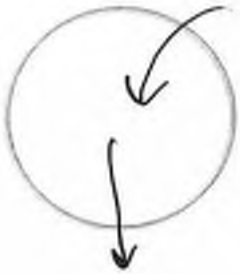
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Appendix J: Haven Drive Pipeline Project Reference Materials

Haven Drive Pipeline Project Cost Estimate

Reach No.	Item	Action		Cost
Number	Reach			
1	03-9001_03-0022_10/29/2009_D	Replacement		$ 103,000.00
2	03_0022_03_0021_9/14/2015_11:26	Replacement		$ 90,000.00
3	03_8008_03_8007_8/23/2017_11:10	Replacement		$ 72,000.00
4	03_8001_03_0021_9/11/2015_16:27	Replacement		$ 5,000.00
5	03-8002_03-8007_10/29/2009_D	Replacement		$ 76,000.00
6	03_8002_03_8001_9/14/2015_11:26	Replacement		$ 76,000.00
7	03_8003_03_8002_9/14/2015_11:26	Replacement		$ 84,000.00
8	03_8004_03_8003_9/14/2015_11:26	Replacement		$ 60,000.00
9	03_8006_03_8005_9/14/2015_11:26	Replacement		$ 99,000.00
10	03_8019_03_8006_9/14/2015_11:26	Replacement		$ 13,000.00
	Manholes			
	03_0022	Replace		$ 8,000.00
	03_9001	Replace		$ 8,000.00
	03_8008	Replace		$ 8,000.00
	03_8007	Replace		$ 8,000.00
	03_8001	Replace		$ 8,000.00
	03_0021	Replace		$ 8,000.00
	03_8003	Replace		$ 8,000.00
	03_8004	Replace		$ 8,000.00
	03_8006	Replace		$ 8,000.00
	03_8005	Replace		$ 8,000.00
	03_8002	Replace		$ 8,000.00
	03_8019	Replace		$ 8,000.00
	Total Construction Cost			$ 774,000.00
	Engineering & Construction Management		25%	$ 194,000.00
	Contingencies		20%	$ 155,000.00
	Administrative		5%	$ 39,000.00
	CIP Estimate			**$ 1,162,000.00**

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/29/2009	Weather:	Dry		
Pipe Length (ft):	0	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12018	Surveyor:	JJC	PSR:	03-9001 to 03-0022
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Monroe St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS9-843
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Reinforced Concrete Pipe
Drain Area:		Lining:	
Category:			
Comment:	Poss. jet hose at d/s M/H.		
Location Details:		Direction of Survey:	Downstream

US MH: 03-9001 DS MH: 03-0022 Total Length Surveyed (ft): 248

* based on given video, pipe seemed fine until J118 WL = 30 & greater.
* remaining length given by CAD suggests OTR

Recommendation

- Open Trench Pipe Replacement (430)

Joint every 3 ft

03-9001

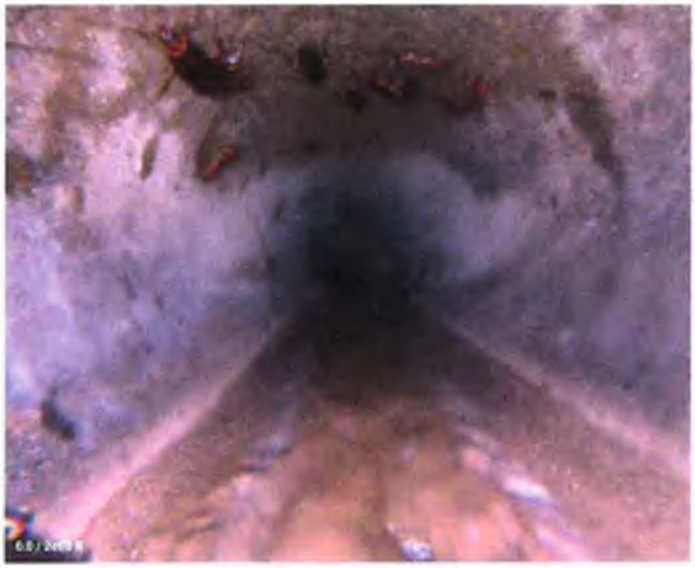
Position	Code	Observation	Video (sec)	Grade
0.07	AMH	Manhole	5	NA
0.07	MWL	Water Level 10%	13	NA
0.07	VC	Vermin Cockroach	21	M 1
1.88	CL	Crack Longitudinal J2-5	34	S 2
10.25	CL	Crack Longitudinal J7.5-10.5	61	S 2
10.72	CS	Crack Spiral	71	S 2
23.03	DAE	Deposits Attached Encrustation J23	106	M 3
32.69	DAE	Deposits Attached Encrustation J36	133	M 3
35.81	DAE	Deposits Attached Encrustation	150	M 3
46.94	VC	Vermin Cockroach	182	M 1
48.59	CM	Crack Multiple J48.5-51.5	195	S 3
51.69	CL	Crack Longitudinal	211	S 2
64.1	DAE	Deposits Attached Encrustation J64	245	M 3
67.28	CM	Crack Multiple J67	262	S 3
82.96	CM	Crack Multiple J83	302	S 3
87.24	VC	Vermin Cockroach	321	M 1
89.8	TFC	Tap Factory Capped	336	NA
92.21	SSS	Surface Spalling Continuous	351	S 2
92.21	DAE	Deposits Attached Encrustation	360	M 3
96.79	CS	Crack Spiral J95.5-98.5	378	S 2
100.14	MGP	General Photo	394	NA
102.35	TBA	Tap Break-in Active	407	NA
111.22	CL	Crack Longitudinal	434	S 2
117.51	DAE	Deposits Attached Encrustation J117.5	456	M 3
126.92	CM	Crack Multiple J126.5-133	484	S 3
127.5	TF	Tap Factory	495	NA
130.52	TFA	Tap Factory Active	510	NA
135.69	FM	Fracture Multiple J13~~8~~-136	530	S 4
139.4	CL	Crack Longitudinal J132.5-135.5	547	S 2
139.57	DAE	Deposits Attached Encrustation	556	M 3
145.91	CM	Crack Multiple J146	579	S 3
150.66	MGP	General Photo	598	NA
159.95	VC	Vermin Cockroach	624	M 1
164.31	MWL	Water Level 20%	643	NA
167.77	FM	Fracture Multiple J167.5-140.5	658	S 4
167.88	OBR	Obstacle Rocks	666	M 3
179.37	MWL	Water Level	698	NA
191.81	CL	Crack Longitudinal J190-193	732	S 2
193.16	CM	Crack Multiple J193-196	743	S 3
195.95	CM	Crack Multiple	758	S 3

Camera Direction

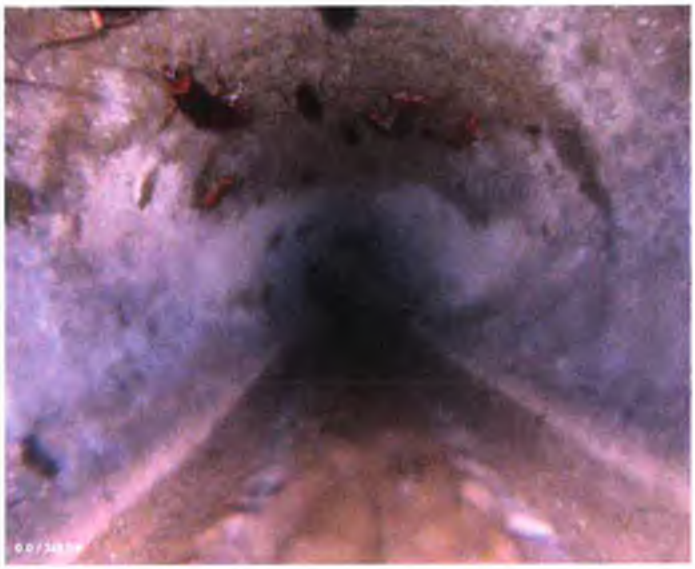
199.55	VC	Vermin Cockroach		775	M 1
200.8	MGP	General Photo		786	NA
204.18	MWL	Water Level	10%	801	NA
205.63	CM	Crack Multiple	J205.5-208.5	812	S 3
208.72	VC	Vermin Cockroach		828	M 1
211.76	CM	Crack Multiple		843	S 3
214.92	CM	Crack Multiple	J115-118	857	S 3
218.48	MWL	Water Level	30%	872	NA
227.68	CL	Crack Longitudinal	J228-231	899	S 2
243.77	TF	Tap Factory		940	NA
243.77	MWL	Water Level	50%	950	NA
246.5	CL	Crack Longitudinal	J146.5-149.5	964	S 2
247.04	TF	Tap Factory		974	NA
247.04	MGO	General Observation		984	NA
248.04	MSA	Abandoned Survey	blocked by jet hose	996	NA

J118-

03-0022

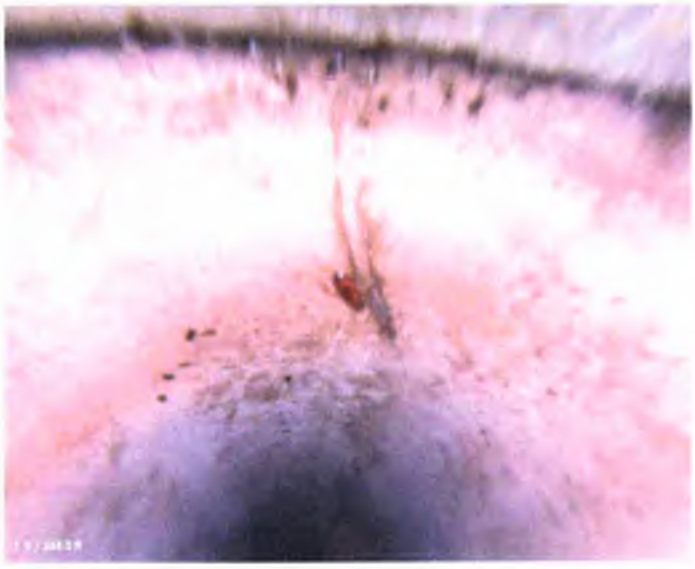


PACP Code:	AMH
Description:	Manhole
Distance (ft):	0.07
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

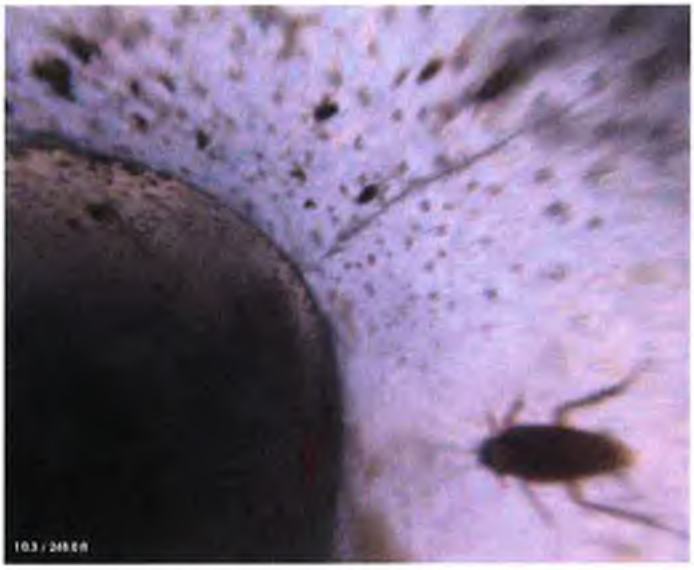


PACP Code:	MWL
Description:	Water Level
Distance (ft):	0.07
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	0.07
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

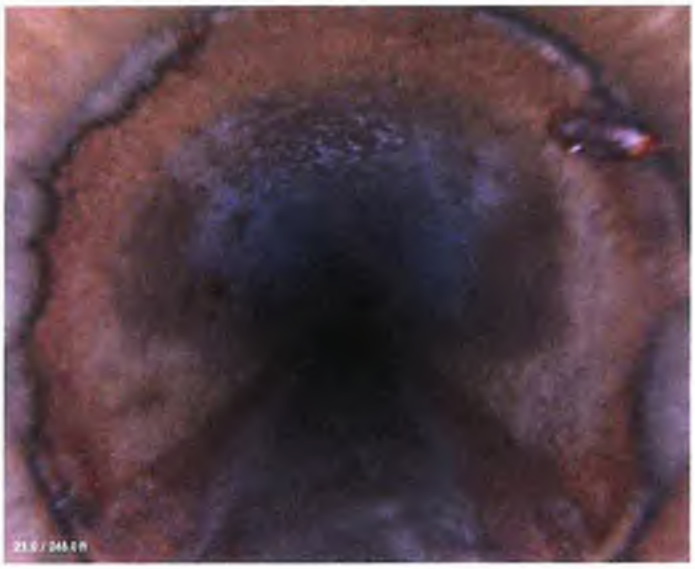


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	1.88
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



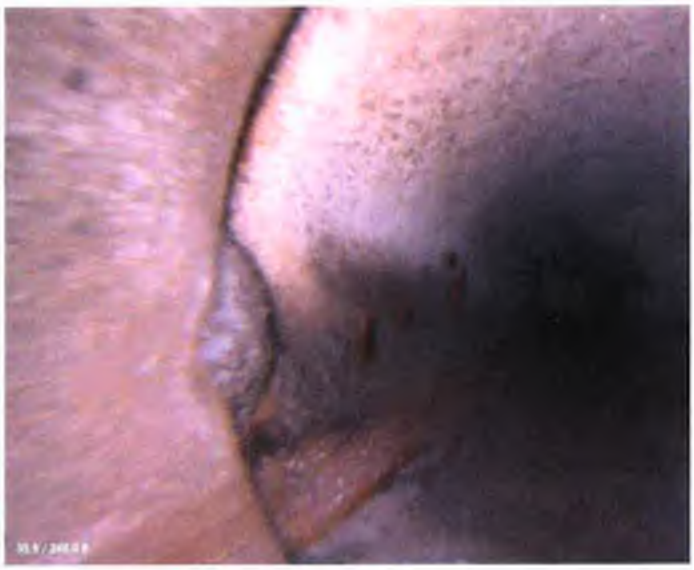
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	10.25
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	CS
Description:	Crack Spiral
Distance (ft):	10.72
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

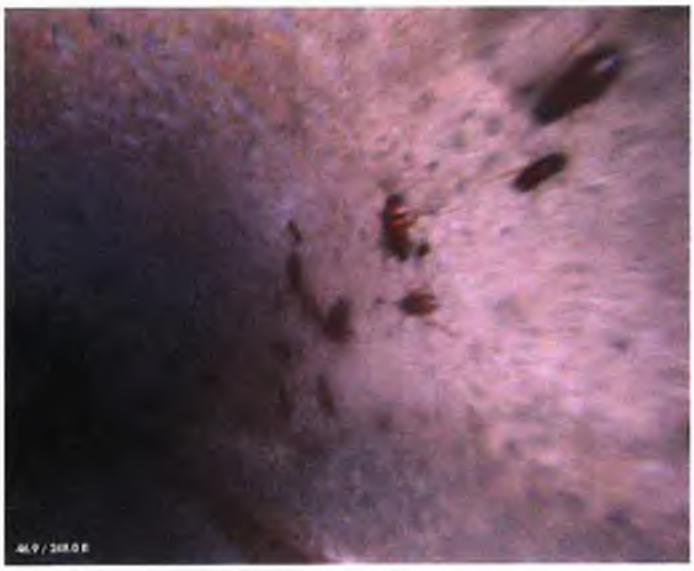


PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	23.03
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

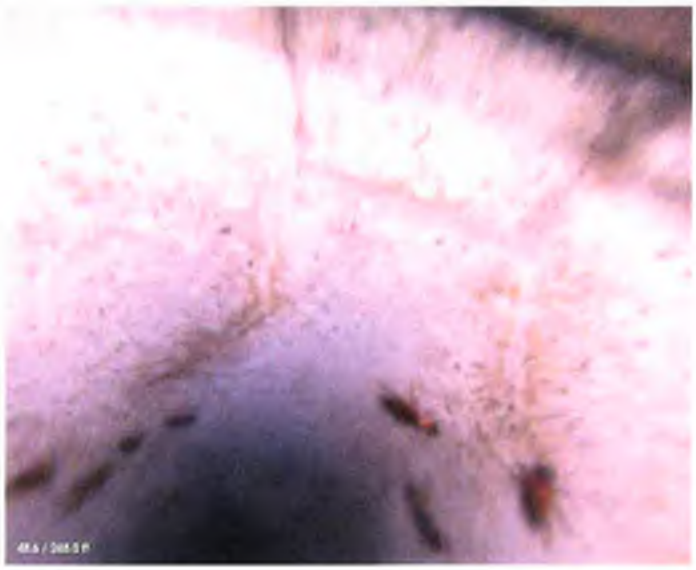
PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	32.69
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	35.81
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	True
Remarks:	



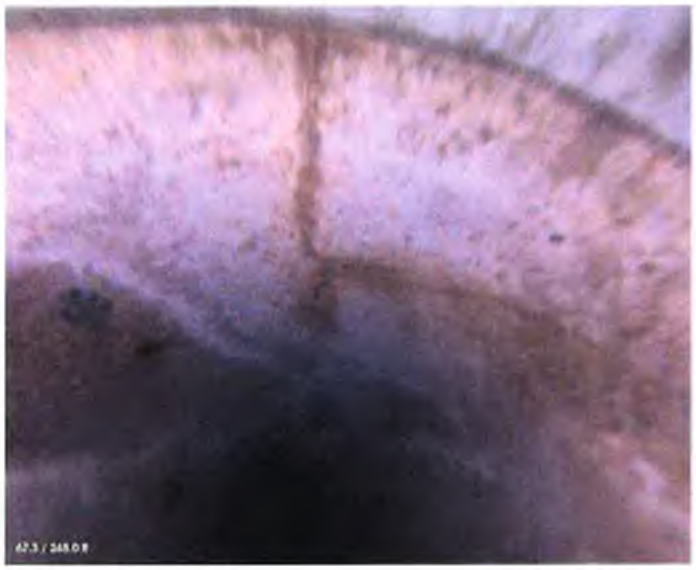
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	46.94
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



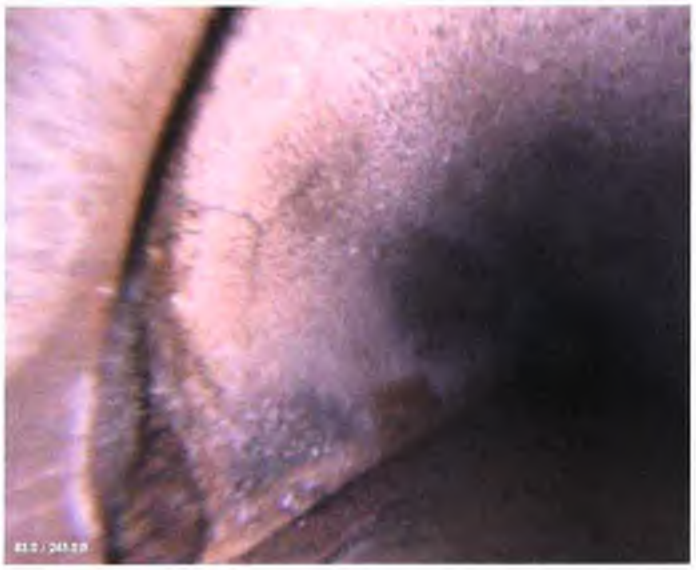
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	48.59
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	12
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	51.69
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

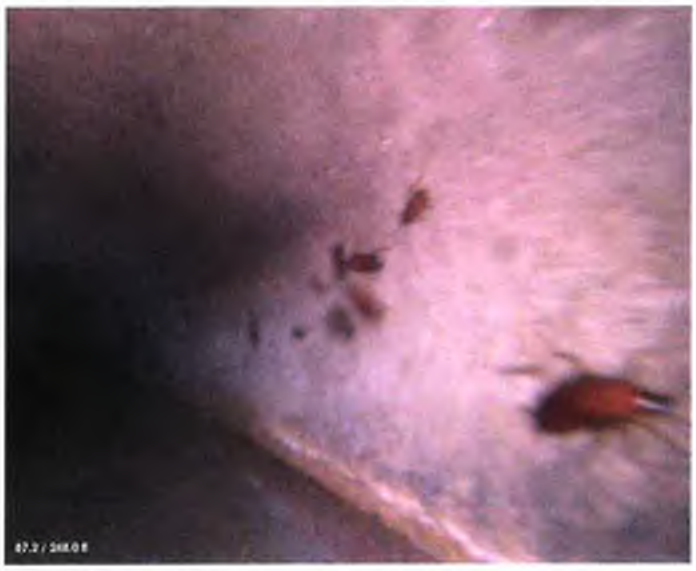
PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	64.1
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	3
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



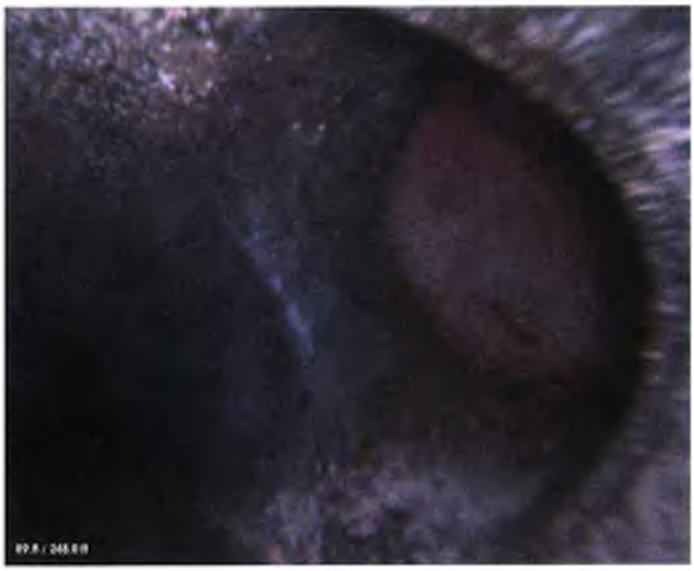
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	67.28
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	12
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



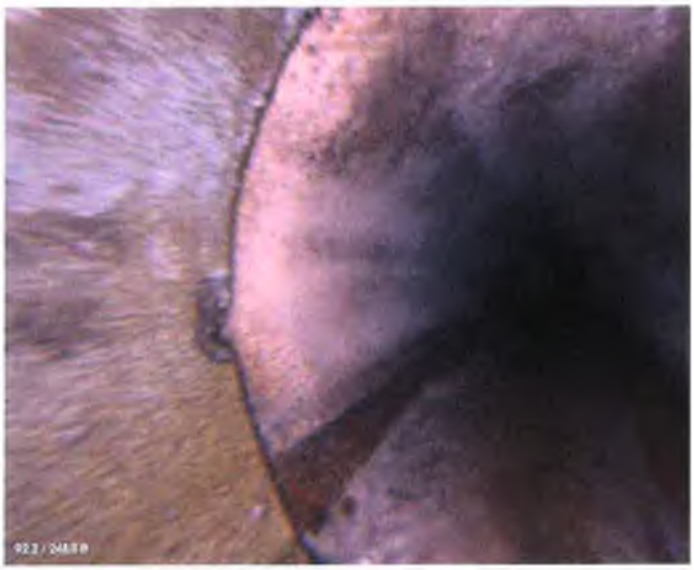
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	82.96
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	8
Clock To:	9
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	87.24
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

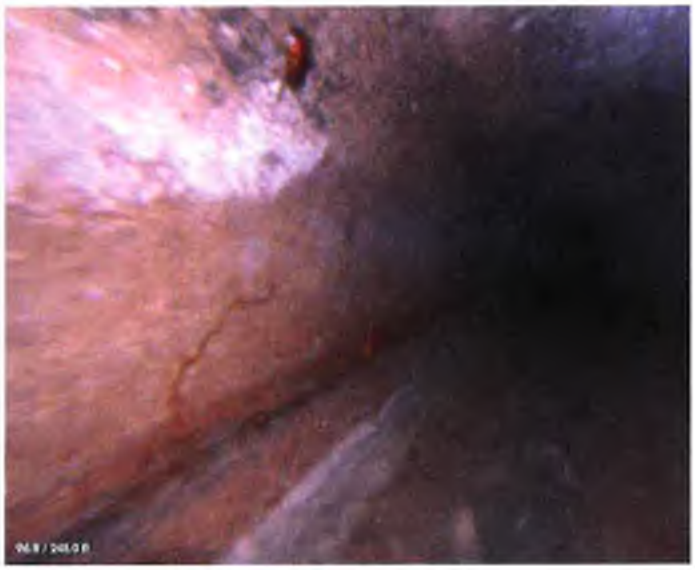


PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	89.8
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



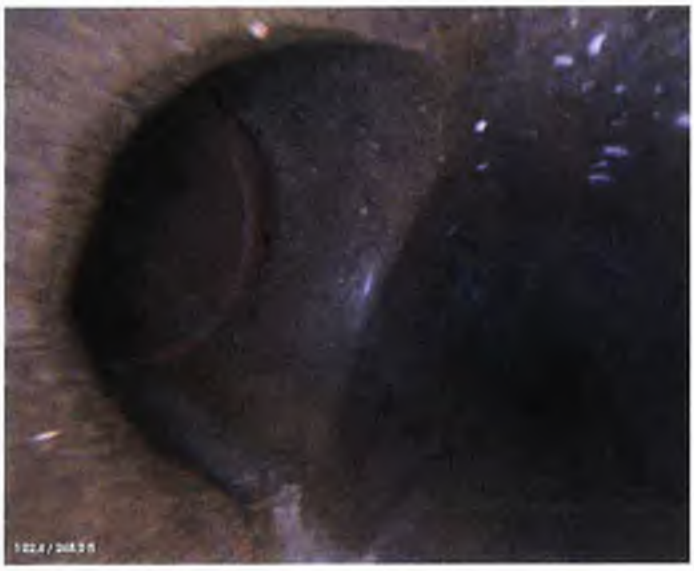
PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	92.21
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	8
Clock To:	10
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	92.21
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	True
Remarks:	

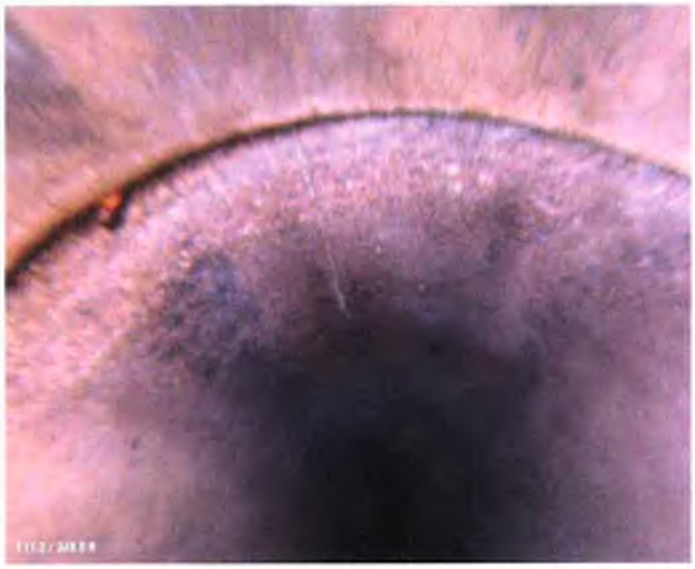


PACP Code:	CS
Description:	Crack Spiral
Distance (ft):	96.79
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	8
Clock To:	9
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.14
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

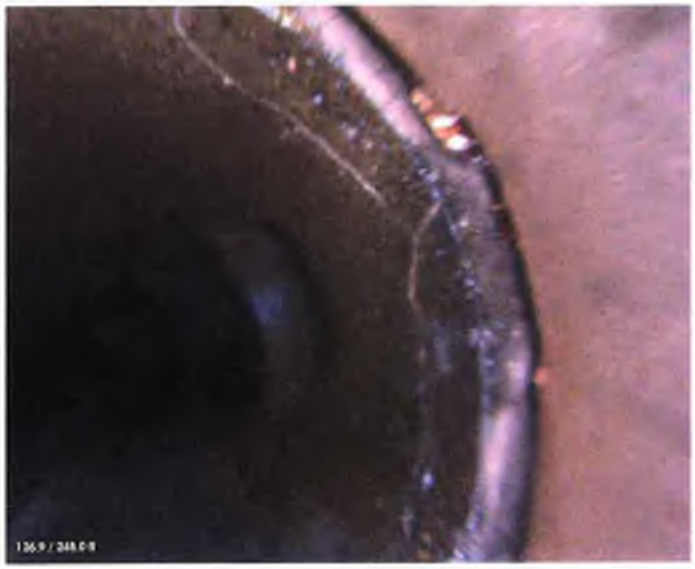


PACP Code:	TBA
Description:	Tap Break-in Active
Distance (ft):	102.35
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	9
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

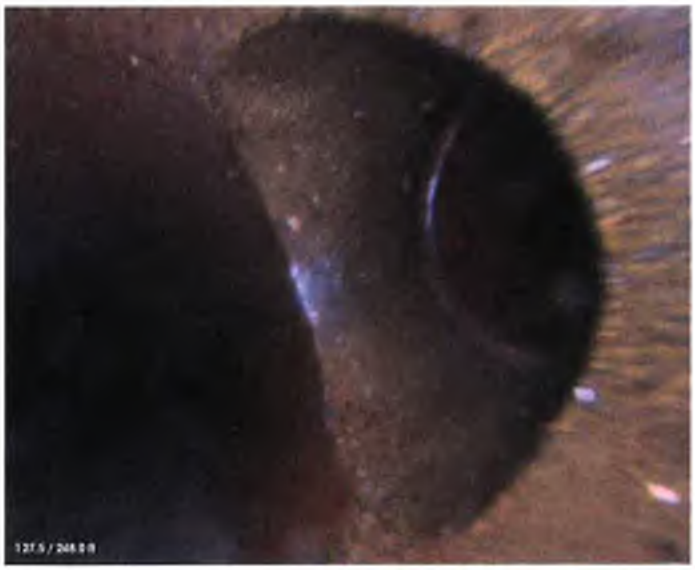


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	111.22
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

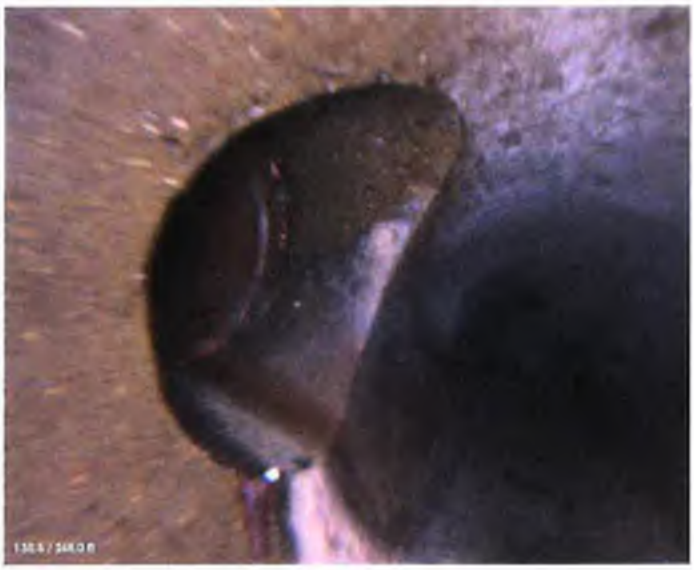
PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	117.51
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	8
Clock To:	9
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



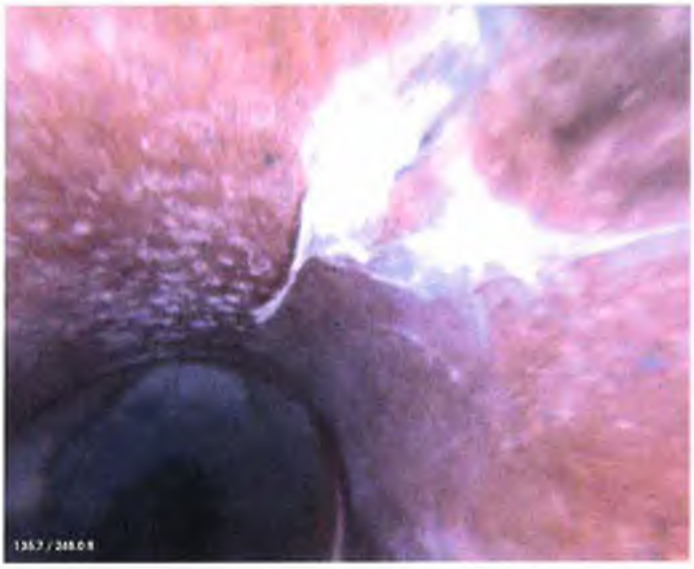
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	126.92
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	1
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



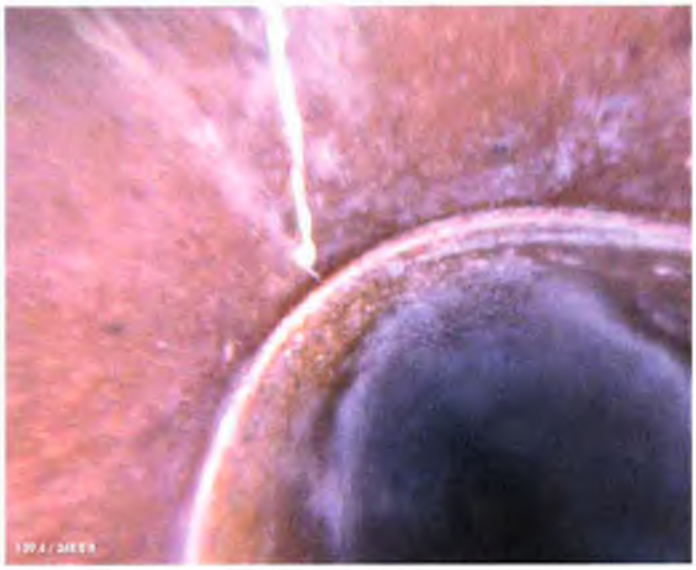
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	127.5
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



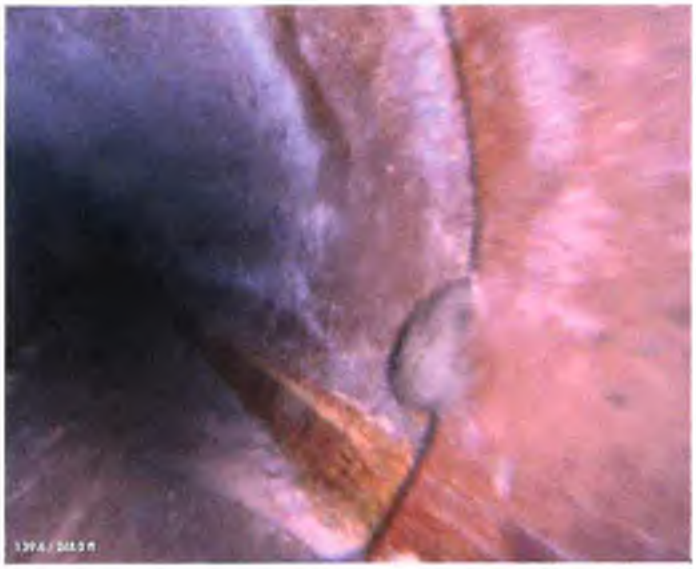
PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	130.52
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	9
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



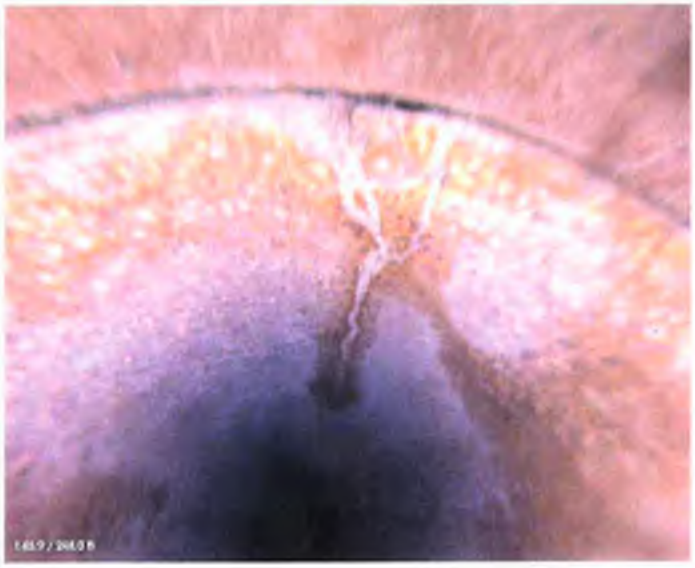
PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	135.69
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	1
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	139.4
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	139.57
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	3
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

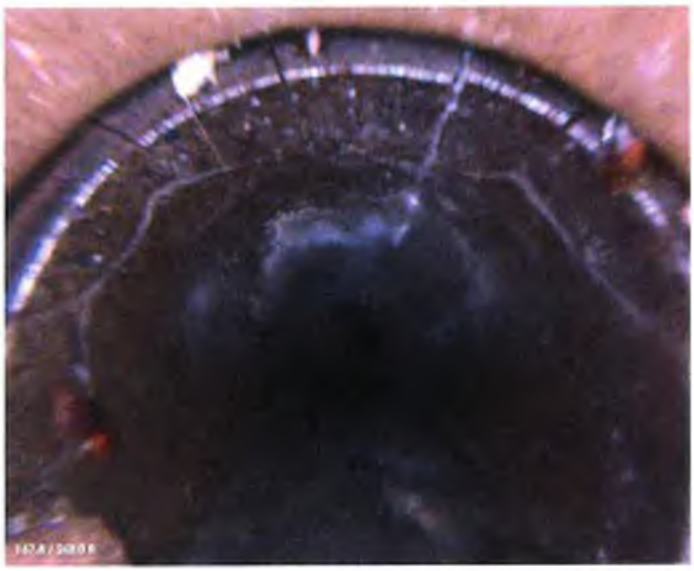


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	145.91
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	12
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.66
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

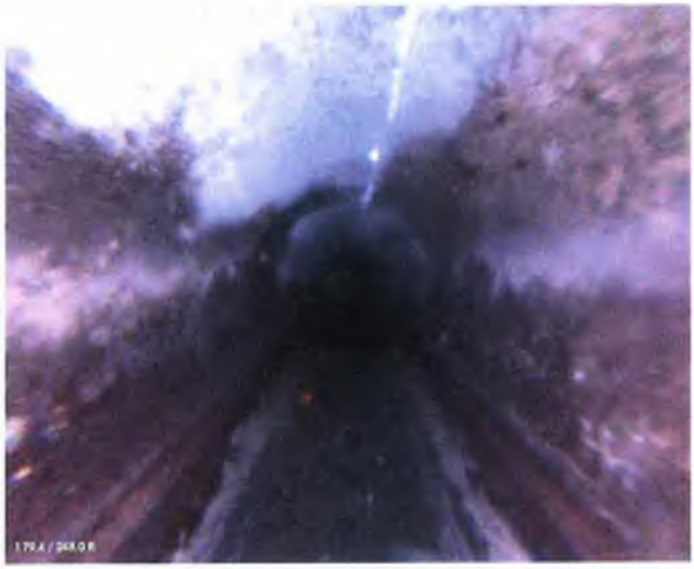
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	159.95
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	164.31
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

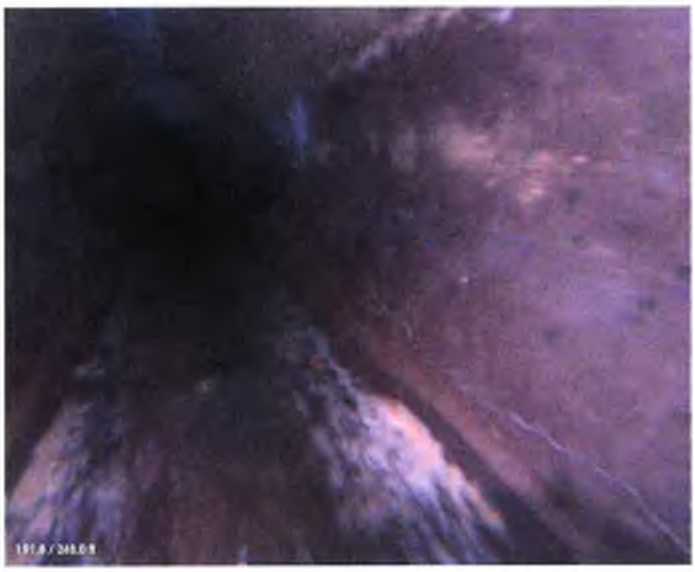


PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	167.77
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	9
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

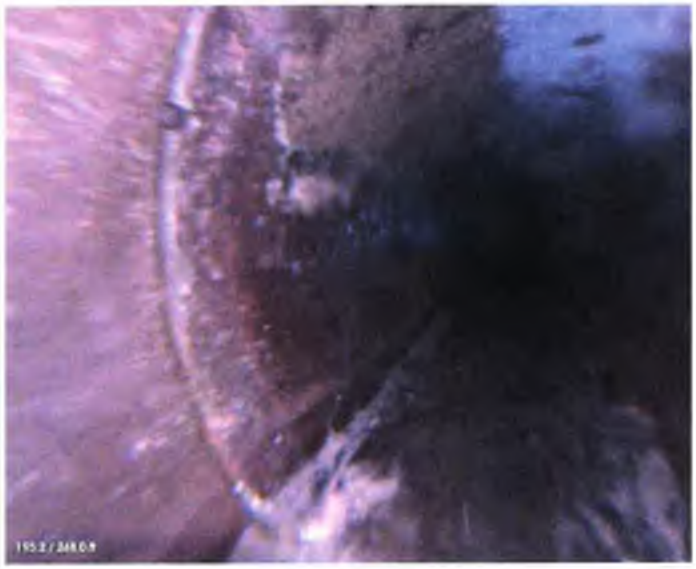
PACP Code:	OBR
Description:	Obstacle Rocks
Distance (ft):	167.88
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	8
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



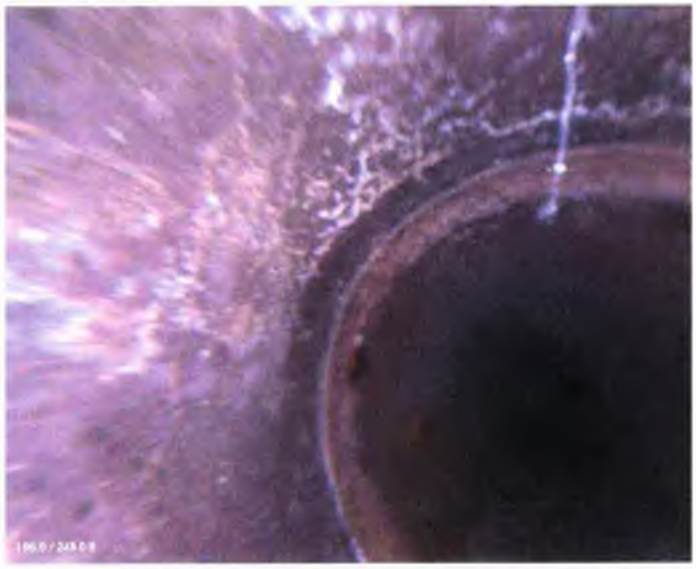
PACP Code:	MWL
Description:	Water Level
Distance (ft):	179.37
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	191.81
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	4
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

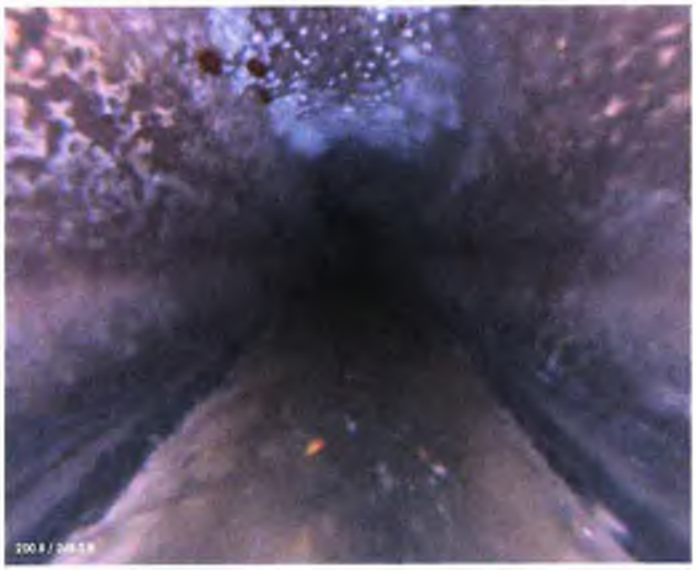


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	193.16
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	10
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

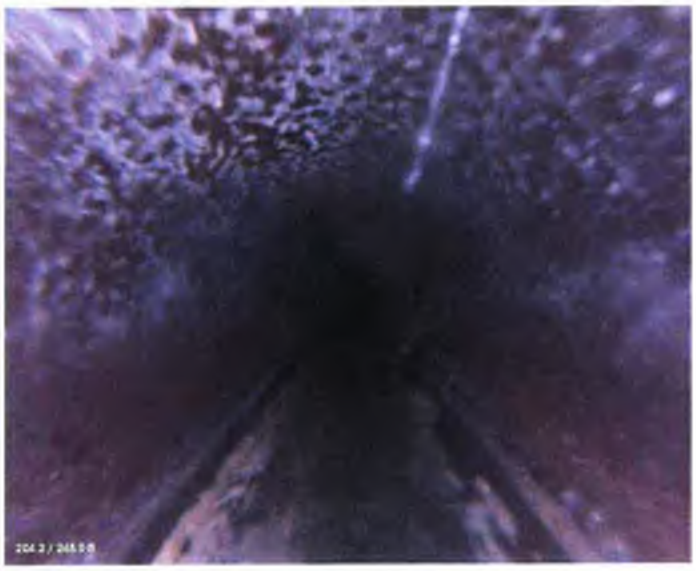


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	195.95
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	9
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

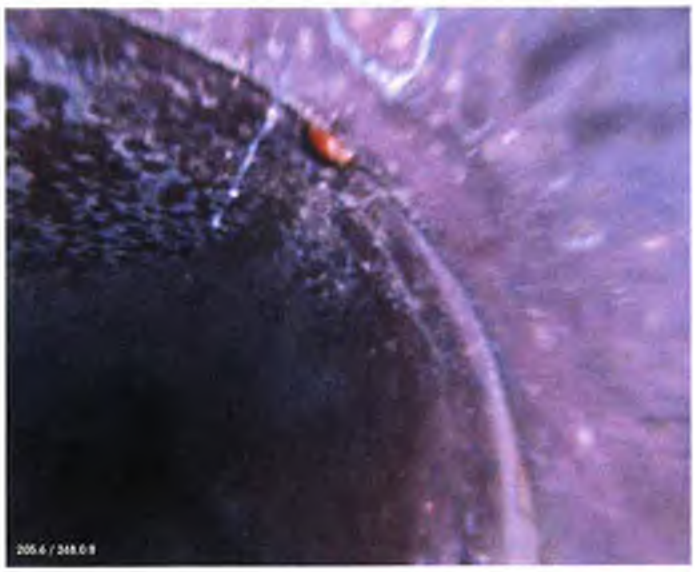
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	199.55
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



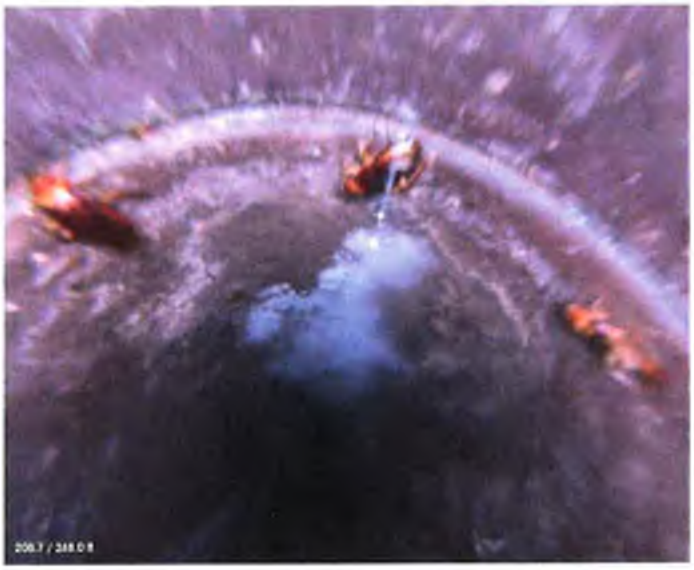
PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.8
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



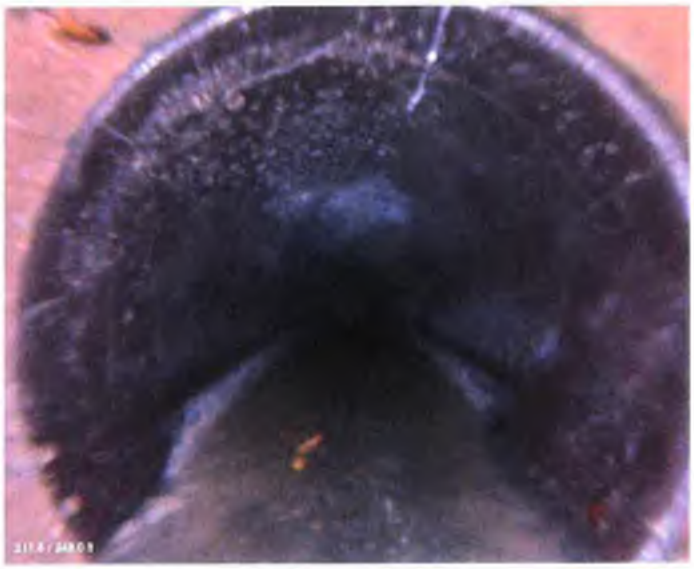
PACP Code:	MWL
Description:	Water Level
Distance (ft):	204.18
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



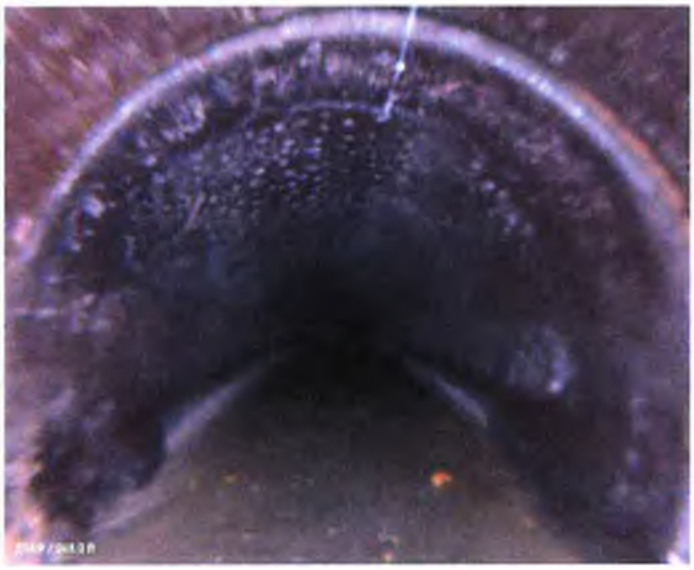
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	205.63
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	2
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



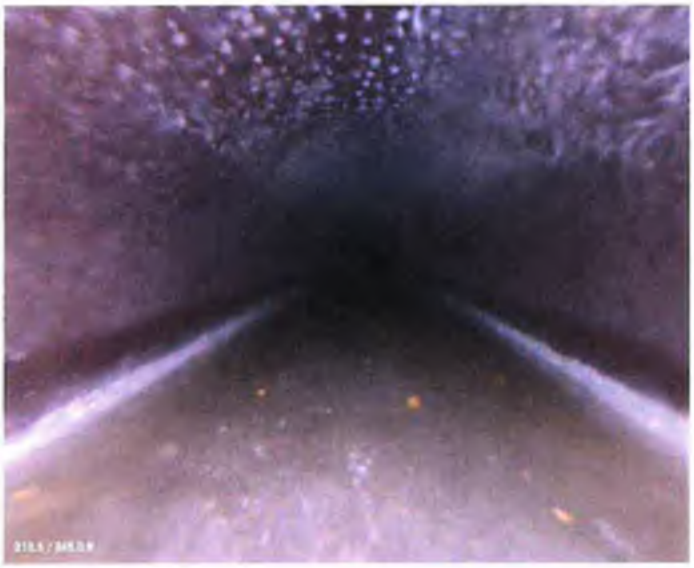
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	208.72
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



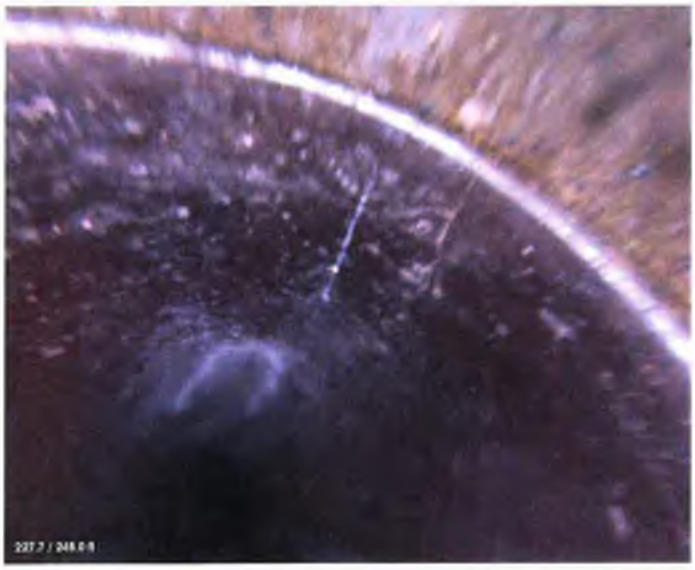
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	211.76
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



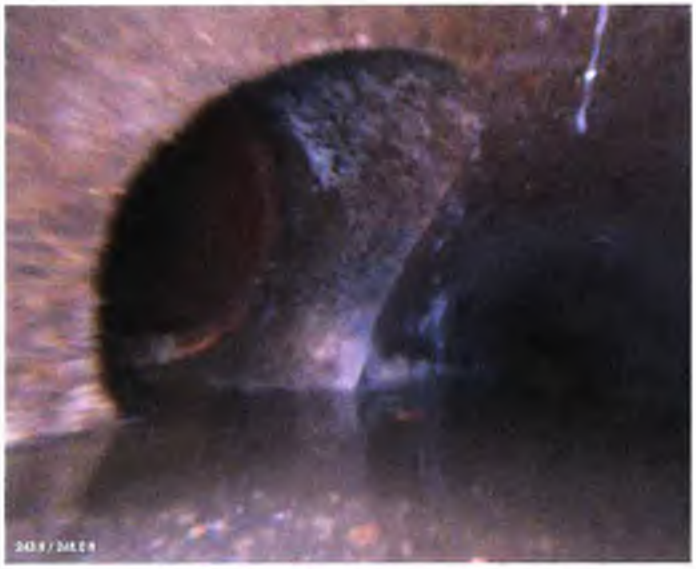
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	214.92
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



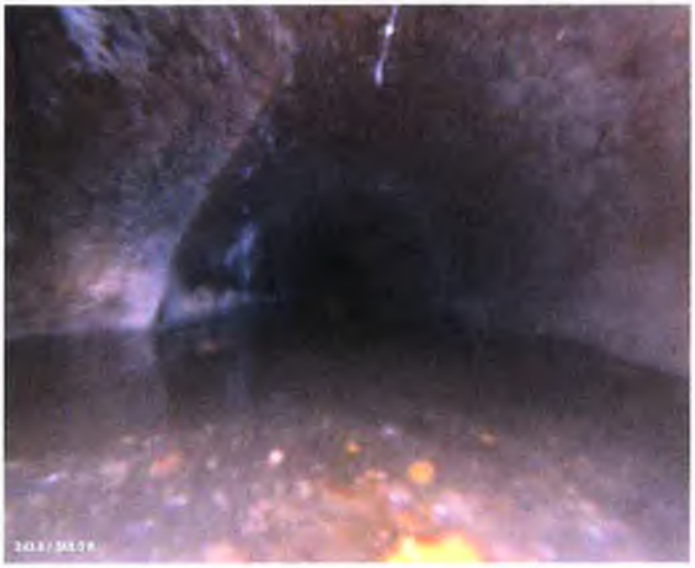
PACP Code:	MWL
Description:	Water Level
Distance (ft):	218.48
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



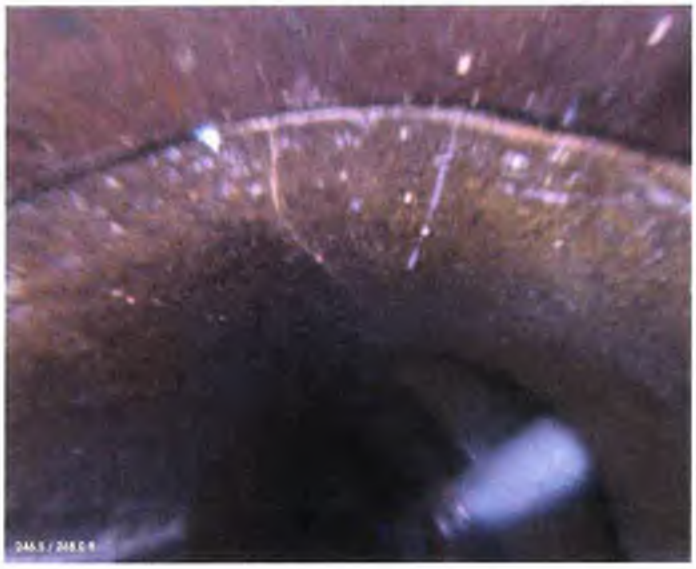
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	227.68
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	243.77
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



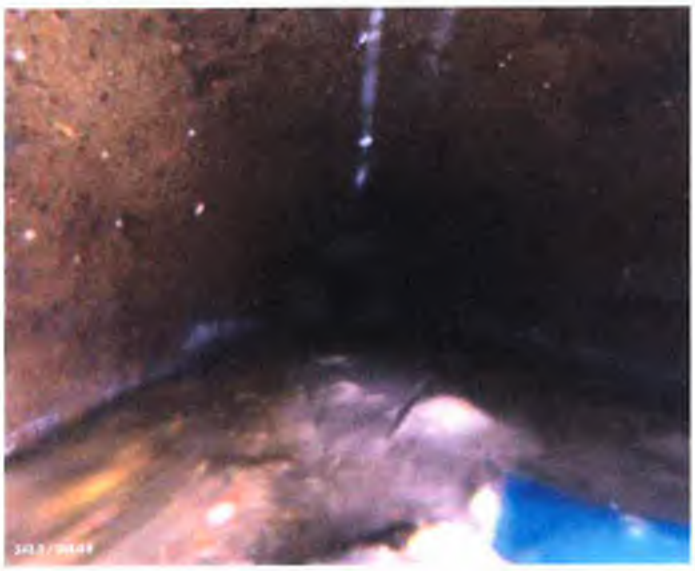
PACP Code:	MWL
Description:	Water Level
Distance (ft):	243.77
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	246.5
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	247.04
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGO
Description:	General Observation
Distance (ft):	247.04
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Jet hose up lateral



PACP Code:	MSA
Description:	Abandoned Survey
Distance (ft):	248.04
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Blocked by jet hose

- open trench replacement full (21') 03-8001 to 03-0021
  - Sag, camera underwater ↳?

CCTV Observation Report

Harris & Associates

Date: 11/20/15
Pipe Length: 21' ?
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach:

Street: Haven
City:
Use:

Flow Control:
Dia/Height (in): 8"
Material: VCP

Survey Direction: DS

US Manhole:

DS Manhole:

Total Length Surveyed: 17.7

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWL	60%		
0'	MCU	underwater		
15'		Above water		
17.7	JOM			
17.7	MMC	VCP → PVC		
~20'	AMH	Says Manhole, but can't tell from video		

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/29/2009	Weather:	Dry		
Pipe Length (ft):	318	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12018	Surveyor:	JJC	PSR:	03-8002 to 03-8007
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Haven Dr.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS9-844
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 03-8002 DS MH: 03-8007 Total Length Surveyed (ft): 318

- more than half the pipe contained flow of greater than 30%. Many cracks that need to be addressed

Recommendation

Open Trench Pipe Replacement (318ft)

03-8002

Camera Direction

Position	Code	Observation		Video (sec)	Grade
0	AMH	Manhole		5	NA
0	MWL	Water Level	10%	13	NA
1.7	FM	Fracture Multiple	J2 - 4.5	25	S 4
4.36	FM	Fracture Multiple	J4.5 - 7.5	38	S 4
7.41	MWL	Water Level	20%	52	NA
10.59	CM	Crack Multiple	J11 - 13.5	67	S 3
19.97	CM	Crack Multiple	J20 - 23	94	S 3
23.06	CM	Crack Multiple	J23 - 26	109	S 3
29.21	FM	Fracture Multiple	J29.5 to 32.5	130	S 4
50.09	MGP	General Photo		179	NA
86.08	TF	Tap Factory		260	NA
88.18	CM	Crack Multiple	J88 - 91	273	S 3
100.59	MGP	General Photo		307	NA
103.81	SSS	Surface Spalling	J104	322	S 2
106.25	MGO	General Observation		335	NA
110.12	FM	Fracture Multiple	J110 - 113	351	S 4
116.34	CM	Crack Multiple	J116.5 - 119.5	373	S 3
119.57	CL	Crack Longitudinal	J119.5 - 122.5	388	S 2
144.54	CL	Crack Longitudinal	J144.5 to	448	S 2
150.48	MGP	General Photo		469	NA
175.96	CL	Crack Longitudinal	J176 - 179	528	S 2
182.06	CL	Crack Longitudinal	J182 - 185	550	S 2
188.19	CM	Crack Multiple	J188 - 191	572	S 3
188.42	VC	Vermin Cockroach		581	M 1
200.66	MGP	General Photo		615	NA
219.54	CM	Crack Multiple	J220 - 223	661	S 3
219.85	CC	Crack Circumferential	J220-223	670	S 1
222.63	CL	Crack Longitudinal	J223 to 226	684	S 2
232.44	TF	Tap Factory		714	NA
240.66	CM	Crack Multiple	J241 - 243	739	S 3
241.75	TB	Tap Break-in		750	NA
243.75	CM	Crack Multiple	J244 to 247	764	S 3
247.11	CM	Crack Multiple	J247 - 250	780	S 3
250.77	MGP	General Photo		797	NA
265.66	CM	Crack Multiple	J266 - 269	835	S 3
268.74	CM	Crack Multiple	J269 - 272	849	S 3
278.19	CM	Crack Multiple		876	S 3
297.02	CL	Crack Longitudinal	J297 - 300	922	S 2
299.49	MWL	Water Level	50%	937	NA
301.06	MGP	General Photo		948	NA

Sag → J4.5 → J98
J275 → MH

03-8007

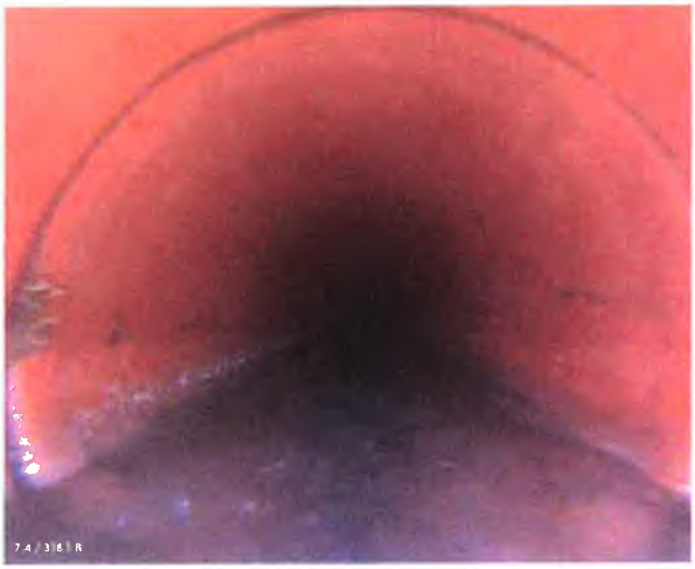
306.43	CL	Crack Longitudinal	967	S 2
318.11	AMH	Manhole	1001	NA

PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

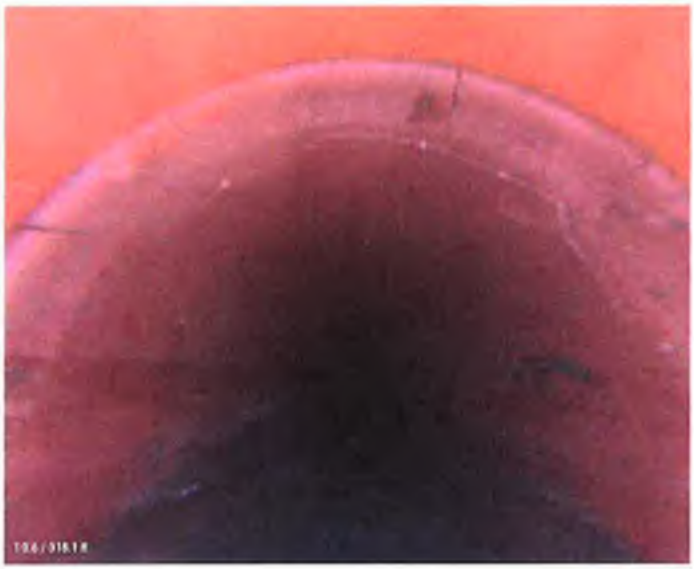
PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	1.7
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

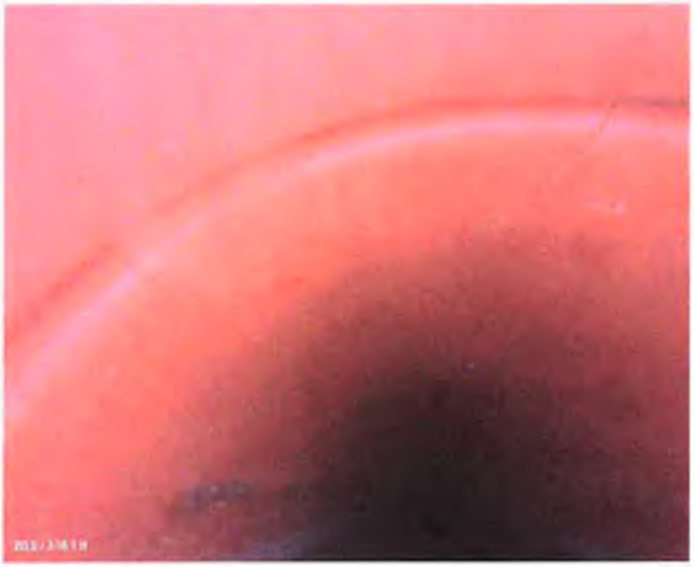
PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	4.36
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	9
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



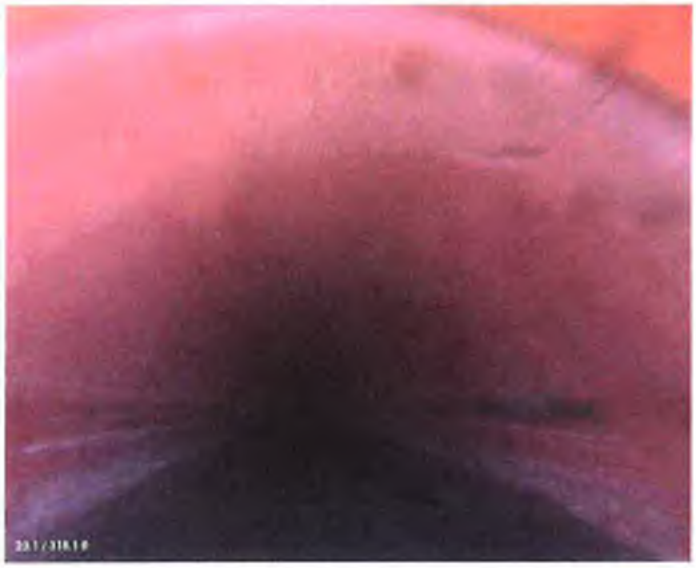
PACP Code:	MWL
Description:	Water Level
Distance (ft):	7.41
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



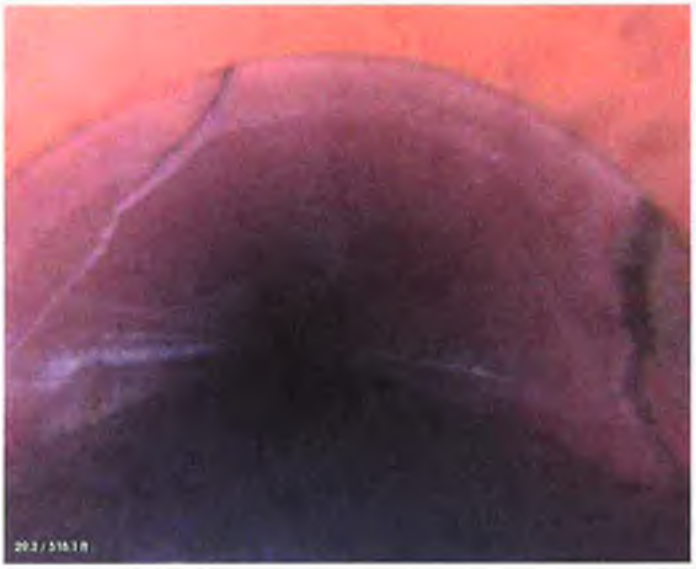
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	10.59
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	19.97
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



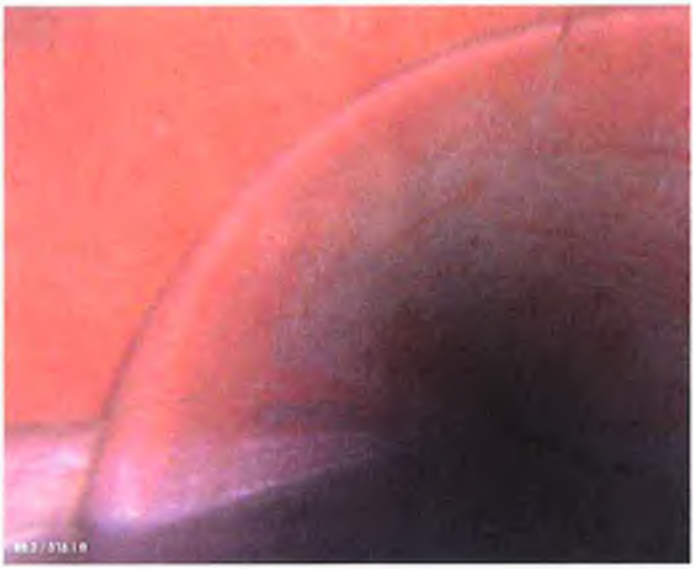
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	23.06
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	29.21
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	9
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

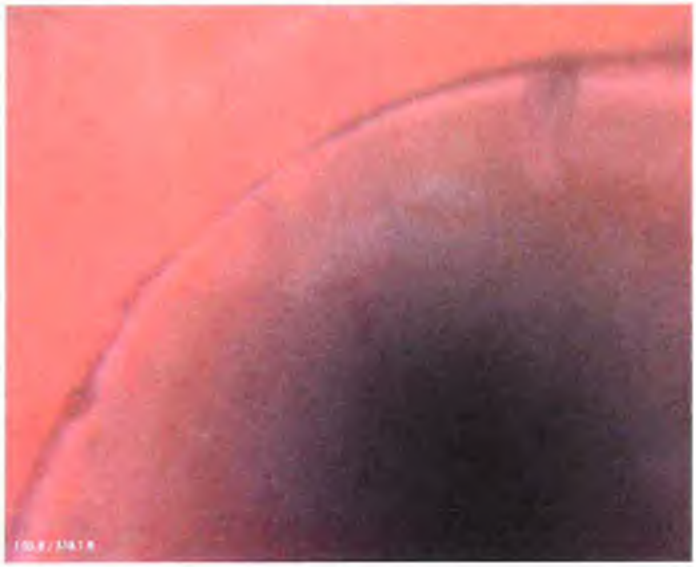
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.09
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	86.08
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	88.18
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	9
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

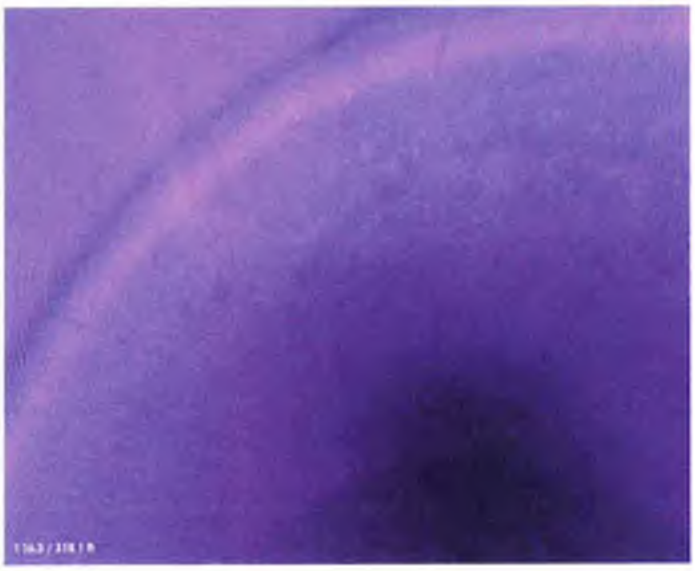
PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.59
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	103.81
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

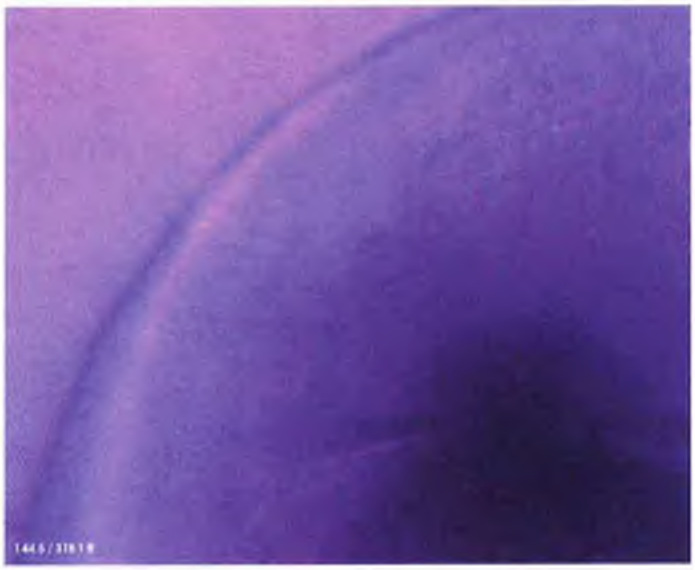
PACP Code:	MGO
Description:	General Observation
Distance (ft):	106.25
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Issue with color recording on camera

PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	110.12
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	10
Clock To:	11
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	116.34
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

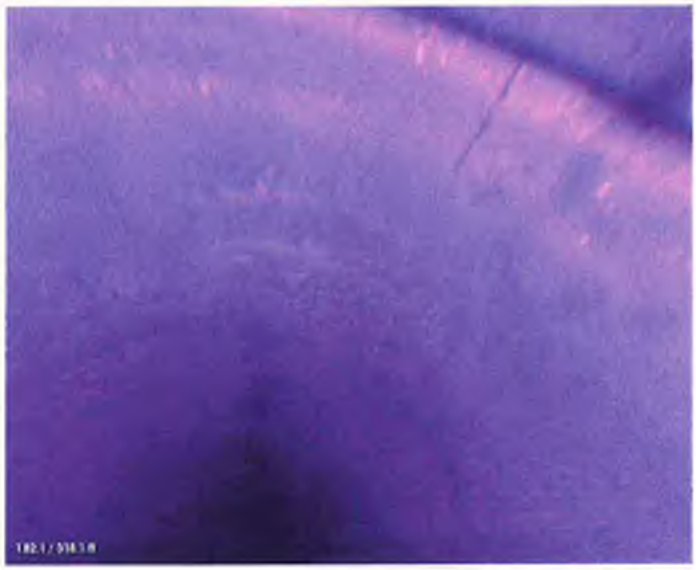
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	119.57
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



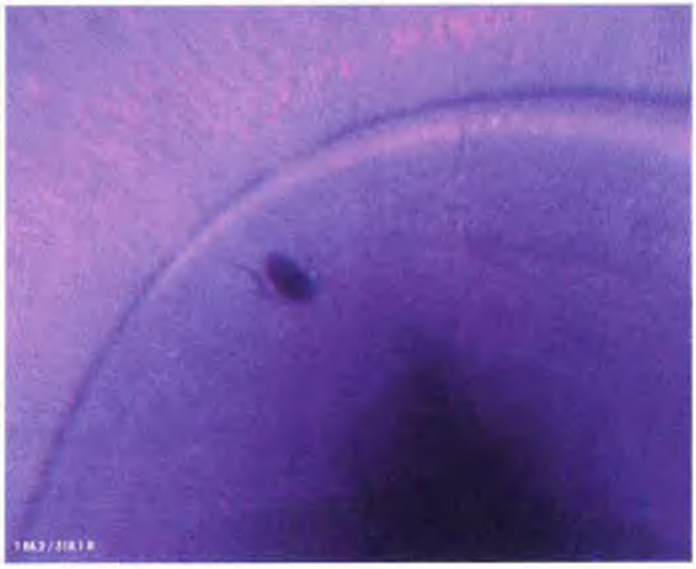
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	144.54
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.48
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

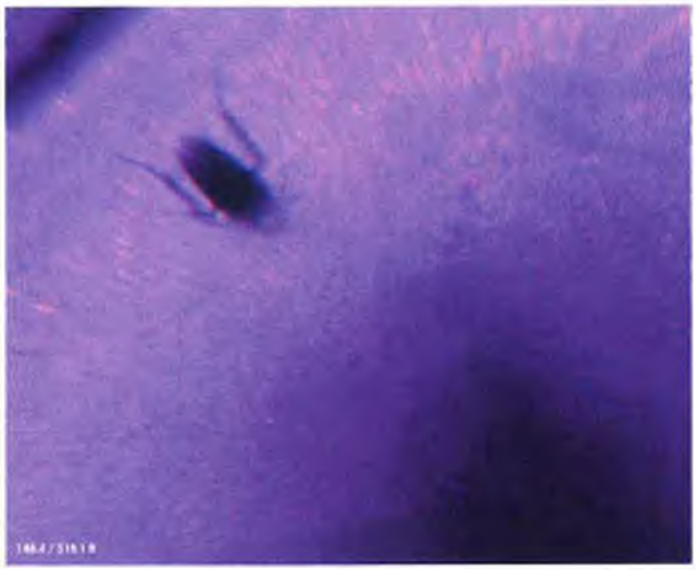
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	175.96
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



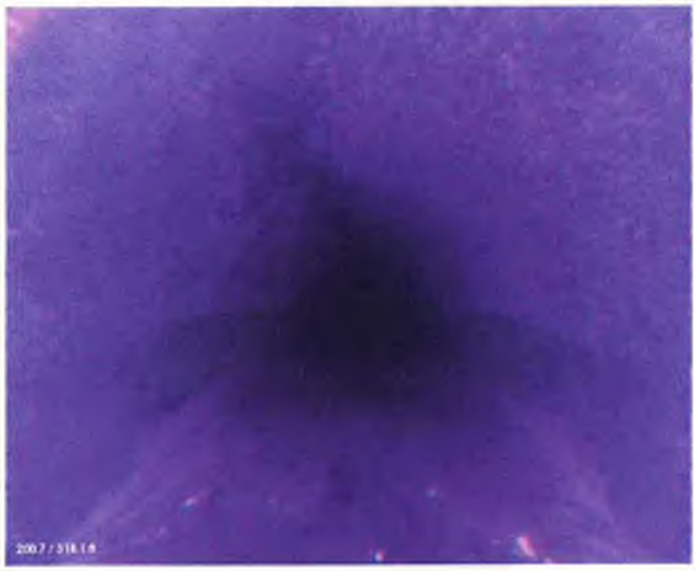
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	182.06
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



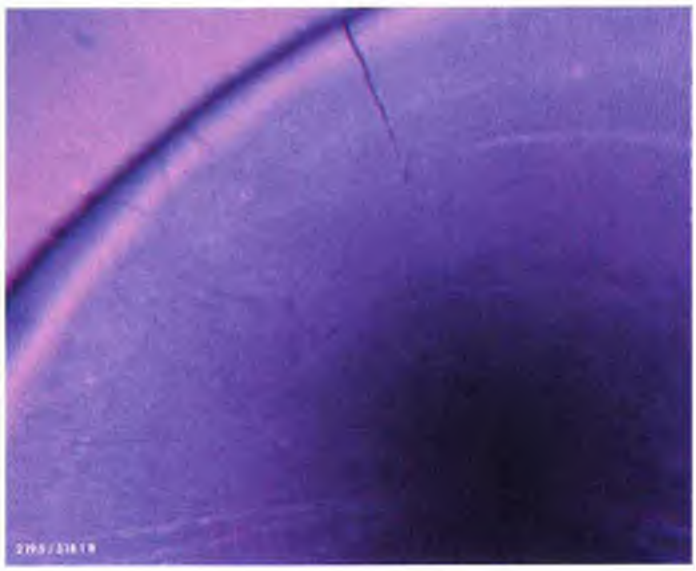
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	188.19
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	188.42
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

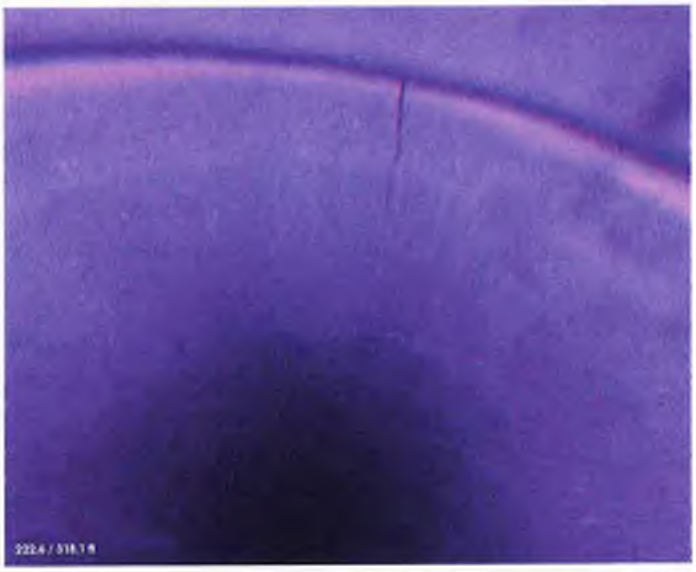


PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.66
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

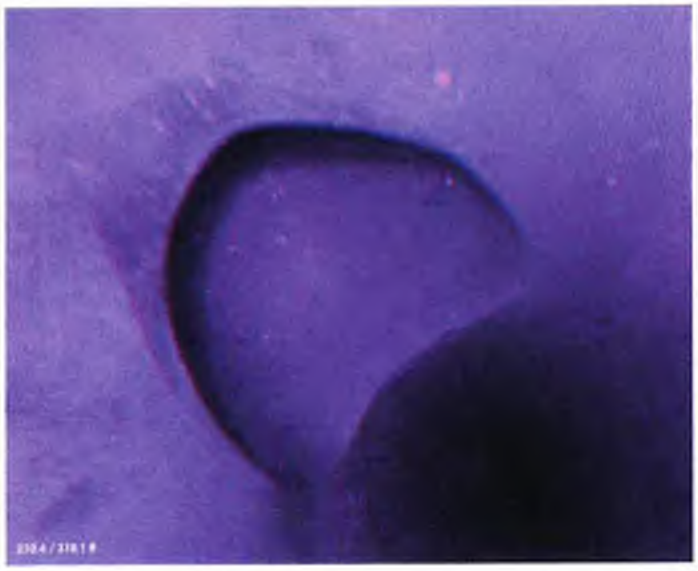


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	219.54
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	11
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

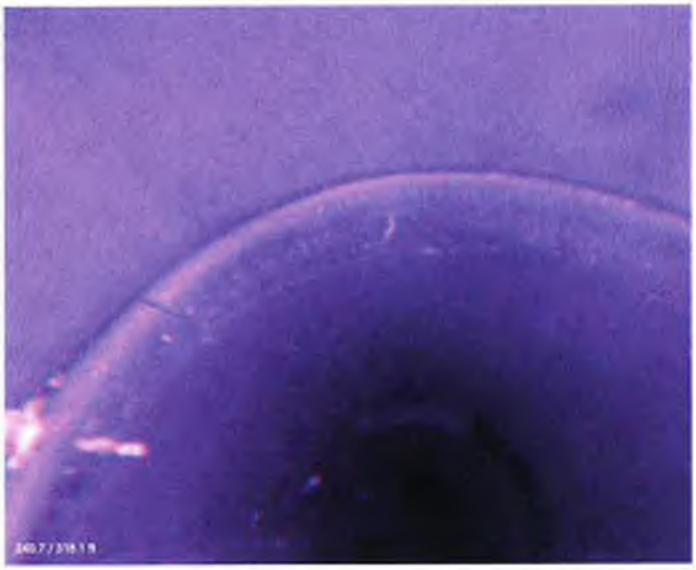
PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	219.85
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	9
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



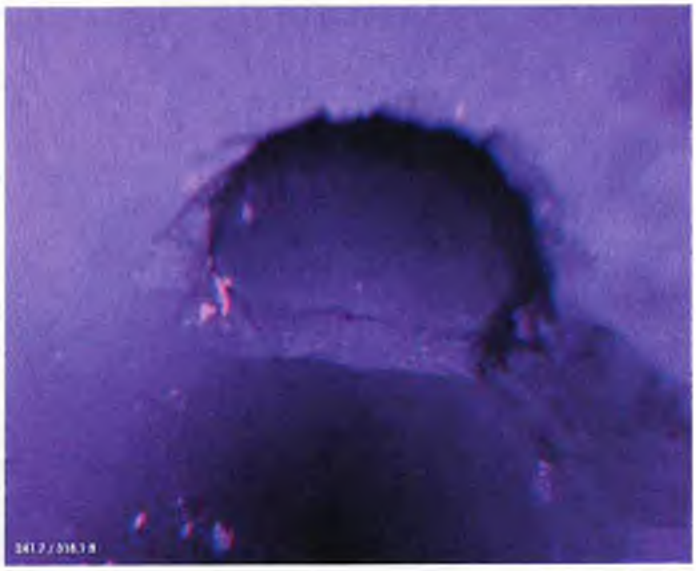
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	222.63
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



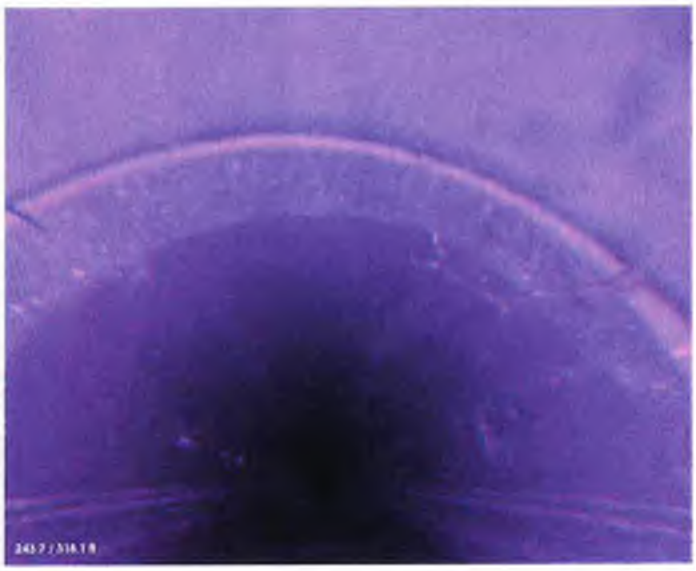
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	232.44
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



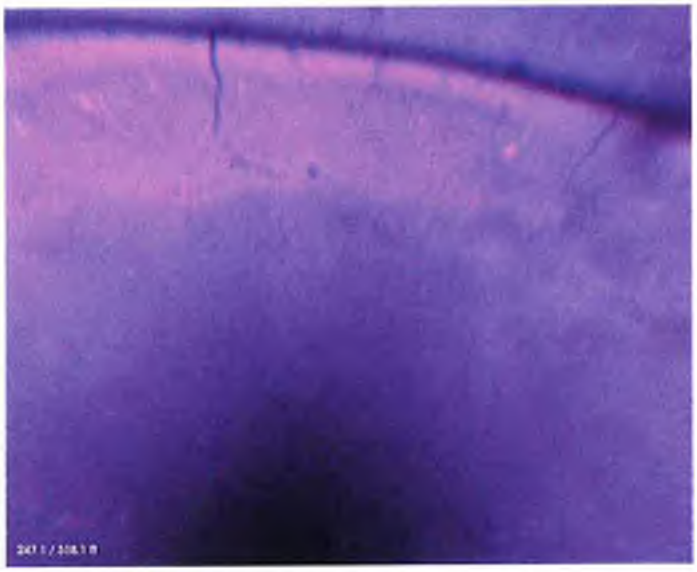
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	240.66
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	11
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	241.75
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

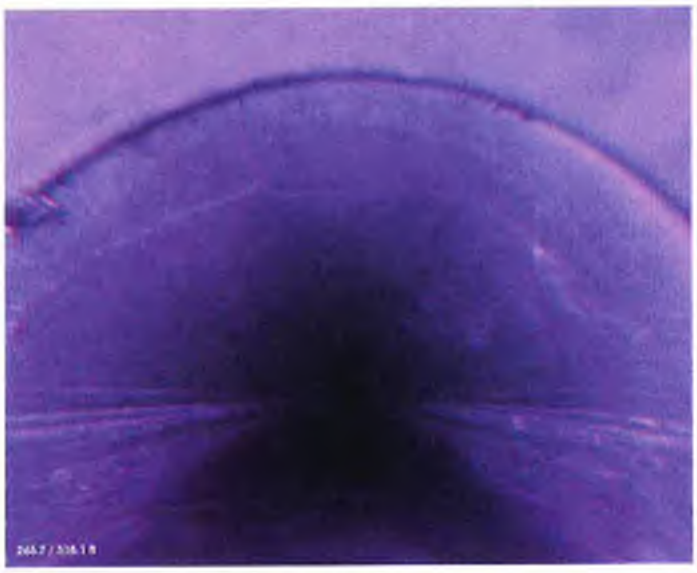


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	243.75
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



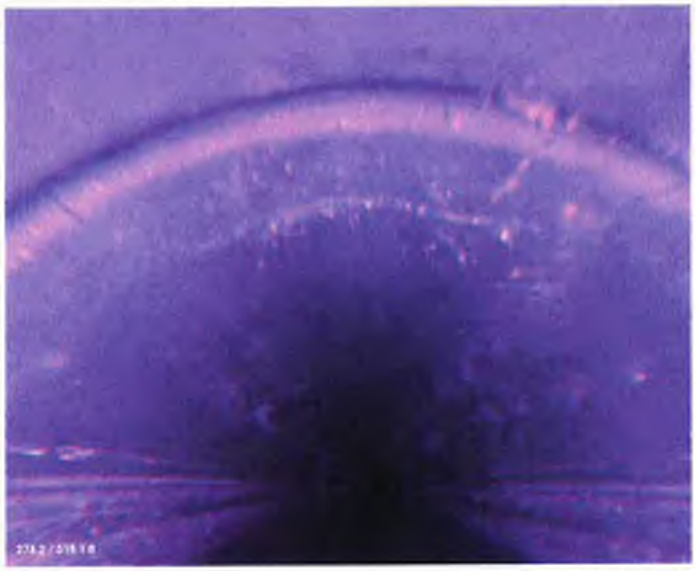
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	247.11
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	12
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.77
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

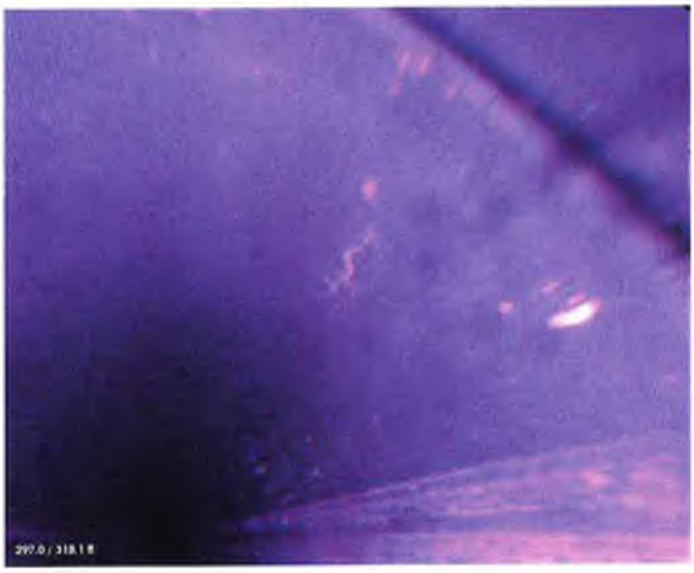


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	265.66
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

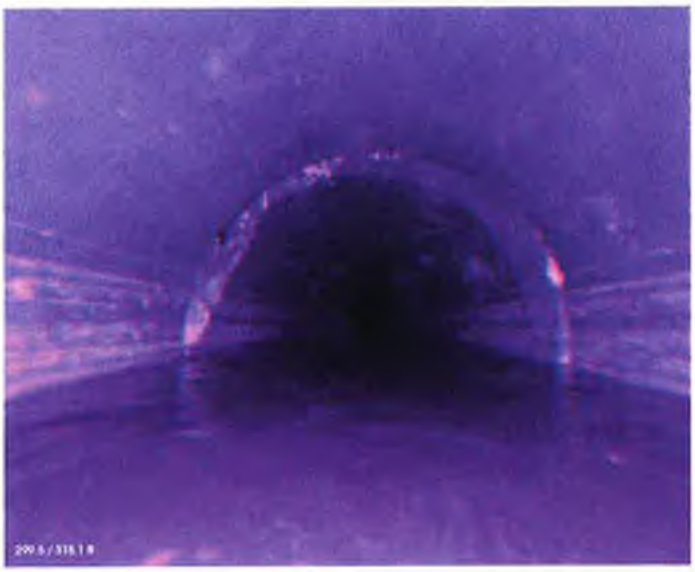
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	268.74
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



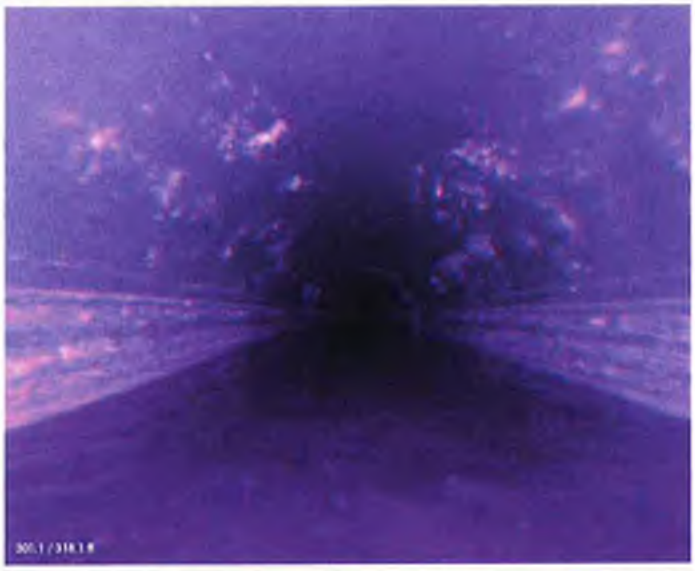
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	278.19
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



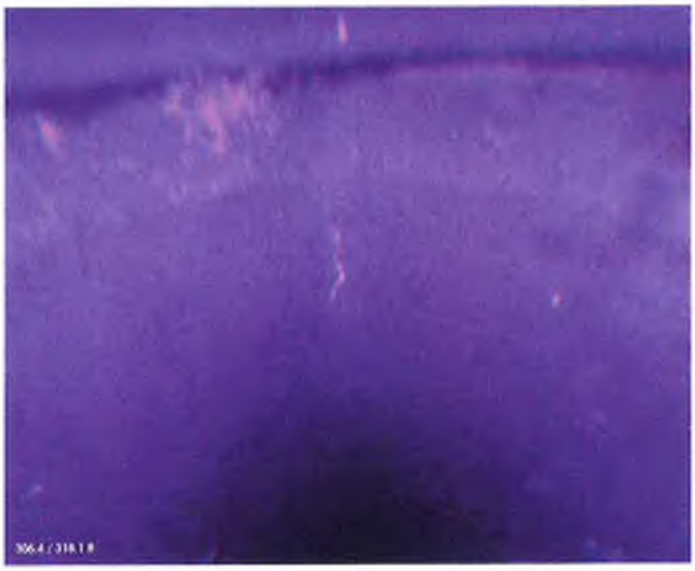
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	297.02
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



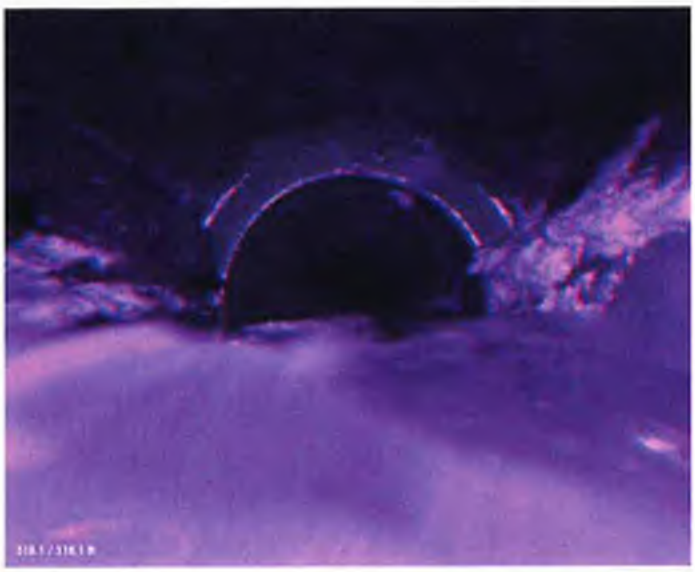
PACP Code:	MWL
Description:	Water Level
Distance (ft):	299.49
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MGP
Description:	General Photo
Distance (ft):	301.06
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	306.43
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	318.11
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

03-8002 to 03-8001

Rec: - Full open trench replacement - Length unknown
• Large sag, camera underwater, survey abandoned

CCTV Observation Report

Harris & Associates

Date: 11/19/15
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-8002 to 03-8001

Street: Haven St.
City:
Use:

Flow Control:
Dia/Height (in): 8"
Material: VCP

Survey Direction: DS

US Manhole: 03-8002

DS Manhole: 03-8001

Total Length Surveyed: 90' (total unknown)

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWL	25%		
1.7'	CM			S3
4.1	CC			S2
31.7	FC			S3
43.8	MWLS	Sag JH4 - JS4 (40')		
60.1	MCU	underwater ~50% WL		
84		above water?		
86.7	MSA	Survey abandoned		

CCTV Observation Report

Harris & Associates

Date: 11/19/15
Pipe Length
Customer: Arvin 2015

Owner: City of Arvin
Surveyor: Chris Reynolds
Weather:

Pre Clean:
Shape: Circular
Reach: 03-8003 to 03-8002

Street: Santa Rosa St
City:
Use:

Flow Control: Not Controlled
Dia/Height (in): 8in (6 measured)
Material: VCP

Survey Direction: Downstream

US Manhole: 03-8003

DS Manhole: 03-8002

Total Length Surveyed: 300

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (5%)		N/A
0.8	CM	Crack Multiple (J1-J4)		S3
19.6	CC	Crack Circumfrential (J19-22)		S2
20	TF	Tap Factory		N/A
28	CL	Crack Longitudinal (J28-31)		S2
39	CC	Crack Circumfrential (J39-42)		S2
67	JOM	Joint Offset Medium (J67-70)		S3
67.8	CM	Crack Multiple (J67-70)		S3
68.9	TF	Tap Factory		N/A
81.5	MWLS	Water Level Sag (J80-186)		
102.3	CM	Crack Multiple (J102.5-105.5)		S3
117.9	TF	Tap Factory		N/A
155.3	CM	Crack Multiple (J155-158)		S3
158.7	FL	Fracture Longitudinal (J158-161)		
174.2	TF	Tap Factory		N/A
222.8	TFC	Tap Factory Capped		N/A
265.2	TF	Tap Factory		
294.3	DAGS	DEPOSIT Attached Grease		M1

Recommendation

Open Trench Pipe Replacement

Entire Laigth

CCTV Observation Report

Harris & Associates

Date: 11/19/2015
Pipe Length
Customer: Arvin

Owner:
Surveyor: Chris Reynolds
Weather:

Pre Clean:
Shape: Circular
Reach: 03-8004 to 03-8003

Street:
City: Santa Rosa
Use: Sanitary
US Manhole: 3-8004

Flow Control:
Dia/Height (in): 8in
Material: VCP
DS Manhole: 3-8003

Survey Direction: ~~[illegible]~~ Upstream
Total Length Surveyed: 228

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (5%)		N/A
2	CM	Crack Multiple		S3
16.7	OBR	Obstruction Rock		M1
20	CL2	Crack Longitudinal Two	(J17-20)(J20-23)	S3
32.2	TF	Tap Factory		N/A
46.8	CM	Crack Multiple	(J44-47)	S3
59	MGP	General Photo (WL=5%)		
84.6	TF	Tap Factory		N/A
92.9	CL	Crack Longitudinal		S1
100	CM	Crack Multiple	(J97-100)(J100-103)	S3
133.6	TFC	Tap Factory Capped		N/A
146.6	TBA	Tap BreakIn Active		N/A
159.5	B	Broken (Fracture)	(J156-159)	S4
161.4	TF	Tap Factory		N/A
167.3	MWLS	Water Level Sag (WL=25%) (J166-186)		S3
186	TFC	Tap Factory Capped		N/A
187	MWL	Water Level (5%)		N/A
205.5	TB	Tap Break-In		N/A
205.5	MGP	General Photo (WL=5%)		N/A
227.7	JOL	Joint Offset Large	(J228)	S4
228.2	JOL	Joint Offset Large	(J229)	
		Abandond Survey		N/A

Recommendation

Open Trench Replacement

- Entire Length

03-8006 to 03-8005

Rec: open trench replacement full (414')
• ~6 sags + cracking

CCTV Observation Report

Harris & Associates

Date: 11/19/15
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-8006 to 03-8005

Street: Haven St.
City:
Use:

Flow Control:
Dia/Height (in): 6"
Material: VCP

Survey Direction: DS

US Manhole: 03-8006

DS Manhole: 03-8005

Total Length Surveyed: 414.2'

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWL	5%		
3.2'	TF			
22.4'	MWLS	Sag J19 - J44 (25')		
41.5'	TBA			
51.1'	TF			
99.1'	MWLS	Sag J95 - J115 (20')		
106.2'	TBA			
115.5'	TFA			
137.4	MWLS	Sag J135 - J155 (20')		
175.9	TB			
194	MWLS	Sag J190 - J200 (10')		
209.7	TF			
244.7	TFA			
245.1	MWLS	Sag J245 - J255 (10')		
264.7	TF			
307.4	TB			
327.9	CC	3-9		
356.6	TB			
357.2	CM			
370.5	MWLS	Sag J370 - J400 (30')		
373	CL			
382.3	FC			
384	TFC			

Full replacement (Length unknown) 03-8019 to 03-8006

Rec:
- Multiple offset joints
- Survey abandoned

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-8019 to 03-8006

Street: Haven St.
City:
Use:

Flow Control:
Dia/Height (in): 6"
Material: VCP

Survey Direction: US

US Manhole: 03-8019

DS Manhole: 03-8006

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWL	5%		
3'	JOM	offset	J5-J10 (5')	
25.2'	JOM	offset		
33.6'	MCU	underwater (Maybe just bubbles)		
53.1	MSA	Survey abandoned		

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 5 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-8019

Surveyed by:

Street: Haven Dr.

Cert. no.:

MH Location Details:

1423 Haven Dr

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Crack / Break

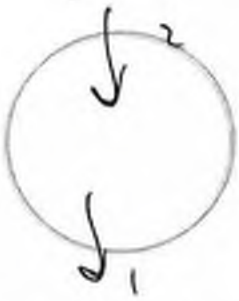
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown I/I / crack

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Cracks I/I wall and chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03 - 8006

Surveyed by: J-L

Street: Haven Dr.

Cert. no.:

MH Location Details:

134 Haven Dr.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick

Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-6002

Surveyed by: S-L

Street: Haven Dr.

Cert. no.:

MH Location Details:

In Front "Casa de la Paloma Blanca

Access Type: Assumes Manhole; *Specify if other:* M H

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

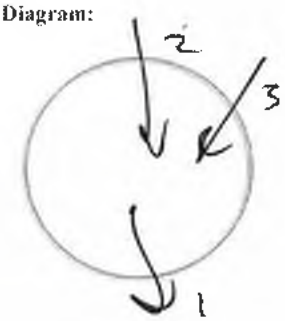
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-8001

Surveyed by: J-L

Street: Haven / Walnut

Cert. no.:

MH Location Details:

Int Haven / Walnut (Left) ↑N

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

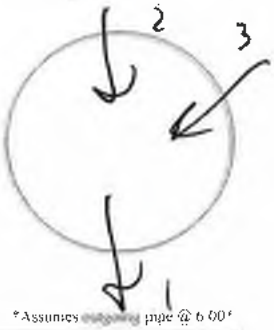
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

MANHOLE OBSERVATION FORM

Harris & Associates

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-0021

Surveyed by: J-L

Street: Int. Haven / Walnut

Cert. no.:

MH Location Details:

Haven/Walnut (right MH) of N

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Breaking

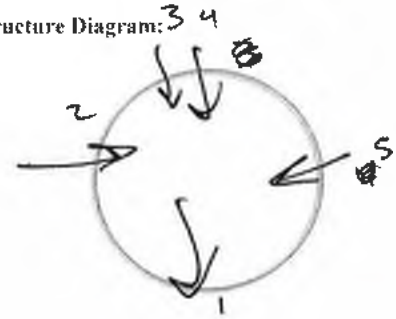
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown H_2S

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Chimney needs Repair
Wall cracked

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 19 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-90019

Surveyed by: J-L

Street: Haven & Meyer

Cert. no.:

MH Location Details:
- 804 Haven Dr.

Access Type: Assumes Manhole: *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

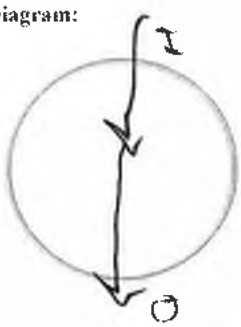
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown I & I

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
weeping on wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-8008 to 03-8007

Street:
City:
Use:

Flow Control:
Dia/Height (in): 8" (?)
Material: VCP (?)

Survey Direction:

US Manhole:

DS Manhole:

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
		- No video - open trench replacement		

Rec: - open trench replacement (332')
• sags for 1/3 of reach

03-0022 to 03-002

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-0022 to 03-0021

Street: Haven St.
City:
Use:

Flow Control:
Dia/Height (in): 15"
Material: PVC

Survey Direction: DS

US Manhole:

DS Manhole:

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWC	60%		
21.7'	MCU	camera underwater		
	↳ Not actually - think it recovs to first 20'			
78.7'	MWLS	sag 78 - 142 (~60')		
101.2	TBA			
163.5	TBA			
212.5	TB		270' - MCU	
331.9	AMH	End		

Appendix K: West Di Giorgio Park Pipeline Project Reference Materials

West Di Giorgio Park Pipeline Project Cost Estimate

Reach No.	Item	Action		Cost
Number	Reach			
1	03_7003_03_7002_8/10/2016_10:34	Spot Repair		$ 1,000.00
2	03-7004_03-7001_10/30/2009_D	Spot Repair + Lining		$ 34,000.00
3	03_7005_03_7004_8/10/2016_10:34	Spot Repair		$ 5,000.00
4	03-7009_03-7004_10/30/2009_D	Replacement		$ 81,000.00
5	03-7010_03-7009_10/29/2009_D	Lining		$ 31,000.00
6	03-7014_03-7009_10/29/2009_D	Lining		$ 16,000.00
7	03_7016_03_7015_8/10/2016_10:34	Lining		$ 31,000.00
8	03-7019_03-7014_10/29/2009_U	Replacement		$ 82,000.00
9	03_7020_03_7019_8/10/2016_10:34	Lining		$ 31,000.00
10	03_7021_03_7020_8/10/2016_10:34	Spot Repair + Lining		$ 32,000.00
11	03_7013_03_7014_8/10/2016_10:34	Replacement		$ 35,000.00
12	03_7012_03_7013_8/10/2016_10:34	Spot Repair + Lining		$ 33,000.00
13	03_7017_03_7018_8/10/2016_10:34	Spot Repair + Lining		$ 38,000.00
14	03-6022_03-6023_11/11/2011_201.600006_U	Replacement		$ 46,000.00
15	03_6018_03_6017_8/10/2016_10:34	Spot Repair + Lining		$ 39,000.00
16	03_6017_03_6016_8/10/2016_10:34	Spot Repair		$ 2,000.00
	Manholes			
	03_7019	Replace		$ 8,000.00
	03_7013	Replace		$ 8,000.00
	03_7014	Replace		$ 8,000.00
	03_7009	Replace		$ 8,000.00
	03_6022	Replace		$ 8,000.00
	03_6023	Replace		$ 8,000.00
	03_7004	Replace		$ 8,000.00
	Total Construction Cost			$ 593,000.00
	Engineering & Construction Management		25%	$ 148,000.00
	Contingencies		20%	$ 119,000.00
	Administrative		5%	$ 30,000.00
	CIP Estimate			**$ 890,000.00**

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	338	Owner:	City of Arvin		
P.O.#:	W/O # 12018	Surveyor:	JJC	Pre Clean:	Not Known
Customer:	Veolia Water NA	Clean Date:		PSR:	03-7009 to 03-7004
				Shape:	Circular

Street:	Walker St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS17-821
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:			

US MH:	03-7009	DS MH:	03-7004	Direction of Survey:	Downstream
				Total Length Surveyed (ft):	338

① Cleaning

②

Joints @ 37+

* refers to segment so far

03-7009

Camera Direction

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level 10%	13	NA
0	CC	Crack Circumferential	21	S 1
1.9	CM	Crack Multiple @ Joint 2	34	S 3
2	SSS	Surface Spalling @ Joint 2	42	S 2
8.7	DAGS	Deposits Attached Grease	65	M 3
11.32	VC	Vermin Cockroach WL 30%	80	M 1
42.46	SSS	Surface Spalling @ Joint 42 Poor Visibility	152	S 2 also crack (long)
50.61	MGP	General Photo WL @ 30% some spalling	179	NA
100.18	MGP	General Photo WL @ 30% spalling	286	NA
105.33	TF	Tap Factory WL @ 30% · Joint	305	NA
116.21	MWL	Water Level 5%	335	NA
123.87	MWL	Water Level 30%	359	NA
126.28	DAGS	Deposits Attached Grease WL 30%	372	M 3
126.28	SSS	Surface Spalling WL 30%	383	S 2
126.78	HVV	Hole Void Visible WL 30%	394 @ Joint 127	S 5
133.68	SSS	Surface Spalling	418 Joint 133	S 2
133.68	DAGS	Deposits Attached Grease cleaning	427	M 3
142.33	CS	Crack Spiral Joint 142 - 145	454	S 2
150.77	MGP	General Photo various spalling throughout*	480	NA
160.72	SSS	Surface Spalling Joint 160 - 163	508	S 2
200.07	MGP	General Photo 30% WL	596	NA
211.06	TF	Tap Factory GREASE	627	NA
238.51	RFJ	Roots Fine Joint Cleaning	690	M 1
242.41	DAGS	Deposits Attached Grease WL = 40%	708	M 3
242.41	DAGS	Deposits Attached Grease WL = 40%	716	M 3
250.42	MGP	General Photo WL = 35%	740	NA
262.21	DAGS	Deposits Attached Grease	772	M 3
262.21	MWL	Water Level Joint 251 - 50% WL	780	NA
266.65	RMJ	Roots Medium Joint Joint 267	797	M 3
266.65	CM	Crack Multiple Joint 267	807	S 3
267.05	TF	Tap Factory	818	NA
269.65	CM	Crack Multiple Dislocated Joint	832	S 3
278.94	FC	Fracture Circumferential 279 - 282	859	S 2
279.74	TBA	Tap Break-in Active	869	NA
280.43	DAGS	Deposits Attached Grease	881	M 3
300.04	MGP	General Photo 40% WL	930	NA
312.65	SSS	Surface Spalling 50% WL	963	S 2
313.26	MWL	Water Level 50%	974	NA
316.96	MCU	Camera Underwater complete submerge	990	M 4

Poor visibility

Poor visibility

40% WL

Joint 157 - 160 Worn material

Grease Deposits

Dislocated Joint @ 220

Turbulent

WL = 50

underwater 316 - 328

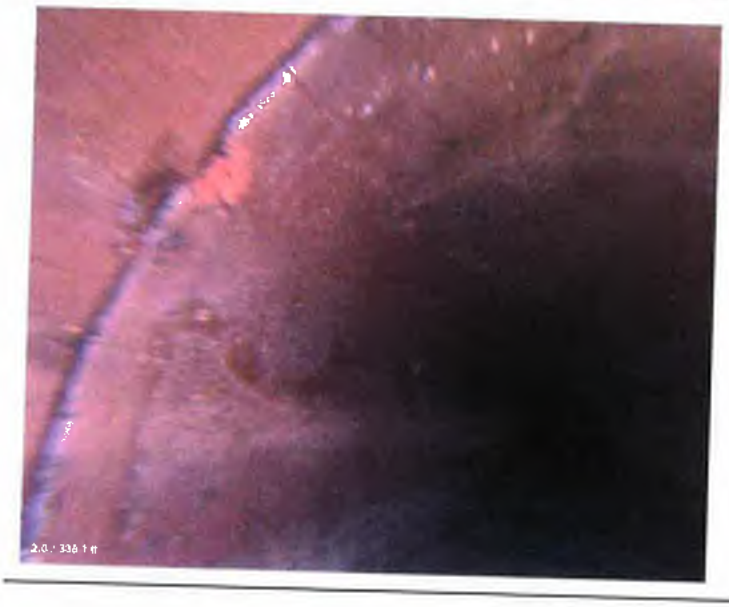
03-7004 338.06 AMH Manhole 1040 NA

PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	0
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	9
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	1.9
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	9
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	2
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

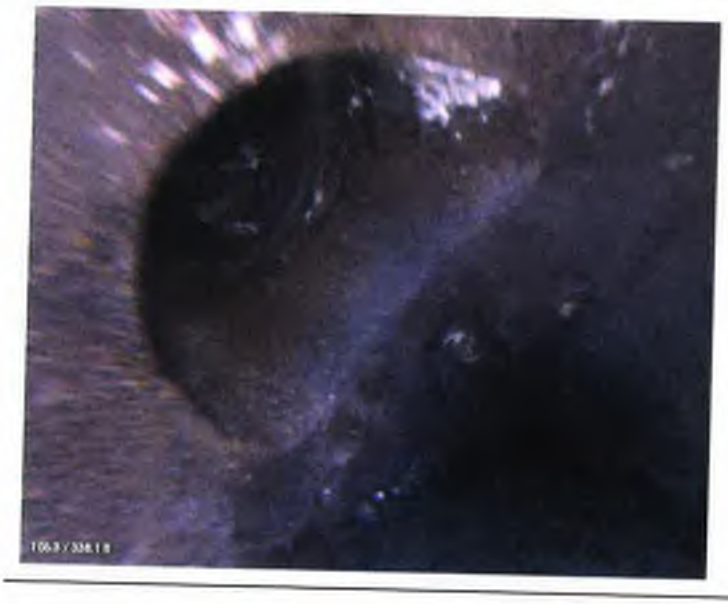
PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	8.7
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	False
Remarks:	

PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	11.32
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

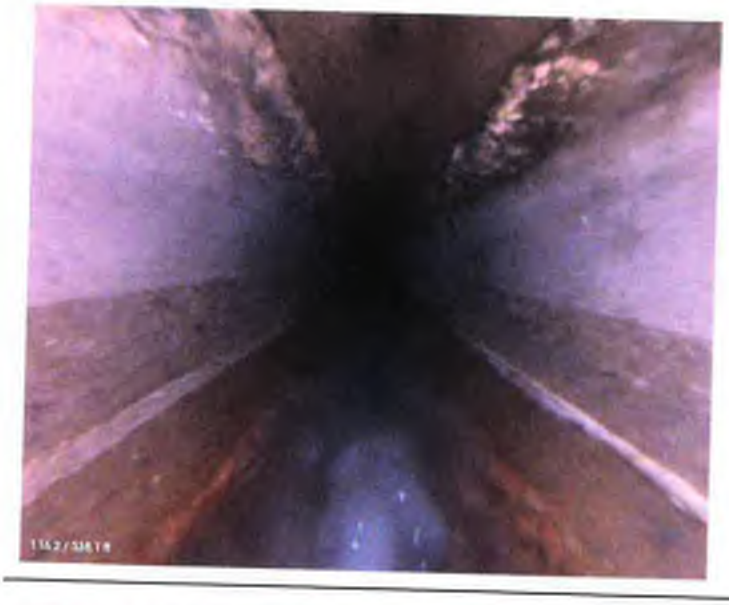
PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	42.46
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.61
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.18
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



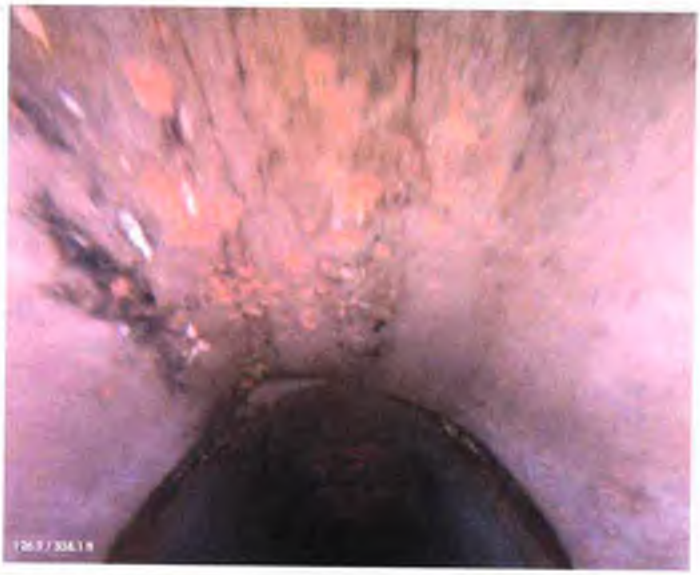
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	105.33
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level
Distance (ft):	116.21
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	123.87
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	126.28
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	False
Remarks:	

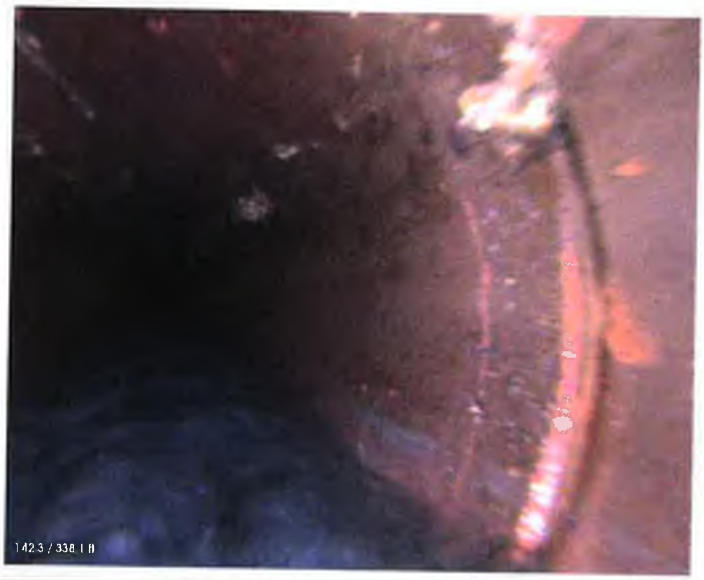


PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	126.28
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	S02
Within 8" of Joint:	False
Remarks:	

PACP Code:	HVV
Description:	Hole Void Visible
Distance (ft):	126.78
Structural Grade:	5
O&M Grade:	NA
Clock Start/From:	11
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

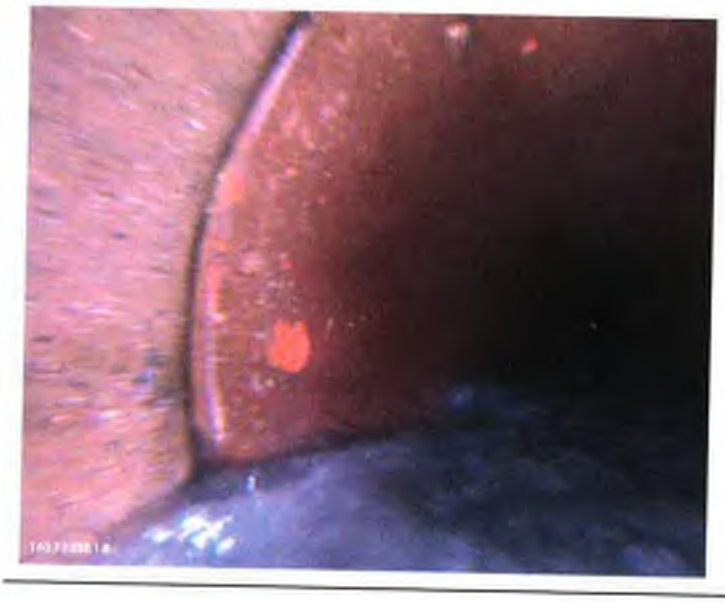
PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	133.68
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	F02
Within 8" of Joint:	False
Remarks:	

PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	133.68
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	S03
Within 8" of Joint:	False
Remarks:	



PACP Code:	CS
Description:	Crack Spiral
Distance (ft):	142.33
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.77
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

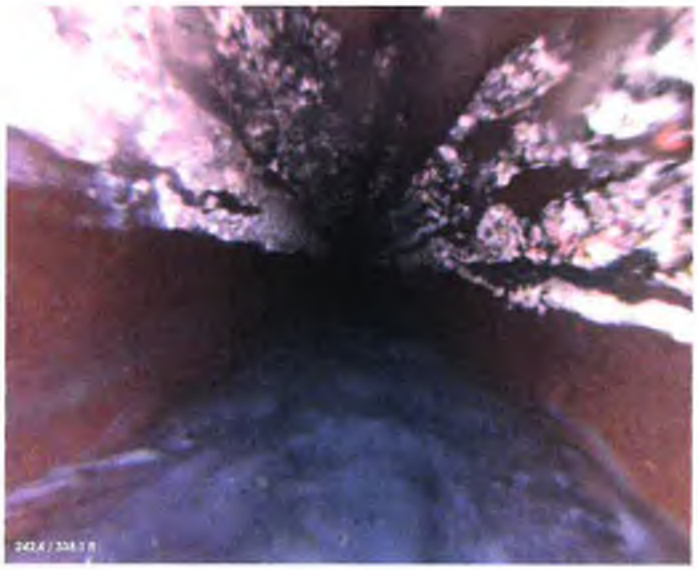


PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	160.72
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	9
Clock To:	11
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

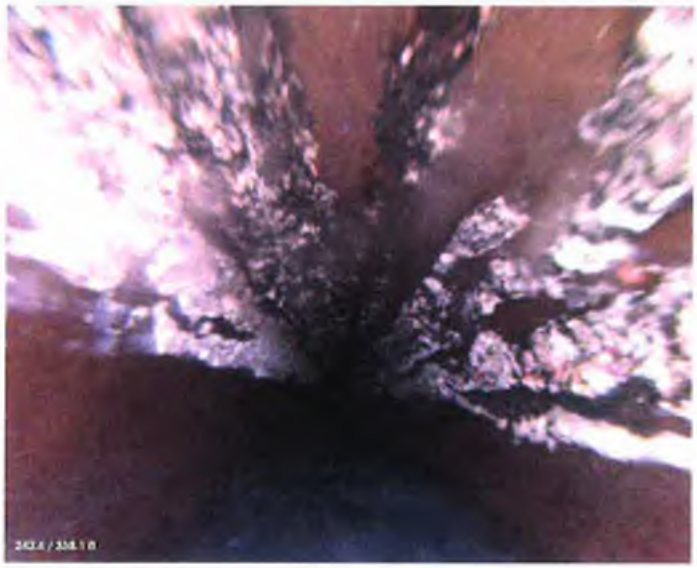
PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.07
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	211.06
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	RFJ
Description:	Roots Fine Joint
Distance (ft):	238.51
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	242.41
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	F03
Within 8" of Joint:	False
Remarks:	



PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	242.41
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	8
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	S04
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.42
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	262.21
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	8
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	F04
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	262.21
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

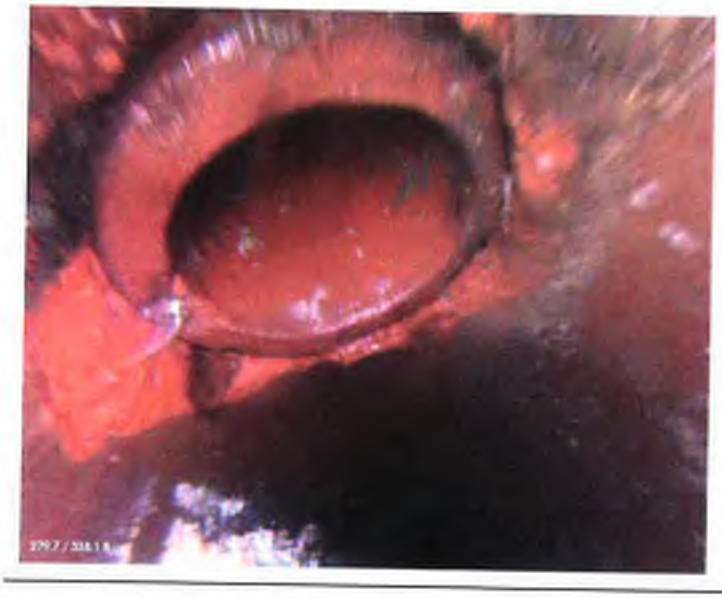
PACP Code:	RMJ
Description:	Roots Medium Joint
Distance (ft):	266.65
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	2
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	266.65
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	12
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	267.05
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	269.65
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	9
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

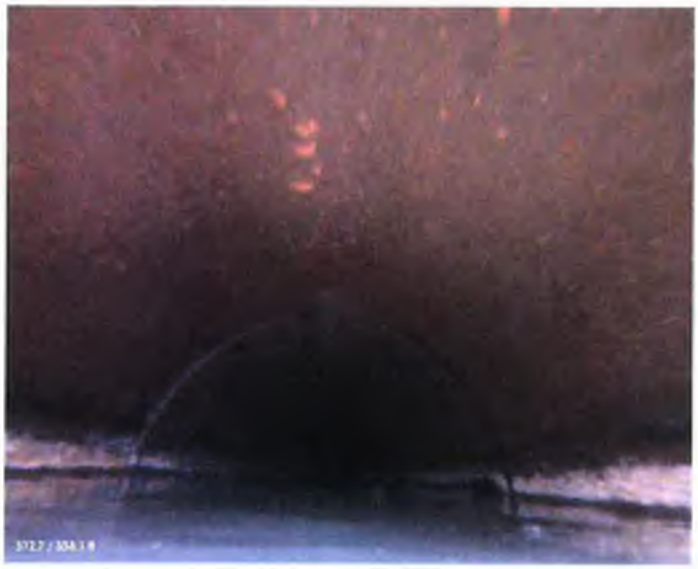
PACP Code:	FC
Description:	Fracture Circumferential
Distance (ft):	278.94
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	9
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TBA
Description:	Tap Break-in Active
Distance (ft):	279.74
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	11
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

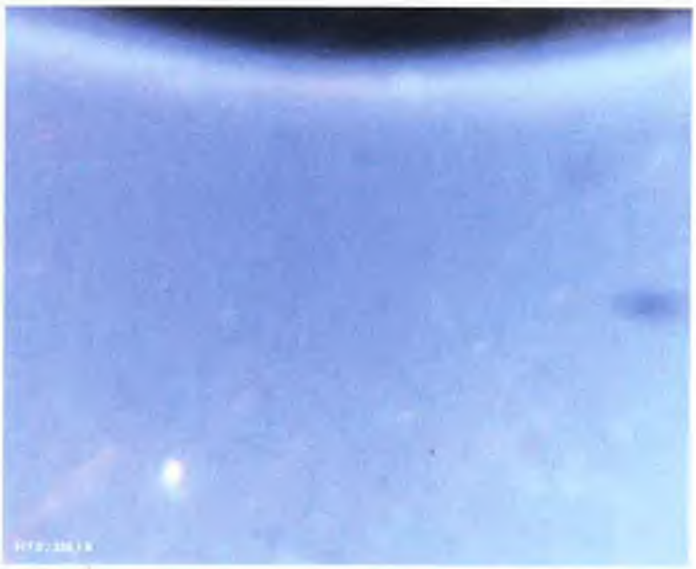
PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	280.43
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	300.04
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	312.65
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	313.26
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	316.96
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	338.06
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/29/2009	Weather:	Dry		
Pipe Length (ft):	306	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12018	Surveyor:	JJC	PSR:	03-7010 to 03-7009
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Walker St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS9-845
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:			

US MH: 03-7010 DS MH: 03-7009 Direction of Survey: Downstream Total Length Surveyed (ft): 306

Due to the Spread of cracks . . . . .

Recommendation

- CIPP Entire Length (306ft)

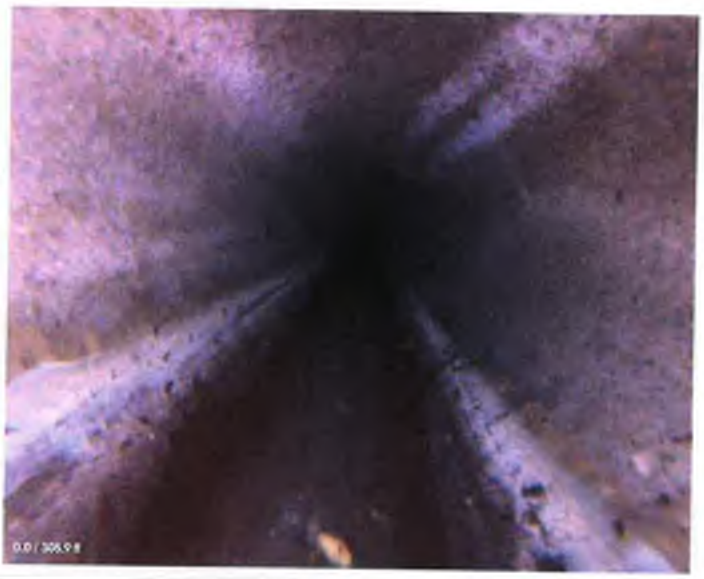
03-7010

Camera Direction

Position	Code	Observation	Video (sec)	Grade
0.42	AMH	Manhole	6	NA
0.42	MWL	Water Level	14	NA
1.23	VC	Vermin Cockroach	24	M 1
1.23	CL	Crack Longitudinal MH to J 1.5	34	S 2
1.83	CC	Crack Circumferential J 1.5 to 4.5	45	S 1
4.45	CM	Crack Multiple J 1.5 to 4.5	60	S 3
8.27	TF	Tap Factory	76	NA
29.6	CM	Crack Multiple J30 to 33	129	S 3
39.2	MGO	General Observation	158	NA
45	CL	Crack Longitudinal	177	S 2
50.76	MGP	General Photo	199	NA
64.08	CL	Crack Longitudinal J61-64	233	S 2
73.54	CM	Crack Multiple J73.5 to 76.5	262	S 3
74.07	TF	Tap Factory	273	NA
100.13	MGP	General Photo	335	NA
116.85	FM	Fracture Multiple J117-120	377	S 4
120.56	TF	Tap Factory	394	NA
135.21	CL	Crack Longitudinal J136-133	433	S 2
150.82	MGP	General Photo	474	NA
170.55	CC	Crack Circumferential J170-173	521	S 1
174.11	TF	Tap Factory	537	NA
200.38	MGP	General Photo	599	NA
207.86	CM	Crack Multiple J208-211	623	S 3
210.99	CL	Crack Longitudinal J211-214	637	S 2
217.28	CL	Crack Longitudinal J217-220	660	S 2
217.78	TF	Tap Factory	670	NA
226.7	CM	Crack Multiple J227-230	698	S 3
250.09	MGP	General Photo	753	NA
257.9	CS	Crack Spiral J258-261	777	S 2
261.74	TFA	Tap Factory Active	794	NA
273.76	CM	Crack Multiple J274-77	828	S 3
286.3	CM	Crack Multiple J286-287	863	S 3
295.4	CM	Crack Multiple J296-299	890	S 3
301.84	DSC	Deposits Settled Compacted	911	M 3
301.84	OBZ	Obstacle Other	921	M 3
302.5	TF	Tap Factory	933	NA
305.88	AMH	Manhole	950	NA

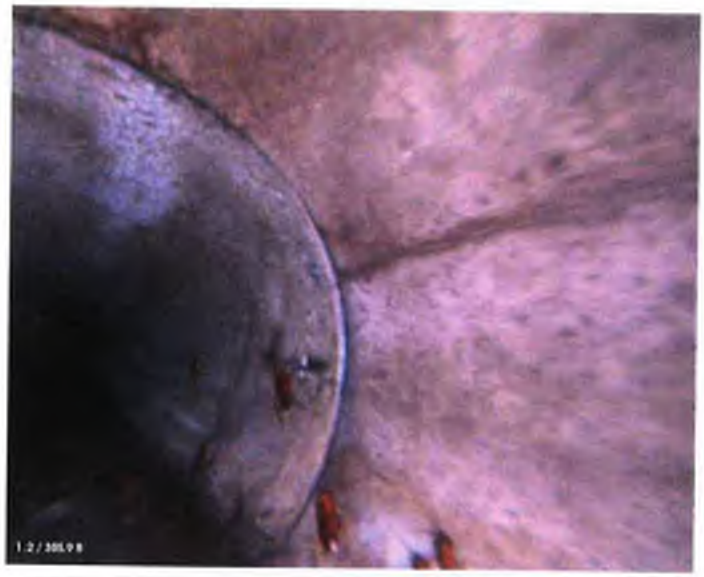
03-7009

PACP Code:	AMH
Description:	Manhole
Distance (ft):	0.42
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

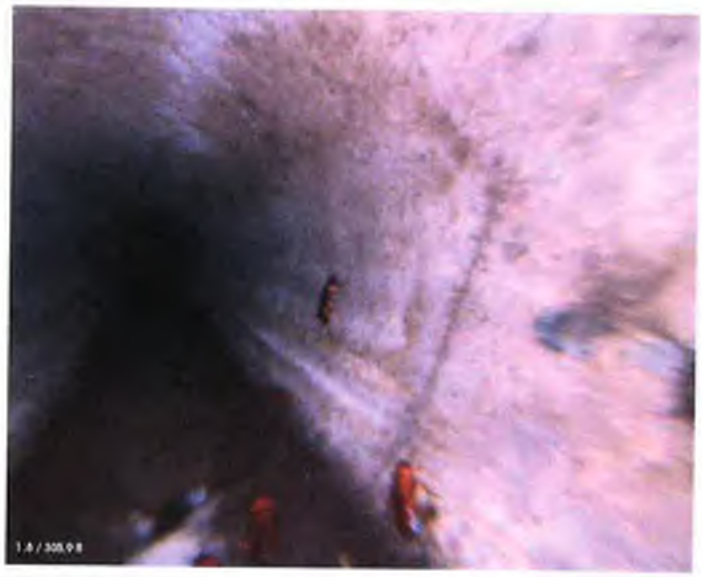


PACP Code:	MWL
Description:	Water Level
Distance (ft):	0.42
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	1.23
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

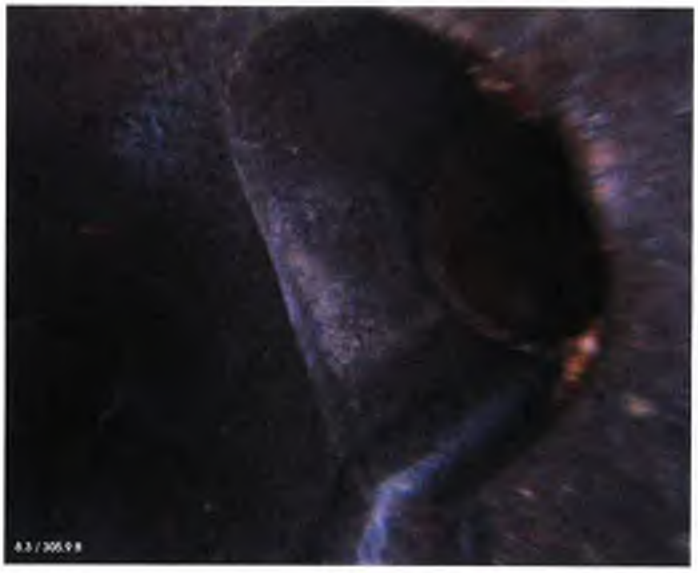


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	1.23
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

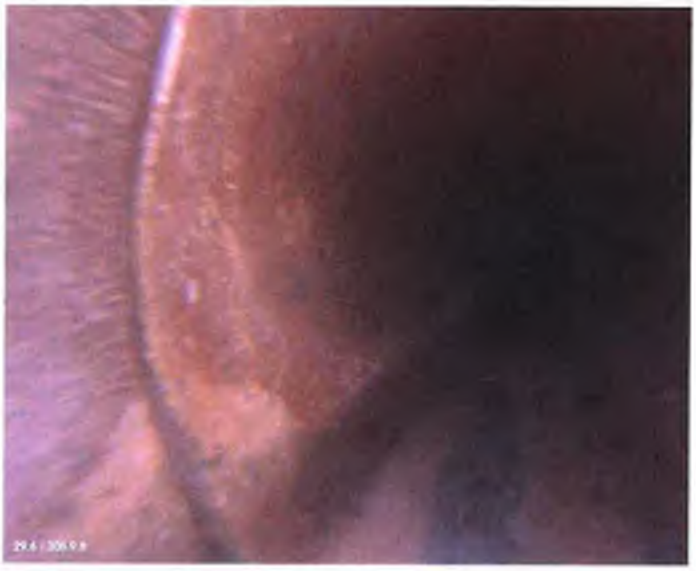


PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	1.83
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	2
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	4.45
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	1
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	8.27
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

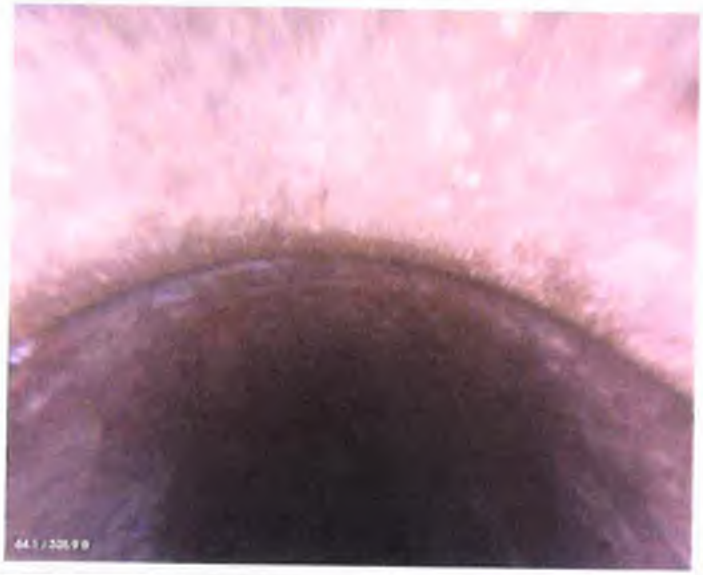


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	29.6
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	8
Clock To:	10
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

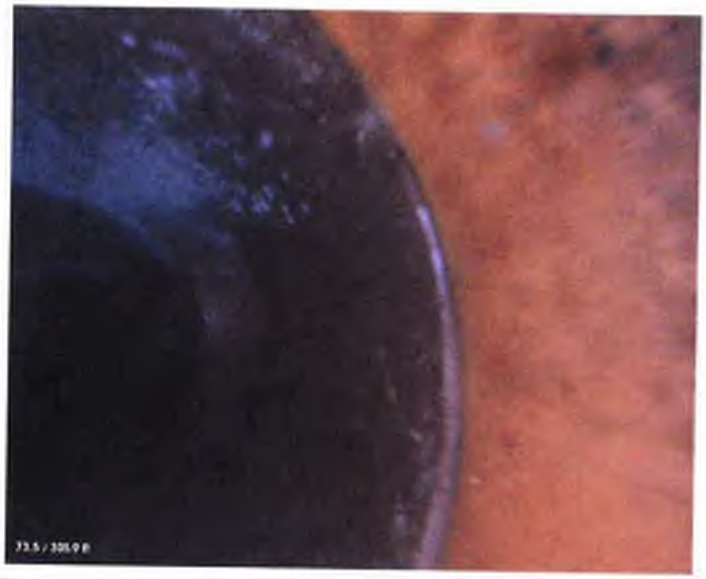
PACP Code:	MGO
Description:	General Observation
Distance (ft):	39.2
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Issue with camera sensor

PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	45
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

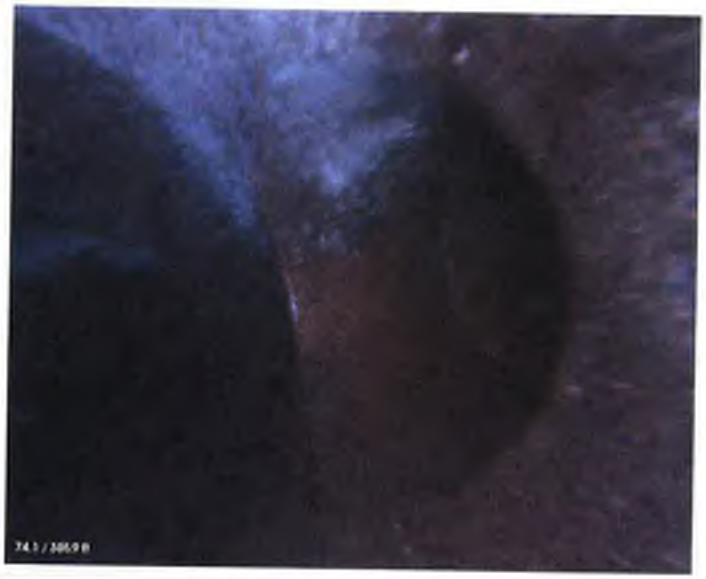
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.76
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



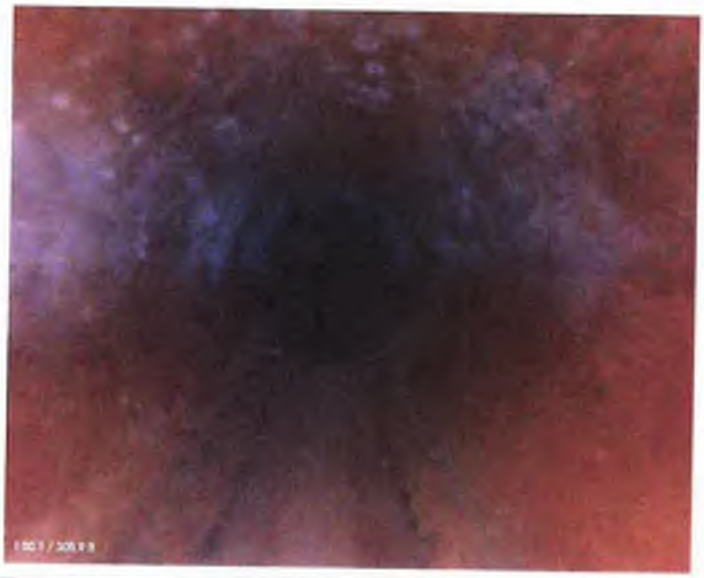
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	64.08
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



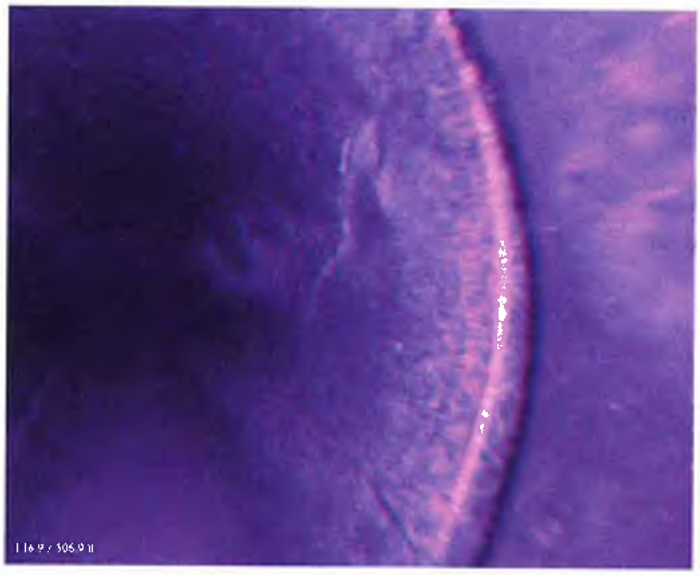
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	73.54
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	2
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



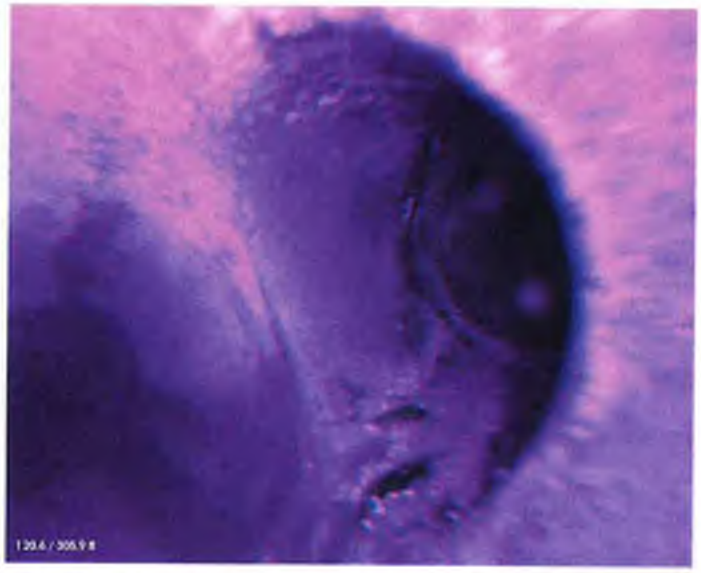
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	74.07
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



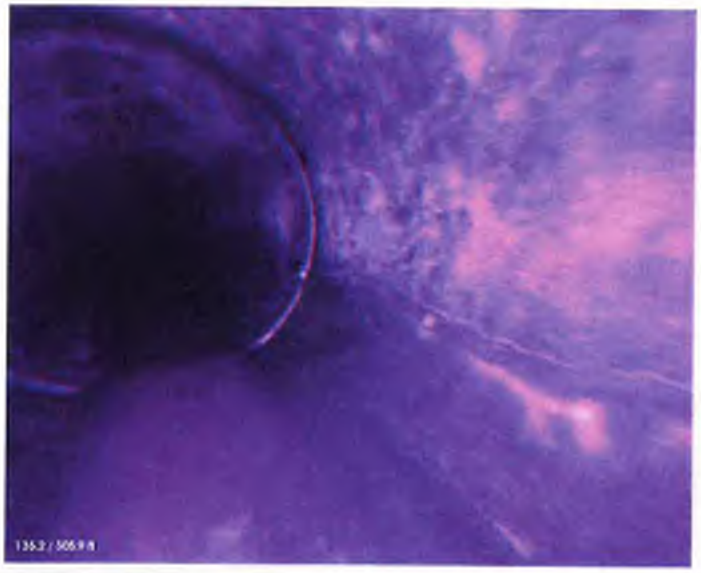
PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.13
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



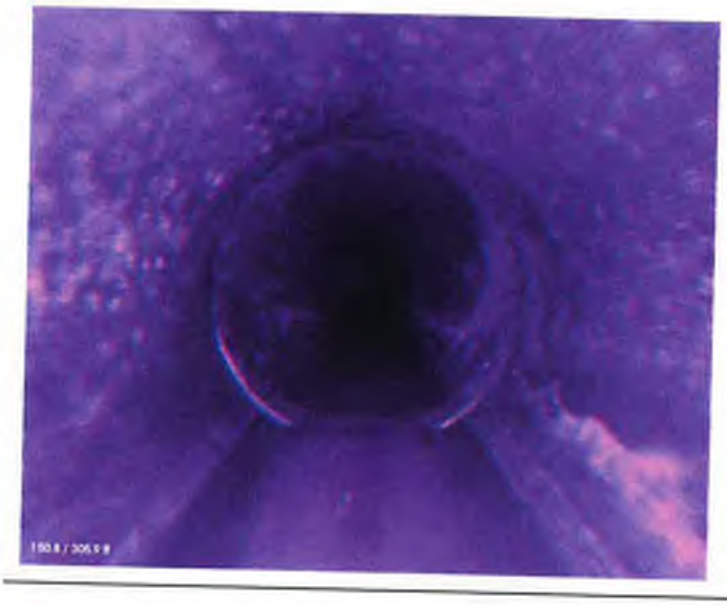
PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	116.85
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	2
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



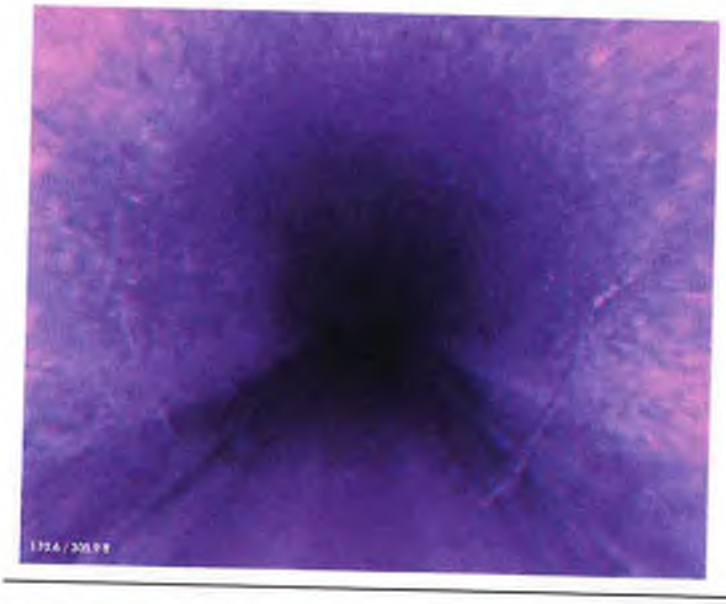
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	120.56
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	135.21
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

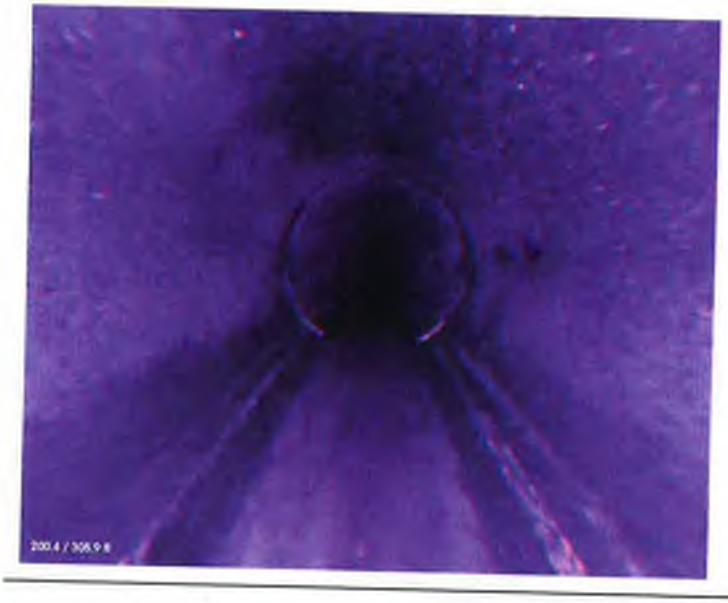


PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.82
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

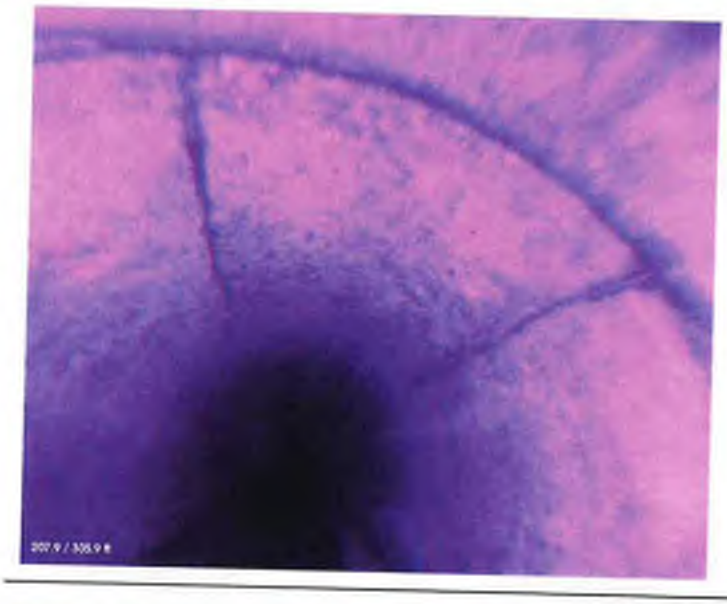


PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	170.55
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

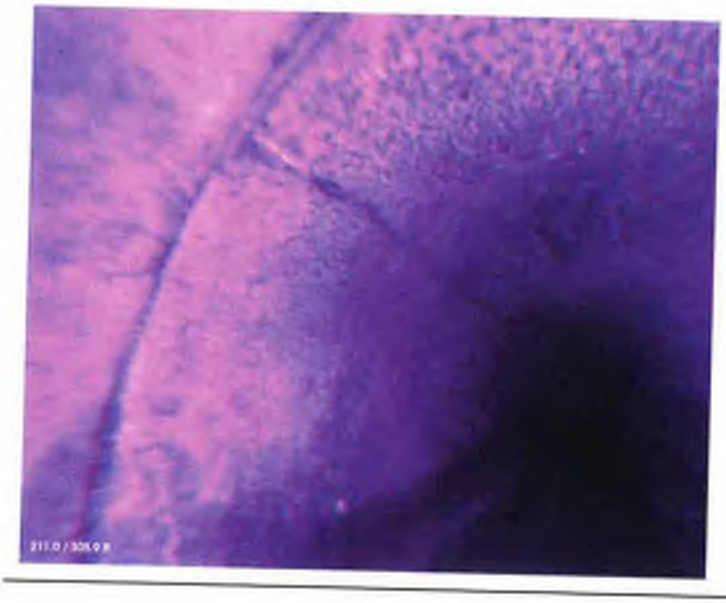
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	174.11
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



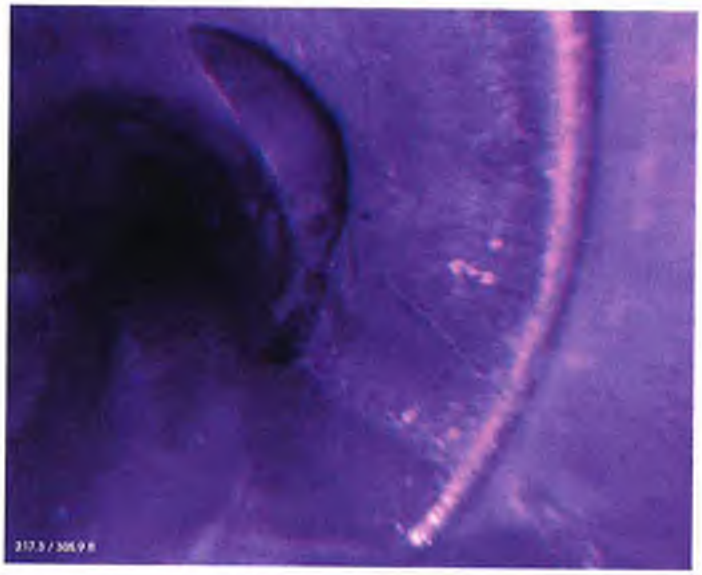
PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.38
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	207.86
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	11
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

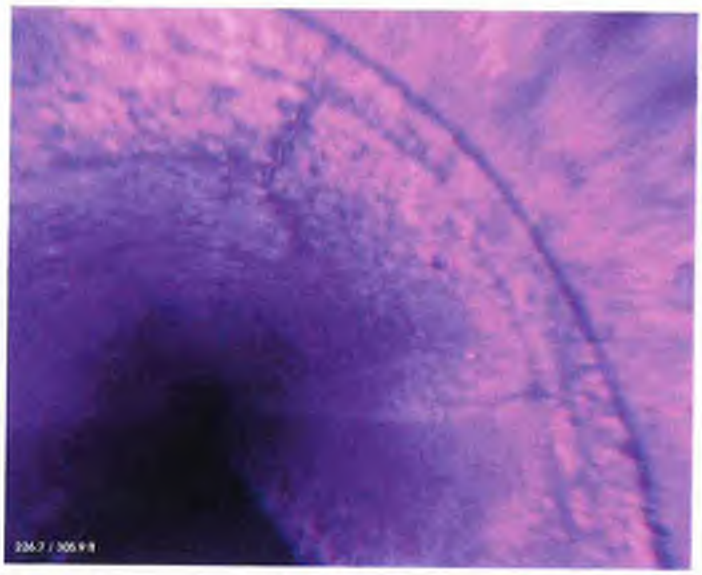


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	210.99
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	217.28
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	4
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	217.78
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	226.7
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	1
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158

Rec: Spot Repair J16.5 - J19.5
J241 - J244
J284 - J287 (adjacent)
Total: 9'

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-7005 to 03-7004	2016/11/15	12:05	MONROE ST	ARVIN,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-7005			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-7004					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				288.7			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	2	AMH										START
0.0	2	MWL					5 %				CITY OF ARVIN-03-7005-03-700 4 MWL at 0.0 ft (D).jpg	
0.0	25	VC									CITY OF ARVIN-03-7005-03-700 4 VC at 0.0 ft (D).jpg	
16.5	128	CM							8	11	CITY OF ARVIN-03-7005-03-700 4 CM at 16.5 ft (D).jpg	J16.5 - J19.5
18.0	145	TFA			4				11		CITY OF ARVIN-03-7005-03-700 4 TFA at 18.0 ft (D).jpg	
23.8	168	MWL					15 %				CITY OF ARVIN-03-7005-03-700 4 MWL at 23.8 ft (D).jpg	
36.0	198	TFC			4				9		CITY OF ARVIN-03-7005-03-700 4 TFC at 36.0 ft (D).jpg	

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158
Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/15	03-7005	03-7005	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
39.1	219	TFA				4				3		CITY OF ARVIN-03-7005-03-700 4 TFA at 39.1 ft (D).jpg	
64.6	269	TFA				4				3		CITY OF ARVIN-03-7005-03-700 4 TFA at 64.6 ft (D).jpg	
92.3	323	TFC				4				3		CITY OF ARVIN-03-7005-03-700 4 TFC at 92.3 ft (D).jpg	
97.6	386	CM								7	12	CITY OF ARVIN-03-7005-03-700 4 CM at 97.6 ft (D).jpg	
98.4	401	TFA				4				9		CITY OF ARVIN-03-7005-03-700 4 TFA at 98.4 ft (D).jpg	
136.0	470	TBA				4				3		CITY OF ARVIN-03-7005-03-700 4 TBA at 136.0 ft (D).jpg	
139.2	537	TFD				4				3		CITY OF ARVIN-03-7005-03-700 4 TFD at 139.2 ft (D).jpg	VISIBLE DIRT INSIDE CONNECTION .MAYBE A BROKEN OR SEPARATED TIE -IN
141.9	558	TFC				4				9		CITY OF ARVIN-03-7005-03-700 4 TFC at 141.9 ft (D).jpg	
166.9	610	TFA				4				9		CITY OF ARVIN-03-7005-03-700 4 TFA at 166.9 ft (D).jpg	
191.8	661	TFC				4				3		CITY OF ARVIN-03-7005-03-700 4 TFC at 191.8 ft (D).jpg	
198.6	685	TFA				4				1		CITY OF ARVIN-03-7005-03-700 4 TFA at 198.6 ft (D).jpg	
238.7	746	TFA				4				3		CITY OF ARVIN-03-7005-03-700 4 TFA at 238.7 ft (D).jpg	
240.9	804	CM								6	11	CITY OF ARVIN-03-7005-03-700 4 CM at 240.9 ft (D).jpg	241 J ~~222~~ - 244

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/15	03-7005	03-7005	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
241.8	825	TBA				4				9		CITY OF ARVIN-03-7005-03-700 4 TBA at 241.8 ft (D).jpg	
285.7	938	CS								9	1	CITY OF ARVIN-03-7005-03-700 4 CS at 285.7 ft (D).jpg	J 284 - 5 287
285.7	945	HSV								2	5	CITY OF ARVIN-03-7005-03-700 4 HSV at 285.7 ft (D).jpg	" "
285.7	957	BSV								6	9	CITY OF ARVIN-03-7005-03-700 4 BSV at 285.7 ft (D).jpg	" "
287.0	979	MGP										CITY OF ARVIN-03-7005-03-700 4 MGP at 287.0 ft (D).jpg	DROP INVERT
288.7	1019	AMH										CITY OF ARVIN-03-7005-03-700 4 AMH at 288.7 ft (D).jpg	SURVEY COMPLETE

Rec:
1) [redacted] Survey abandoned at tap, but generally pipe was okay besides some cracks
2) Spot repair J152 - J158 (6')
• CIPP if possible

Murgreen Environmental Company
Tracy, CA 95376
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Fax: 209-340-0158

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-7003--03-7002	2016/12/21	11:14	WALNUT DR	ARVIN,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-7003			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-7002					D		6

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				177.4			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	3	AMH									CITY OF ARVIN-03-7003-03-700 2 AMH at 0.0 ft (D).jpg	START
0.0	18	MWL					5					10 %
0.0	18	VC									CITY OF ARVIN-03-7003-03-700 2 VC at 0.0 ft (D).jpg	
0.6	40	TFA			4				9		CITY OF ARVIN-03-7003-03-700 2 TFA at 0.6 ft (D).jpg	
3.5	61	TFA			4				3		CITY OF ARVIN-03-7003-03-700 2 TFA at 3.5 ft (D).jpg	
7.6	92	DAG S	S01				10		4	8	CITY OF ARVIN-03-7003-03-700 2 DAGS at 7.6 ft (D).jpg	
23.9	139	CM							6	10	CITY OF ARVIN-03-7003-03-700 2 CM at 23.9 ft (D).jpg	J24 - J27

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Fax: 209-340-0158
Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/21	03-7003	03-7003--03-7002	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
49.8	325	TFA				4				3		CITY OF ARVIN-03-7003-03-700 2 TFA at 49.8 ft (D).jpg	
71.2	572	TFC				4				4		CITY OF ARVIN-03-7003-03-700 2 TFC at 71.2 ft (D).jpg	
101.9	660	TBA				4				3		CITY OF ARVIN-03-7003-03-700 2 TBA at 101.9 ft (D).jpg	
104.4	670	TFC				4				9		CITY OF ARVIN-03-7003-03-700 2 TFC at 104.4 ft (D).jpg	
124.4	788	CM								2	5	CITY OF ARVIN-03-7003-03-700 2 CM at 124.4 ft (D).jpg	
154.4	890	TBA				4				3		CITY OF ARVIN-03-7003-03-700 2 TBA at 154.4 ft (D).jpg	
154.4	890	BSV								1	4		J152 - J158 (6')
154.4	890	CM								1	6	CITY OF ARVIN-03-7003-03-700 2 CM at 154.4 ft (D).jpg	" ↓ "
158.7	938	CM								4	10	CITY OF ARVIN-03-7003-03-700 2 CM at 158.7 ft (D).jpg	
172.1	999	TFC				4				9		CITY OF ARVIN-03-7003-03-700 2 TFC at 172.1 ft (D).jpg	
177.3	1083	TBA				4				9			
177.4	1160	DAG S		F01				10		4	7		
177.4	1160	MSA											CAMERA CAUGHT ON BREAK IN TAP

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	0	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12018	Surveyor:	JJC	PSR:	03-7004 to 03-7001
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Hood St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS23-731
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 03-7004 DS MH: 03-7001 Total Length Surveyed (ft): 324

GEPP Lining
- 27.6 - 30.6
- 88.5 - 89

Joint every 3 ft (start at 5)

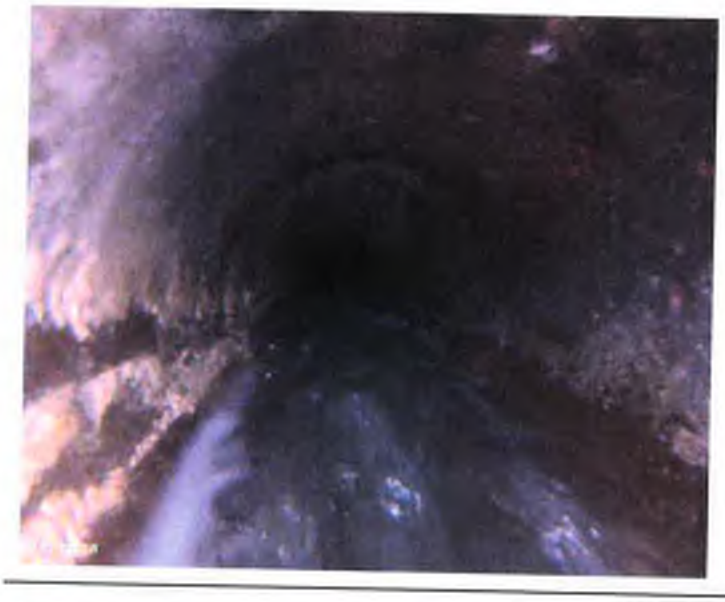
03-7004

Camera Direction

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level	13	NA
8.86	VC	Vermin Cockroach	39	M 1
24.46	OBJ	Obstacle In Joint	81	M 3
27.65	CL	Crack Longitudinal J27.6 - 30.6 25%	97	S 2
30.6	RFJ	Roots Fine Joint 25%	112	M 1
33.84	SSS	Surface Spalling	129	S 2
50.25	MGP	General Photo 30%	172	NA
68.47	TFC	Tap Factory Capped 40%	217	NA
82.11	MWL	Water Level 50%	253	NA
86.54	FC	Fracture Circumferential	270	S 2
86.54	CC	Crack Circumferential 86 - 89 J86	280	S 1
96.42	TFC	Tap Factory Capped 40%	309	NA
100.13	MGP	General Photo	325	NA
110.8	SSS	Surface Spalling	355	S 2
139.73	TFC	Tap Factory Capped 10%	422	NA
140.62	MWL	Water Level	432	NA
142.46	CC	Crack Circumferential J142	444	S 1
150.34	MGP	General Photo 20%	469	NA
162.45	MWL	Water Level 10%	502	NA
167.2	SSS	Surface Spalling J167	519	S 2
167.2	MWL	Water Level	529	NA
169.73	SSS	Surface Spalling 30%	542	S 2
183.92	DAGS	Deposits Attached Grease 25%	581	M 3
192.04	SSS	Surface Spalling	607	S 2
199.97	MGP	General Photo	633	NA
223.1	FM	Fracture Multiple J223 - 226 WL=40%	687	S 4
223.58	TFA	Tap Factory Active	697	NA
250.31	MGP	General Photo	760	NA
256.23	MWL	Water Level	780	NA
269.81	CM	Crack Multiple J270 - 273	815	S 3
282.02	VC	Vermin Cockroach	849	M 1
282.02	MWL	Water Level 40%	859	NA
300.67	MGP	General Photo 50%	904	NA
319.35	CM	Crack Multiple J319 - 322	950	S 3
322.6	FS	Fracture Spiral	966	S 3
322.6	CL	Crack Longitudinal	975	S 2
322.87	HSV	Hole Soil Visible	986	S 5
323.11	FC	Fracture Circumferential	995	S 2
323.11	LL	Alignment Left	1003	M 2

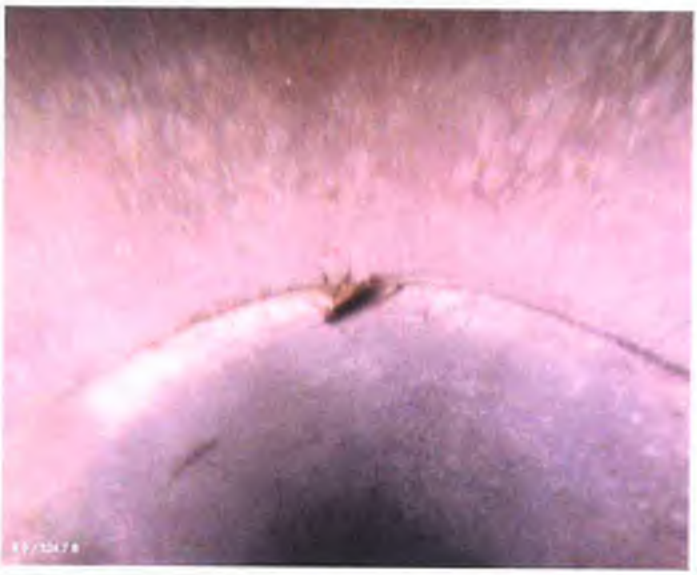
10 ft

12 ft



PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

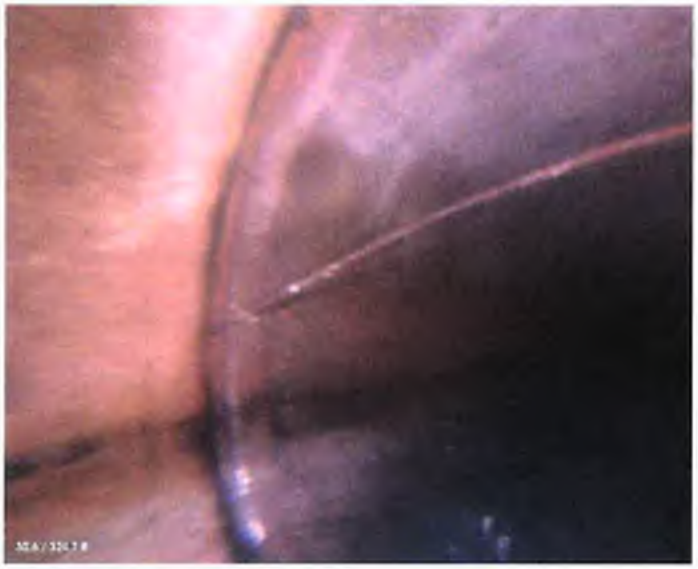
PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



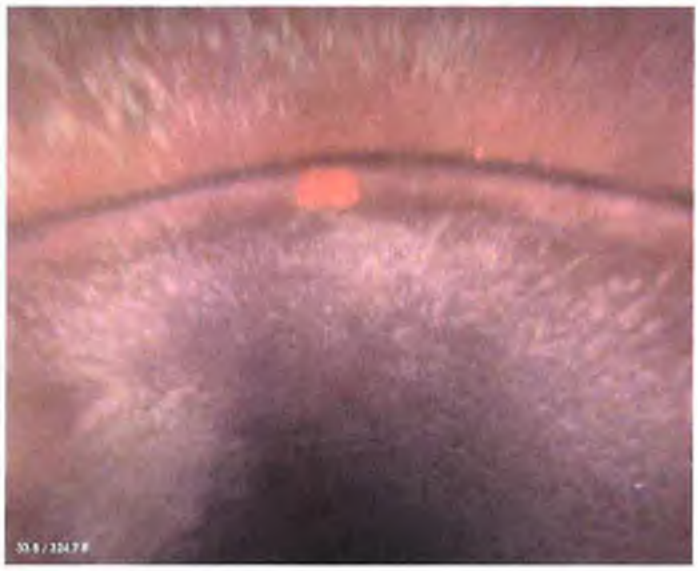
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	8.86
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	OBJ
Description:	Obstacle In Joint
Distance (ft):	24.46
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	8
Clock To:	9
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Stick caught in joint

PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	27.65
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



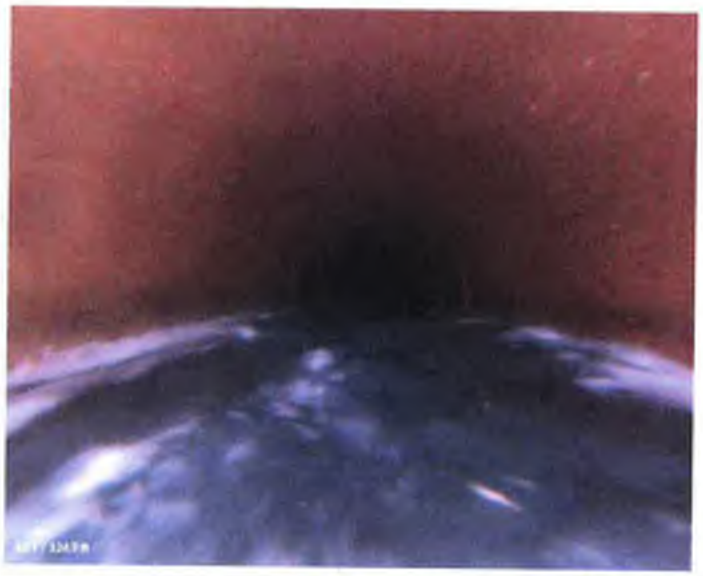
PACP Code:	RFJ
Description:	Roots Fine Joint
Distance (ft):	30.6
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	33.84
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

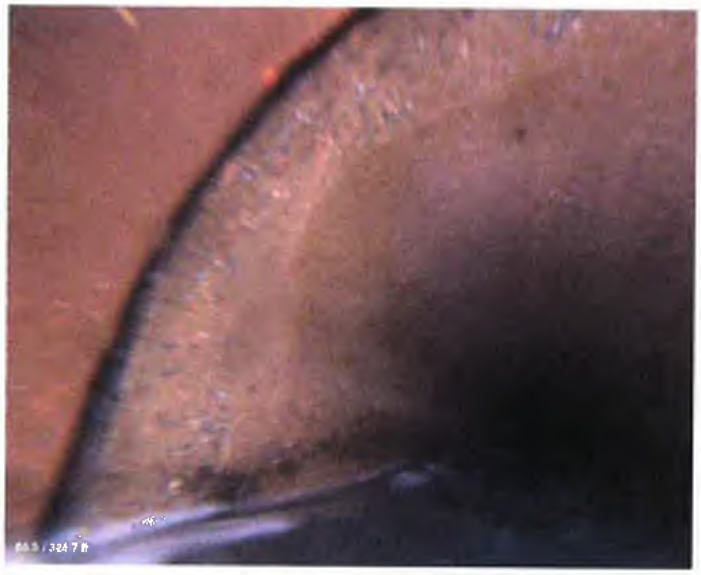
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.25
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	68.47
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

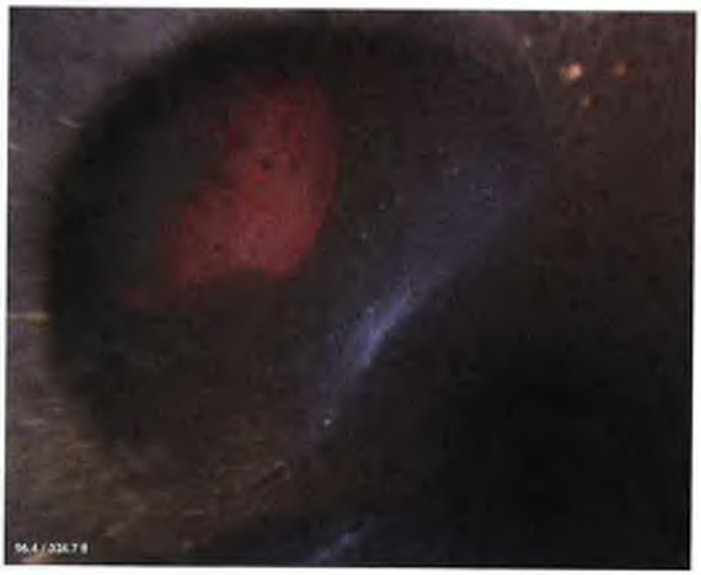


PACP Code:	MWL
Description:	Water Level
Distance (ft):	82.11
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	FC
Description:	Fracture Circumferential
Distance (ft):	86.54
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



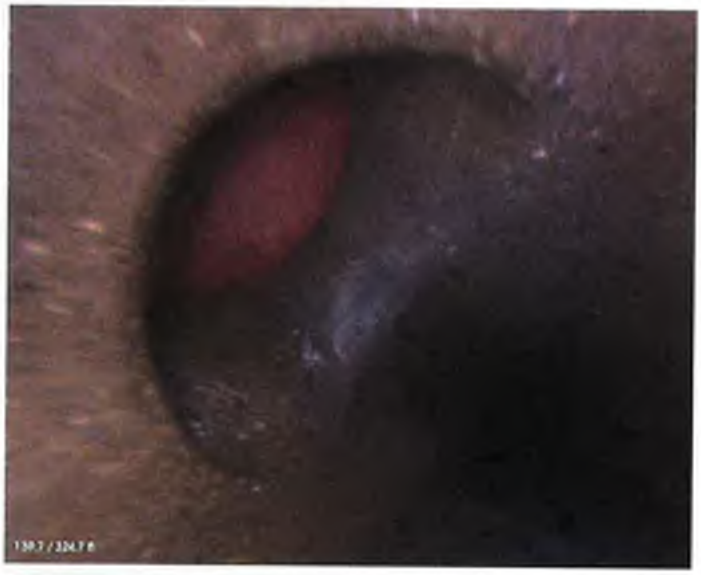
PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	86.54
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	9
Clock To:	11
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	96.42
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

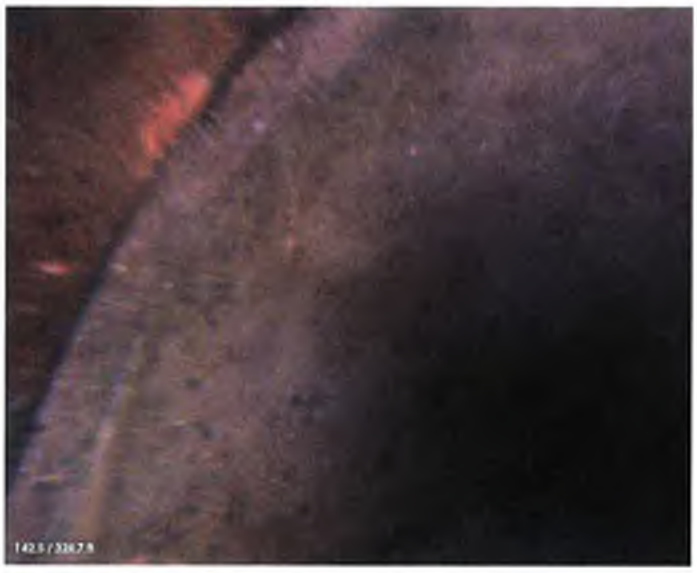
PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.13
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	110.8
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	9
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TFC
Description:	Tap Factory Capped
Distance (ft):	139.73
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	140.62
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



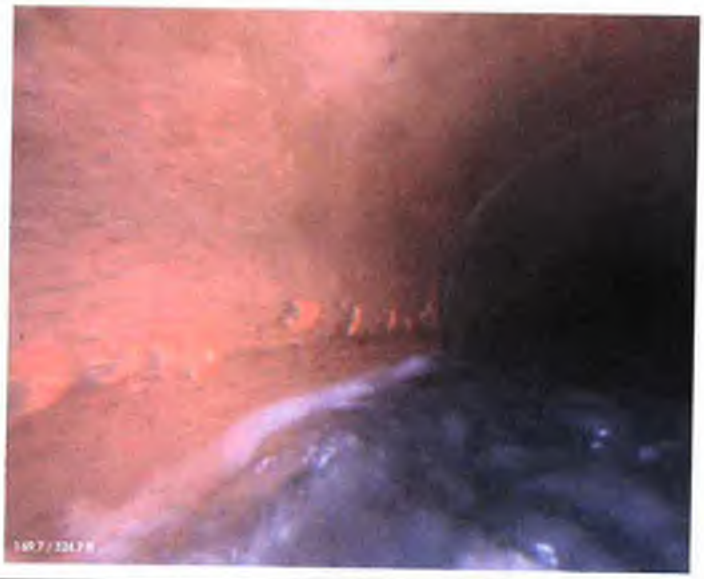
PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	142.46
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	9
Clock To:	10
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.34
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	162.45
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

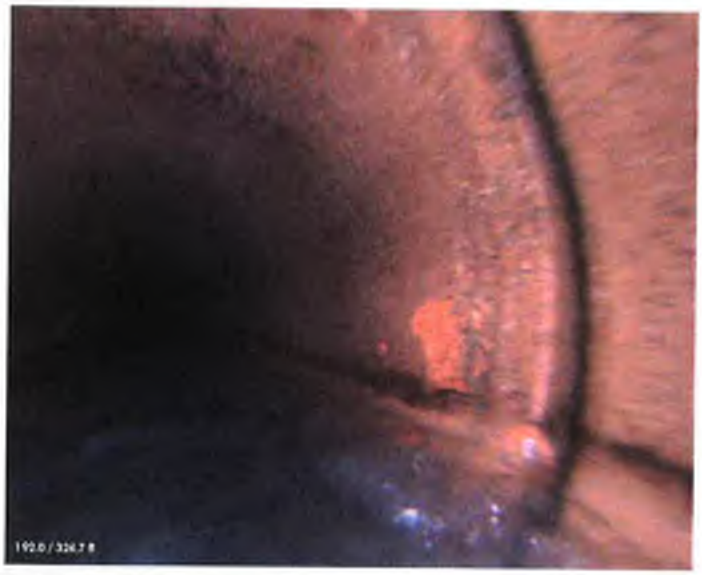
PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	167.2
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	167.2
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	169.73
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

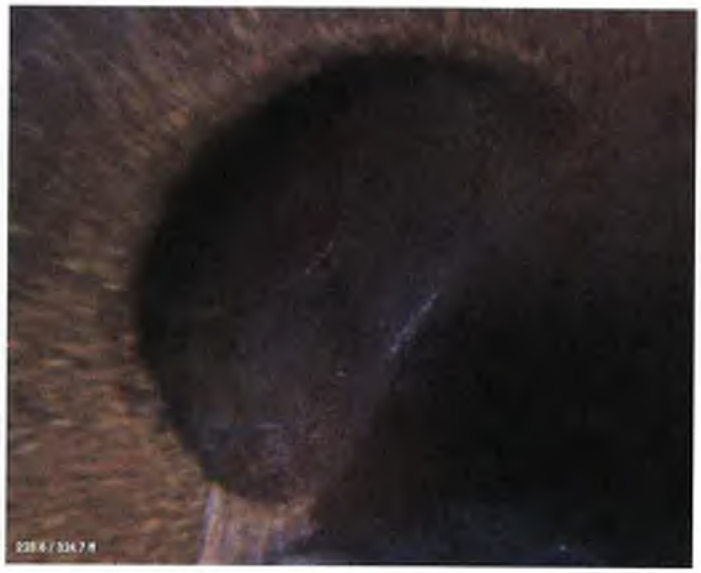
PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	183.92
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	192.04
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	3
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	199.97
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

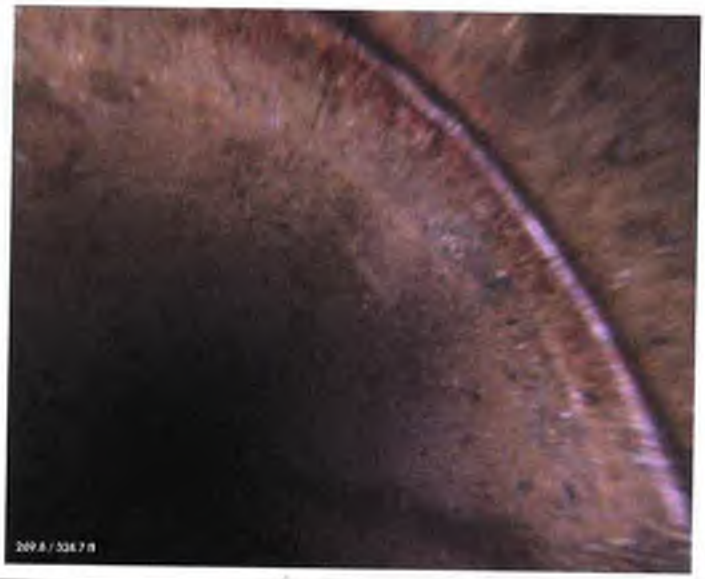
PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	223.1
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	10
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	223.58
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.31
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	256.23
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

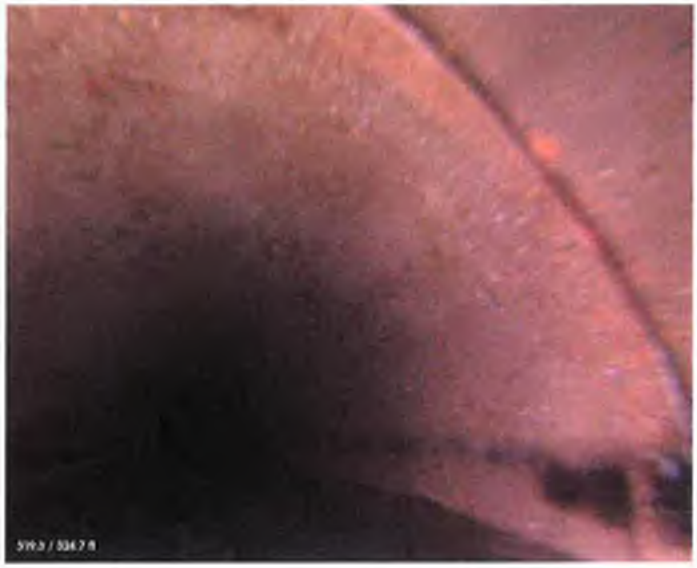


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	269.81
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	1
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

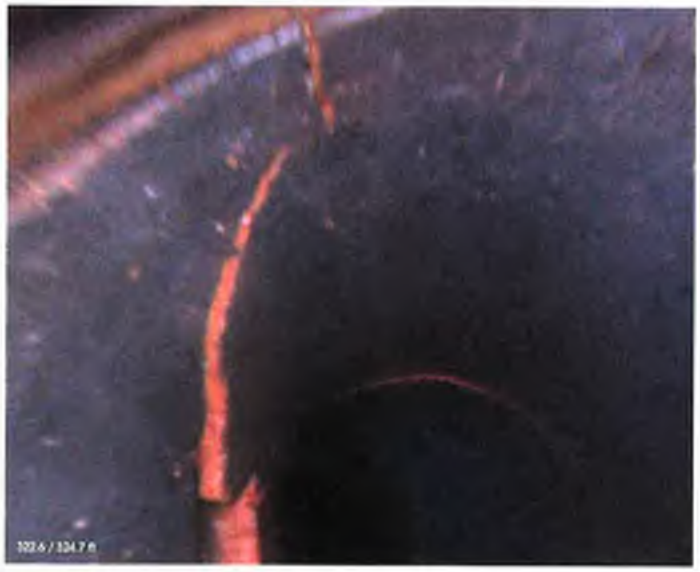
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	282.02
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	282.02
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

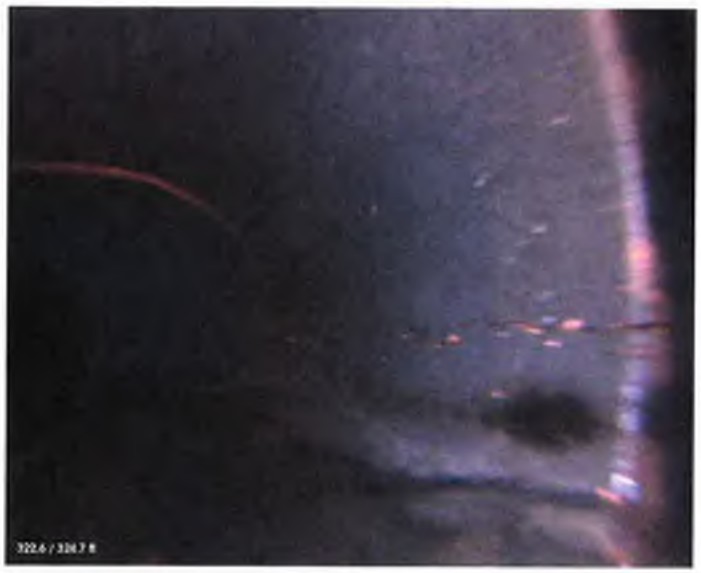
PACP Code:	MGP
Description:	General Photo
Distance (ft):	300.67
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	319.35
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	12
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

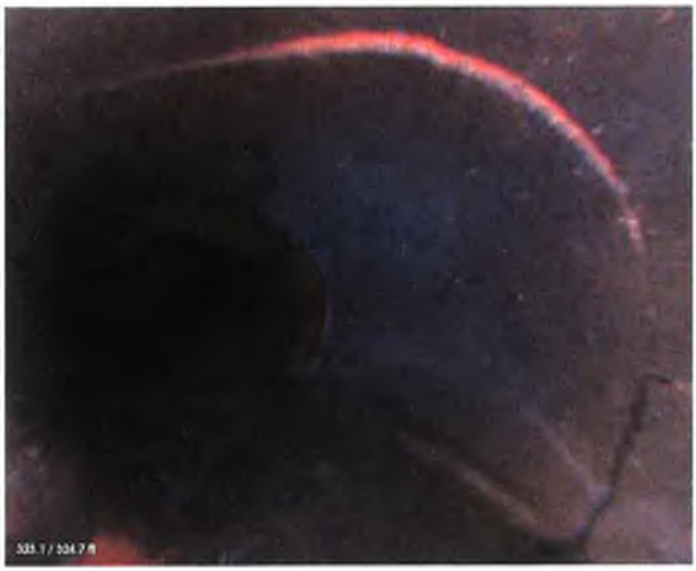


PACP Code:	FS
Description:	Fracture Spiral
Distance (ft):	322.6
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	11
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

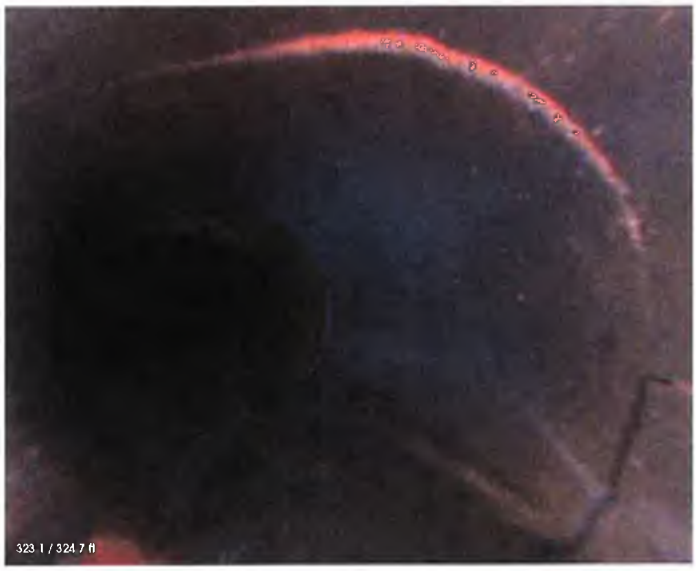


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	322.6
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

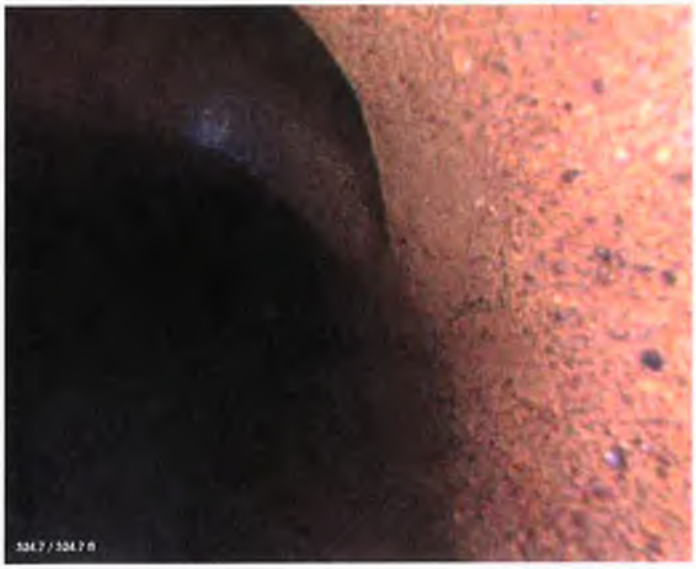
PACP Code:	HSV
Description:	Hole Soil Visible
Distance (ft):	322.87
Structural Grade:	5
O&M Grade:	NA
Clock Start/From:	7
Clock To:	9
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



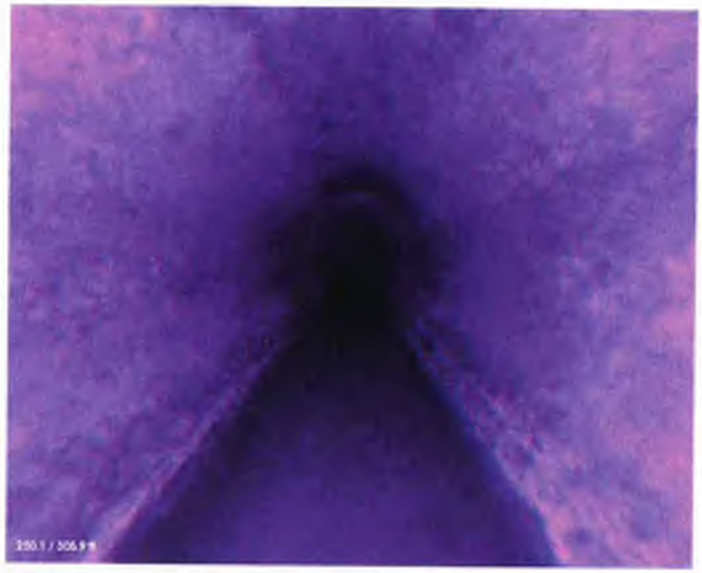
PACP Code:	FC
Description:	Fracture Circumferential
Distance (ft):	323.11
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	6
Clock To:	6
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



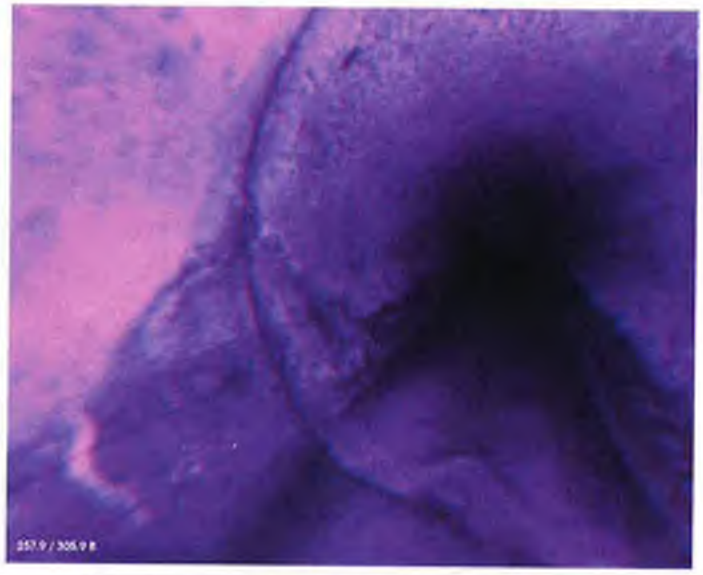
PACP Code:	LL
Description:	Alignment Left
Distance (ft):	323.11
Structural Grade:	NA
O&M Grade:	2
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MSA
Description:	Abandoned Survey
Distance (ft):	324.69
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Caught in bend

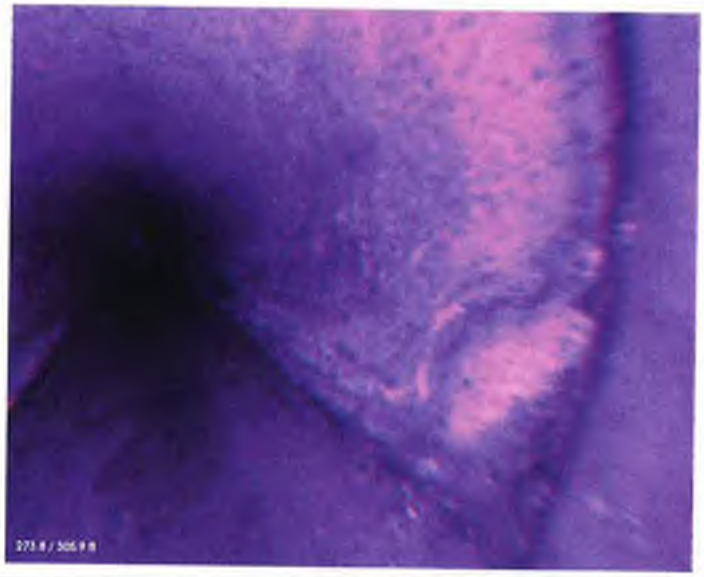


PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.09
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

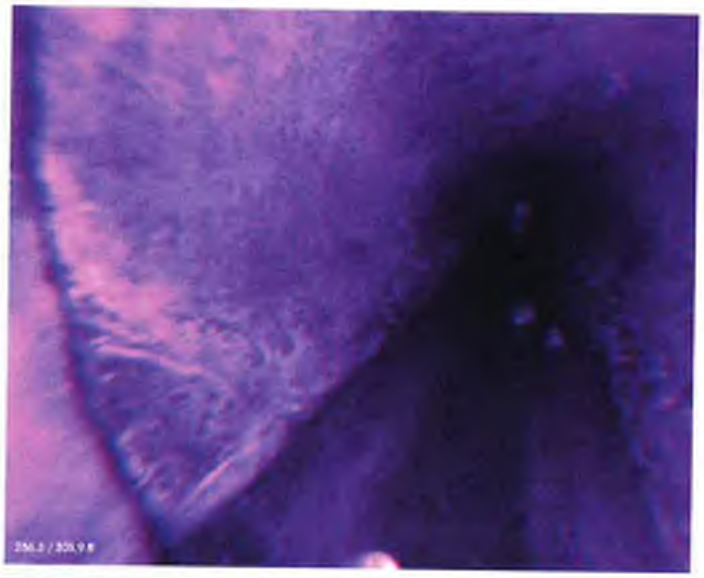


PACP Code:	CS
Description:	Crack Spiral
Distance (ft):	257.9
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	8
Clock To:	9
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	261.74
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

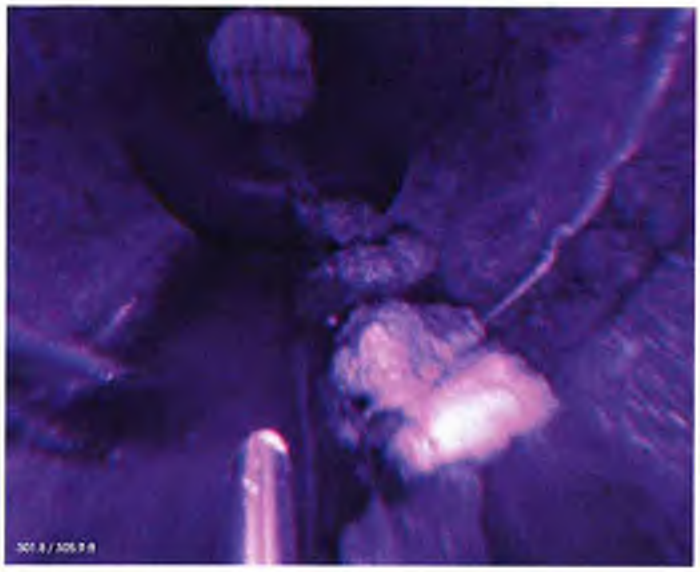


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	273.76
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	3
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	286.3
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	8
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	295.4
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	DSC
Description:	Deposits Settled Compacted
Distance (ft):	301.84
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	5
Clock To:	6
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	OBZ
Description:	Obstacle Other
Distance (ft):	301.84
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	6
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Stick

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	302.5
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	6
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/29/2009	Weather:	Dry		
Pipe Length (ft):	162	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12018	Surveyor:	JJC	PSR:	03-7014 to 03-7009
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Hood St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS11-1202
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 03-7014 DS MH: 03-7009 Total Length Surveyed (ft): 162

03-7014

Joint 9 slightly dislocated (Turb)

J34 - slight dislocation - roots

J81-84 Surface spalling

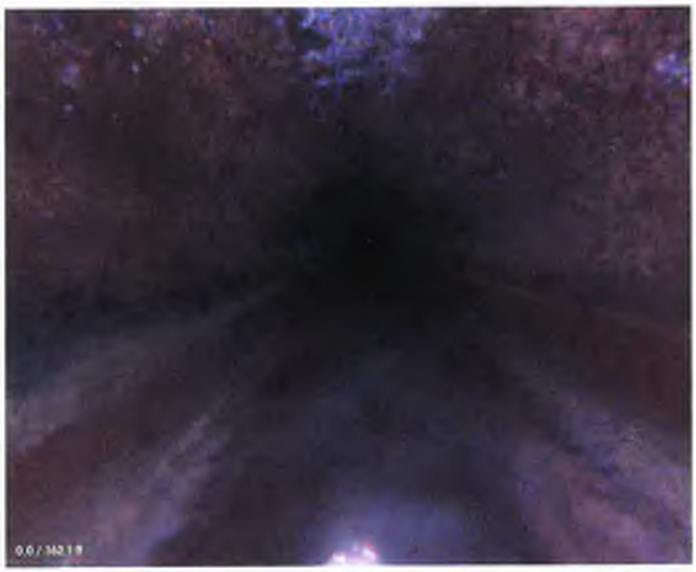
Camera Direction

03-7009

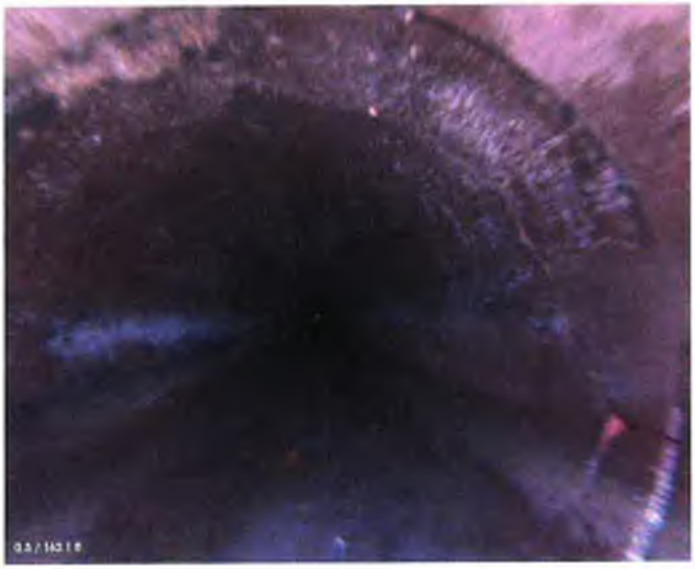
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level	13	NA
0.34	CM	Crack Multiple Joint (Begin-6) WL = 20%	22	S 3
7.82	CL	Crack Longitudinal J(6-9) => WL = 20%	45	S 2
9.63	CC	Crack Circumferential J(9-12) WL = 25	58	S 1
18.51	CL	Crack Longitudinal J(18-21) WL = 30	84	S 2
39.23	MWL	Water Level WL = 30%	135	NA
50.59	MGP	General Photo WL = 30%	166	NA
90.28	VC	Vermin Cockroach	253	M 1
96.49	SSS	Surface Spalling WL = 30%	276	S 2
100.62	MGP	General Photo (turbulent WL = 20%	294	NA
107.45	MWL	Water Level WL = 30%	316	NA
146.23	CC	Crack Circumferential J146-149	402	S 1
150.54	MGP	General Photo	419	NA
155.61	VC	Vermin Cockroach WL = 15	437	M 1
155.61	MWL	Water Level WL = 15	447	NA
162.14	AMH	Manhole	468	NA

- Cleaning!!
- fast waterflow / turbulent @ 100
- deposits high on pipe
- hydraulic analysis
- dependent on current conditions, Pipe Bursting (utilities not a risk) or CIPP

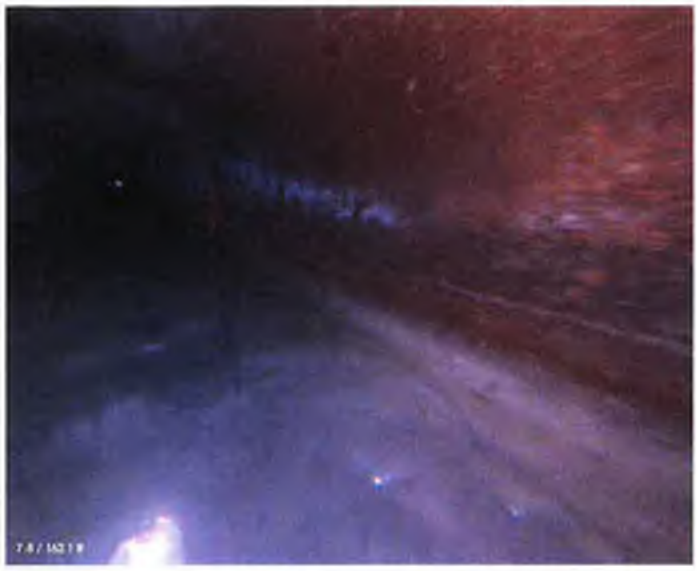
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

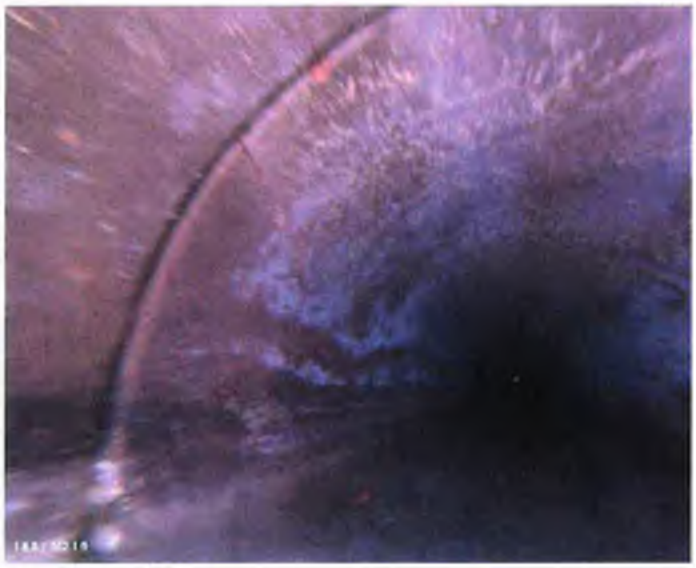


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	0.34
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	9
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

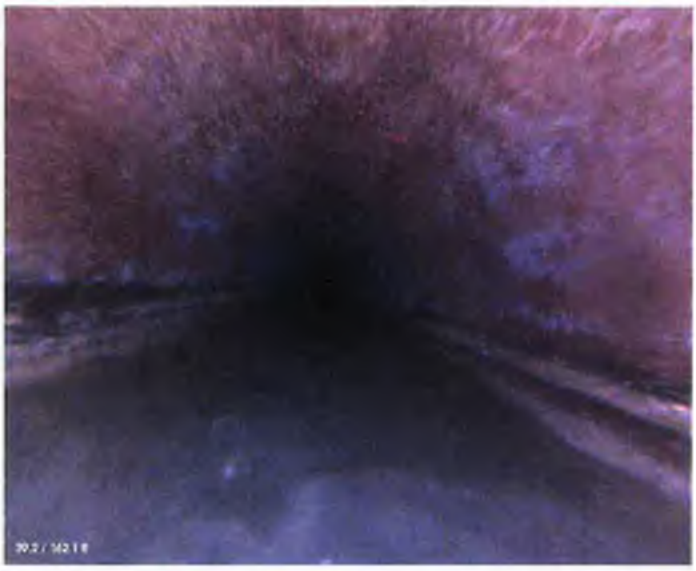


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	7.82
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	4
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	9.63
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	9
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	18.51
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

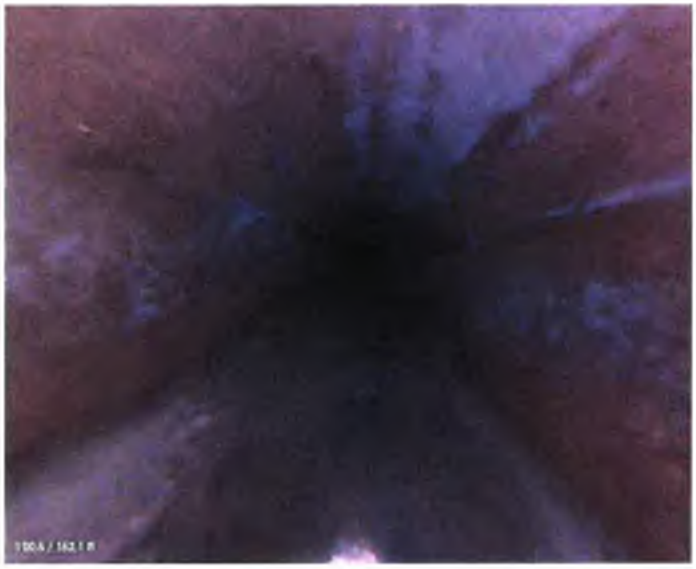


PACP Code:	MWL
Description:	Water Level
Distance (ft):	39.23
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

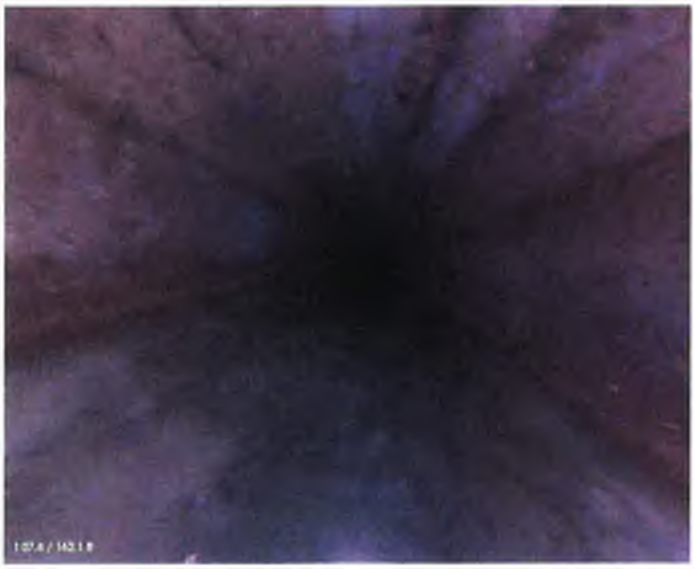
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.59
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	90.28
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

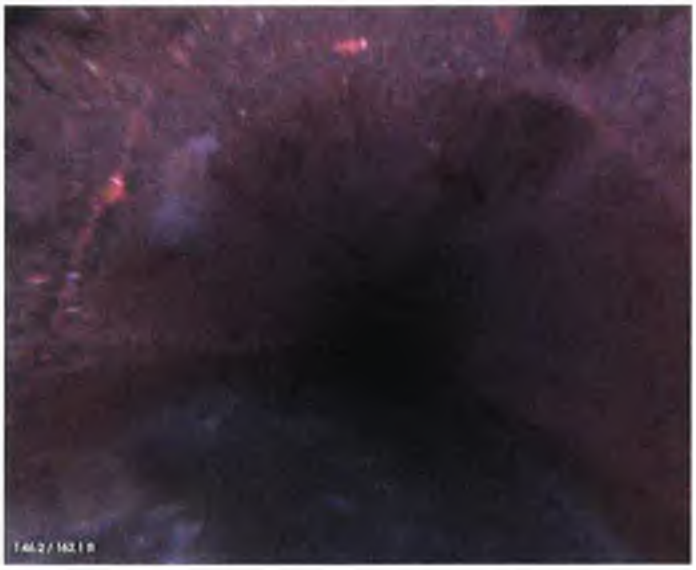
PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	96.49
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



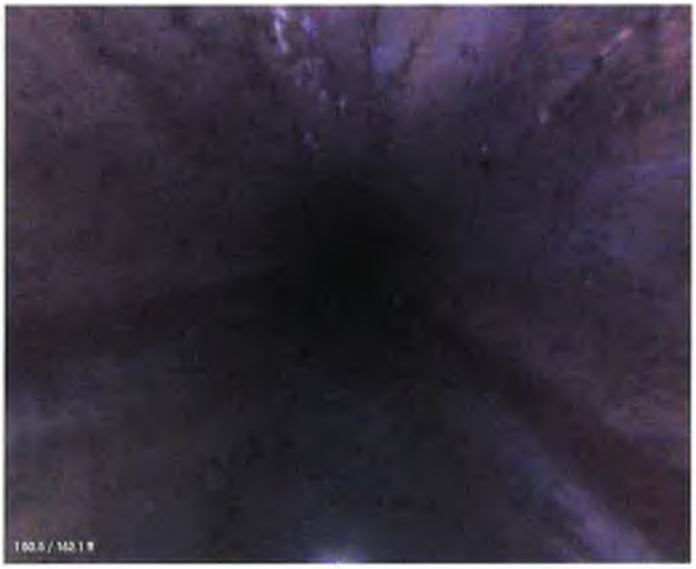
PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.62
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level
Distance (ft):	107.45
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

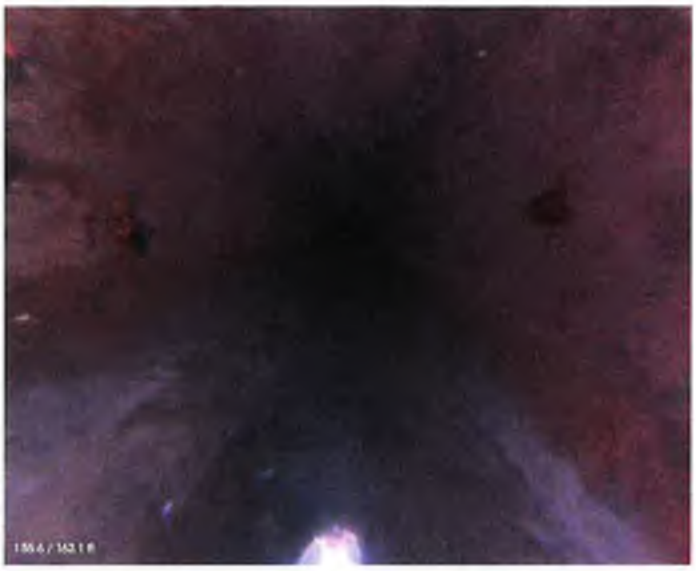


PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	146.23
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	7
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.54
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	155.61
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level
Distance (ft):	155.61
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	162.14
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Report didn't Match

CIPP Lining 307'

03-7016 to 03-7015

Rec: Cracks at almost every joint, Multiple sags - Not signifigant WL rise

~~Full open trench replacement; 307 feet~~

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-7016 to 03-7015

Street: Walker St. Alley
City:
Use:

Flow Control:
Dia/Height (in): 8"
Material: VCP

Survey Direction:

US Manhole:

DS Manhole:

Total Length Surveyed: 307'

Position	Code	Observation	Video (sec)	Grade	
0'	AMH	Start		N/A	
0'	MWL	5%		N/A	
2'	VL	Cockroach		N/A	
3.8'	CL			S1	J4-J7
3.8'	B	Joint		S3	
3.8'	H	VV, J		S4	
6.6'	CM	J		S3	J7-J10
7.6'	TFA			N/A	
12.9'	CM	J13		S2	
13'	MWLS	Sag J13 → J22 (9')		S4	
22.9'	TFA			N/A	
31.7'	CC			S2	
50.2'	CM	J		S2	
62.4'	CS			S2	
~~[illegible]~~					
68.5'	CM	J		S3	
69.1'	TFA			N/A	
72.4'	TFA			N/A	
74.7'	CC			S2	
90.8'	TFA			N/A	
93.3'	CM	J		S2	
105.8'	CM	J		S2	
117.9'	CM	J		S2	
118.7'	TFA			N/A	
127.1'	CC	J		S2	
149.7'	TFA			N/A	
155.6'	TFA			N/A	
158'	MWLS	Sag J158 → J167 (9')		S4	
164.3'	CC	J		S2	
176.4'	CL	J		S2	
182.7'	CL	J		S2	
192.7'	TFA			N/A	
196.1'	TFA			N/A	
198.1'	CM	J		S3	
201.9'	CS	J		S2	
204.7'	CC	J		S2	
210.9'	CS	J		S2	

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-7016--03-7015	2016/11/14	14:37	WALKER ST ALLEY	CITY OF ARVIN

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-7016			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-7015					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				2.0			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	21	AMH									CITY OF ARVIN-03-7016-03-7015 AMH at 0.0 ft (D).jpg	START .TOP VIEW OF MH
0.0	77	MWL					5				CITY OF ARVIN-03-7016-03-7015 MWL at 2.0 ft (D).jpg	
2.0	94	DSG V					35		4	8		
2.0	118	MSA										SURVEY ABANDONED.CAMERA CANT GET PAST DIRT ON INVERT

↳ See Next Page for re-run

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158

Doesn't Match Video

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-7016--03-7015	2016/11/14	15:04	WALKER ST ALLEY	CITY OF ARVIN

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-7016			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-7015					U		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				299.3			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	3	AMH										START .REVERSAL
0.0	3	MWL					5 %				CITY OF ARVIN-03-7016-03-701 5 MWL at 0.0 ft (U).jpg	
0.0	14	VC									CITY OF ARVIN-03-7016-03-701 5 VC at 0.0 ft (U).jpg	
0.1	61	TFA			4				9		CITY OF ARVIN-03-7016-03-701 5 TFA at 0.1 ft (U).jpg	
0.1	92	CM							7	10	CITY OF ARVIN-03-7016-03-701 5 CM at 0.1 ft (U).jpg	
5.7	122	TFA			4				3		CITY OF ARVIN-03-7016-03-701 5 TFA at 5.7 ft (U).jpg	
15.5	199	CC							1	5	CITY OF ARVIN-03-7016-03-701 5 CC at 15.5 ft (U).jpg	

Murgreen Environmental Company
Tracy, CA 95376
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Fax: 209-340-0158
Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/14	03-7016	03-7016--03-7015	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
31.2	251	TFA				4				3		CITY OF ARVIN-03-7016-03-701 5 TFA at 31.2 ft (U).jpg	
65.3	311	TFA				4				9		CITY OF ARVIN-03-7016-03-701 5 TFA at 65.3 ft (U).jpg	
105.1	391	TFA				4				9		CITY OF ARVIN-03-7016-03-701 5 TFA at 105.1 ft (U).jpg	
108.5	419	TFA				4				3		CITY OF ARVIN-03-7016-03-701 5 TFA at 108.5 ft (U).jpg	
145.9	489	TFA				4				9		CITY OF ARVIN-03-7016-03-701 5 TFA at 145.9 ft (U).jpg	
151.9	521	TFA				4				3		CITY OF ARVIN-03-7016-03-701 5 TFA at 151.9 ft (U).jpg	
180.0	571	MWL S						20					
180.0	571	DSZ						15		5	7	CITY OF ARVIN-03-7016-03-701 5 DSZ at 180.0 ft (U).jpg	GREASE AND DIRT
182.9	591	TFA				4				3		CITY OF ARVIN-03-7016-03-701 5 TFA at 182.9 ft (U).jpg	
211.2	643	TFA				4				9		CITY OF ARVIN-03-7016-03-701 5 TFA at 211.2 ft (U).jpg	
229.7	682	TFA				4				3		CITY OF ARVIN-03-7016-03-701 5 TFA at 229.7 ft (U).jpg	
229.7	697	DAG S						10		5	7	CITY OF ARVIN-03-7016-03-701 5 DAGS at 229.7 ft (U).jpg	
233.0	716	TFA				4				9		CITY OF ARVIN-03-7016-03-701 5 TFA at 233.0 ft (U).jpg	

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Phone: 209-207-3620
Fax: 209-340-0158
Fax: 407-425-1569

Surveyed by: Tom Eckert
Owner:
Start date/time: 2016/11/14
Upstream manhole No: 03-7016
Pipeline segment ref: 03-7016--03-7015
Sheet number:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
279.6	830	TFA				4				9		CITY OF ARVIN-03-7016-03-701 5 TFA at 279.6 ft (U).jpg	
286.2	854	MWL						5				CITY OF ARVIN-03-7016-03-701 5 MWL at 286.2 ft (U).jpg	
295.1	883	TFA				4				3		CITY OF ARVIN-03-7016-03-701 5 TFA at 295.1 ft (U).jpg	
298.2	907	DSG V						25		4	8		
298.2	907	OBN						35		3	8	CITY OF ARVIN-03-7016-03-701 5 OBN at 298.2 ft (U).jpg	
299.3	924	MSA											SURVEY ABANDONED.DEBRIS BLOCKING CAMERA PATH

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/29/2009	Weather:	Dry		
Pipe Length (ft):	333	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12018	Surveyor:	JJC	PSR:	03-7019 to 03-7014
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Hood St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS9-846
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Upstream

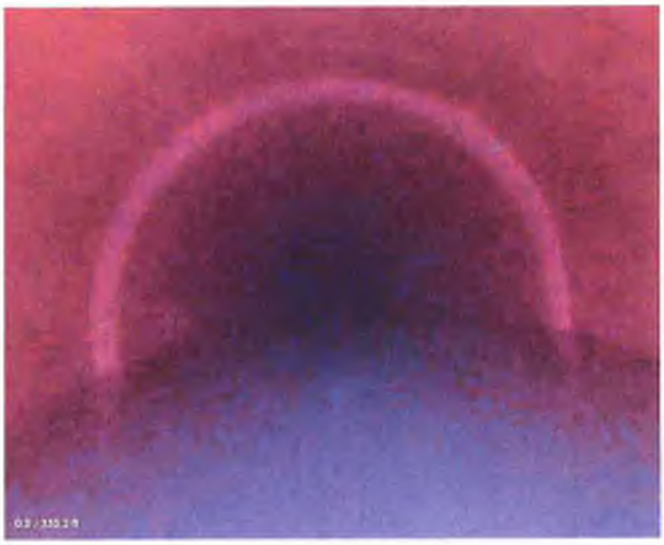
US MH: 03-7019 DS MH: 03-7014 Total Length Surveyed (ft): 333

Joint every 3

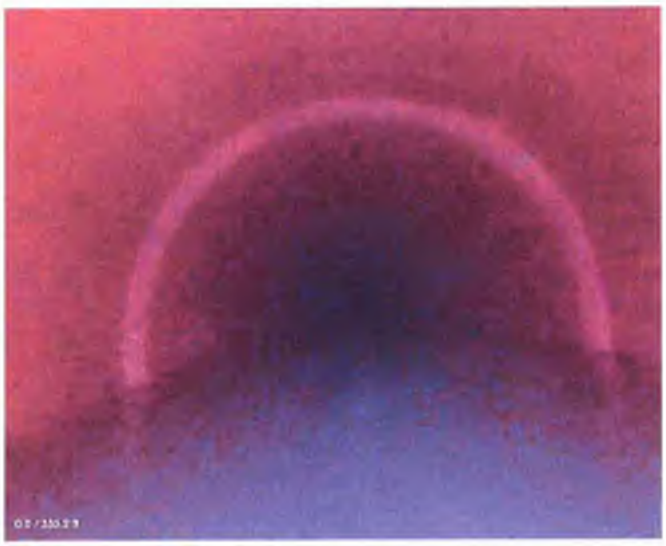
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level 50%	13	NA
48.85	SSS	Surface Spalling J49 - 52	119	S 2
67.62	CL	Crack Longitudinal	167	S 2
72.59	MCU	Camera Underwater @ Joint	187	M 4
100.47	MGP	General Photo	251	NA
333.24	MSA	Abandoned Survey	725	NA

- tons of various spalling
- underwater @ 160 – 220
- Contact camera w water the whole time

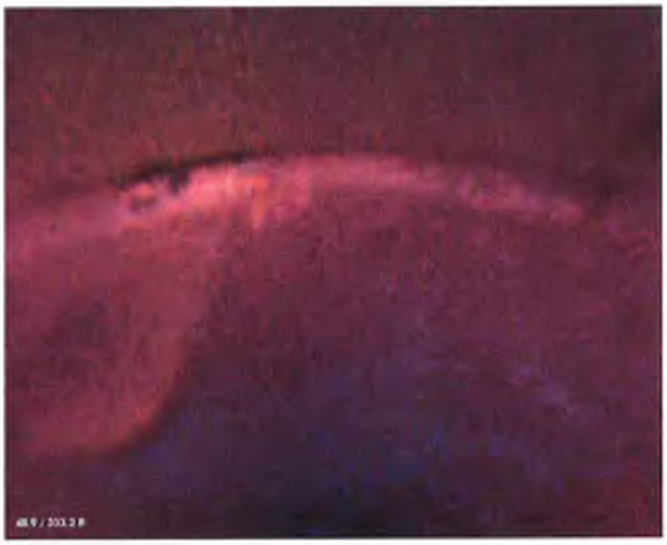
OPEN TRENCH Replacement



PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

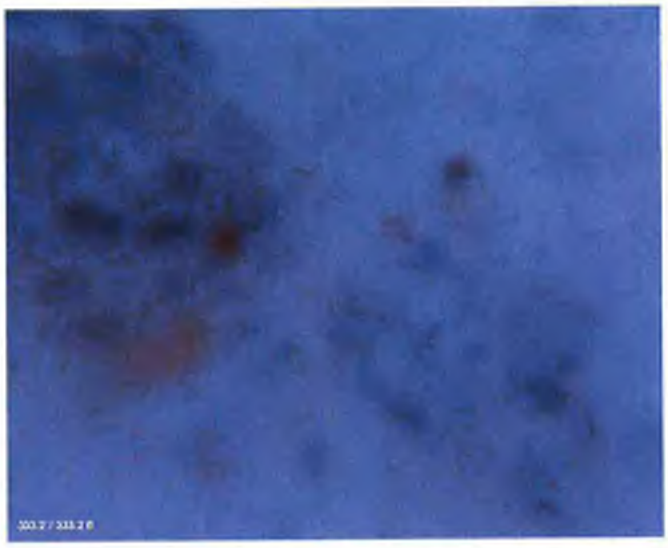


PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	48.85
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	67.62
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	72.59
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.47
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MSA
Description:	Abandoned Survey
Distance (ft):	333.24
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Mobility

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158

Rec: CIPP Lining Full (305')

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	j-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-7020--037019	2016/11/17	14:41	GROVE ST ALLEY	CITY OF ARVIN

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-7020			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-7019	10.0				D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				305.3			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:	Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	27	AMH									CITY OF ARVIN-03-7020-03-701 9 AMH at 0.0 ft (D).jpg	START .2ND ATTEMPT AFTER MSA'S AT BOTH ENDS OF THE SEGMENT
0.0	29	MWL					5				CITY OF ARVIN-03-7020-03-701 9 MWL at 0.0 ft (D)6.jpg	
5.7	106	CM						J	3	9	CITY OF ARVIN-03-7020-03-701 9 CM at 5.7 ft (D).jpg	J6 - J9
15.0	147	CC						J	7	11	CITY OF ARVIN-03-7020-03-701 9 CC at 15.0 ft (D).jpg	J15 - J18
16.0	163	TFA			4				3		CITY OF ARVIN-03-7020-03-701 9 TFA at 16.0 ft (D).jpg	
25.6	187	TFA			4				9		CITY OF ARVIN-03-7020-03-701 9 TFA at 25.6 ft (D).jpg	
81.9	280	TFA			4				9		CITY OF ARVIN-03-7020-03-701 9 TFA at 81.9 ft (D).jpg	

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Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/17	03-7020	03-7020--037019	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
97.6	349	TBD				4				3			
97.6	353	VR				4						CITY OF ARVIN-03-7020-03-701 9 VR at 97.6 ft (D).jpg	
137.0	432	CM							J	6	12	CITY OF ARVIN-03-7020-03-701 9 CM at 137.0 ft (D).jpg	J137 - J140
141.1	447	TFA				4				9		CITY OF ARVIN-03-7020-03-701 9 TFC at 141.1 ft (D).jpg	
144.2	465	TFC				4				3			
167.1	505	TBA				4				3		CITY OF ARVIN-03-7020-03-701 9 TBA at 167.1 ft (D).jpg	
171.4	557	CM							B-J	7	9	CITY OF ARVIN-03-7020-03-701 9 CM at 171.4 ft (D).jpg	J169- J172
180.5	594	CC							J	6	10	CITY OF ARVIN-03-7020-03-701 9 CC at 180.5 ft (D).jpg	J181- J184
202.0	641	B							J	8	10	CITY OF ARVIN-03-7020-03-701 9 B at 202.0 ft (D).jpg	J202 - J205
203.3	655	TFA				4				9		CITY OF ARVIN-03-7020-03-701 9 TFA at 203.3 ft (D).jpg	
205.6	710	CM							J	8	4	CITY OF ARVIN-03-7020-03-701 9 CM at 205.6 ft (D).jpg	J206 - J209
205.6	719	B								4	5	CITY OF ARVIN-03-7020-03-701 9 B at 205.6 ft (D).jpg	" "
205.6	728	MWL S						15					Sag J206 → J212 6'
205.6	742	DSG V						10		5	7	CITY OF ARVIN-03-7020-03-701 9 DSGV at 205.6 ft (D).jpg	

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/17	03-7020	03-7020--037019	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
206.2	756	TFA				4				3		CITY OF ARVIN-03-7020-03-701 9 TFA at 206.2 ft (D).jpg	
218.7	781	MWL						5				CITY OF ARVIN-03-7020-03-701 9 MWL at 218.7 ft (D).jpg	
226.9	811	CC							J	6	10	CITY OF ARVIN-03-7020-03-701 9 CC at 226.9 ft (D).jpg	J227 - J230
230.4	852	CS							J	12	4	CITY OF ARVIN-03-7020-03-701 9 CS at 230.4 ft (D).jpg	J230 - J233
232.9	900	CM							J	8	1	CITY OF ARVIN-03-7020-03-701 9 CM at 232.9 ft (D).jpg	J233 - J236
234.6	912	TBA				4				9		CITY OF ARVIN-03-7020-03-701 9 TBA at 234.6 ft (D).jpg	
251.5	960	CS							J	10	7	CITY OF ARVIN-03-7020-03-701 9 CS at 251.5 ft (D).jpg	J252 - J255
255.6	974	TFC				4				9		CITY OF ARVIN-03-7020-03-701 9 TFC at 255.6 ft (D).jpg	
257.7	1026	FM							J	12	4	CITY OF ARVIN-03-7020-03-701 9 FM at 257.7 ft (D).jpg	J258 - J261
258.5	1052	TFA				4				3		CITY OF ARVIN-03-7020-03-701 9 TFA at 258.5 ft (D).jpg	
303.1	1130	MGP										CITY OF ARVIN-03-7020-03-701 9 MGP at 303.1 ft (D).jpg	DROP INVERT
305.3	1154	AMH											SURVEY COMPLETE.SUCCESSFUL RE-TRY

9'

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Rec: 1) Spot Repair J-303 — J306 (3')
2) CIPP Lining Full (306')

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-7021--03-7020	2016/11/17	13:01	GROVE ST ALLEY	CITY OF ARVIN

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-7021			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-7020					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				305.8			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	31	AMH										START .2ND ATTEMPT AFTER 2ND CLEANING
0.0	31	MWL					0 No water				CITY OF ARVIN-03-7021-03-702 0 MWL at 0.0 ft (D)1.jpg	
32.7	132	TFA			4				9		CITY OF ARVIN-03-7021-03-702 0 TFA at 32.7 ft (D).jpg	
42.3	156	TFA			4				4		CITY OF ARVIN-03-7021-03-702 0 TFA at 42.3 ft (D).jpg	
62.8	208	TBA			4				9		CITY OF ARVIN-03-7021-03-702 0 TBA at 62.8 ft (D).jpg	
66.1	238	CM						J	6	10	CITY OF ARVIN-03-7021-03-702 0 CM at 66.1 ft (D).jpg	J66 - J69
88.1	338	CM						J	7	9	CITY OF ARVIN-03-7021-03-702 0 CM at 88.1 ft (D).jpg	J88 - J91

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/17	03-7021	03-7021--03-7020	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
90.5	370	TBA				4				3		CITY OF ARVIN-03-7021-03-702 0 TBA at 90.5 ft (D).jpg	
91.2	406	CM							J	1	5	CITY OF ARVIN-03-7021-03-702 0 CM at 91.2 ft (D).jpg	J91 - J94
92.1	440	TBD				4				3		CITY OF ARVIN-03-7021-03-702 0 TBD at 92.1 ft (D).jpg	
129.5	500	TFA				4				3		CITY OF ARVIN-03-7021-03-702 0 TFA at 129.5 ft (D).jpg	
131.7	539	CS							J	7	10	CITY OF ARVIN-03-7021-03-702 0 CS at 131.7 ft (D).jpg	J132 - J135
134.5	569	CM							J	6	10	CITY OF ARVIN-03-7021-03-702 0 CM at 134.5 ft (D).jpg	J135 - J138
135.6	607	TFA				4				9		CITY OF ARVIN-03-7021-03-702 0 TFA at 135.6 ft (D).jpg	
135.6	616	CS							/	8	10	CITY OF ARVIN-03-7021-03-702 0 CS at 135.6 ft (D).jpg	J135 - J138
147.0	662	CM							J	7	12	CITY OF ARVIN-03-7021-03-702 0 CM at 147.0 ft (D).jpg	J147 - J150
188.4	742	TFA				4				9		CITY OF ARVIN-03-7021-03-702 0 TFA at 188.4 ft (D).jpg	
200.7	770	TFA				4				3		CITY OF ARVIN-03-7021-03-702 0 TFA at 200.7 ft (D).jpg	
237.5	858	CM							J	2	10	CITY OF ARVIN-03-7021-03-702 0 CM at 237.5 ft (D).jpg	J237 - J246
247.5	906	TBA				4				8		CITY OF ARVIN-03-7021-03-702 0 TBA at 247.5 ft (D).jpg	
247.5	923	CL								8		CITY OF ARVIN-03-7021-03-702 0 CL at 247.5 ft (D).jpg	J 246 - J249

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/17	03-7021	03-7021--03-7020	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
247.5	954	CL								4		CITY OF ARVIN-03-7021-03-702 0 CL at 247.5 ft (D)2.jpg	J246 - J249
250.6	976	TFC				4				3		CITY OF ARVIN-03-7021-03-702 0 TFC at 250.6 ft (D).jpg	
274.6	1051	CM							J	3	6	CITY OF ARVIN-03-7021-03-702 0 CM at 274.6 ft (D).jpg	J275 - J278
287.4	1101	CM							J	3	6	CITY OF ARVIN-03-7021-03-702 0 CM at 287.4 ft (D).jpg	J288 - J291
297.4	1134	TFC				4				3		CITY OF ARVIN-03-7021-03-702 0 TFC at 297.4 ft (D).jpg	
299.8	41	CM							J	6	5	CITY OF ARVIN-03-7021-03-702 0 CM at 299.8 ft (D).jpg	J300 - J303
300.5	83	TFA				4				9		CITY OF ARVIN-03-7021-03-702 0 TFA at 300.5 ft (D).jpg	
302.5	129	OBZ						10		5	10	CITY OF ARVIN-03-7021-03-702 0 OBZ at 302.5 ft (D).jpg	TREE DEBRIS AND SETTLED DEBRIS
302.5	149	BSV							J	5	7		J303 - J306
302.5	177	CM								2	6	CITY OF ARVIN-03-7021-03-702 0 CM at 302.5 ft (D).jpg	
305.8	224	AMH											SURVEY COMPLETE.2ND ATTEMPT SUCCESSFUL

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Rec: open trench replacement for sag; J 235 - End (70')

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-7013--03-7014	2016/11/17	11:10	WALKER ST ALLEY	ARVIN,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-7013			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-7014					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				303.5			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	5	AMH										START
0.0	5	MWL					5					
5.2	68	TFA			4				9		CITY OF ARVIN-03-7013-03-701 4 TFA at 5.2 ft (D).jpg	
22.9	137	B							6	9	CITY OF ARVIN-03-7013-03-701 4 B at 22.9 ft (D).jpg	
42.7	193	TFA			4				9		CITY OF ARVIN-03-7013-03-701 4 TFA at 42.7 ft (D).jpg	
44.7	236	RFJ						J	2	5	CITY OF ARVIN-03-7013-03-701 4 RFJ at 44.7 ft (D).jpg	
45.7	250	TFA			4				3		CITY OF ARVIN-03-7013-03-701 4 TFA at 45.7 ft (D).jpg	

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/17	03-7013	03-7013--03-7014	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
47.8	298	CM								2	5	CITY OF ARVIN-03-7013-03-701 4 CM at 47.8 ft (D).jpg	
108.2	422	TFA				4				3		CITY OF ARVIN-03-7013-03-701 4 TFA at 108.2 ft (D).jpg	
111.5	442	TFA				4				9		CITY OF ARVIN-03-7013-03-701 4 TFA at 111.5 ft (D).jpg	
112.2	511	CC								12	11	CITY OF ARVIN-03-7013-03-701 4 CC at 112.2 ft (D).jpg	
139.4	583	TFA				4				9		CITY OF ARVIN-03-7013-03-701 4 TFA at 139.4 ft (D).jpg	
145.4	604	TFA				4				3		CITY OF ARVIN-03-7013-03-701 4 TFA at 145.4 ft (D).jpg	
160.1	651	CC								6	10	CITY OF ARVIN-03-7013-03-701 4 CC at 160.1 ft (D).jpg	
161.1	667	TFC				4				9		CITY OF ARVIN-03-7013-03-701 4 TFC at 161.1 ft (D).jpg	
164.1	685	TFC				4				3		CITY OF ARVIN-03-7013-03-701 4 TFC at 164.1 ft (D).jpg	
166.3	725	CC								1	5	CITY OF ARVIN-03-7013-03-701 4 CC at 166.3 ft (D).jpg	
178.1	765	DAG S		S01				10		2	10	CITY OF ARVIN-03-7013-03-701 4 DAGS at 178.1 ft (D).jpg	
195.3	803	TFA				4				3			
213.6	845	TFA				4				9		CITY OF ARVIN-03-7013-03-701 4 TFA at 213.6 ft (D).jpg	
232.3	885	TFA				4				9		CITY OF ARVIN-03-7013-03-701 4 TFA at 232.3 ft (D).jpg	

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/17	03-7013	03-7013--03-7014	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
234.2	908	CC								2	5	CITY OF ARVIN-03-7013-03-701 4 CC at 234.2 ft (D).jpg	J235 - J238
235.2	930	TFA				4				3			
247.8	962	MWL S						15				CITY OF ARVIN-03-7013-03-701 4 MWLS at 247.8 ft (D).jpg	Sag J235 - End (~70')
268.5	1050	CM								6	1	CITY OF ARVIN-03-7013-03-701 4 CM at 268.5 ft (D).jpg	
280.7	1084	DSG V						10		5	7	CITY OF ARVIN-03-7013-03-701 4 DSGV at 280.7 ft (D).jpg	
303.5	1140	DAG S		F01				10		2	10		
303.5	1140	AMH											SURVEY COMPLETE

Rec: 1) Spot repair Sag J106-J112 (6')
2) CIPP Lining all (304')
• Consistent cracking throughout

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PACP Sewer Report

Surveyed by:	Tom Eckert
Certificate No:	J-51406021419
Owner:	
Survey Customer:	VEOLIA ARVIN
Drainage area:	
Sheet number:	
Work order:	
Pipeline segment ref:	03-7012--03-7013
Start date/time:	2016/11/17 08:45
Street:	WALKER ST ALLEY
City:	ARVIN,CA.
Location details:	
Upstream manhole No:	03-7012
Rim to invert:	
Grade to invert:	
Rim to grade:	
Downstream manhole No:	03-7013
Rim to invert:	
Grade to invert:	
Rim to grade:	
Sewer use:	
Direction:	U
Flow control:	
Height:	8
Width:	
Shape:	C
Material:	VCP
Ln. method:	
Pipe joint length:	
Total length:	
Length surveyed:	304.1
Year laid:	
Year renewed:	
Media label:	
Purpose:	
Sewer category:	
Pre-cleaning	J
Date cleaned:	
Weather:	
Location code:	
Additional info:	
Easting:	
Northing:	
Elevation:	
Coordinate system:	
GPS accuracy:	

Starting access point:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	2	AMH									CITY OF ARVIN-03-7012-03-701 3 AMH at 0.0 ft (U).jpg	START
0.0	16	MWL					5				CITY OF ARVIN-03-7012-03-701 3 MWL at 0.0 ft (U).jpg	
0.0	22	VC									CITY OF ARVIN-03-7012-03-701 3 VC at 0.0 ft (U).jpg	
0.0	44	DSG V					15		5	7	CITY OF ARVIN-03-7012-03-701 3 DSGV at 0.0 ft (U).jpg	
4.4	106	CM						J4.5	7	11	CITY OF ARVIN-03-7012-03-701 3 CM at 4.4 ft (U).jpg	
8.1	130	TFA			4				3		CITY OF ARVIN-03-7012-03-701 3 TFA at 8.1 ft (U).jpg	
10.0	169	CM						J10	7	6		

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/17	03-7012	03-7012--03-7013	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
10.0	169	DSG V						20		5	7	CITY OF ARVIN-03-7012-03-701 3 DSGV at 10.0 ft (U).jpg	
13.1	242	CM							J13	6	11	CITY OF ARVIN-03-7012-03-701 3 CM at 13.1 ft (U).jpg	
14.1	261	TFA				4				9			
16.3	328	CM								6	12	CITY OF ARVIN-03-7012-03-701 3 CM at 16.3 ft (U).jpg	
39.0	392	TFA				4				3		CITY OF ARVIN-03-7012-03-701 3 TFA at 39.0 ft (U).jpg	
41.1	448	CS								6	10	CITY OF ARVIN-03-7012-03-701 3 CS at 41.1 ft (U).jpg	
53.8	516	CM								4	9	CITY OF ARVIN-03-7012-03-701 3 CM at 53.8 ft (U).jpg	
56.9	570	CM								3	11	CITY OF ARVIN-03-7012-03-701 3 CM at 56.9 ft (U).jpg	
64.1	599	TFA				4				9		CITY OF ARVIN-03-7012-03-701 3 TFA at 64.1 ft (U).jpg	
66.1	640	B								3	5		
66.1	650	CM								6	10	CITY OF ARVIN-03-7012-03-701 3 CM at 66.1 ft (U).jpg	
69.4	696	CM								3	10	CITY OF ARVIN-03-7012-03-701 3 CM at 69.4 ft (U).jpg	
81.9	768	CM								2	10	CITY OF ARVIN-03-7012-03-701 3 CM at 81.9 ft (U).jpg	
104.5	821	TFA				4				9			

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/17	03-7012	03-7012--03-7013	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
110.5	886	TFA				4				3		CITY OF ARVIN-03-7012-03-701 3 TFA at 110.5 ft (U).jpg	
110.5	907	MWL S						20				CITY OF ARVIN-03-7012-03-701 3 MWLS at 110.5 ft (U).jpg	Sag J 106 - J112 6'
112.9	959	CM								3	7	CITY OF ARVIN-03-7012-03-701 3 CM at 112.9 ft (U).jpg	
115.8	997	CM								12	5	CITY OF ARVIN-03-7012-03-701 3 CM at 115.8 ft (U).jpg	
128.5	1084	CM								2	5	CITY OF ARVIN-03-7012-03-701 3 CM at 128.5 ft (U).jpg	
147.9	1133	TFA				4				9		CITY OF ARVIN-03-7012-03-701 3 TFA at 147.9 ft (U).jpg	
150.2	1187	CS								3	5	CITY OF ARVIN-03-7012-03-701 3 CS at 150.2 ft (U).jpg	
154.0	1203	TFA				4				3		CITY OF ARVIN-03-7012-03-701 3 TFA at 154.0 ft (U).jpg	
156.3	1219	B								7	9	CITY OF ARVIN-03-7012-03-701 3 B at 156.3 ft (U).jpg	
172.1	1318	CM								2	6	CITY OF ARVIN-03-7012-03-701 3 CM at 172.1 ft (U).jpg	
188.3	1350	TFA				4				3		CITY OF ARVIN-03-7012-03-701 3 TFA at 188.3 ft (U).jpg	
190.5	1402	CM								7	11	CITY OF ARVIN-03-7012-03-701 3 CM at 190.5 ft (U).jpg	
218.6	1496	CM								1	5	CITY OF ARVIN-03-7012-03-701 3 CM at 218.6 ft (U).jpg	

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Fax: 209-340-0158
Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/17	03-7012	03-7012--03-7013	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
225.5	1519	MWL						5				CITY OF ARVIN-03-7012-03-701 3 MWL at 225.5 ft (U).jpg	
225.7	1529	TFA				4				9		CITY OF ARVIN-03-7012-03-701 3 TFA at 225.7 ft (U).jpg	
234.2	1573	CM								5	9	CITY OF ARVIN-03-7012-03-701 3 CM at 234.2 ft (U).jpg	
244.4	1631	TFD				4				3		CITY OF ARVIN-03-7012-03-701 3 TFD at 244.4 ft (U).jpg	BROKEN PIPE AT CONNECTION
246.5	1652	CL								4		CITY OF ARVIN-03-7012-03-701 3 CL at 246.5 ft (U).jpg	
255.8	1720	CM								7	10	CITY OF ARVIN-03-7012-03-701 3 CM at 255.8 ft (U).jpg	
259.9	1742	TFA				4				9		CITY OF ARVIN-03-7012-03-701 3 TFA at 259.9 ft (U).jpg	
300.3	1863	TFA				4				3		CITY OF ARVIN-03-7012-03-701 3 TFA at 300.3 ft (U).jpg	
304.1	1894	VC										CITY OF ARVIN-03-7012-03-701 3 VC at 304.1 ft (U).jpg	
304.1	1900	AMH											SURVEY COMPLETE

- Sag 9.5 - 23.5 - open trench Spot repair (14')

Rec: - CIPP Lining full; 306'

↳ Cracks/ Fractures throughout

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PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-7017--03-7018	2016/11/15	13:15	GROVE ST ALLEY	ARVIN ,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-7017			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-7018					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				305.5			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	4	AMH										START
0.0	4	MWL					5				CITY OF ARVIN-03-7017-03-701 8 MWL at 0.0 ft (D).jpg	
0.0	45	VC										
0.0	45	DSG V					15		5	7	CITY OF ARVIN-03-7017-03-701 8 DSGV at 0.0 ft (D).jpg	
9.5	94	TFA			4				3		CITY OF ARVIN-03-7017-03-701 8 TFA at 9.5 ft (D).jpg	
9.5	104	MWL S					15				CITY OF ARVIN-03-7017-03-701 8 MWL at 9.5 ft (D).jpg	9.5 - 23.5 (14')
17.2	138	CM							11	3	CITY OF ARVIN-03-7017-03-701 8 CM at 17.2 ft (D).jpg	

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Fax: 407-425-1569

Surveyed by: Tom Eckert

Owner:

Start date/time: 2016/11/15

Upstream manhole No: 03-7017

Pipeline segment ref: 03-7017--03-7018

Sheet number:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
18.3	152	TFA				4				9		CITY OF ARVIN-03-7017-03-701 8 TFA at 18.3 ft (D).jpg	
28.1	188	MWL						5				CITY OF ARVIN-03-7017-03-701 8 MWL at 28.1 ft (D).jpg	
39.2	271	CM								7	5	CITY OF ARVIN-03-7017-03-701 8 CM at 39.2 ft (D).jpg	
49.3	314	TFA				4				9		CITY OF ARVIN-03-7017-03-701 8 TFA at 49.3 ft (D).jpg	
57.6	374	CM								1	5	CITY OF ARVIN-03-7017-03-701 8 CM at 57.6 ft (D).jpg	
58.4	410	TFA				4				3		CITY OF ARVIN-03-7017-03-701 8 TFA at 58.4 ft (D).jpg	
66.9	469	CM								6	10	CITY OF ARVIN-03-7017-03-701 8 CM at 66.9 ft (D).jpg	
76.2	519	FM								6	9	CITY OF ARVIN-03-7017-03-701 8 FM at 76.2 ft (D).jpg	
79.7	550	CM								2	6	CITY OF ARVIN-03-7017-03-701 8 CM at 79.7 ft (D).jpg	
99.2	602	TFA				4				3		CITY OF ARVIN-03-7017-03-701 8 TFA at 99.2 ft (D).jpg	
101.0	635	CM								5	10	CITY OF ARVIN-03-7017-03-701 8 CM at 101.0 ft (D).jpg	
104.4	685	CS								6	9	CITY OF ARVIN-03-7017-03-701 8 CS at 104.4 ft (D).jpg	
107.5	765	CM								12	6	CITY OF ARVIN-03-7017-03-701 8 CM at 107.5 ft (D).jpg	
113.5	810	CC								4	6	CITY OF ARVIN-03-7017-03-701 8 CC at 113.5 ft (D).jpg	

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Fax: 407-425-1569

Surveyed by: Tom Eckert
Owner:
Start date/time: 2016/11/15
Upstream manhole No: 03-7017
Pipeline segment ref: 03-7017--03-7018
Sheet number:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
116.4	875	CM								6	2	CITY OF ARVIN-03-7017-03-701 8 CM at 116.4 ft (D).jpg	
117.4	888	TFA				4				9		CITY OF ARVIN-03-7017-03-701 8 TFA at 117.4 ft (D).jpg	
125.8	940	CM								1	5	CITY OF ARVIN-03-7017-03-701 8 CM at 125.8 ft (D).jpg	
147.4	1018	CC								2	4	CITY OF ARVIN-03-7017-03-701 8 CC at 147.4 ft (D).jpg	
157.7	1054	TFA				4				9		CITY OF ARVIN-03-7017-03-701 8 TFA at 157.7 ft (D).jpg	
162.8	1097	CM								1	4	CITY OF ARVIN-03-7017-03-701 8 CM at 162.8 ft (D).jpg	
164.0	1114	TFA				4				3		CITY OF ARVIN-03-7017-03-701 8 TFA at 164.0 ft (D).jpg	
172.0	1165	CC								2	4	CITY OF ARVIN-03-7017-03-701 8 CC at 172.0 ft (D).jpg	
184.9	1228	CC								6	10	CITY OF ARVIN-03-7017-03-701 8 CC at 184.9 ft (D).jpg	
188.9	1277	TFA				4				9		CITY OF ARVIN-03-7017-03-701 8 TFA at 188.9 ft (D).jpg	
210.0	1357	CM								7	1	CITY OF ARVIN-03-7017-03-701 8 CM at 210.0 ft (D).jpg	
225.6	1427	CM								12	6	CITY OF ARVIN-03-7017-03-701 8 CM at 225.6 ft (D).jpg	
227.6	1445	TBA				4				3		CITY OF ARVIN-03-7017-03-701 8 TBA at 227.6 ft (D).jpg	
227.6	1478	CM								1	4	CITY OF ARVIN-03-7017-03-701 8 CM at 227.6 ft (D).jpg	

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Surveyed by: Tom Eckert

Owner:

Start date/time: 2016/11/15

Upstream manhole No: 03-7017

Pipeline segment ref: 03-7017--03-7018

Sheet number:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
235.6	1513	TFA				4				3		CITY OF ARVIN-03-7017-03-701 8 TFA at 235.6 ft (D).jpg	PVC LATERAL REPLACEMENT
237.8	1540	CC								5	10	CITY OF ARVIN-03-7017-03-701 8 CC at 237.8 ft (D).jpg	
254.5	1585	TFA				4				9		CITY OF ARVIN-03-7017-03-701 8 TFA at 254.5 ft (D).jpg	
268.8	1643	OBZ						10		5	10	CITY OF ARVIN-03-7017-03-701 8 OBZ at 268.8 ft (D).jpg	POSSIBLY A TABLEKNIFE?
271.9	1672	CC								2	4	CITY OF ARVIN-03-7017-03-701 8 CC at 271.9 ft (D).jpg	
279.2	1702	TFA				4				3		CITY OF ARVIN-03-7017-03-701 8 TFA at 279.2 ft (D).jpg	
281.3	1731	CM								1	5	CITY OF ARVIN-03-7017-03-701 8 CM at 281.3 ft (D).jpg	
297.9	1784	TFA				4				9		CITY OF ARVIN-03-7017-03-701 8 TFA at 297.9 ft (D).jpg	
305.5	1817	AMH											SURVEY COMPLETE

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-6022 to 03-6023

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material:

Survey Direction:

US Manhole: 03-6023

DS Manhole: 03-6022

Total Length Surveyed: ~200'

Position	Code	Observation	Video (sec)	Grade
		- No Report / Video; open trench replacement		

1) Repair Sag J240 - J250 (10')
Rec: 2) CIPP Lining full (340')
- Cracks / Fractures throughout

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PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-6018--03-6017	2016/11/18	11:34	FRANKLIN ST	ARVIN,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-6018			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-6017					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media id#:
	C	VCP				339.2			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		3				

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Starting access point:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	21	AMH										START
0.0	22	MWL					15				CITY OF ARVIN-03-6018-03-601 7 MWL at 0.0 ft (D).jpg	
0.0	63	CM							1	5	CITY OF ARVIN-03-6018-03-601 7 CM at 0.0 ft (D).jpg	
1.5	70	VC									CITY OF ARVIN-03-6018-03-601 7 VC at 1.5 ft (D).jpg	
1.5	102	FS							4	7	CITY OF ARVIN-03-6018-03-601 7 FS at 1.5 ft (D).jpg	
31.3	187	CM							6	11	CITY OF ARVIN-03-6018-03-601 7 CM at 31.3 ft (D).jpg	
69.4	254	CS							10	6	CITY OF ARVIN-03-6018-03-601 7 CS at 69.4 ft (D).jpg	

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Surveyed by: Tom Eckert
Owner:
Start date/time: 2016/11/18
Upstream manhole No: 03-6018
Pipeline segment ref: 03-6018--03-6017
Sheet number:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
110.3	353	CM								5	9	CITY OF ARVIN-03-6018-03-601 7 CM at 110.3 ft (D).jpg	
154.3	454	CM								4	8	CITY OF ARVIN-03-6018-03-601 7 CM at 154.3 ft (D).jpg	
155.1	497	CM								6	6	CITY OF ARVIN-03-6018-03-601 7 CM at 155.1 ft (D).jpg	
164.3	546	CM								4	8	CITY OF ARVIN-03-6018-03-601 7 CM at 164.3 ft (D).jpg	
165.3	580	CM								2	8	CITY OF ARVIN-03-6018-03-601 7 CM at 165.3 ft (D).jpg	
188.2	633	CL								4		CITY OF ARVIN-03-6018-03-601 7 CL at 188.2 ft (D).jpg	
189.6	663	CM								3	9	CITY OF ARVIN-03-6018-03-601 7 CM at 189.6 ft (D).jpg	
210.1	725	CM								3	9	CITY OF ARVIN-03-6018-03-601 7 CM at 210.1 ft (D).jpg	
227.2	786	CM								7	4	CITY OF ARVIN-03-6018-03-601 7 CM at 227.2 ft (D).jpg	
234.0	823	CM								4	8	CITY OF ARVIN-03-6018-03-601 7 CM at 234.0 ft (D).jpg	
244.4	843	MWLS					20					CITY OF ARVIN-03-6018-03-601 7 MWLS at 244.4 ft (D).jpg	J240 → J250 (10')
247.7	855	CS								2	6	CITY OF ARVIN-03-6018-03-601 7 CS at 247.7 ft (D).jpg	
249.7	894	CL								8		CITY OF ARVIN-03-6018-03-601 7 CL at 249.7 ft (D).jpg	
250.9	5	CM								2	9	CITY OF ARVIN-03-6018-03-601 7 CM at 250.9 ft (D).jpg	

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Surveyed by: Tom Eckert

Owner:

Start date/time: 2016/11/18

Upstream manhole No: 03-6018

Pipeline segment ref: 03-6018--03-6017

Sheet number:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
254.3	47	CM								6	5	CITY OF ARVIN-03-6018-03-601 7 CM at 254.3 ft (D).jpg	
276.6	84	MWL						10				CITY OF ARVIN-03-6018-03-601 7 MWL at 276.6 ft (D).jpg	
306.3	146	CM								1	5	CITY OF ARVIN-03-6018-03-601 7 CM at 306.3 ft (D).jpg	
334.0	213	FM								3	8	CITY OF ARVIN-03-6018-03-601 7 FM at 334.0 ft (D).jpg	
339.2	232	VC											
339.2	232	AMH											SURVEY COMPLETE

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RCC! Spot Repair J21-J24

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	03-6017--03-6016	2016/11/18	12:07	FRANKLIN ST	ARVIN,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	03-6017			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
03-6016					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				138.9			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	3	AMH										START
0.0	3	MWL					5				CITY OF ARVIN-03-6017-03-601 6 MWL at 0.0 ft (D).jpg	
21.2	51	HSV							12	3	CITY OF ARVIN-03-6017-03-601 6 HSV at 21.2 ft (D).jpg	J21 - J24
21.8	72	TFA			4				9		CITY OF ARVIN-03-6017-03-601 6 TFA at 21.8 ft (D).jpg	
31.3	107	CC							6	9	CITY OF ARVIN-03-6017-03-601 6 CC at 31.3 ft (D).jpg	
80.0	202	CM							2	6	CITY OF ARVIN-03-6017-03-601 6 CM at 80.0 ft (D).jpg	
110.9	277	CM							2	11	CITY OF ARVIN-03-6017-03-601 6 CM at 110.9 ft (D).jpg	

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Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/11/18	03-6017	03-6017--03-6016	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
138.9	336	VC											
138.9	336	AMH											SURVEY COMPLETE

Harris & Associates

MANHOLE OBSERVATION FORM

Project:	Arvin Sewer Master Plan	Project No.:	180003200I
City:	Arvin, CA	Task Order No.:	3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 7 / 19 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-7001

Surveyed by: J-L

Street: Walnut & Hood

Cert. no.:

MH Location Details:

- center of intersection
- 588 walnut dr

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

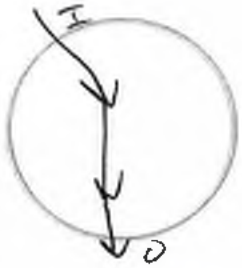
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project:	Arvin Sewer Master Plan	Project No.:	180003200I
City:	Arvin, CA	Task Order No.:	3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-7007

Surveyed by: J-C

Street: Hood St.

Cert. no.:

MH Location Details:

Int Hood / Walker

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

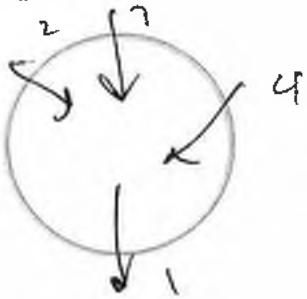
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project:	Arvin Sewer Master Plan	Project No.:	180003200
City:	Arvin, CA	Task Order No.:	3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 2 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-7014

Surveyed by: J-L

Street: Hood St.

Cert. no.:

MH Location Details:

921 Hood St.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

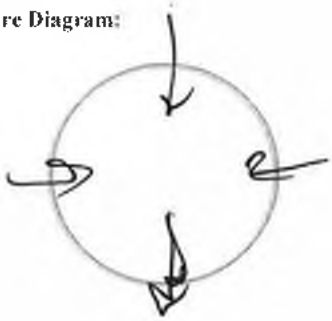
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-7019

Surveyed by: J-L

Street: Hood St.

Cert. no.:

MH Location Details:

Adj. to alley - Hood/Meyer

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

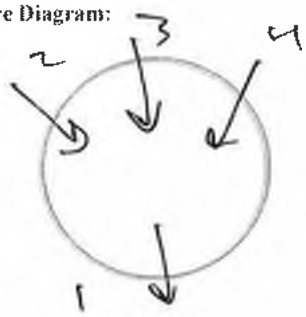
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Appendix L: East Di Giorgio Park Pipeline Project Reference Materials

East Di Giorgio Park Pipeline Project Cost Estimate

Reach No.	Item	Action		Cost
Number	Reach			
1	03-7026_03-7025_11/8/2011_579.200012_D	Replacement		$ 142,000.00
2	03-7024_03-7023_11/8/2011_596.299988_D	Replacement		$ 142,000.00
3	03-7023_03-7022_11/9/2011_430.100006_D	Replacement		$ 103,000.00
4	03-7022_03-7019_11/9/2011_430.100006_D	Replacement		$ 101,000.00
5	06-4023_06-4024_11/8/2011_600.799988_U	Replacement		$ 150,000.00
6	06_4023_06_4002A_8/10/2016_10:34	Lining		$ 35,000.00
7	06_5004_06_5003_8/10/2016_10:34	Replacement		$ 76,000.00
	Manholes			
	06_5003	Replace		$ 8,000.00
	06_5004	Replace		$ 8,000.00
	06_4023	Replace		$ 8,000.00
	06_4024	Replace		$ 8,000.00
	03_7023	Replace		$ 8,000.00
	03_7024	Replace		$ 8,000.00
	03_7026	Replace		$ 8,000.00
	03_7025	Replace		$ 8,000.00
	03_7022	Replace		$ 8,000.00
	Total Construction Cost			$ 821,000.00
	Engineering & Construction Management		25%	$ 205,000.00
	Contingencies		20%	$ 164,000.00
	Administrative		5%	$ 41,000.00
	CIP Estimate			**$ 1,231,000.00**

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-7026 to 03-7025

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material: VCP

Survey Direction:

US Manhole: 03-7026

DS Manhole: 03-7025

Total Length Surveyed: ~590'

Position	Code	Observation	Video (sec)	Grade
		- No Report/video; Open trench replacement		

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 03 - 7024 to 03 - 7023

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole: 03-7024	DS Manhole: 03-7023	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no CCTV and Reports on file

Recommendation

- Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-7023 to 03-7022

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material:

Survey Direction:

US Manhole: 03-7023

DS Manhole: 03-7022

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no CCTV or Report on file

Recommendation

- Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 03-7022 to 03-7019

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole: 03-7022	DS Manhole: 03-7019	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no CCTV or Report on File

Recommendation

- Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 06-4023 to 06-4024

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material: VCP

Survey Direction:

US Manhole: 06-4024

DS Manhole: 06-4023

Total Length Surveyed: ~600'

Position	Code	Observation	Video (sec)	Grade
		- No Report/video; Open trench replacement		

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158

Rec: - CIPP Lining full (345')
• Cracking occurs at most joints

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	06-4023--06-4002A	2016/12/19	13:38	S. HILL ST	ARVIN,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	06-4023			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
06-4002A					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				344.7			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	3	AMH									CITY OF ARVIN-06-4023-06-4002A AMH at 0.0 ft (D).jpg	START
0.0	15	MWL					15				CITY OF ARVIN-06-4023-06-4002A MWL at 0.0 ft (D).jpg	
0.0	17	VC										
0.0	17	DAG S	S01				10		2	8	CITY OF ARVIN-06-4023-06-4002A DAGS at 0.0 ft (D).jpg	
2.7	40	FM							2	10	CITY OF ARVIN-06-4023-06-4002A FM at 2.7 ft (D).jpg	
39.5	101	CC							2	4	CITY OF ARVIN-06-4023-06-4002A CC at 39.5 ft (D).jpg	
92.4	177	CM							8	2	CITY OF ARVIN-06-4023-06-4002A CM at 92.4 ft (D).jpg	

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158
Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/19	06-4023	06-4023--06-4002A	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
157.6	285	CM								2	9	CITY OF ARVIN-06-4023-06-4002A CM at 157.6 ft (D).jpg	
164.7	313	CM								2	7	CITY OF ARVIN-06-4023-06-4002A CM at 164.7 ft (D).jpg	
188.8	362	CM								9	2	CITY OF ARVIN-06-4023-06-4002A CM at 188.8 ft (D).jpg	
209.8	396	CL								3		CITY OF ARVIN-06-4023-06-4002A CL at 209.8 ft (D).jpg	
220.4	424	CM								8	4	CITY OF ARVIN-06-4023-06-4002A CM at 220.4 ft (D).jpg	
223.8	443	CC								3	6	CITY OF ARVIN-06-4023-06-4002A CC at 223.8 ft (D).jpg	
230.8	462	CM								4	9	CITY OF ARVIN-06-4023-06-4002A CM at 230.8 ft (D).jpg	
251.4	497	CM								5	9	CITY OF ARVIN-06-4023-06-4002A CM at 251.4 ft (D).jpg	
255.0	513	CM								2	8	CITY OF ARVIN-06-4023-06-4002A CM at 255.0 ft (D).jpg	
262.1	543	CM		S02						3	9	CITY OF ARVIN-06-4023-06-4002A CM at 262.1 ft (D).jpg	
282.9	582	CM		F02						3	9	CITY OF ARVIN-06-4023-06-4002A CM at 282.9 ft (D).jpg	

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158
Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/19	06-4023	06-4023--06-4002A	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
292.9	606	CL								4		CITY OF ARVIN-06-4023-06-4002A CL at 292.9 ft (D).jpg	
314.4	650	CM								2	9	CITY OF ARVIN-06-4023-06-4002A CM at 314.4 ft (D).jpg	
344.7	706	DAG S	F01					10		4	8		
344.7	706	AMH											SURVEY COMPLETE

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158

Rec: - sag for 1/3 reach
- open trench replacement full (315')

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	06-5004--06-5003	2016/12/21	09:32	S. HILL ST	ARVIN CA

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	06-5004			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
06-5003					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				315.0			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:	Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	1	AMH									CITY OF ARVIN-06-5004-06-5003 AMH at 0.0 ft (D).jpg	START
0.0	15	MWL					25				CITY OF ARVIN-06-5004-06-5003 MWL at 0.0 ft (D).jpg	Sag? (start → 40')
0.0	15	VC										
0.0	15	DAG S	S01				10		3	7	CITY OF ARVIN-06-5004-06-5003 DAGS at 0.0 ft (D).jpg	
3.4	47	TFA			4				9		CITY OF ARVIN-06-5004-06-5003 TFA at 3.4 ft (D).jpg	
5.7	71	TFA			4				3		CITY OF ARVIN-06-5004-06-5003 TFA at 5.7 ft (D).jpg	
25.8	110	TFA			4				9			

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158
Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/21	06-5004	06-5004--06-5003	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
35.5	145	TFA				4				3		CITY OF ARVIN-06-5004-06-500 3 TFA at 35.5 ft (D).jpg	
39.3	165	MWL						10				CITY OF ARVIN-06-5004-06-500 3 MWL at 39.3 ft (D).jpg	
76.2	214	TFA				4				9		CITY OF ARVIN-06-5004-06-500 3 TFA at 76.2 ft (D).jpg	
86.0	236	TFA				4				3		CITY OF ARVIN-06-5004-06-500 3 TFA at 86.0 ft (D).jpg	
115.1	298	CM							J	2	6	CITY OF ARVIN-06-5004-06-500 3 CM at 115.1 ft (D).jpg	
133.9	329	TFA				4				9		CITY OF ARVIN-06-5004-06-500 3 TFA at 133.9 ft (D).jpg	
139.0	357	CM							J	6	9	CITY OF ARVIN-06-5004-06-500 3 CM at 139.0 ft (D).jpg	
143.0	369	TFA				4				3		CITY OF ARVIN-06-5004-06-500 3 TFA at 143.0 ft (D).jpg	
154.1	389	MWL S						20				CITY OF ARVIN-06-5004-06-500 3 MWLS at 154.1 ft (D).jpg	J145 - J186 (40')
158.9	423	CM								4	5	CITY OF ARVIN-06-5004-06-500 3 CM at 158.9 ft (D).jpg	
182.3	460	TFA				4				9		CITY OF ARVIN-06-5004-06-500 3 TFA at 182.3 ft (D).jpg	
183.0	481	CM								3	4		
187.6	499	TFC				4				9		CITY OF ARVIN-06-5004-06-500 3 TFC at 187.6 ft (D).jpg	
193.6	518	TFA				4				3		CITY OF ARVIN-06-5004-06-500 3 TFA at 193.6 ft (D).jpg	

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158
Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/21	06-5004	06-5004--06-5003	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
202.0	545	CM								3	6	CITY OF ARVIN-06-5004-06-500 3 CM at 202.0 ft (D).jpg	
238.0	595	TFA				4				9		CITY OF ARVIN-06-5004-06-500 3 TFA at 238.0 ft (D).jpg	
247.2	618	TFA				4				3		CITY OF ARVIN-06-5004-06-500 3 TFA at 247.2 ft (D).jpg	
259.0	643	CM								3	9	CITY OF ARVIN-06-5004-06-500 3 CM at 259.0 ft (D).jpg	
262.9	679	CM								12	11	CITY OF ARVIN-06-5004-06-500 3 CM at 262.9 ft (D).jpg	
281.0	707	TFA				4				3		CITY OF ARVIN-06-5004-06-500 3 TFA at 281.0 ft (D).jpg	GREASE SOURCE
282.8	722	CM								6	12	CITY OF ARVIN-06-5004-06-500 3 CM at 282.8 ft (D).jpg	
283.5	736	TFA				4				9		CITY OF ARVIN-06-5004-06-500 3 TFA at 283.5 ft (D).jpg	
301.1	770	TFA				4				3		CITY OF ARVIN-06-5004-06-500 3 TFA at 301.1 ft (D).jpg	
302.5	794	CM								3	6		
302.5	794	B								6	7		
302.5	800	MWL						10				CITY OF ARVIN-06-5004-06-500 3 MWL at 302.5 ft (D).jpg	
315.0	833	DAG S		F01				10		4	8		
315.0	833	AMH											SURVEY COMPLETE

Sag
50'

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 2019

Sheet: 1 / 1

MANHOLE NO.: 03-7023

Surveyed by: J - L

Street: Hood / S. Hill

Cert. no.:

MH Location Details:

Int. Hood / S. Hill

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

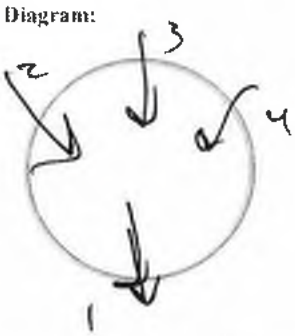
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-7025

Surveyed by: J-L

Street: Holdrn / S. Hill

Cert. no.:

MH Location Details: Int Holdrn / S. Hill

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown corroded

Cone Condition: Defective / Sound / Unknown cracked

Wall Condition: Defective / Sound / Unknown corroded

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Too Large

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments: Needs replacement

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-7026

Surveyed by: J-L

Street: Holden St

Cert. no.:

MH Location Details:

~~Hol~~ 400 Holden St.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

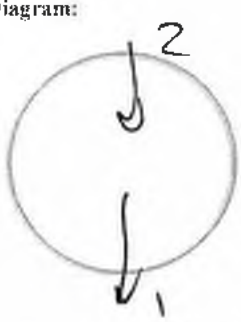
Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

cracked I/I

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair Chimney/wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-7024

Surveyed by: J-L

Street: Ash. / Hood

Cert. no.:

MH Location Details:

A st / Hood int

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown cracked

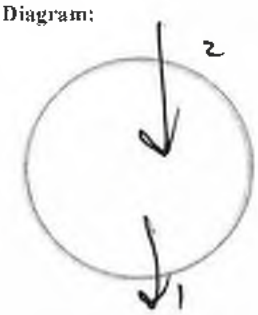
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney → wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 26 / 30

MANHOLE NO.: 26 - 4023

Surveyed by: Danny and Johnny

Street: S Hill Street

Cert. no.:

MH Location Details:
Inbetween Fabian Street and Franklin Street
Just west of alleyway

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
H_2S gas, re-line

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

MANHOLE OBSERVATION FORM

Harris & Associates

Project:	Arvin Sewer Master Plan	Project No.:	1800032001
City:	Arvin, CA	Task Order No.:	3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06 - 4002A

Surveyed by: J - L

Street: S. Hill

Cert. no.:

MH Location Details:

Adj. to Alley on S. Hill before Combs

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown H_2S

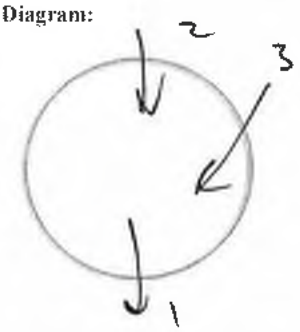
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Appendix M: Langford Avenue Pipeline Project Reference Materials

Langford Avenue Pipeline Project Cost Estimate

Reach No.	Item	Action		Cost
Number	Reach			
1	06_4016_06_4015_8/10/2016_10:34	Spot Repair + Lining		$ 48,000.00
2	06_4019_06_4015_8/23/2017_11:10	Replacement		$ 91,000.00
3	06-4015_06-4001_10/30/2009_D	Spot Repair		$ 18,000.00
4	06-5002_06-5001_10/30/2009_U	Replacement		$ 42,000.00
5	06-5001_06-0015_10/30/2009_D	Replacement		$ 2,000.00
6	06-4001_06-0015_10/30/2009_D	Replacement		$ 88,000.00
7	06_4002_06_4001_8/23/2017_11:10	Spot Repair		$ 3,000.00
8	06_4013_06_4002_8/10/2016_10:34	Spot Repair		$ 3,000.00
9	06_3007_06_3006_8/10/2016_10:34	Spot Repair		$ 5,000.00
10	06_3002_06_3001_8/10/2016_10:34	Lining		$ 30,000.00
11	06_3004_06_3001_8/10/2016_10:34	Lining		$ 34,000.00
	Manholes			
	06_4002	Repair		$ 2,000.00
	06_4013	Repair		$ 2,000.00
	06_4016	Repair		$ 2,000.00
	06_3007	Replace		$ 8,000.00
	06_4019	Replace		$ 8,000.00
	06_4015	Replace		$ 8,000.00
	06_4001	Replace		$ 8,000.00
	06_0015	Replace		$ 8,000.00
	06_5001	Replace		$ 8,000.00
	06_5002	Replace		$ 8,000.00
	Total Construction Cost			$ 426,000.00
	Engineering & Construction Management		25%	$ 107,000.00
	Contingencies		20%	$ 85,000.00
	Administrative		5%	$ 21,000.00
	CIP Estimate			**$ 639,000.00**

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	332	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12022	Surveyor:	JJC	PSR:	06-4016 to 06-4015
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Strand Ave.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS17-818
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Upstream

US MH: 06-4016 DS MH: 06-4015 Total Length Surveyed (ft): 332

Notes:

1) 2 videos (2009, 2016), but only one report (2009)
2) QR 5
3) 7/8/19
4) 2016 video shows sag 302' - 332' (30')
   - water level 5% → 30% max

Rec: 1) open trench repair 302' - End (30')
2) CIPP Lining 332'

06-4015

Camera Direction

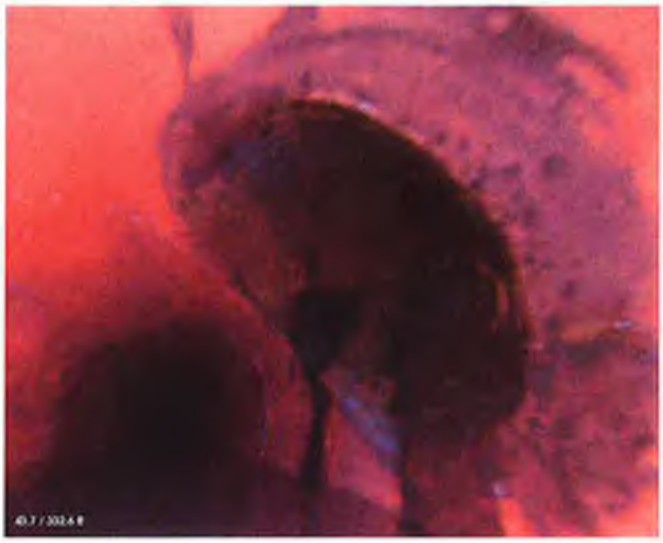
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level 30%	13	NA
0	VC	Vermin Cockroach	21	M 1
43.67	TF	Tap Factory	117	NA
50.66	MGP	General Photo	140	NA
75.47	MWL	Water Level 15%	198	NA
92.87	TF	Tap Factory	241	NA
93.78	CL	Crack Longitudinal	251	S 2
100.48	MGP	General Photo 15%	274	NA
124.28	CL	Crack Longitudinal	330	S 2
134.52	CM	Crack Multiple	361	S 3
147.29	TF	Tap Factory	394	NA
160.83	TF	Tap Factory	431	NA
167.99	MWL	Water Level 5%	454	NA
184.47	TF	Tap Factory	495	NA
200.73	MGP	General Photo 5%	537	NA
205.86	CL	Crack Longitudinal	555	S 2
210.97	CM	Crack Multiple	575	S 3
231.09	CM	Crack Multiple	626	S 3
236.25	FM	Fracture Multiple Soil visible	645	S 4
248.59	TF	Tap Factory	679	NA
252.15	MGP	General Photo	695	NA
254.81	CL	Crack Longitudinal	708	S 2
285.11	FM	Fracture Multiple	778	S 4
290.2	CM	Crack Multiple	807	S 3
290.4	SSS	Surface Spalling	816	S 2
295.16	CL	Crack Longitudinal	835	S 2
301.99	MGP	General Photo	859	NA
332.56	AMH	Manhole	928	NA

06-4016

PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

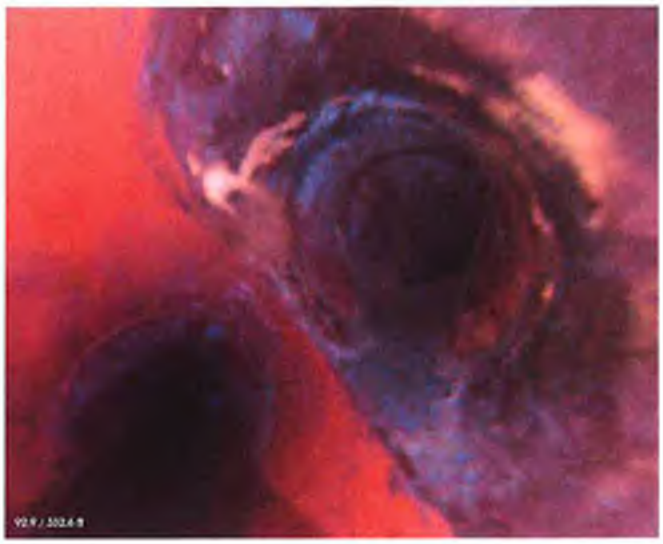
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



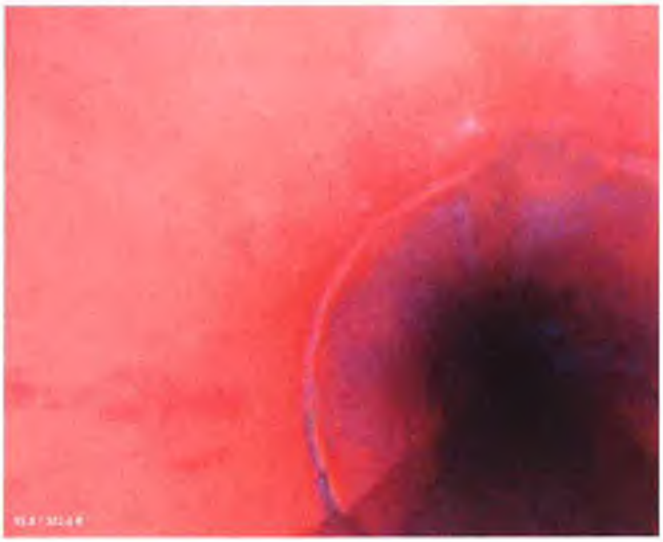
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	43.67
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.66
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	75.47
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

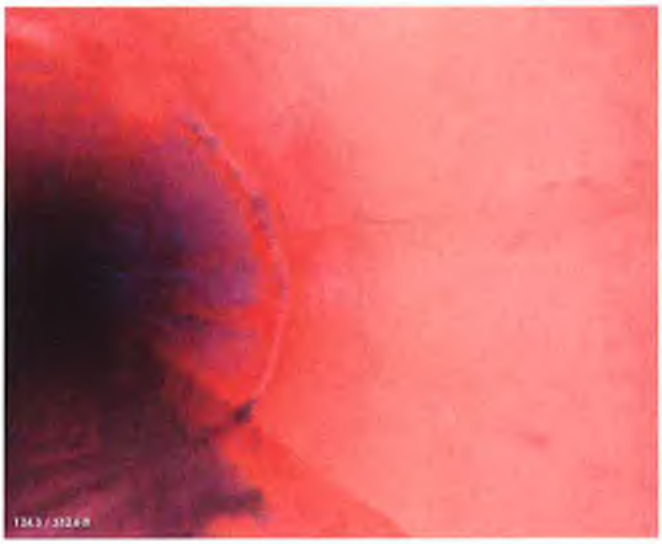


PACP Code:	TF
Description:	Tap Factory
Distance (ft):	92.87
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

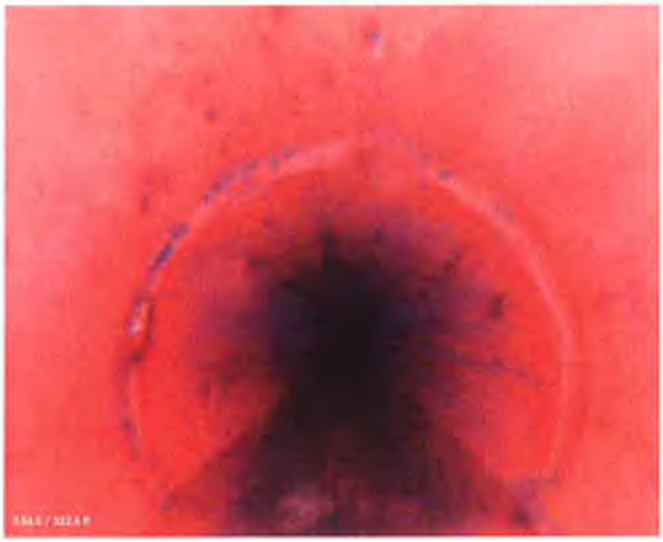


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	93.78
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

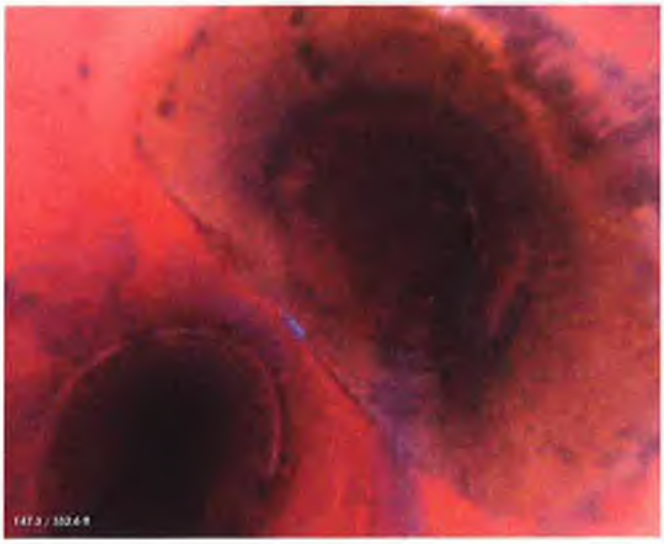
PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.48
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



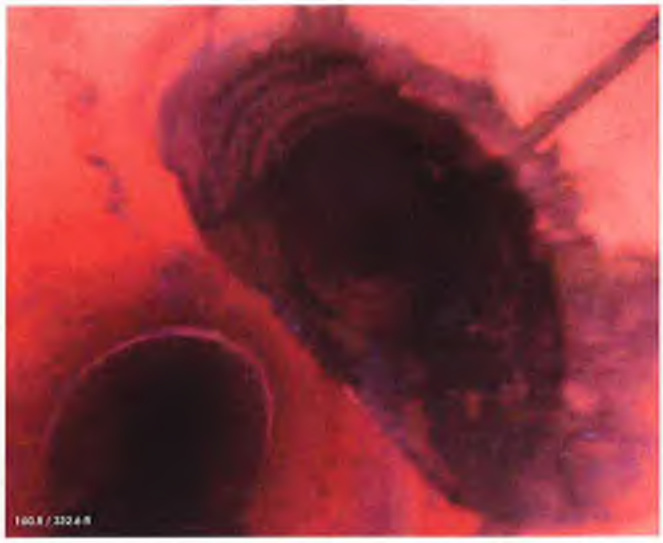
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	124.28
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



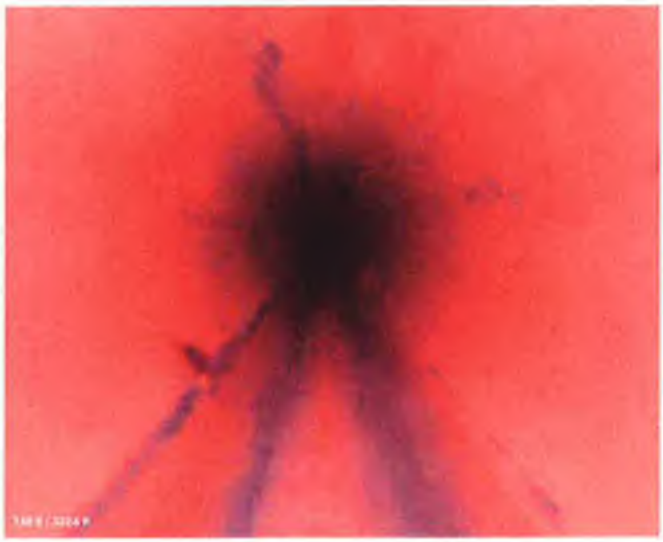
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	134.52
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	8
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



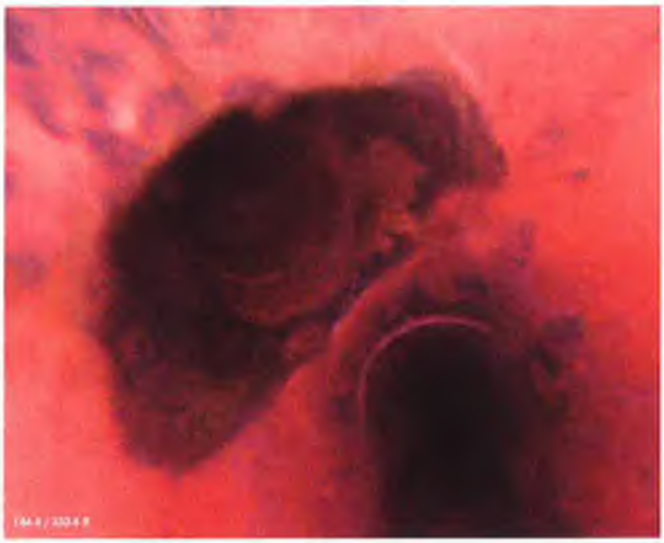
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	147.29
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	160.83
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

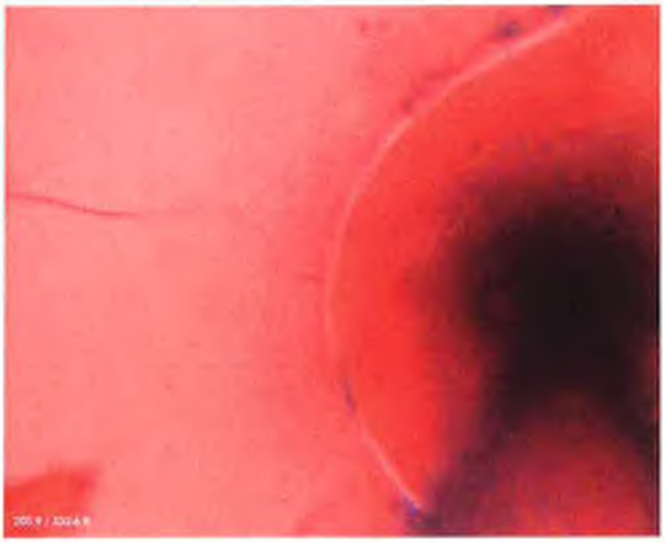


PACP Code:	MWL
Description:	Water Level
Distance (ft):	167.99
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

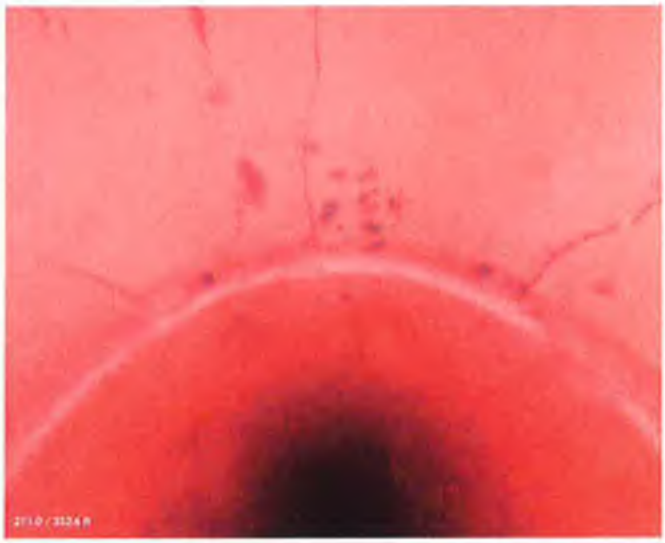


PACP Code:	TF
Description:	Tap Factory
Distance (ft):	184.47
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

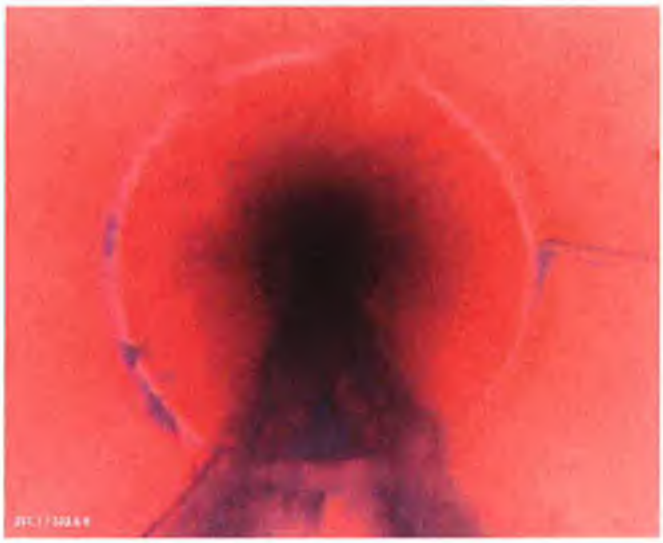
PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.73
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



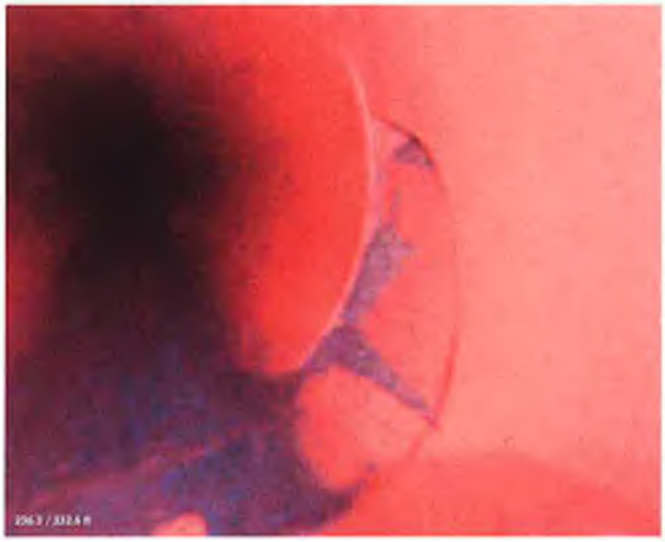
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	205.86
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



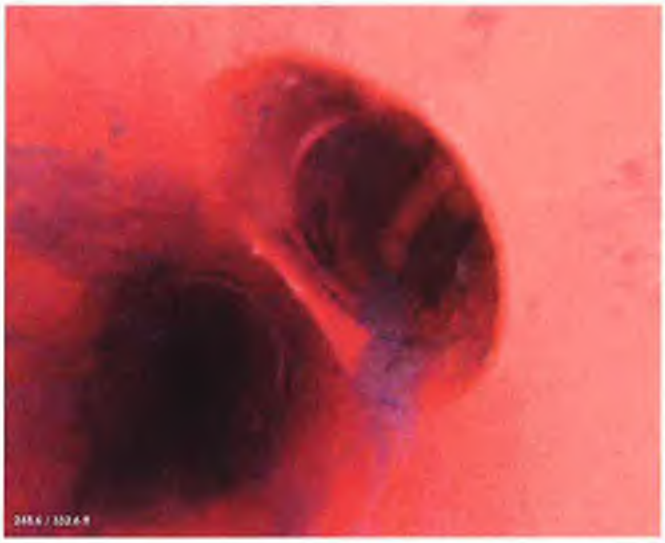
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	210.97
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	11
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	231.09
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

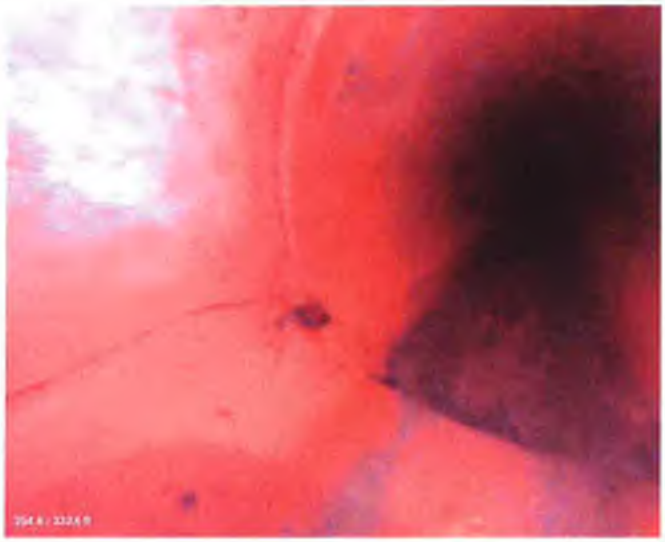


PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	236.25
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	3
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks.	



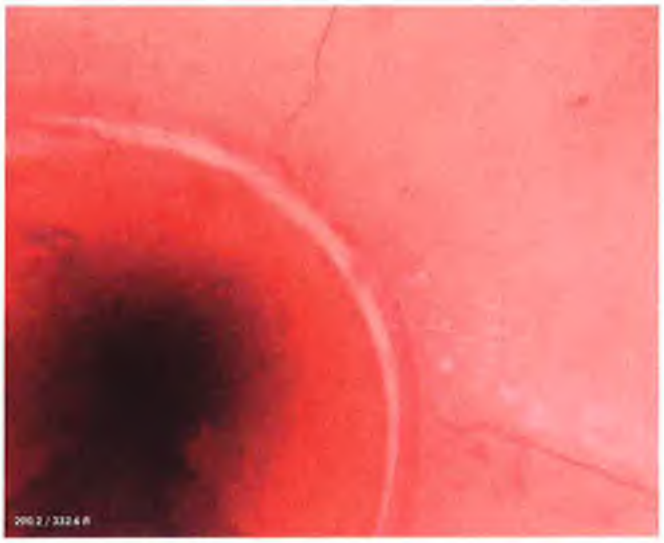
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	248.59
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	252.15
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

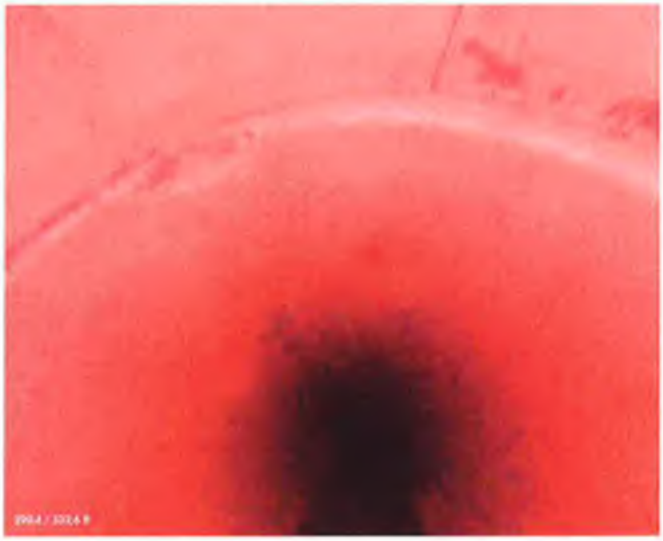


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	254.81
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	8
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

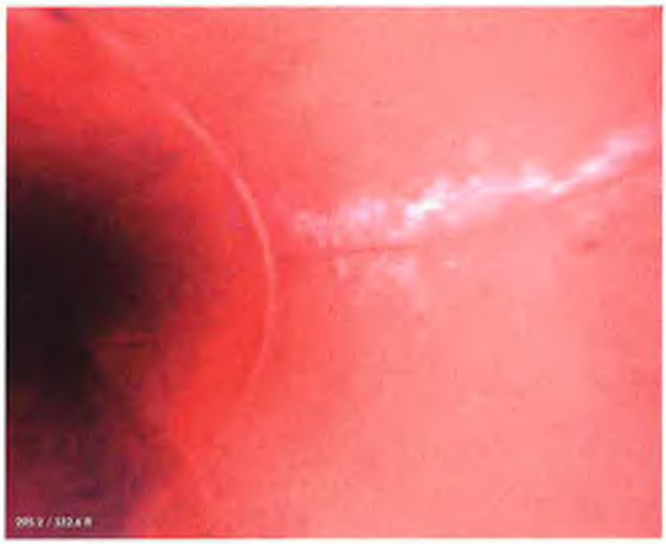
PACP Code:	FM
Description:	Fracture Multiple
Distance (ft):	285.11
Structural Grade:	4
O&M Grade:	NA
Clock Start/From:	8
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	290.2
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	1
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

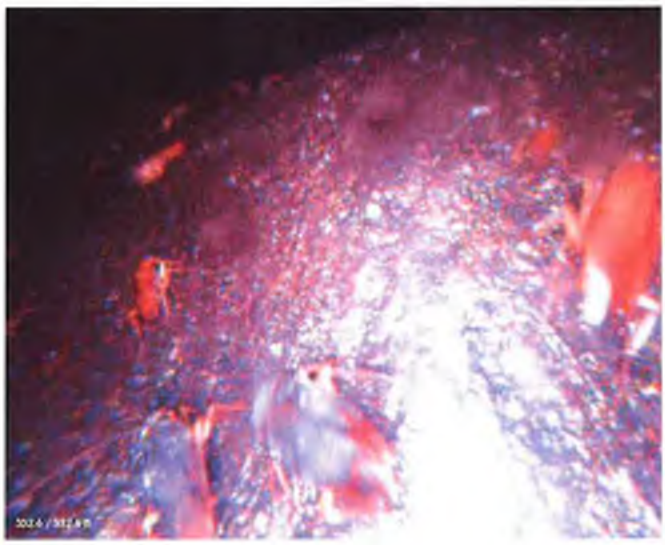


PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	290.4
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	11
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	295.16
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	301.99
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	332.56
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Rec: - Camera underwater at both manholes
- Full open trench replacement
• Don't know Length

Murgreen Environmental Company
Tracy, CA 95376
Phone: 209-207-3620
Fax: 209-340-0158

PACP Sewer Report

Surveyed by: Tom Eckert	Certificate No: 3-51406021419	Owner:	Survey Customer: VEOLIA ARVIN	Drainage area:	Sheet number:
Work order:	Pipeline segment ref: 06-4019--06-4015	Start date/time: 2016/12/20 10:33	Street: COMBS AV	City: ARVIN CA	
Location details:			Upstream manhole No: 06-4019	Rim to invert:	Grade to invert: / Rim to grade:
Downstream manhole No: 06-4015	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction: D / Flow control: / Height: 8
Width:	Shape: C	Material: VCP	Ln. method:	Pipe joint length:	Total length: / Length surveyed: 0.0 / Year laid: / Year renewed: / Media label:
Purpose:	Sewer category:	Pre-cleaning J	Date cleaned:	Weather:	Location code: / Additional info:
Starting access point:	Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	3	AMH									CITY OF ARVIN-06-4019-06-4015 AMH at 0.0 ft (D).jpg	START
0.0	19	MWL					70					
0.0	19	MSA										CAMERA SUBMERGED

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	332	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12022	Surveyor:	JJC	PSR:	06-4015 to 06-4001
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Strand Ave.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS23-728
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 06-4015 DS MH: 06-4001 Total Length Surveyed (ft): 332

06-4015 * Joints every 5ft

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level	13	NA
0.6	VC	Vermin Cockroach	22	M 1
22.28	MWL	Water Level (25%)	74	NA
49.96	MGP	General Photo grease on top	138	NA
69.73	TB	Tap Break-in material of tap?	185	NA
78.32	CL	Crack Longitudinal close to joint	213	S 2
100.25	MGP	General Photo	266	NA
104.48	TF	Tap Factory ✓	283	NA
107.85	TFA	Tap Factory Active ✓	299	NA
110.55	RFJ	Roots Fine Joint not much	314	M 1
134.22	MWL	Water Level 5%. (high point	371	NA
150.58	MGP	General Photo	412	NA
155.27	TB	Tap Break-in	430	NA
155.27	RMC	Roots Medium Connection (25%)	439	M 3
171.81	CL	Crack Longitudinal Joint (Yes)	481	S 2
176.65	CS	Crack Spiral 1ft (Joint)	501	S 2
181.99	CL	Crack Longitudinal Short	520	S 2
186.71	CM	Crack Multiple FIX	539	S 3
187.64	TF	Tap Factory ✓	549	NA
200.33	MGP	General Photo	583	NA
231.15	VC	Vermin Cockroach	653	M 1
241.42	CL	Crack Longitudinal (1ft)	683	S 2
246.68	CC	Crack Circumferential (1ft)	702	S 1
247.09	TF	Tap Factory (flow 40%)	712	NA
248.86	TBA	Tap Break-in Active grease w/ high flow	725	NA
249.81	RFJ	Roots Fine Joint	737	M 1
253.18	MGP	General Photo (30%)	752	NA
255.79	TF	Tap Factory ✓	766	NA
263.67	CM	Crack Multiple	791	S 3
273		water level change		
300.87	MGP	General Photo	873	NA
306.6	MWL	Water Level (40%)	893	NA
329.26	CC	Crack Circumferential HUGE	947	S 1
332.1	AMH	Manhole	961	NA

Camera Direction

Spot Repair

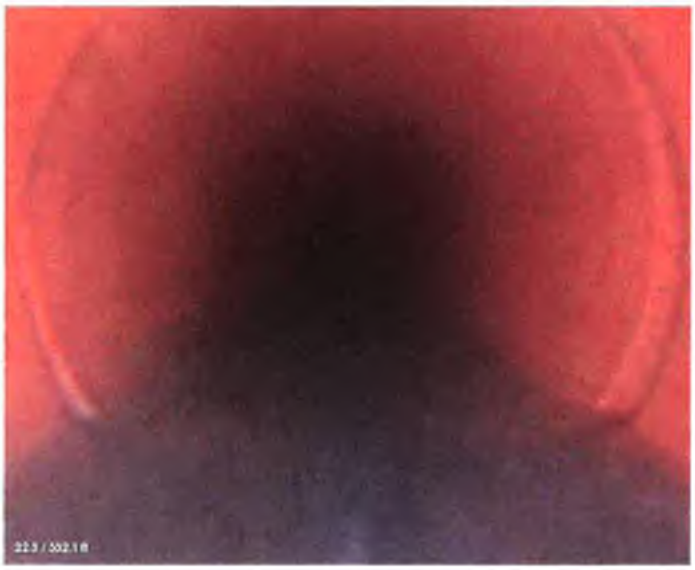
06-4001

* Clea

PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	0.6
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code: MWL
Description: Water Level (25%)

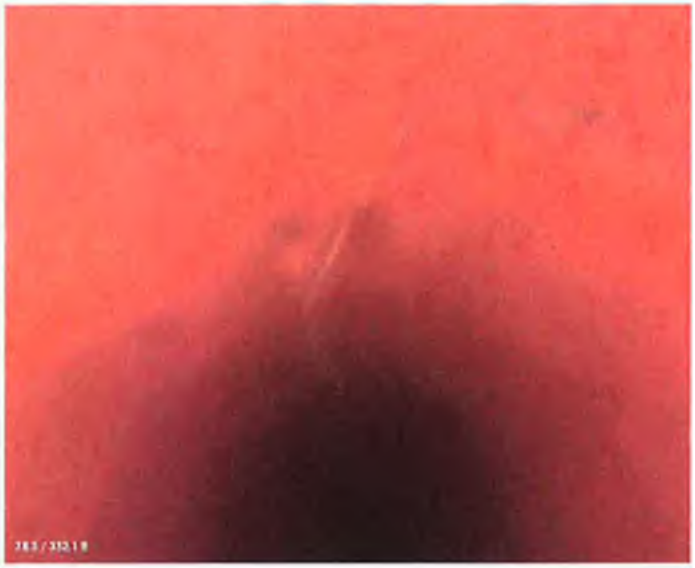
Distance (ft): 22.28
Structural Grade: NA
O&M Grade: NA
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Continuous Index:
Within 8" of Joint: False
Remarks:

PACP Code: MGP
Description: General Photo
• grease on top

Distance (ft): 49.96
Structural Grade: NA
O&M Grade: NA
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Continuous Index:
Within 8" of Joint: False
Remarks:

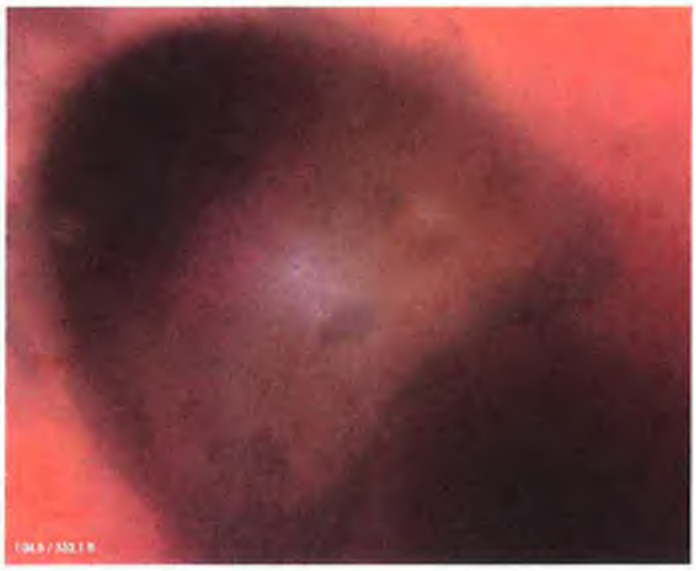
PACP Code: TB
Description: Tap Break-in
material

Distance (ft): 69.73
Structural Grade: NA
O&M Grade: NA
Clock Start/From: 12
Clock To:
1st Value: 4
2nd Value:
Continuous Index:
Within 8" of Joint: False
Remarks:



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	78.32
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo some grease
Distance (ft):	100.25
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	104.48
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	107.85
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Deposits

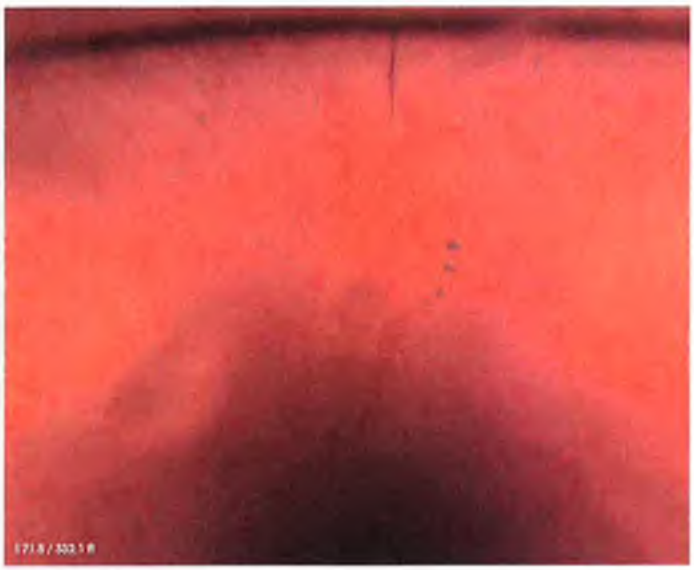
PACP Code:	RFJ
Description:	Roots Fine Joint not much
Distance (ft):	110.55
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	3
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MWL
Description:	Water Level 5%
Distance (ft):	134.22
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

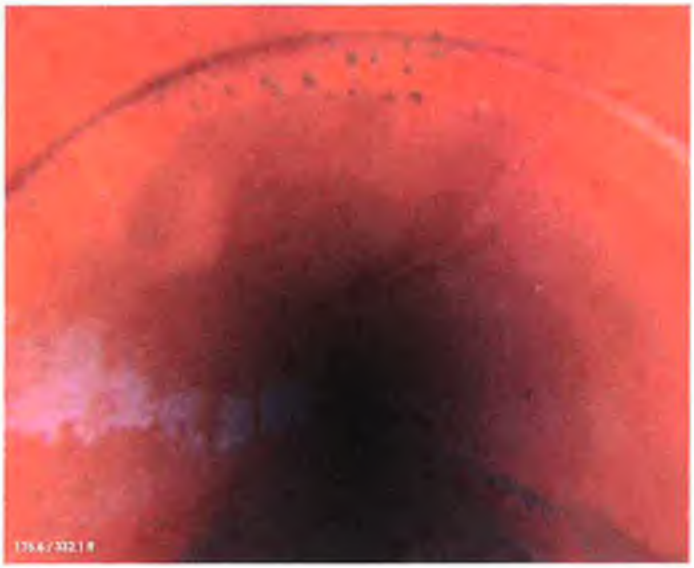
PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.58 good
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	155.27
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	11
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

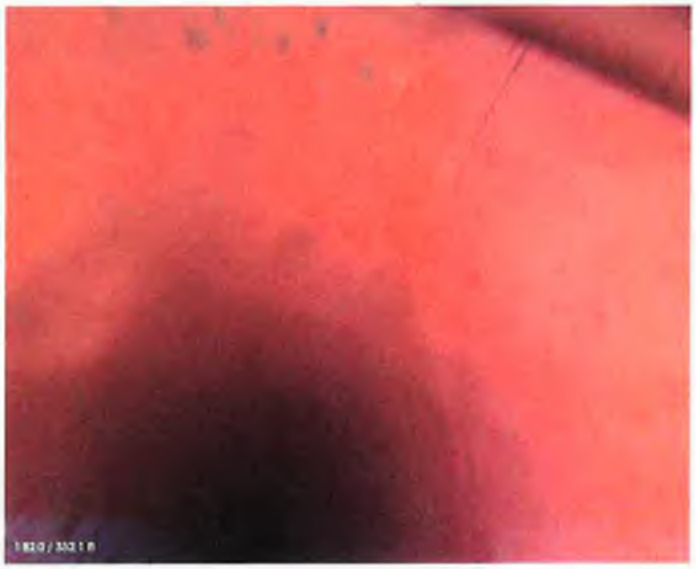
PACP Code:	RMC
Description:	Roots Medium Connection
Distance (ft):	155.27
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	171.81
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

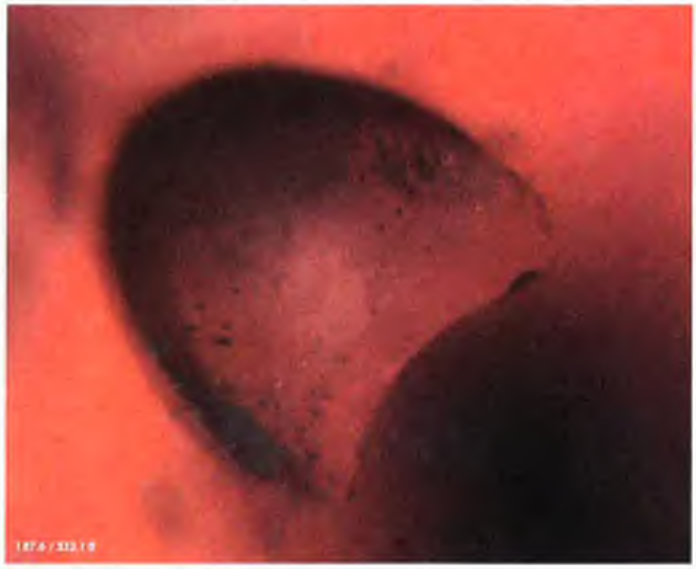


PACP Code:	CS
Description:	Crack Spiral (1ft)
Distance (ft):	176.65
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

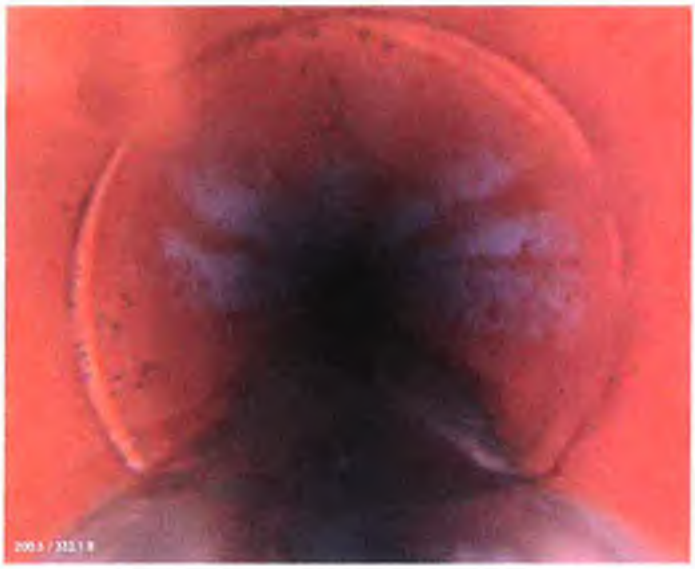


PACP Code:	CL
Description:	Crack Longitudinal (short)
Distance (ft):	181.99
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

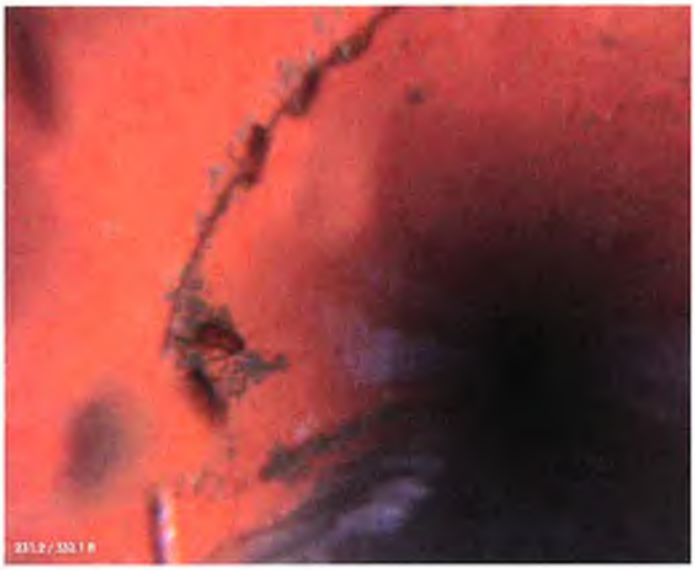
PACP Code:	CM
Description:	Crack Multiple (FIX)
Distance (ft):	186.71
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	7
Clock To:	1
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



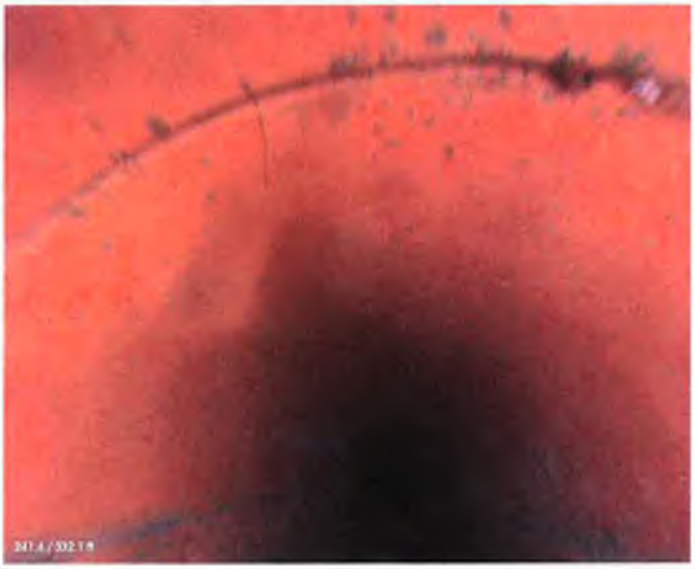
PACP Code:	TF
Description:	Tap Factory ✓
Distance (ft):	187.64
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MGP
Description:	General Photo ✓
Distance (ft):	200.33
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

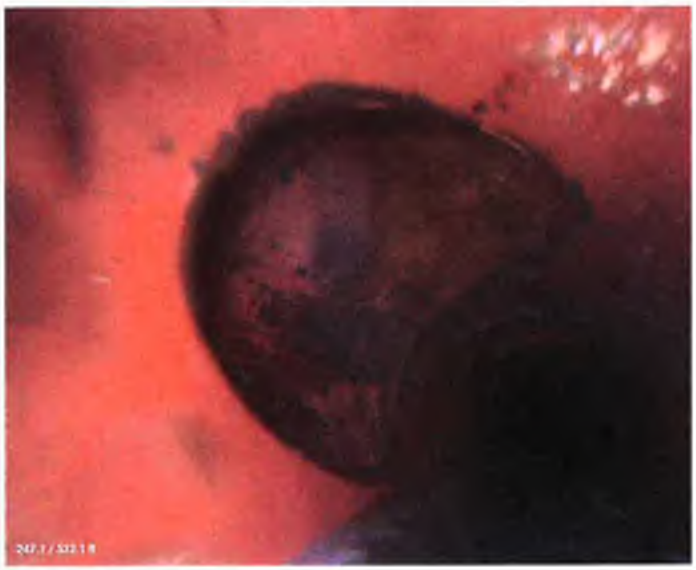


PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	231.15
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

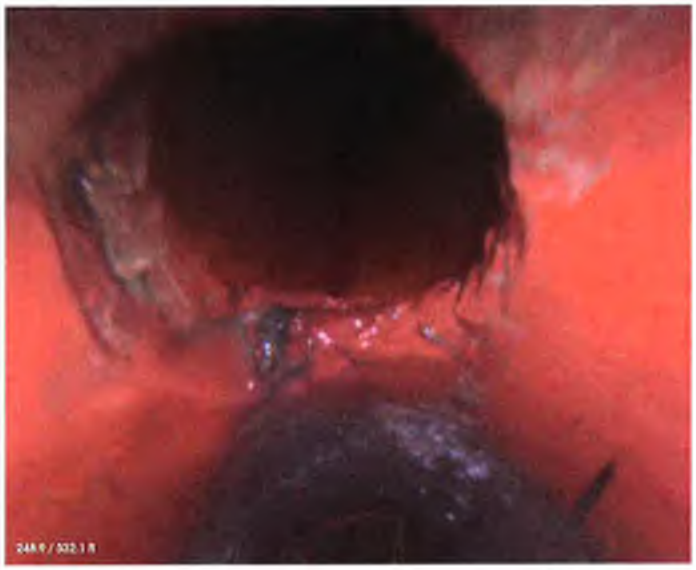


PACP Code:	CL
Description:	Crack Longitudinal (1ft)
Distance (ft):	241.42
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	11
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	CC
Description:	Crack Circumferential 1ft
Distance (ft):	246.68
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	7
Clock To:	11
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

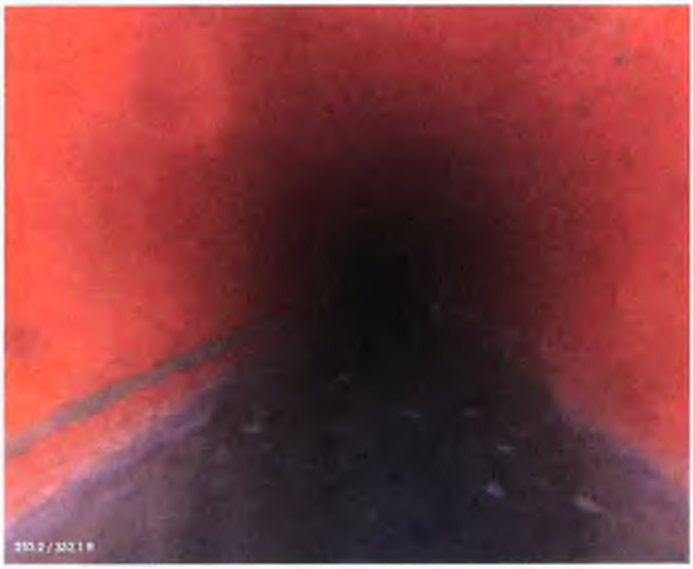


PACP Code:	TF
Description:	Tap Factory (flow 40%)
Distance (ft):	247.09
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

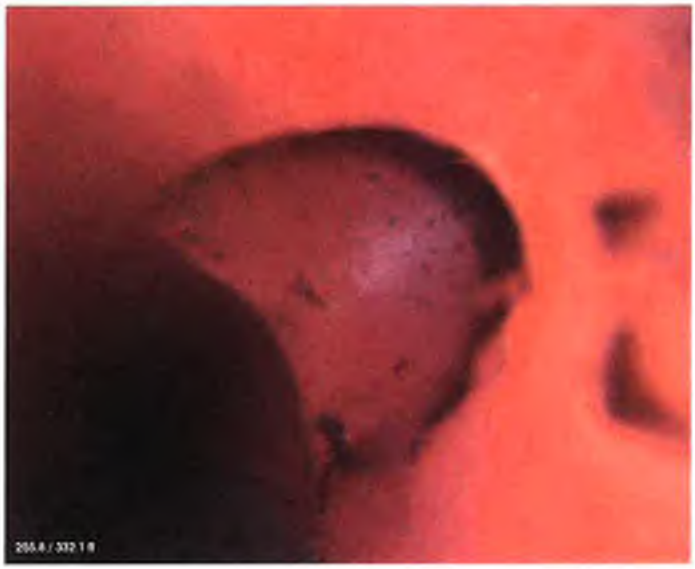


PACP Code:	TBA
Description:	Tap Break-in Active
Distance (ft):	248.86
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

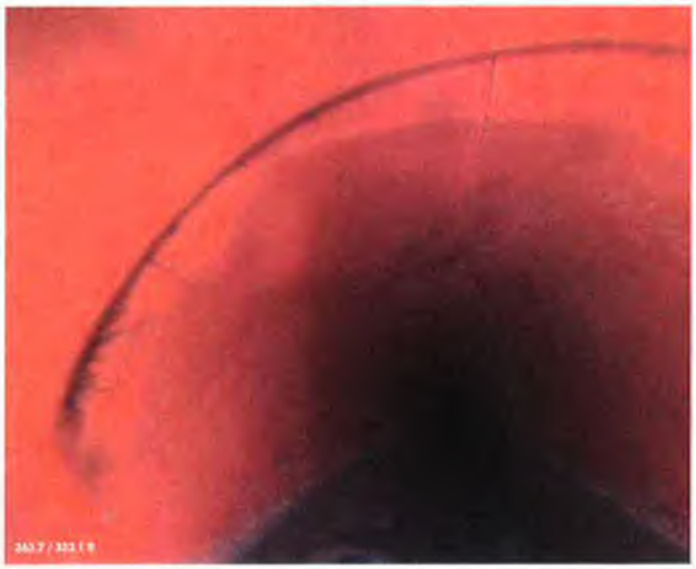
PACP Code:	RFJ
Description:	Roots Fine Joint
Distance (ft):	249.81
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	MGP
Description:	General Photo
	30'r.
Distance (ft):	253.18
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

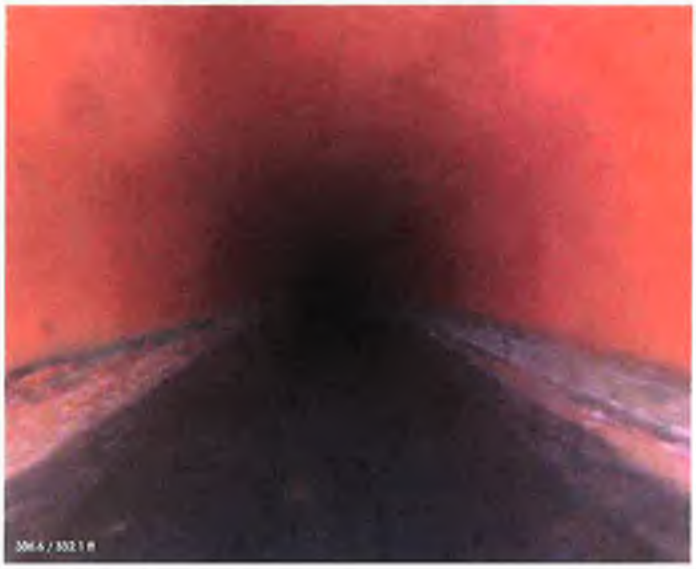


PACP Code:	TF
Description:	Tap Factory ✓
Distance (ft):	255.79
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



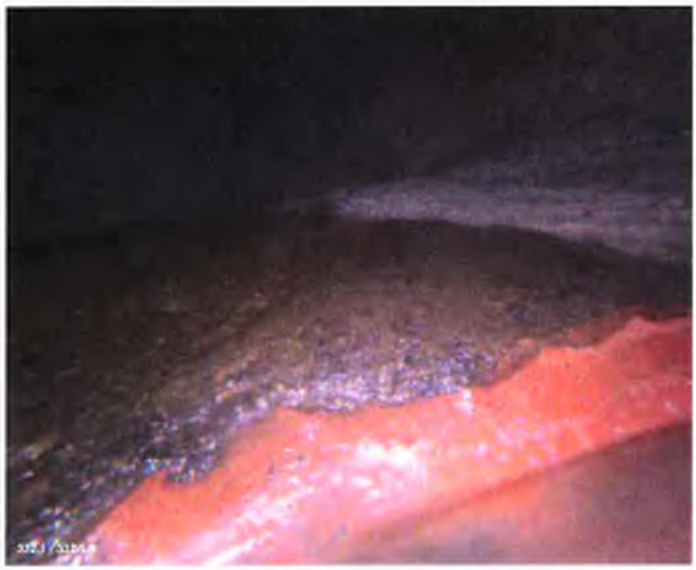
PACP Code:	CM
Description:	Crack Multiple
	(chip)
Distance (ft):	263.67
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	9
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	300.87
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level (40%)?
Distance (ft):	306.6
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	329.26
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	9
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	332.1
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Profile/Photo Observation Report

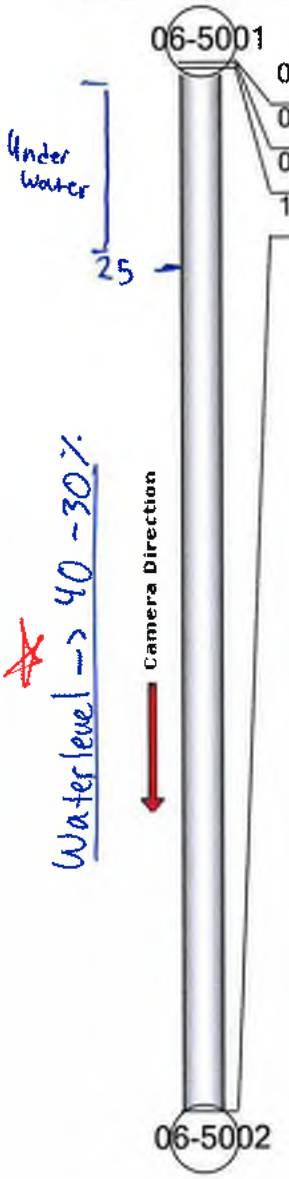
RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	176	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12022	Surveyor:	JJC	PSR:	06-5002 to 06-5001
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	South A St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS23-730
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:	* poor visibility		
Comment:			
Location Details:		Direction of Survey:	Upstream

US MH: 06-5002 DS MH: 06-5001 Total Length Surveyed (ft): 176

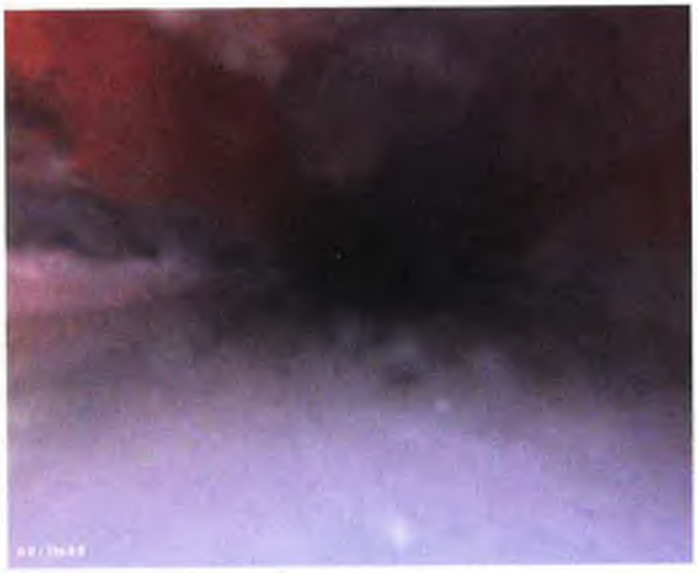
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole 40% water level	5	NA
0	MWL	Water Level 40%	13	NA
0.95	MCU	Camera Underwater	23	M 4
176.82	AMH	Manhole	383	NA



* Waterlevel -> 40 - 30%

- recommend CCTV again to get a better picture.
- consistently high water level
- ~~Manhole Joint 22~~

① SR From Start to Joint 22
② Consistent High water level ~(40%)
③ CCTV again to get a better picture



PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	0.95
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	176.82
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

2

Profile/Photo Observation Report

RedZone Robotics

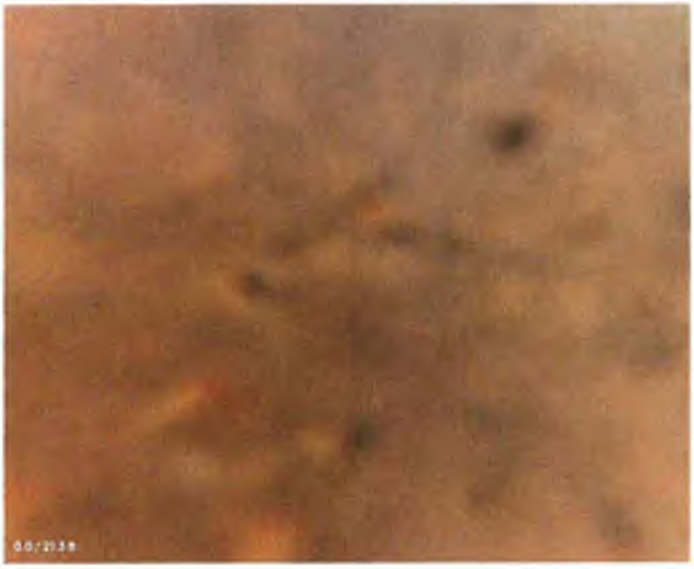
Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	21	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12022	Surveyor:	JJC	PSR:	06-5001 to 06-0015
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	South A St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS17-820
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

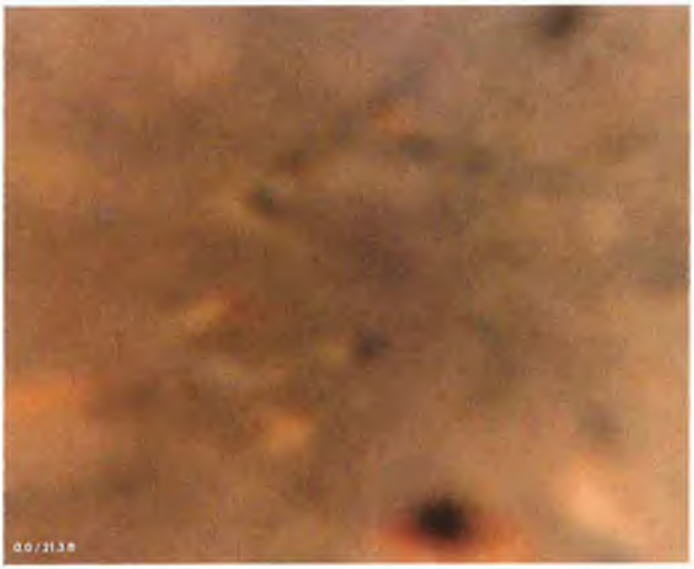
US MH: 06-5001 DS MH: 06-0015 Total Length Surveyed (ft): 21

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole Starts under water	5	NA
0	MWL	Water Level 80%	13	NA
0.08	MCU	Camera Underwater " "	22	M 4
9.33	MWL	Water Level 50% bad condition	48	NA
21.29	AMH	Manhole	80	NA

- Recommendation
  - Open Trench Pipe Replacement "entire length"

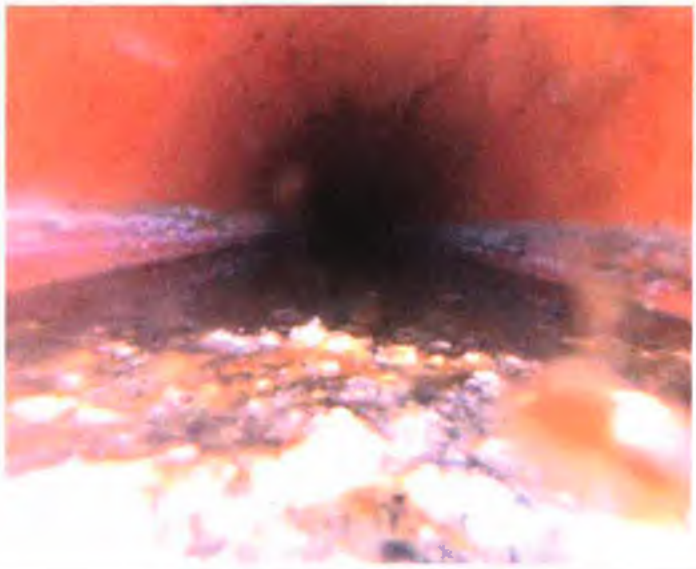


PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	0.08
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level
Distance (ft):	9.33
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	21.29
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	367	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12022	Surveyor:	JJC	PSR:	06-4001 to 06-0015
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Langford Ave.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS11-1205
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 06-4001 DS MH: 06-0015 Total Length Surveyed (ft): 367

Recommendation:

- high waterlevel consistently
- many defects,

Open Trench Pipe Replacement

• 8 tap factories / break ins } avg → tap every 16 ft

06-4001

Camera Direction

• Flow is fast

80 ← WL = 40%

40% WL

• Cleaning
• slightly Turbulent

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level WL = 15%	5	NA
0	AMH	Manhole	13	NA
0.96	CM	Crack Multiple J1 - 6	23	S 3
2.96	VC	Vermin Cockroach	35	M 1
11.36	CL	Crack Longitudinal J11 - 16	62	S 2
17.22	MWL	Water Level J11 - 21 WL = 40	84	NA
21.46	CM	Crack Multiple	101	S 3
37.72 50	TFA	Tap Factory Active WL = 40%	142	NA
50.49	MGP	General Photo	177	NA
50.83	CM	Crack Multiple J50 - 55 WL = 40	186	S 3
56.01	CL	Crack Longitudinal J56 - 60	206	S 2
66.34	CL	Crack Longitudinal WL = 40	238	S 2
87.63	TF	Tap Factory WL = 25%	289	NA
95.58	CL	Crack Longitudinal J95 - 100.5	315	S 2
100.72	CM	Crack Multiple	335	S 3
116.17	CM	Crack Multiple J116 - J122	376	S 3
131.71	CL	Crack Longitudinal J132 -	417	S 2
132.43 50	TF	Tap Factory	427	NA
145.2	CM	Crack Multiple J145 - 150.5	462	S 3
150.07	MGP	General Photo	480	NA
155.57	RFJ	Roots Fine Joint J155 - 160.5	500	M 1
155.57	CL	Crack Longitudinal J155 - 160.5	509	S 2
170.89	CM	Crack Multiple J170 - 175.5	549	S 3
171.72	TF	Tap Factory	559	NA
190.34 40	TF	Tap Factory	606	NA
193.16	CM	Crack Multiple J193 - 198.5	621	S 3
200.21	MGP	General Photo WL = 10%	644	NA
218.9	VC	Vermin Cockroach	690	M 1
224.33	CL	Crack Longitudinal WL = 40	710	S 2
234.5	DAE	Deposits Attached Encrustation - change material	741	M 3
234.74	TB	Tap Break-in	751	NA
235.2	TF	Tap Factory these are right next to each other	763	NA
243.09	SSS	Surface Spalling J243 - 248 WL = 20%	787	S 2
250.23	MGP	General Photo WL = 20%	811	NA
250.75	MGP	General Photo	820	NA
253.35	CM	Crack Multiple	833	S 3
268.85	CM	Crack Multiple	874	S 3
294.69	SSS	Surface Spalling	935	S 2
299.64	MGP	General Photo	955	NA
299.9	CL	Crack Longitudinal	963	S 2

06-0015

316.08	TFA	Tap Factory Active	1006	NA
324.43	TFA	Tap Factory Active	1032	NA
342.64	CM	Crack Multiple	1078	S 3
350.41	MGP	General Photo	1103	NA
363.19	CS	Crack Spiral	1137	S 2
367.27	AMH	Manhole	1155	NA

PACP Code: MWL
Description: Water Level

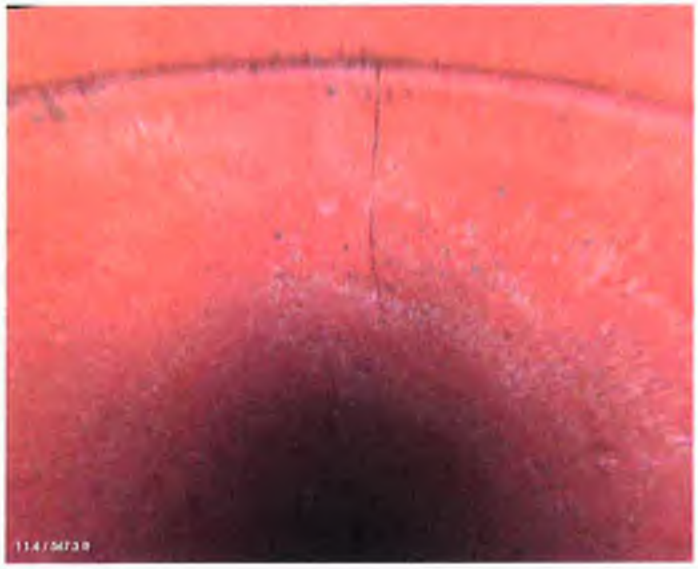
Distance (ft): 0
Structural Grade: NA
O&M Grade: NA
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Continuous Index:
Within 8" of Joint: False
Remarks:

PACP Code: AMH
Description: Manhole

Distance (ft): 0
Structural Grade: NA
O&M Grade: NA
Clock Start/From:
Clock To:
1st Value:
2nd Value:
Continuous Index:
Within 8" of Joint: False
Remarks: Begin survey

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	0.96
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	8
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

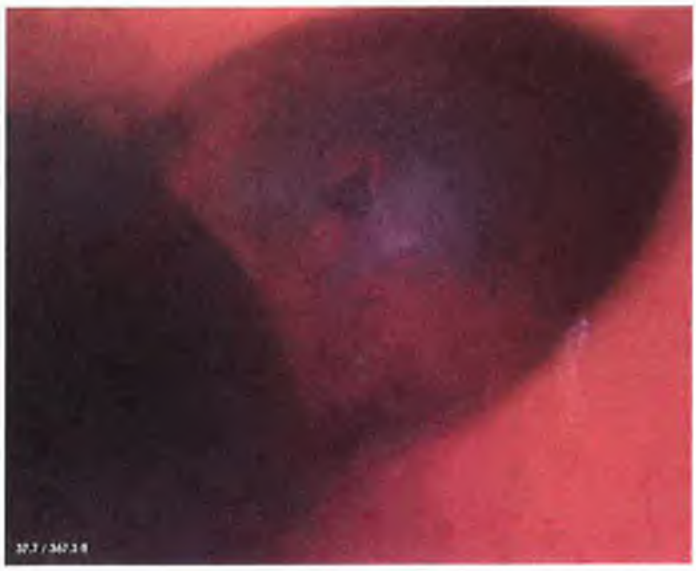
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	2.96
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	11.36
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

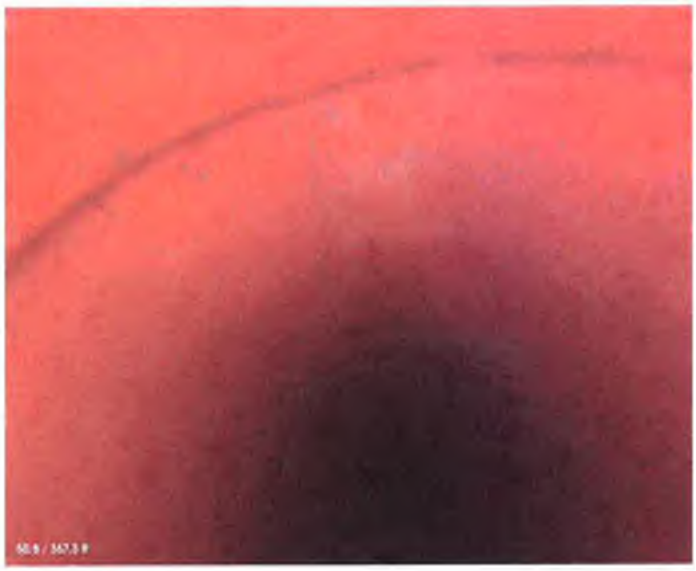
PACP Code:	MWL
Description:	Water Level
Distance (ft):	17.22
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	21.46
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	11
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

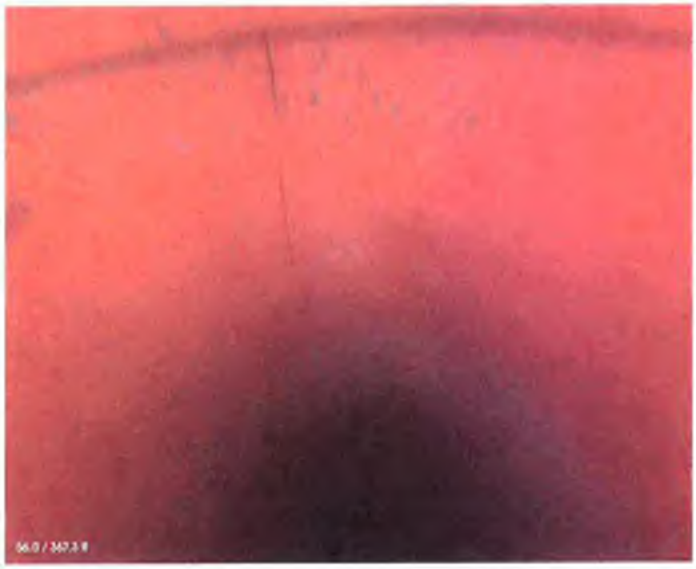


PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	37.72
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.49
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

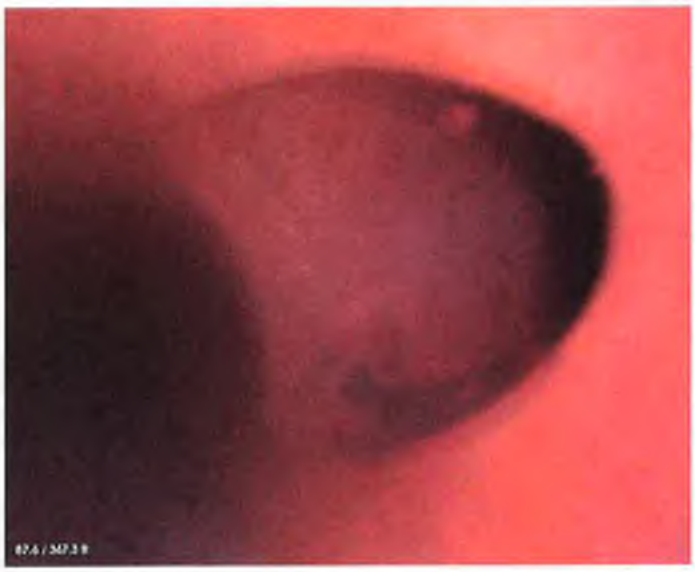


PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	50.83
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	11
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

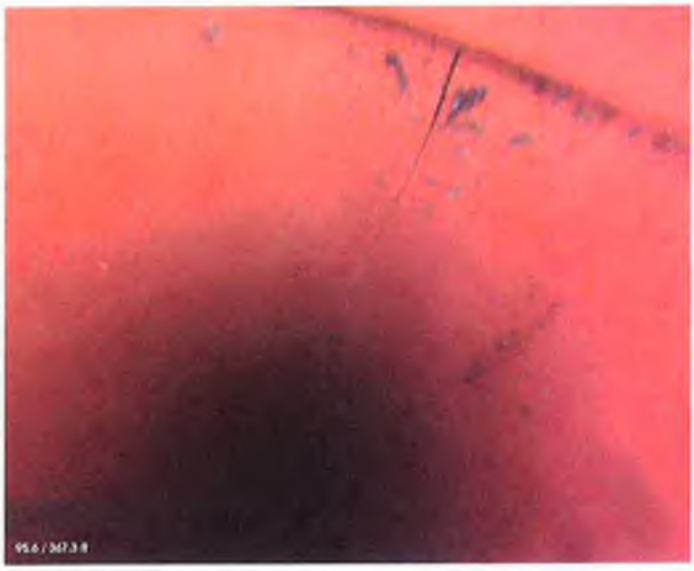


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	56.01
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	11
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

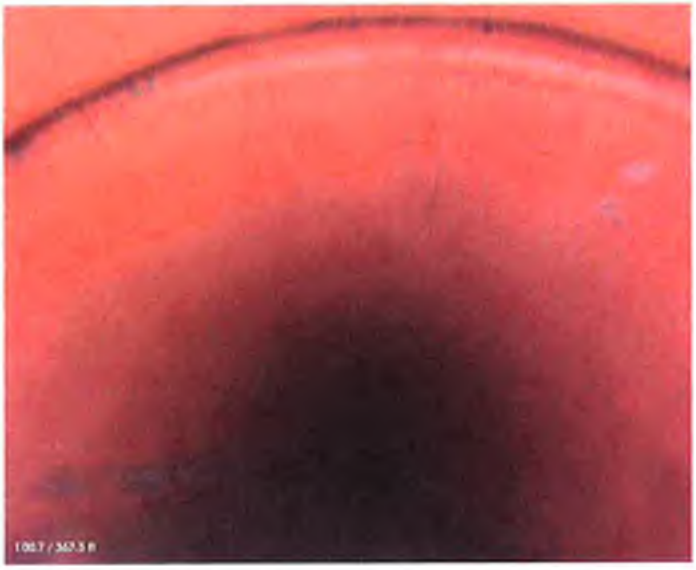
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	66.34
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



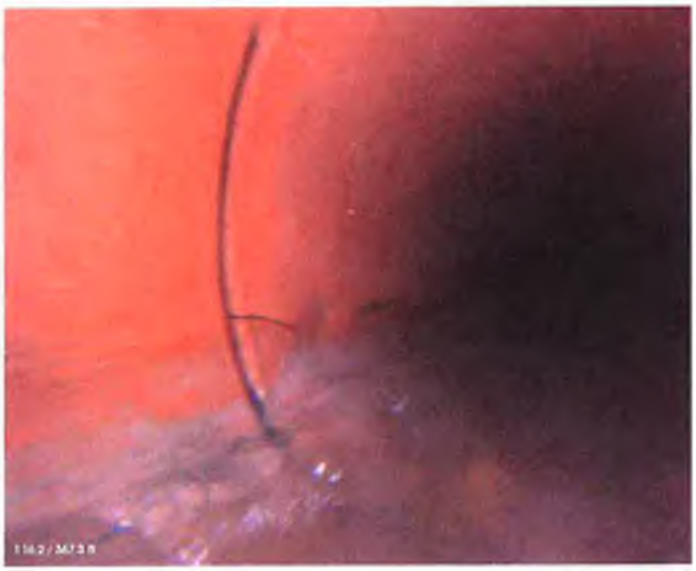
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	87.63
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



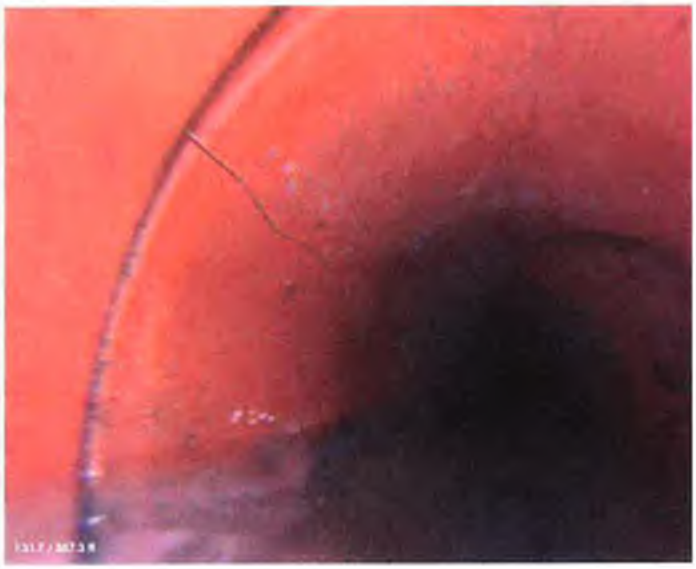
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	95.58
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



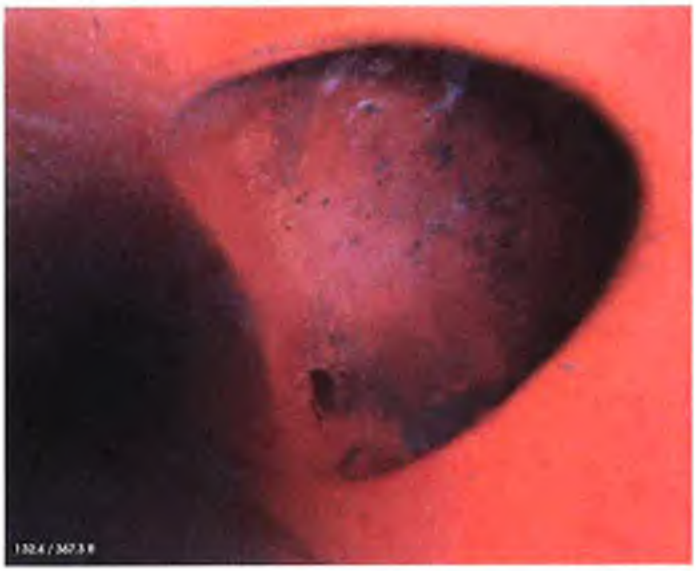
PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	100.72
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	116.17
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	8
Clock To:	9
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



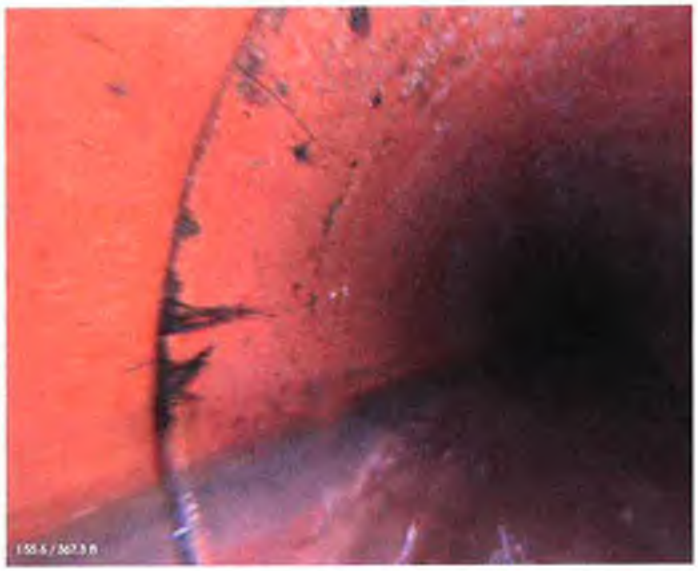
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	131.71
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



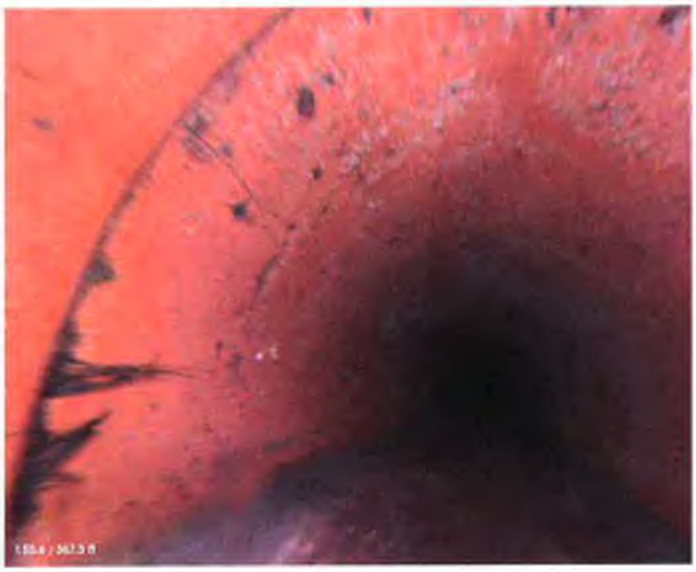
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	132.43
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	145.2
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.07
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

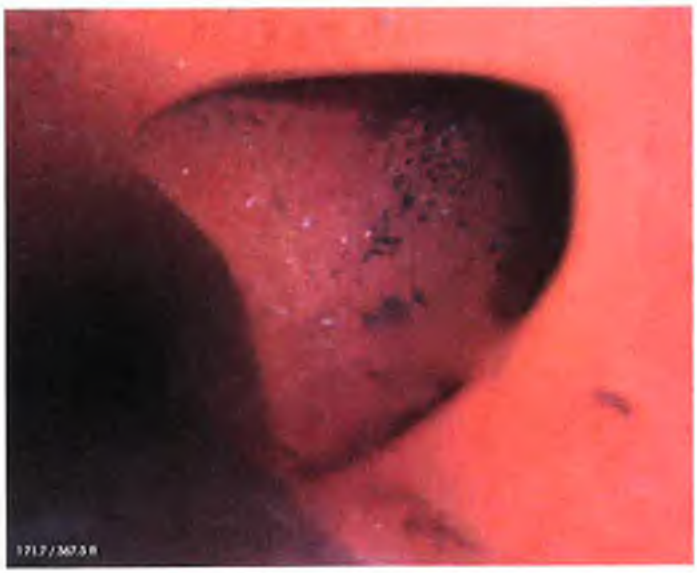


PACP Code:	RFJ
Description:	Roots Fine Joint
Distance (ft):	155.57
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



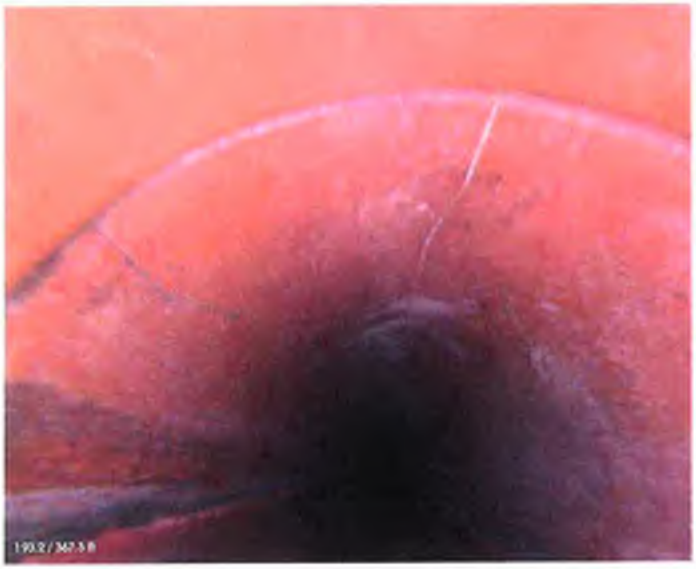
PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	155.57
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	170.89
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	171.72
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

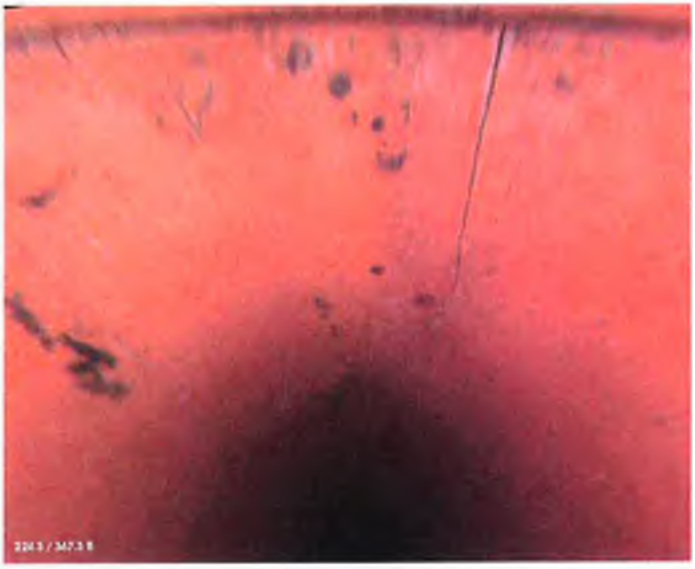
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	190.34
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	193.16
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

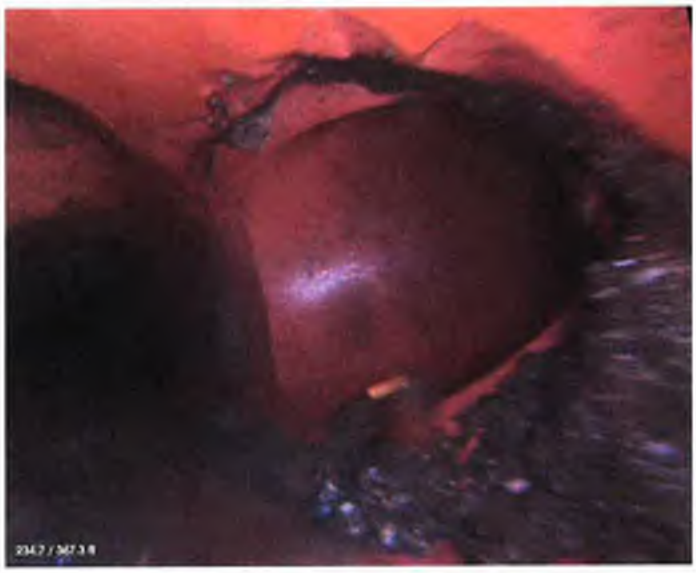
PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.21
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	218.9
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

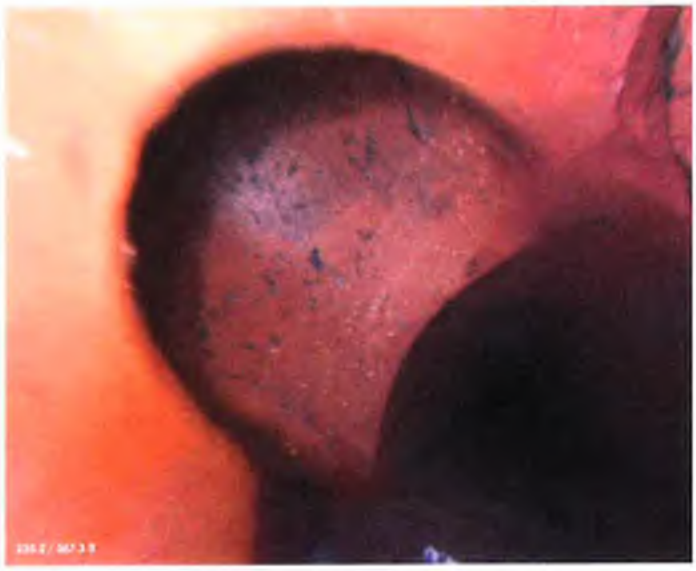


PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	224.33
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	DAE
Description:	Deposits Attached Encrustation
Distance (ft):	234.5
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	3
Clock To:	4
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	234.74
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



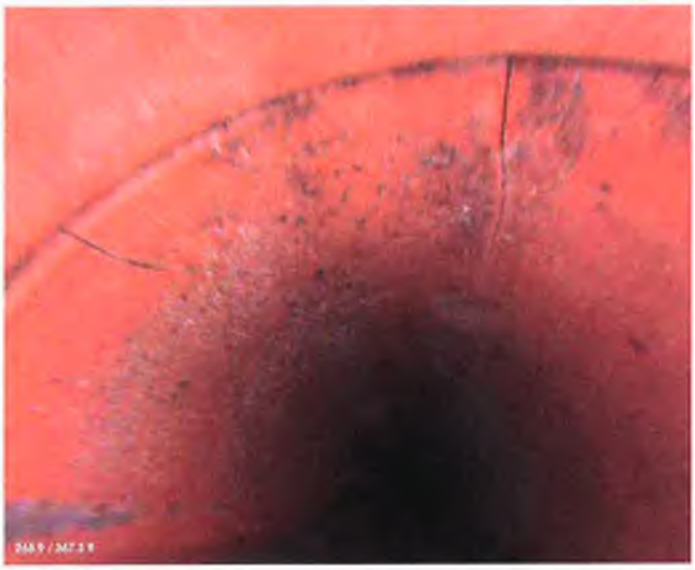
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	235.2
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	243.09
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	1
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

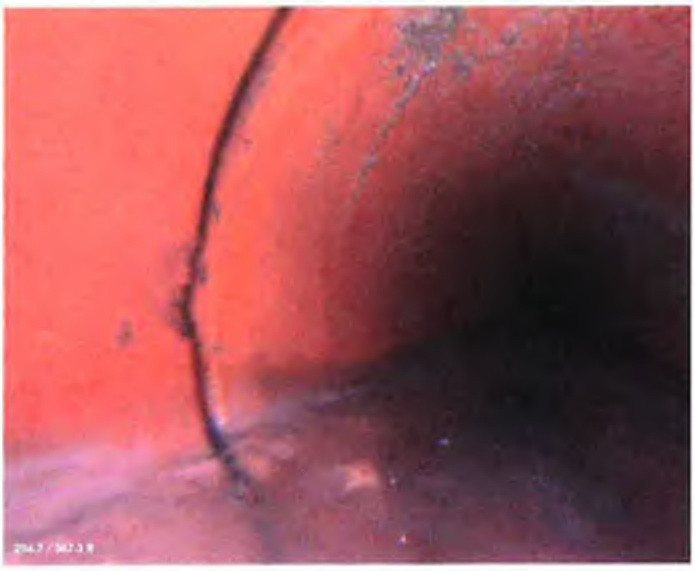
PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.23
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.75
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	253.35
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	9
Clock To:	10
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	268.85
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

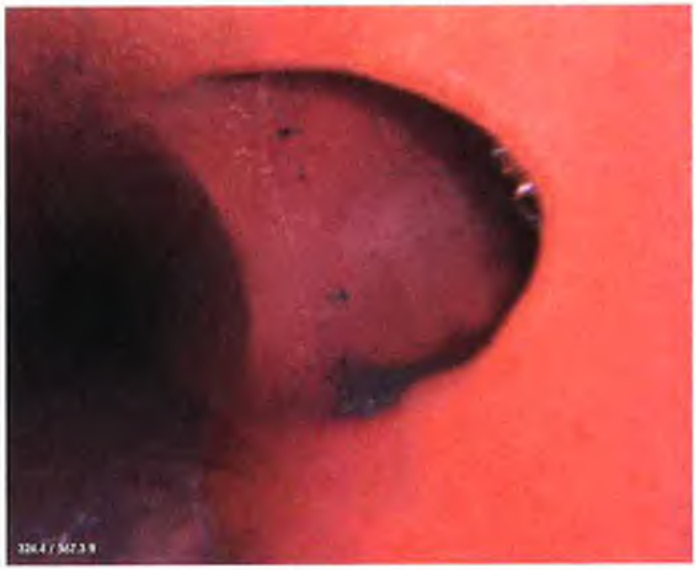


PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	294.69
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	9
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

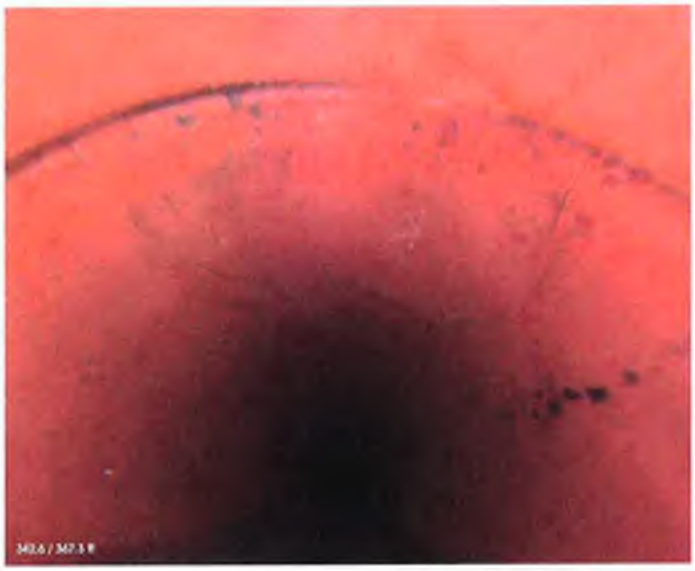
PACP Code:	MGP
Description:	General Photo
Distance (ft):	299.64
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	299.9
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	316.08
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	324.43
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	CM
Description:	Crack Multiple
Distance (ft):	342.64
Structural Grade:	3
O&M Grade:	NA
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	350.41
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CS
Description:	Crack Spiral
Distance (ft):	363.19
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	12
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	367.27
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

LOG-4002 to OG-4001

Q124

CCTV Observation Report

Harris & Associates

Date: 11/14/17
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: OG-4002 to OG-4001

Street: Langford ave.
City:
Use:

Flow Control:
Dia/Height (in): 8"
Material: VCP

Survey Direction: DS

US Manhole: OG-4002

DS Manhole: OG-4001

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWL	5%		
0'	VC			S01
50'	RFJ	9		
79'	MWLS	J79 → J92 (13') Sag (Not bad)		
90.6'	TF			
99'	TFA			
142.1'	TF			
179.9'	TBD			
260'	CL	J, 9		S2
275'	CC	J, 9-3		S3
285'	CC	8-11		S2
305.2'	CH (2)			S4
310.6'	AMH	End		

Rec: - Hinge crack at last joint
- Spot Repair J305 → End (5')

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Rec: - Spot Repair J36.5 - J41.5 (5')
• Significant fracturing at joint

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-S1406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	06-4013--06-4001	2016/12/14	14:22	STOCKTON AV	ARVIN,CA.

Location details: Spread sheet says "06-4013 _ 06-4002"

Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
06-4013			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
06-4001					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				266.4			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	2	AMH									CITY OF ARVIN-06-4013-06-400 1 AMH at 0.0 ft (D).jpg	START
0.0	18	MWL					5					
0.0	18	VC									CITY OF ARVIN-06-4013-06-400 1 VC at 0.0 ft (D).jpg	
5.9	49	CM							2	10	CITY OF ARVIN-06-4013-06-400 1 CM at 5.9 ft (D).jpg	
18.2	86	TBA			4				3		CITY OF ARVIN-06-4013-06-400 1 TBA at 18.2 ft (D).jpg	
36.3	170	FM							6	7		J36.5 - J41.5 (5')
36.3	178	CM							2	6	CITY OF ARVIN-06-4013-06-400 1 CM at 36.3 ft (D).jpg	

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Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/14	06-4013	06-4013--06-4001	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
48.7	207	TBA				4				3		CITY OF ARVIN-06-4013-06-400 1 TBA at 48.7 ft (D).jpg	
67.3	263	CM								3	6	CITY OF ARVIN-06-4013-06-400 1 CM at 67.3 ft (D).jpg	
101.4	343	TFA				4				3		CITY OF ARVIN-06-4013-06-400 1 TFA at 101.4 ft (D).jpg	
113.8	393	CM								5	10	CITY OF ARVIN-06-4013-06-400 1 CM at 113.8 ft (D).jpg	
186.7	578	TFA				4				9		CITY OF ARVIN-06-4013-06-400 1 TFA at 186.7 ft (D).jpg	
266.4	759	AMH											SURVEY COMPLETE

Rec: - Spot Repair Sag at 23' (Estimating 10')
↓
Should be Verified

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PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	1-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	06-3007--06-3006	2016/12/12	12:16	STOCKTON AV	ARVIN,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	06-3007			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
06-3006					U		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				234.9			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional Info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0		AMH									CITY OF ARVIN-06-3007-06-3006 AMH at 0.0 ft (U).jpg	START .AGAINST FLOW DUE TO UPSTREAM MH BEING SEALED SHUT
0.0	8	MWL					5				CITY OF ARVIN-06-3007-06-3006 MWL at 0.0 ft (U).jpg	
0.0	26	VC									CITY OF ARVIN-06-3007-06-3006 VC at 0.0 ft (U).jpg	
6.7	52	TFA			4				9		CITY OF ARVIN-06-3007-06-3006 TFA at 6.7 ft (U).jpg	
20.6	78	TFA			4				3		CITY OF ARVIN-06-3007-06-3006 TFA at 20.6 ft (U).jpg	
23.7	92	MWLS					20				CITY OF ARVIN-06-3007-06-3006 MWLS at 23.7 ft (U).jpg	Video cuts, Not sure how long Sag is Estimating 10 feet

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Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/12	06-3007	06-3007--06-3006	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
28.8	105	TFA				4				9		CITY OF ARVIN-06-3007-06-300 6 TFA at 28.8 ft (U).jpg	
65.2	105	FM								6	10	CITY OF ARVIN-06-3007-06-300 6 FM at 65.2 ft (U).jpg	
83.8	145	TFC				4				9		CITY OF ARVIN-06-3007-06-300 6 TFC at 83.8 ft (U).jpg	
86.4	165	TBA				4				3		CITY OF ARVIN-06-3007-06-300 6 TBA at 86.4 ft (U).jpg	
112.9	216	TFA				4				9		CITY OF ARVIN-06-3007-06-300 6 TFA at 112.9 ft (U).jpg	
161.9	312	TFA				4				9		CITY OF ARVIN-06-3007-06-300 6 TFA at 161.9 ft (U).jpg	
165.8	324	TFA				4				3		CITY OF ARVIN-06-3007-06-300 6 TFA at 165.8 ft (U).jpg	
194.5	377	TFA				4				9		CITY OF ARVIN-06-3007-06-300 6 TFA at 194.5 ft (U).jpg	
197.9	393	TFA				4				3		CITY OF ARVIN-06-3007-06-300 6 TFA at 197.9 ft (U).jpg	
234.9	464	TFA				4				3		CITY OF ARVIN-06-3007-06-300 6 TFA at 234.9 ft (U).jpg	
234.9	525	CM								1	12	CITY OF ARVIN-06-3007-06-300 6 CM at 234.9 ft (U).jpg	
234.9	588	TFA				4				9		CITY OF ARVIN-06-3007-06-300 6 TFA at 234.9 ft (U)17.jpg	
234.9	630	TFA				4				3		CITY OF ARVIN-06-3007-06-300 6 TFA at 234.9 ft (U)18.jpg	
234.9	721	AMH											SURVEY COMPLETE

- Report doesn't match, Survey was not abandoned

Rec: CIPP Lining Full (302')

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PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	06-3002--06-3001	2016/12/12	10:08	CARDIFF AV (2)	ARVIN,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	06-3002			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
06-3001					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				~~147.0~~ 302'			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	3	AMH									CITY OF ARVIN-06-3002-06-300 1 AMH at 0.0 ft (D).jpg	START
0.0	15	MWL					5				CITY OF ARVIN-06-3002-06-300 1 MWL at 0.0 ft (D).jpg	
6.0	43	DAG S					10		8	4	CITY OF ARVIN-06-3002-06-300 1 DAGS at 6.0 ft (D).jpg	
10.1	90	CM						J	2	10	CITY OF ARVIN-06-3002-06-300 1 CM at 10.1 ft (D).jpg	J10 - J13
11.0	110	TFA			4				9		CITY OF ARVIN-06-3002-06-300 1 TFA at 11.0 ft (D).jpg	
12.8	228	CM							12	11	CITY OF ARVIN-06-3002-06-300 1 CM at 12.8 ft (D).jpg	
23.0	258	FM							3	5	CITY OF ARVIN-06-3002-06-300 1 FM at 23.0 ft (D).jpg	

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Fax: 407-425-1569

Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/12	06-3002	06-3002--06-3001	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
23.9	274	TFA				4				3		CITY OF ARVIN-06-3002-06-300 1 TFA at 23.9 ft (D).jpg	
26.3	333	CM								6	10	CITY OF ARVIN-06-3002-06-300 1 CM at 26.3 ft (D).jpg	
40.7	391	OBM						15		5	7	CITY OF ARVIN-06-3002-06-300 1 OBM at 40.7 ft (D).jpg	
42.2	431	CM								5	11	CITY OF ARVIN-06-3002-06-300 1 CM at 42.2 ft (D).jpg	
43.0	459	TFA				4				3		CITY OF ARVIN-06-3002-06-300 1 TFA at 43.0 ft (D).jpg	
54.9	500	CL								8		CITY OF ARVIN-06-3002-06-300 1 CL at 54.9 ft (D).jpg	
54.9	512	CM								1	5	CITY OF ARVIN-06-3002-06-300 1 CM at 54.9 ft (D).jpg	
66.3	553	TFA				4				9		CITY OF ARVIN-06-3002-06-300 1 TFA at 66.3 ft (D).jpg	
100.3	664	TFA				4				9		CITY OF ARVIN-06-3002-06-300 1 TFA at 100.3 ft (D).jpg	
100.3	686	MGP											PUSHING BRICK FOR 60' SO FAR
100.3	686	MWL S						15				CITY OF ARVIN-06-3002-06-300 1 MWLS at 100.3 ft (D).jpg	
108.6	711	TFA				4				3		CITY OF ARVIN-06-3002-06-300 1 TFA at 108.6 ft (D).jpg	
122.3	765	MWL						5				CITY OF ARVIN-06-3002-06-300 1 MWL at 122.3 ft (D).jpg	

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/12	06-3002	06-3002--06-3001	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
141.4	834	MWL S						15				CITY OF ARVIN-06-3002-06-3001 MWLS at 141.4 ft (D).jpg	
147.0	977	MSA											SURVEY ABANDONED.CAMERA CAUGHT ON PIPE MAT OR BRICK THAT IT PUSHED FOR 100'

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Rec'd CIPP Lining full (343')

PACP Sewer Report

Surveyed by:	Certificate No:	Owner:	Survey Customer:	Drainage area:	Sheet number:
Tom Eckert	J-51406021419		VEOLIA ARVIN		

Work order:	Pipeline segment ref:	Start date/time:		Street:	City:
	06-3004--063001	2016/12/13	11:49	FALLBROOK AV	ARVIN,CA.

Location details:	Upstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:
	06-3004			

Downstream manhole No:	Rim to invert:	Grade to invert:	Rim to grade:	Sewer use:	Direction:	Flow control:	Height:
06-3001					D		8

Width:	Shape:	Material:	Ln. method:	Pipe joint length:	Total length:	Length surveyed:	Year laid:	Year renewed:	Media label:
	C	VCP				342.5			

Purpose:	Sewer category:	Pre-cleaning	Date cleaned:	Weather:	Location code:	Additional info:
		J				

Starting access point:

Easting:	Northing:	Elevation:	Coordinate system:	GPS accuracy:

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Continuous Defect Severity	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
0.0	1	AMH										START
0.0	15	MWL					10					
0.0	31	VC									CITY OF ARVIN-06-3004-06-300 1 VC at 0.0 ft (D).jpg	
6.9	66	CL						J	12		CITY OF ARVIN-06-3004-06-300 1 CL at 6.9 ft (D).jpg	J7 - J12
74.6	208	CM						J	5	11	CITY OF ARVIN-06-3004-06-300 1 CM at 74.6 ft (D).jpg	J74 - J79
85.7	237	TFA			4				3		CITY OF ARVIN-06-3004-06-300 1 TFA at 85.7 ft (D).jpg	
87.9	253	MWL S					20				CITY OF ARVIN-06-3004-06-300 1 MWLS at 87.9 ft (D).jpg	No sig. rise

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/13	06-3004	06-3004--063001	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
93.5	293	CM							J	4	9	CITY OF ARVIN-06-3004-06-300 1 CM at 93.5 ft (D).jpg	J93 - J98
98.2	335	CM							J	6	10	CITY OF ARVIN-06-3004-06-300 1 CM at 98.2 ft (D).jpg	J98 - J103
159.5	436	CM							J	6	11	CITY OF ARVIN-06-3004-06-300 1 CM at 159.5 ft (D).jpg	J160 - J165
182.1	469	MWL						10				CITY OF ARVIN-06-3004-06-300 1 MWL at 182.1 ft (D).jpg	
220.8	550	CM							J	8	12	CITY OF ARVIN-06-3004-06-300 1 CM at 220.8 ft (D).jpg	J221 - J226
221.7	578	TFA				4				3		CITY OF ARVIN-06-3004-06-300 1 TFA at 221.7 ft (D).jpg	
228.9	628	CM							J	3	6	CITY OF ARVIN-06-3004-06-300 1 CM at 228.9 ft (D).jpg	
249.8	677	CM								9	9	CITY OF ARVIN-06-3004-06-300 1 CM at 249.8 ft (D).jpg	
254.5	722	CM								5	1	CITY OF ARVIN-06-3004-06-300 1 CM at 254.5 ft (D).jpg	
264.8	767	CM								2	10	CITY OF ARVIN-06-3004-06-300 1 CM at 264.8 ft (D).jpg	
270.1	808	CM								1	9	CITY OF ARVIN-06-3004-06-300 1 CM at 270.1 ft (D).jpg	
275.3	853	CM								12	11	CITY OF ARVIN-06-3004-06-300 1 CM at 275.3 ft (D).jpg	
292.1	901	TFA				4				10		CITY OF ARVIN-06-3004-06-300 1 TFA at 292.1 ft (D).jpg	
295.8	950	CM								12	6	CITY OF ARVIN-06-3004-06-300 1 CM at 295.8 ft (D).jpg	

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Surveyed by:	Owner:	Start date/time:	Upstream manhole No:	Pipeline segment ref:	Sheet number:
Tom Eckert		2016/12/13	06-3004	06-3004--063001	

Distance (Feet) (Meters)	Video Ref.	Group/ Descriptor	Modifier/ Severity	Continuous Defect	S/M/L	Value Inches (mm) 1st	2nd	%	Joint	Circumferential Location At/From	to	Image Ref.	Remarks
305.8	1003	B								2	10	CITY OF ARVIN-06-3004-06-300 1 B at 305.8 ft (D).jpg	
310.9	1027	CM								2	10	CITY OF ARVIN-06-3004-06-300 1 CM at 310.9 ft (D).jpg	
315.9	1081	CM								6	4	CITY OF ARVIN-06-3004-06-300 1 CM at 315.9 ft (D).jpg	
321.7	1109	CM								2	10	CITY OF ARVIN-06-3004-06-300 1 CM at 321.7 ft (D).jpg	
326.1	1143	CM								2	9	CITY OF ARVIN-06-3004-06-300 1 CM at 326.1 ft (D).jpg	
331.6	1188	CM								12	6	CITY OF ARVIN-06-3004-06-300 1 CM at 331.6 ft (D).jpg	
342.5	1220	AMH											SURVEY COMPLETE

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 24 / 30

MANHOLE NO.: 06 – 4016

Surveyed by: Danny and Johnny

Street: Franklin Street

Cert. no.:

MH Location Details:
Intersection of Franklin and Strand Ave

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / ~~Sound~~ / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / ~~Sound~~ / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Stairs corroded, aggregate showing

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 8 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-4015

Surveyed by: J-L

Street: Combs ave

Cert. no.:

MH Location Details:

Corner of Combs → Strand

Access Type: Assumes Manhole; *Specify if other:* J-L

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

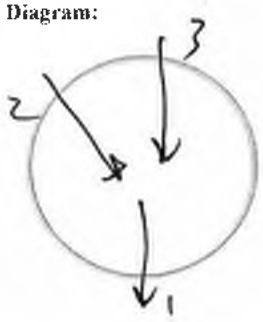
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level I**
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-4019

Surveyed by: J-L

Street: S. A / Combs

Cert. no.:

MH Location Details:

Int. S. A st / Combs

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Ins. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney → wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06 - 5002

Surveyed by: J-L

Street: S. A St

Cert. no.:

MH Location Details:

Adj. to alley before Langford

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

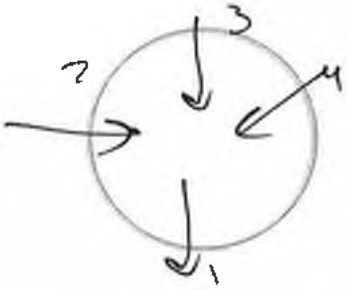
Cone Condition: Defective / Sound / Unknown Hole

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.H (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-5001

Surveyed by: J-L

Street: S. A / Langford

Cert. no.:

MH Location Details:

Int. S. A / Langford
West MH ↑ N

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

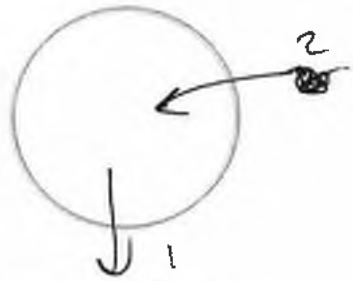
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair Chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06 - 0015

Surveyed by: J - L

Street:

Cert. no.:

MH Location Details:

Int. S. A / Langford

East MH ↑N

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Sound **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown corroded

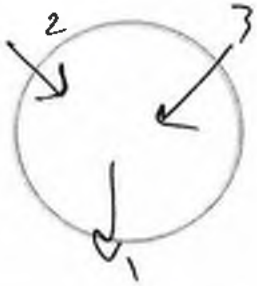
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

~~[illegible]~~ Good

Recommendation	**Replace / Repair / Do Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: OG-4001

Surveyed by: J-L

Street: Langford / Cardiff

Cert. no.:

MH Location Details:

Int Langford / cardiff

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

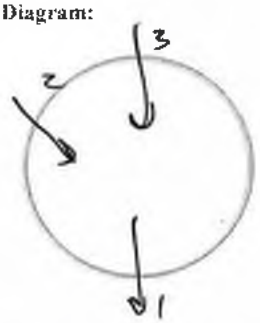
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06 - 4002

Surveyed by: J - L

Street: Stockton / Langford

Cert. no.:

MH Location Details:

Int. Stockton / Langford

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Corroded

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown Cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair wall, chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06 - 4013

Surveyed by: J-L

Street: Stockton ave.

Cert. no.:

MH Location Details:

749 Stockton ave

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

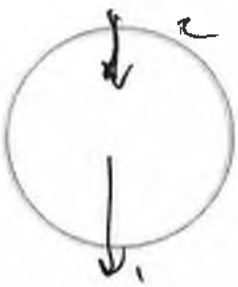
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair Chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 6 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-3007

Surveyed by: J-c

Street: Stockton Ave.

Cert. no.:

MH Location Details:

801 Stockton Ave

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

* Assumes outgoing pipe @ 6.00*

MH Condition Comments:

Couldn't Open

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-3002

Surveyed by: J-L

Street: Cardiff ave

Cert. no.:

MH Location Details:

849 Cardiff ave

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: ~~Broken~~ / ~~Gouged~~ / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Broken

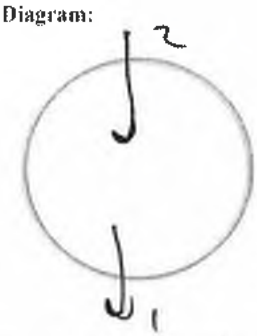
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level I**
Inspection Status:	**S.I.** (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-3001

Surveyed by: J-L

Street: Fallbrook ave

Cert. no.:

MH Location Details:

Int Fallbrook / Circlitt

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound — covered w/ asphalt

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown — cracked

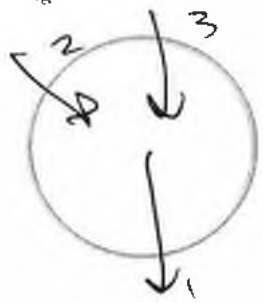
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 6 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-3004

Surveyed by: J-L

Street: Fallbrook ave

Cert. no.:

MH Location Details:

Int. Stockton / Fallbrook

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Corroded

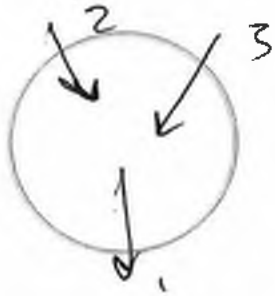
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-3006

Surveyed by: J-L

Street: Stockton

Cert. no.:

MH Location Details:

851 Stockton ave

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Appendix N: West Smothermon Park Pipeline Project Reference Materials

West Smothermon Park Pipeline Project Cost Estimate

Reach No.	Item	Action	Cost
Number	Reach		
1	03-6014_03-0017_11/11/2011_645.900024_	Replacement	$ 155,000.00
2	03-6005_03-0015_11/10/2011_643.400024_	Replacement	$ 154,000.00
3	03-6009_03-6008_10/30/2009_U	Replacement	$ 40,000.00
4	03-6008_03-6007_10/30/2009_D	Spot Repair	$ 15,000.00
5	03-6007_03-0013_10/30/2009_D	Spot Repair	$ 2,000.00
6	03-6003_03-0013_11/10/2011_690.5_D	Replacement	$ 154,000.00
7	03-6004_03-6003_11/10/2011_589.099976_D	Replacement	$ 160,000.00
8	03-6001_03-0012_11/10/2011_644.200012_	Replacement	$ 155,000.00
9	03-6002_03-6001_11/10/2011_645.5_D	Replacement	$ 155,000.00
10	03-5001_03-0011_11/9/2011_549.299988_D	Replacement	$ 127,000.00
11	03-5003_03-5001_11/9/2011_393.100006_D	Replacement	$ 96,000.00
12	03-5005_03-5003_11/9/2011_410.100006_D	Replacement	$ 96,000.00
13	03-5006_03-5005	Replacement	$ 34,000.00
	Manholes		
	03_0014	Repair	$ 2,000.00
	03_6005	Replace	$ 8,000.00
	03_6003	Replace	$ 8,000.00
	03_6004	Replace	$ 8,000.00
	03_6002	Replace	$ 8,000.00
	03_6001	Replace	$ 8,000.00
	03_0012	Replace	$ 8,000.00
	03_5001	Replace	$ 8,000.00
	03_5003	Replace	$ 8,000.00
	03_5005	Replace	$ 8,000.00
	03_5006	Replace	$ 8,000.00
	03_0011	Replace	$ 8,000.00
	03_6009	Replace	$ 8,000.00
	03_6008	Replace	$ 8,000.00
	03_0013	Replace	$ 8,000.00
	03_0015	Replace	$ 8,000.00
	03_0017	Replace	$ 8,000.00
	03_6014	Replace	$ 8,000.00
	Total Construction Cost		$ 1,481,000.00
	Engineering & Construction Management	25%	$ 370,000.00
	Contingencies	20%	$ 296,000.00
	Administrative	5%	$ 74,000.00
	CIP Estimate		**$ 2,221,000.00**

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 03-6014 to 03-0017

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole: 03-6014	DS Manhole: 03-0017	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* No CCTV or Report on file

Recommendation
- Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-6005 to 03-0015

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material:

Survey Direction:

US Manhole: 03-6005

DS Manhole: 03-0015

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* No CCTV or Report on file

Recommendation

- Open Trench Pipe Replacement

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	165	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12022	Surveyor:	JJC	PSR:	03-6009 to 03-6008
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Monroe St. Alley	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Alley	Tape/Media #:	NS19-677
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Upstream

US MH: 03-6009 DS MH: 03-6008 Total Length Surveyed (ft): 165

* pipe → 5.5' sections

Position	Code	Observation		Video (sec)	Grade
0	AMH	Manhole	40% waterlevel	5	NA
0	MWL	Water Level		13	NA
10.27	MWL	Water Level	50% water Level	42	NA
50.21	MGP	General Photo	40% WL	130	NA
100.32	MGP	General Photo	55%	238	NA
136.02	MCU	Camera Underwater		318	M 4
149.77	MGP	General Photo		354	NA
155.08	MCU	Camera Underwater		372	M 4
164.7	AMH	Manhole		400	NA

Consistently high water level

PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	10.27
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.21
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.32
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	136.02
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	149.77
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	155.08
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	164.7
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009 11:48	Weather:	Dry		
Pipe Length (ft):	168	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12022	Surveyor:	JJC	PSR:	03-6008 to 03-6007
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Monroe St. Alley	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Alley	Tape/Media #:	NS23-727
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 03-6008 DS MH: 03-6007 Total Length Surveyed (ft): 168

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level ~~[illegible]~~ no w L	14	NA
1.75	VC	Vermin Cockroach	26	M 1
4.24	TB	Tap Break-In	40	NA
12.95	MWL	Water Level ~~[illegible]~~ 25%	66	NA
25.41	MGO	General Observation Lens Fog (Poor Vis)	99	NA
50.36 68.8	MGP	General Photo mysterious Rectangular Patch?	157	NA
100.35 138.8	MGP	General Photo Root / Concrete	266	NA
152.11	MCU	Camera Underwater	377	M 4
168.41	AMH	Manhole	418	NA

5' stick of pipe

Joint starts @ 140 → 152-158

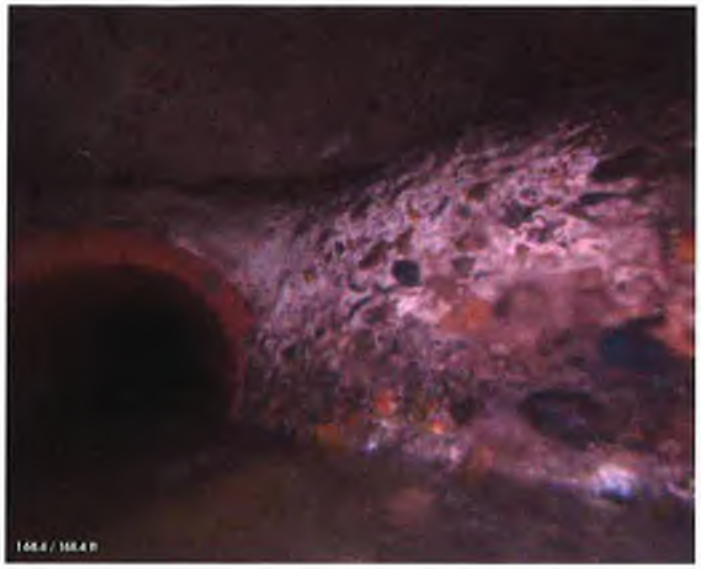
~~[illegible]~~

* CCTV Again

PACP Code:	TB
Description:	Tap Break-in
Distance (ft):	4.24
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	9
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	12.95
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGO
Description:	General Observation
Distance (ft):	25.41
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Lens is fogged. Poor visiblity



PACP Code:	AMH
Description:	Manhole
Distance (ft):	168.41
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	338	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12022	Surveyor:	JJC	PSR:	03-6007 to 03-0013
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Monroe St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Alley	Tape/Media #:	NS19-678
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 03-6007 DS MH: 03-0013 Total Length Surveyed (ft): 338

03-6007

Camera Direction

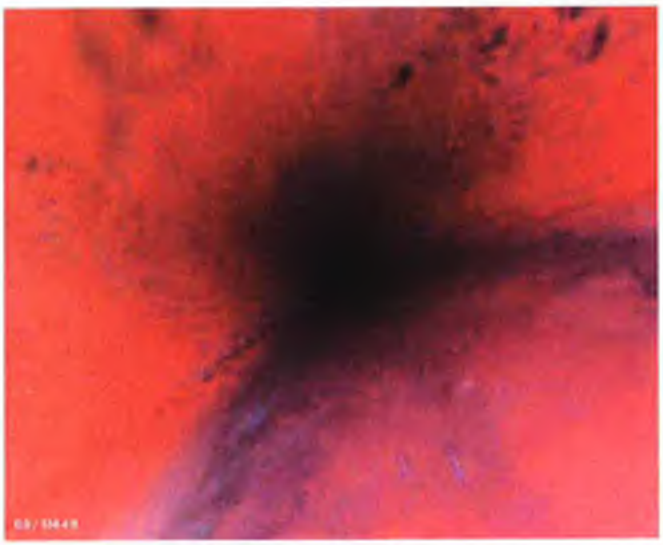
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level 30%	13	NA
2.29	VC	Vermin Cockroach	26	M 1
50.16	MGP	General Photo	132	NA
62.95	TFA	Tap Factory Active	166	NA
100.24	MGP	General Photo	250	NA
112.05	TFA	Tap Factory Active	282	NA
149.82	VC	Vermin Cockroach	368	M 1
150.91	MGP	General Photo	381	NA
152.82	TFA	Tap Factory Active 50% WL J150 - J165	393	NA
170.94	TFA	Tap Factory Active	439	NA
200.08	MGP	General Photo	507	NA
229.96	TFA	Tap Factory Active	575	NA
250.29	MGP	General Photo	626	NA
283.95	TFA	Tap Factory Active	701	NA
300.42	MGP	General Photo	745	NA
321.29	MWL	Water Level	795	NA
334.82	JOM	Joint Offset Medium	830	S 1
334.99	MMC	Material Change	838	NA
335.82	TF	Tap Factory	848	NA
338.39	AMH	Manhole	863	NA

03-0013

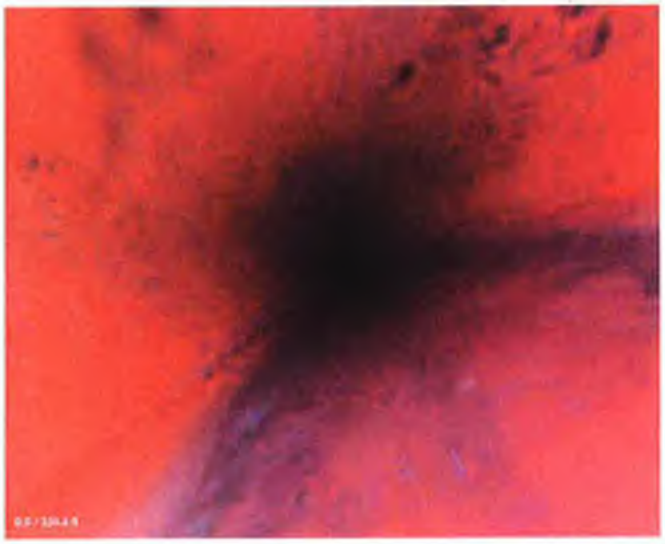
315 – 327 -> Water Level Increase 50%.

Recommendation

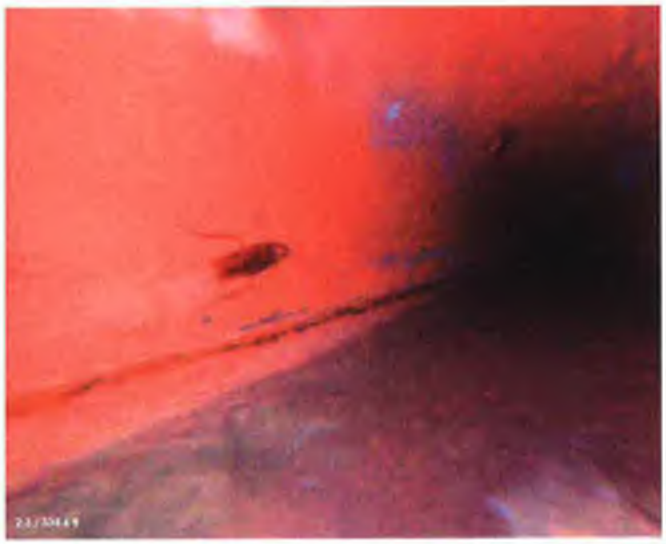
Spot Repair 335 – 338



PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



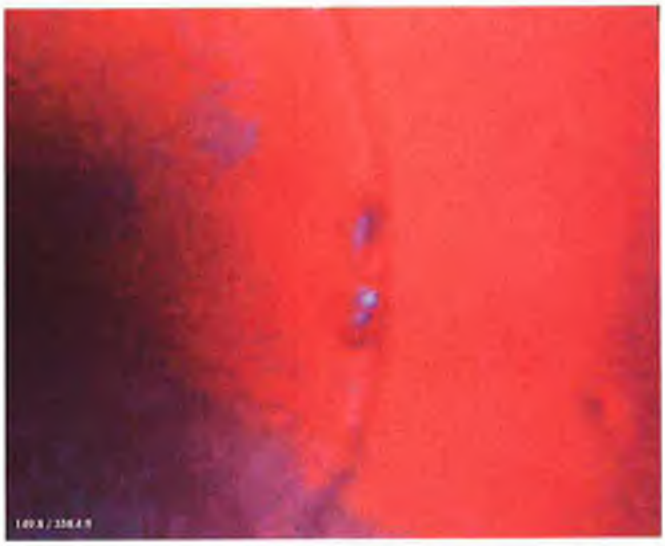
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	2.29
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.16
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	62.95
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.24
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	112.05
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	149.82
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.91
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	152.82
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	11
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	170.94
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

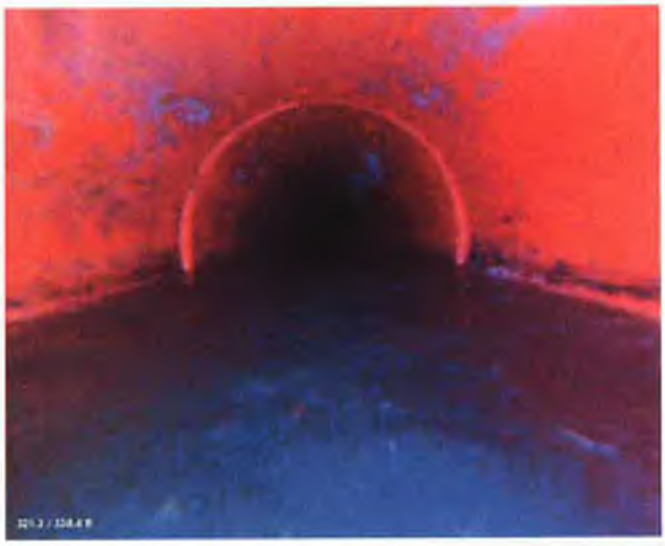
PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.08
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	229.96
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.29
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

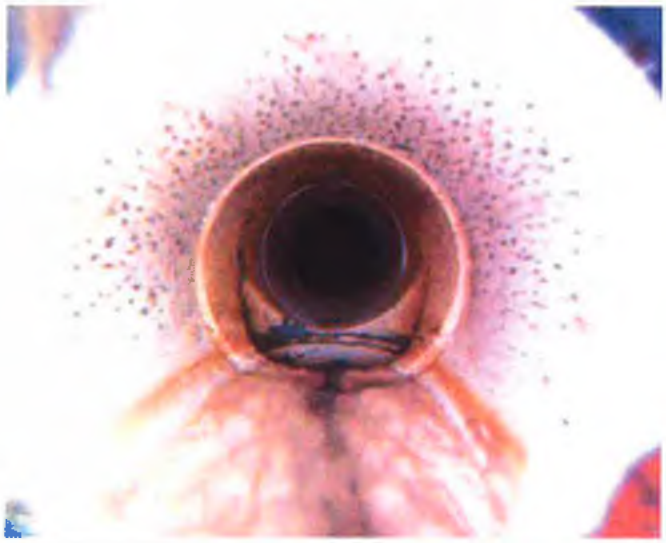
PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	283.95
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	300.42
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

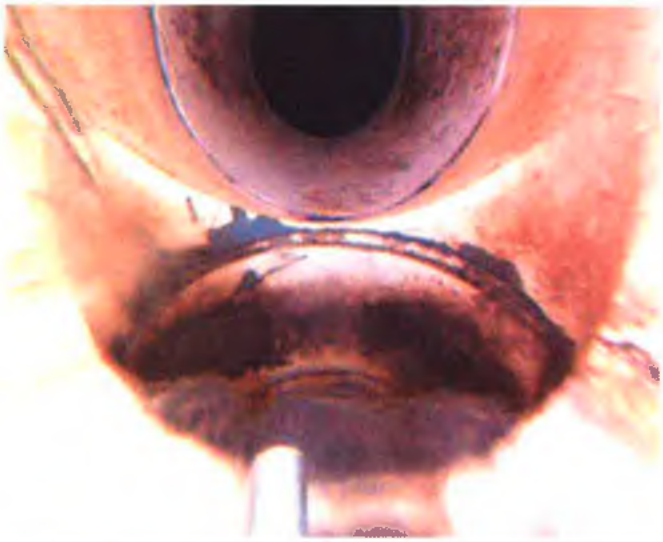


PACP Code:	MWL
Description:	Water Level
Distance (ft):	321.29
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	JOM
Description:	Joint Offset Medium
Distance (ft):	334.82
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MMC
Description:	Material Change
Distance (ft):	334.99
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	PVC



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	335.82
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	6
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	338.39
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-6003 to 03-0013

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material: VCP

Survey Direction:

US Manhole: 03-6003

DS Manhole: 03 - 0013

Total Length Surveyed: ~650'

Position	Code	Observation	Video (sec)	Grade
		No video / Report; open trench replacement		

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-6004 to 03-6003

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material: VCP

Survey Direction:

US Manhole: 03-6004

DS Manhole: 03-6003

Total Length Surveyed: ~ 625'

Position	Code	Observation	Video (sec)	Grade
		- No Report/Video; Open trench replacement		

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 03-6001 - 03-0012

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole:	DS Manhole:	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* No CCTV or Report

Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 03-6002 to 03-6001

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole:	DS Manhole:	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* No CCTV or report

Rec:

Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 03-5001 to 03-0011

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole: 03-5001	DS Manhole: 03-0011	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no CCTV or report on file

Recommendation

- Open Trenche Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 03-5003 to 03-5001

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction: Downstream
US Manhole: 03-5003	DS Manhole: 03-5001	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no CCTV or Report on file

Recommendation

- Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 03-5005 to 03-5003

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole: 03-5005	DS Manhole: 03-5003	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no CCTV or report on file

Recommendation

- Open Trench Pipe Replacement

CCTV Observation Report

Harris & Associates

Date:	Owner:	Pre Clean:
Pipe Length	Surveyor:	Shape:
Customer:	Weather:	Reach: 03 - 5006 to 03 - 5005

Street:	Flow Control:	
City:	Dia/Height (in):	
Use:	Material:	Survey Direction:
US Manhole: 03-5006	DS Manhole: 03-5005	Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no CCTV or report on file

Recommendation

- Open Trench Pipe Replacement

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7/31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-6014

Surveyed by: J-L

Street: Mark rd.

Cert. no.:

MH Location Details:

1290 Mark Rd.

Access Type: Assumes Manhole: *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Breaking

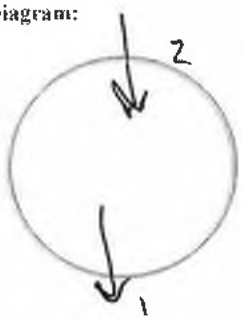
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick- Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 9 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03 - 0017

Surveyed by: J-L

Street: Walnut Dr.

Cert. no.:

MH Location Details:

Int. Walnut Mark

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown corroded

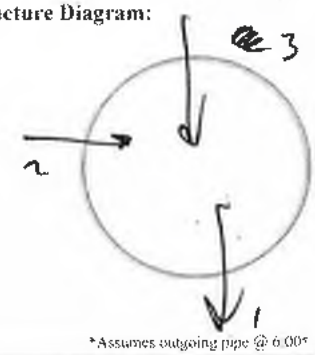
Cone Condition: Defective / Sound / Unknown H_2S

Wall Condition: Defective / Sound / Unknown Cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair corroded Concrete

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-6005

Surveyed by: J-L

Street: Royal

Cert. no.:

MH Location Details:

207 Royal St.

Access Type: Assumes Manhole: *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

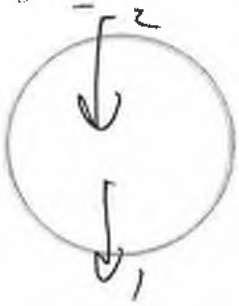
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03 -0015

Surveyed by: J - L

Street: Walnut Dr.

Cert. no.:

MH Location Details:

Int. walnut / Royal

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Couldn't Open

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 9 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-6004

Surveyed by: J-L

Street: Bush St.

Cert. no.:

MH Location Details:

Alley off of Comanche

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Insl. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Bottom needs repairs

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-6003

Surveyed by: J-L

Street: Bush St.

Cert. no.:

MH Location Details:

1349 Bush St.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown Brick

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-0013

Surveyed by: J-L

Street: Walnut

Cert. no.:

MH Location Details:

Int. Walnut / Bush (South MH ↑N)

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

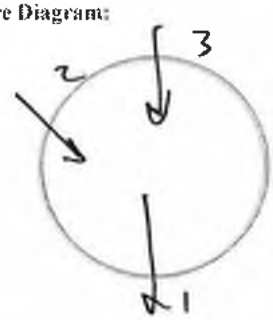
Wall Condition: Defective / Sound / Unknown

corroded

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Concrete corroded

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-0014

Surveyed by: J-L

Street: Walnut Dr.

Cert. no.:

MH Location Details:

Int. Walnut / Birch (North MH) ↑N

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

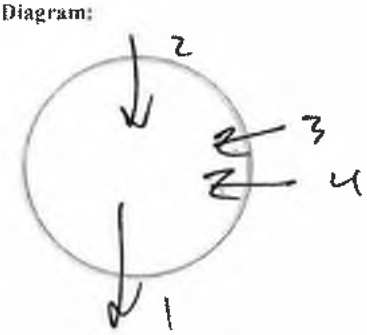
Cone Condition: Defective / Sound / Unknown ← corroded

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair Concrete

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-6002

Surveyed by: J-L

Street: Durham St

Cert. no.:

MH Location Details:

Adj. to church on Corner

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

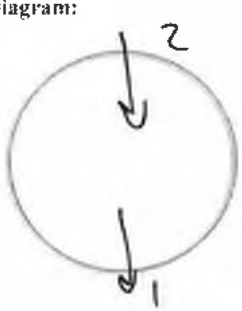
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-606

Surveyed by: J-L

Street: Durham St.

Cert. no.:

MH Location Details:

1341 Durham St.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

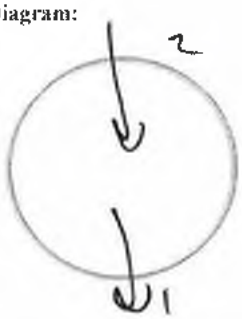
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-0012

Surveyed by: J-L

Street: Walnut

Cert. no.:

MH Location Details:

Int. Walnut / Durham St.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Insc. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Corroded

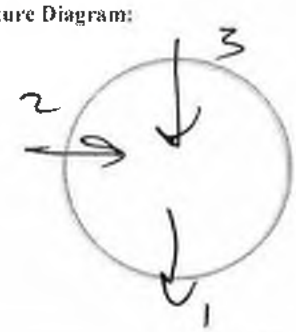
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Chimney Corroded - Repair

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-0011

Surveyed by: J-L

Street: Walnut

Cert. no.:

MH Location Details:
910 Walnut

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown cracked

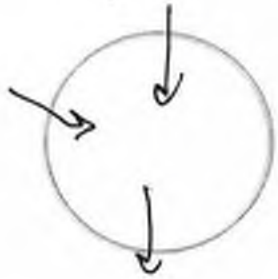
Cone Condition: Defective / Sound / Unknown corroded

Wall Condition: Defective / Sound / Unknown I/I / cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



* Assumes outgoing pipe @ 6:00*

MH Condition Comments:
Concrete Corroded, wall I/I

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Appendix O: Comanche Drive Pipeline Project Reference Materials

Comanche Drive Pipeline Project Cost Estimate

Reach No.	Item	Action		Cost
Number	Reach			
1	01-0014_01-0013_8/21/2012_13:15	Replacement		$ 66,000.00
2	01-0012_01-0011_8/21/2012_13:15	Replacement		$ 77,000.00
3	01-0007_01-0006_8/21/2012_13:15	Replacement		$ 140,000.00
4	01-0001_01-0000_8/21/2012_13:15	Replacement		$ 28,000.00
	Manholes			
	01_0014	Replace		$ 8,000.00
	01_0013	Replace		$ 8,000.00
	01_0012	Replace		$ 8,000.00
	01_0011	Replace		$ 8,000.00
	01_0000	Replace		$ 8,000.00
	01_0001	Replace		$ 8,000.00
	01_0006	Replace		$ 8,000.00
	01_0007	Replace		$ 8,000.00
	Total Construction Cost			$ 375,000.00
	Engineering & Construction Management		25%	$ 94,000.00
	Contingencies		20%	$ 75,000.00
	Administrative		5%	$ 19,000.00
	CIP Estimate			**$ 563,000.00**

CCTV Observation Report

Harris & Associates

Date: 11/7/12
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean: Setting
Shape: Circular
Reach: 01-0014 to 01-0013

Street: S. Comanche Dr
City: Arvin
Use: Sanitary
US Manhole: 01-0014

Flow Control: Not Controlled
Dia/Height (in): 18
Material: VCP
DS Manhole: 01-0013

Survey Direction: Downstream
Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (15%)	–	–
12	MWL	Water Level (30%)	–	–
76	MWL	Water Level (60%)	–	–
		(J 65 – 215)	–	–
174	DAGS	Deposits Attached Grease		M2
215	MWL	Water Level (30%)	–	
235.75	AMH	Manhole	–	–

- large sag in the middle of pipe (>½)

Decommendation

- Open Trench Pipe Replacement (236)

CCTV Observation Report

Harris & Associates

Date: 11/2/12
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 01-0012 to 01-0011

Street: S Comanche DR
City: Arvin
Use: Sanitary
US Manhole: 01-0012

Flow Control: Not Controlled
Dia/Height (in): 18
Material: VCP
DS Manhole: 01-0011

Survey Direction: Downstream
Total Length Surveyed: 274

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (40%)	–	–
49	MWL	Water Level (30%)		
181	MWL	Water Level (50%)	J181 to 184	
227	MWL	Water Level (60%)	J 227 – 37	
250	MWL	Water Level (60%)	J 250 – MH 01-0011	
274	AMH	Manhole	–	–

Recommendation

Open Trench Pipe Replacement (274)

- multiple sags

CCTV Observation Report

Harris & Associates

Date: 11/13/12
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor: J. NGO
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 01 - 0001 to 01 - 0000

Street: El Camino Real
City: Arvin
Use: Sanitary
US Manhole: 01 - 0001

Flow Control: Not Controlled
Dia/Height (in): 18"
Material: VCP
DS Manhole: 01 - 0000

Survey Direction: Downstream
Total Length Surveyed: ——

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (25%)		—
47.5	MCU	Camera Underwater		—
80.0	MCU	Camera Underwater		—
85.0	MWL	Water Level 60%		

- due to the jetting water level showed to be lower than the actual waterline. condition of the pipe reckons for a CIPP Lining.
- Camera was underwater for a significant time
- sags were present

Recommendation

Open Trench Pipe Replacement (99)

CCTV Observation Report

Harris & Associates

Date: 7/15
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 01-0007 to 01-0006

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material:

Survey Direction:

US Manhole:

DS Manhole:

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade

* no video or report on file

Rec:

Open Trench Pipe Replacement
(500 ft)

Appendix P: Small Pipeline Replacement Projects Reference Materials

Small Pipeline Replacement Projects Cost Estimate

Reach No.	Item	Action	Cost
Number	Reach		
1	05-2002_05-2001_10/26/2009_U	Replacement	$ 37,000.00
2	03-8018_03-8015_10/28/2009_U	Replacement	$ 40,000.00
3	03_9012_03_9011_9/14/2015_11:26	Replacement	$ 80,000.00
4	03_9011_03_9014_9/14/2015_11:26	Replacement	$ 35,000.00
5	06_1005_06_0008_8/23/2017_11:10	Replacement	$ 70,000.00
6	09-5011_09-5010_12/2/2010_U	Replacement	$ 26,000.00
	Manholes		
	03_9014	Replace	$ 8,000.00
	03_9012	Replace	$ 8,000.00
	03_9011	Replace	$ 8,000.00
	03_8015	Replace	$ 8,000.00
	03_8018	Replace	$ 8,000.00
	05_2001	Replace	$ 8,000.00
	05_2002	Replace	$ 8,000.00
	09_0016	Replace	$ 8,000.00
	09_0015	Replace	$ 8,000.00
	06_1005	Replace	$ 8,000.00
	06_0008	Replace	$ 8,000.00
	09_5011	Replace	$ 8,000.00
	09_5010	Replace	$ 8,000.00
	Total Construction Cost		$ 392,000.00
	Engineering & Construction Management	25%	$ 98,000.00
	Contingencies	20%	$ 78,000.00
	Administrative	5%	$ 20,000.00
	CIP Estimate		**$ 588,000.00**

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/26/2009	Weather:	Dry		
Pipe Length (ft):	154	Owner:	City of Arvin	Pre Clean:	Jetting
P.O.#:	W/O # 12014	Surveyor:	JJC	PSR:	05-2002 to 05-2001
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Easement Off Commanche	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Easement/Right of Way	Tape/Media #:	NS19-662
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Upstream

US MH: 05-2002 DS MH: 05-2001 Total Length Surveyed (ft): 154 (100 CAD)

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level 20%	14	NA
4.02	VC	Vermin Cockroach	30	M 1
7.93	DAGS	Deposits Attached Grease	47	M 3
9.62	DAGS	Deposits Attached Grease	60	M 3
50.62	MGP	General Photo 40%	153	NA
100.58	MGP	General Photo	261	NA
146.42	MWL	Water Level 50%	361	NA
148.03	MCU	Camera Underwater	372	M 4
154.47	DAGS	Deposits Attached Grease	393	M 3
154.47	DAGS	Deposits Attached Grease	401	M 3
154.47	AMH	Manhole	410	NA

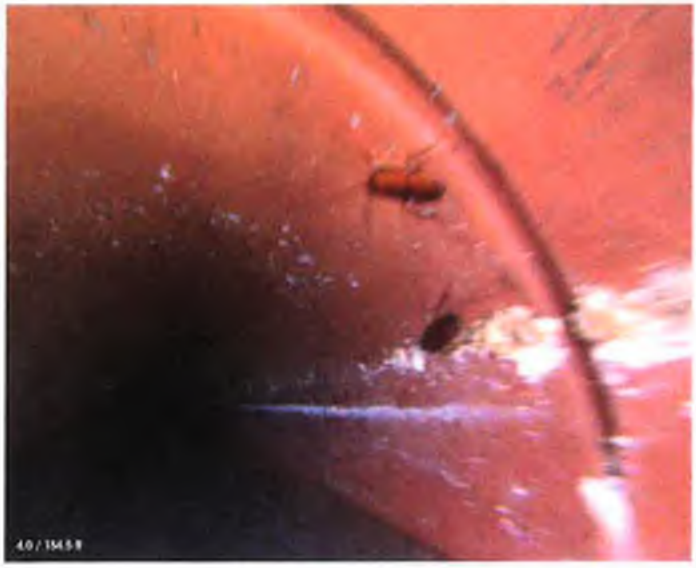
- WL = > 30% → 54 – 90
- camera underwater at some point
- the pipe did not cease to flow at a high level
- due to more than half the pipe flowing at at least > 30%, open trench pipe replacement

Recommendation

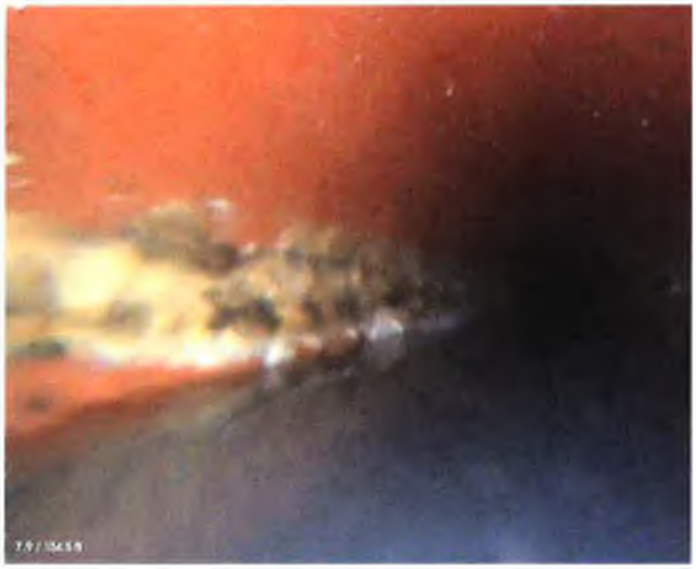
Open Trench Pipe Replacement (150ft)

PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

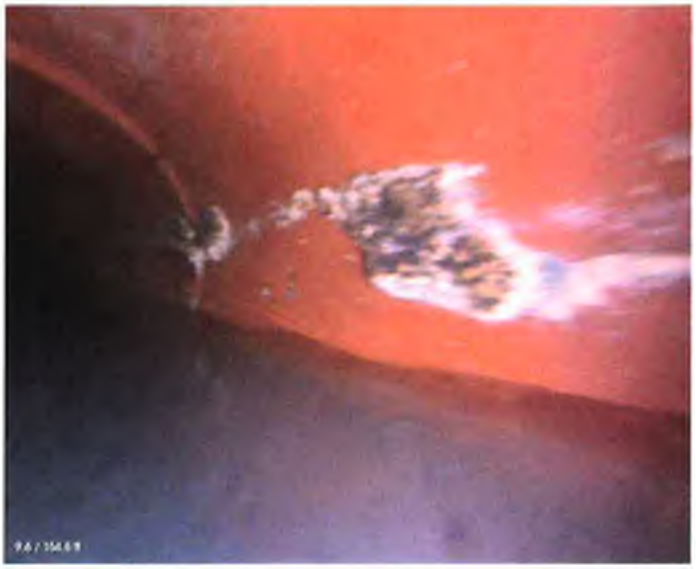
PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



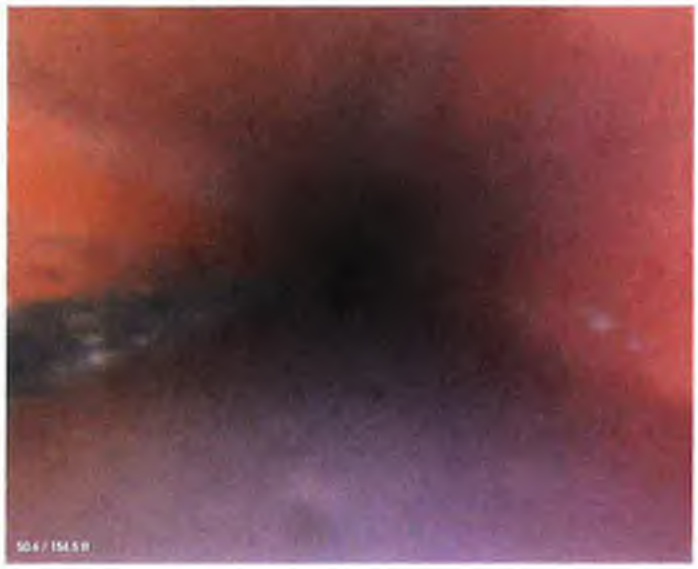
PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	4.02
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	7.93
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	9
Clock To:	10
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	False
Remarks:	

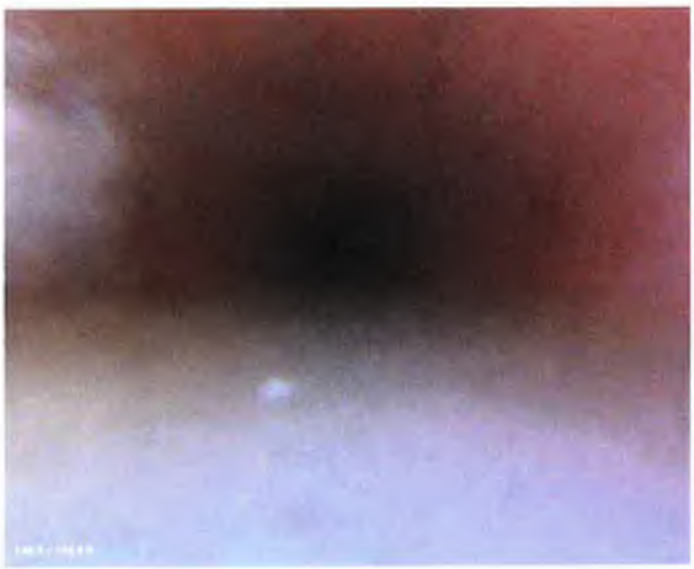


PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	9.62
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	2
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	S02
Within 8" of Joint:	False
Remarks:	



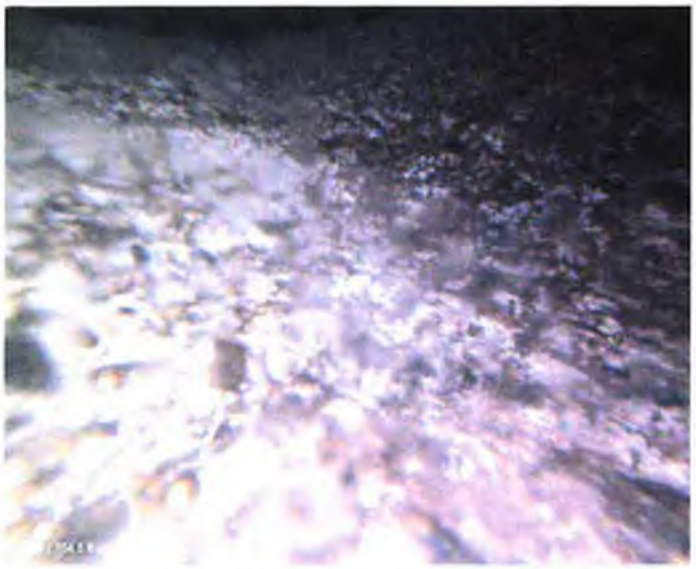
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.62
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.58
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

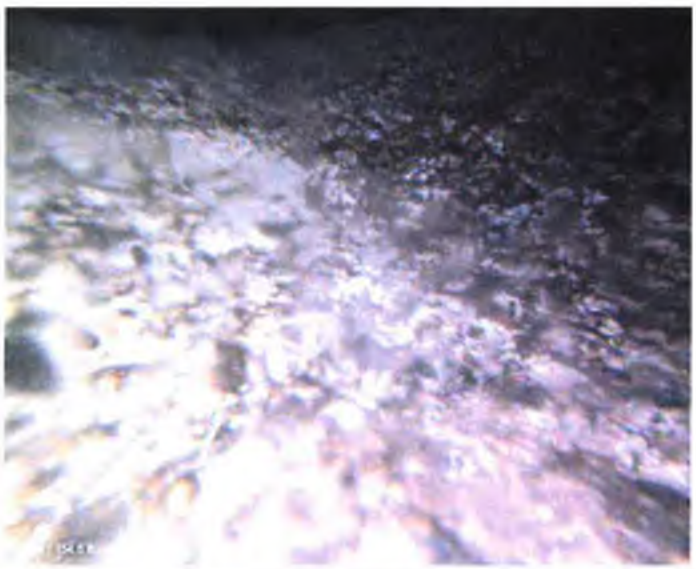


PACP Code:	MWL
Description:	Water Level
Distance (ft):	146.42
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

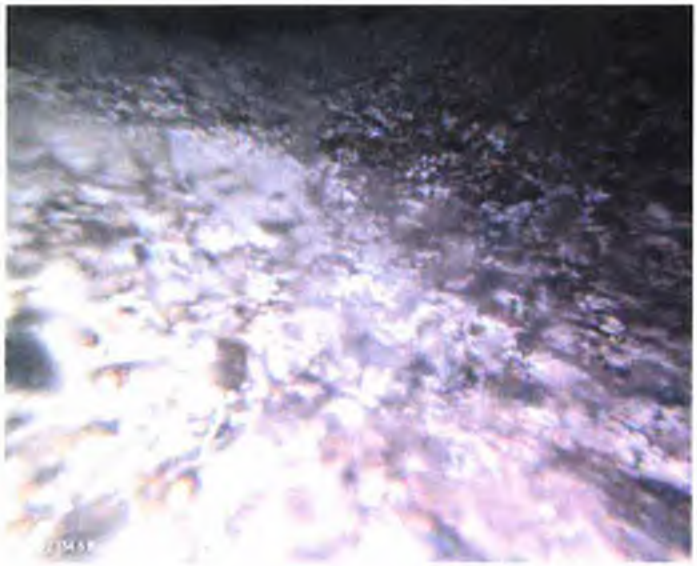
PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	148.03
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	154.47
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	2
Clock To:	3
1st Value:	
2nd Value:	
Continuous Index:	F02
Within 8" of Joint:	False
Remarks:	



PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	154.47
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	9
Clock To:	10
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	False
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	154.47
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/28/2009	Weather:	Dry		
Pipe Length (ft):	165	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12018	Surveyor:	JJC	PSR:	03-8018 to 03-8015
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Shane St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS11-1198
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Upstream

US MH: 03-8018 DS MH: 03-8015 Total Length Surveyed (ft): 165

03-8015

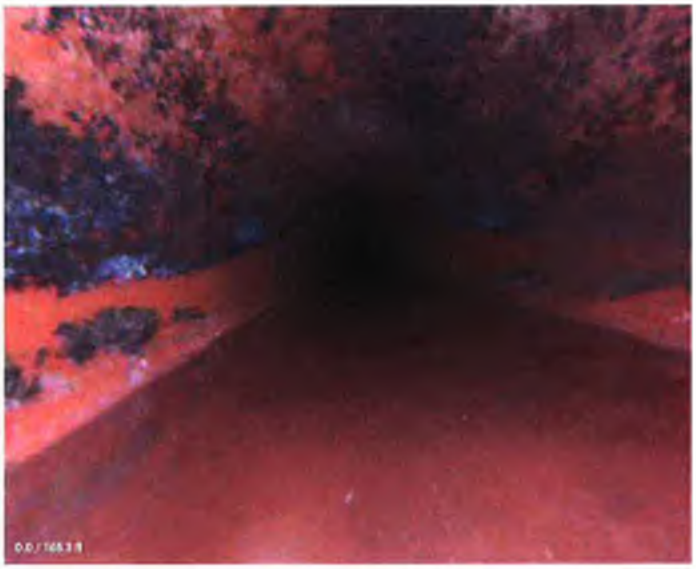
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level 30%	13	NA
0.38	CC	Crack Circumferential MH to 3.5	22	S 1
43.84	MGO	General Observation ~30%	117	NA
50.06	MGP	General Photo 40%	138	NA
100.28	MGP	General Photo 40%	246	NA
142.93	MWL	Water Level 50%	340	NA
149.2	MCU	Camera Underwater	361	M 4
165.25	AMH	Manhole 30%	401	NA

03-8018

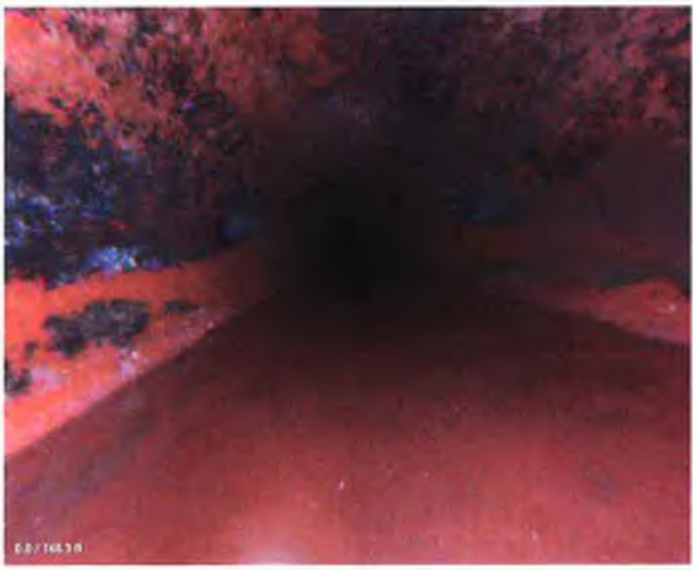
- consistent water level that was higher than 30%

Recommendation

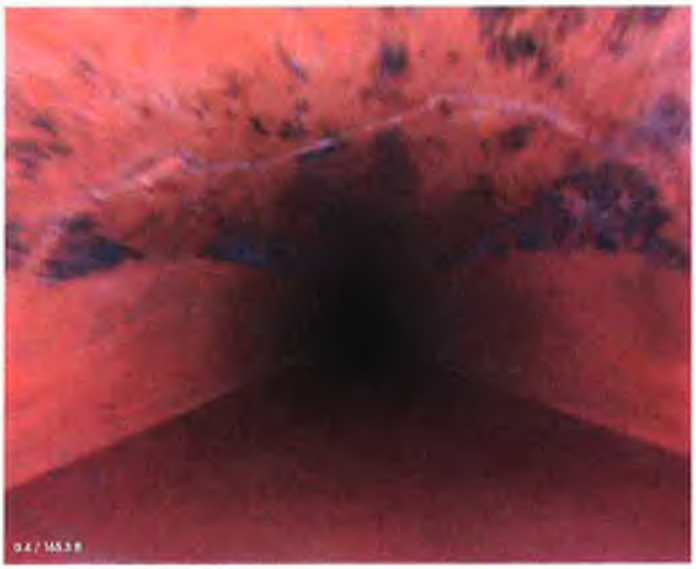
open trench pipe replacement (165)



PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

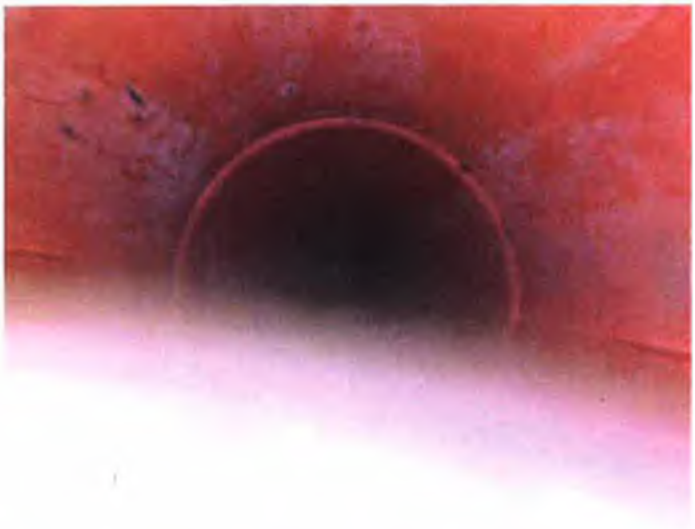


PACP Code:	CC
Description:	Crack Circumferential
Distance (ft):	0.38
Structural Grade:	1
O&M Grade:	NA
Clock Start/From:	7
Clock To:	5
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGO
Description:	General Observation
Distance (ft):	43.84
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Fog in pipe

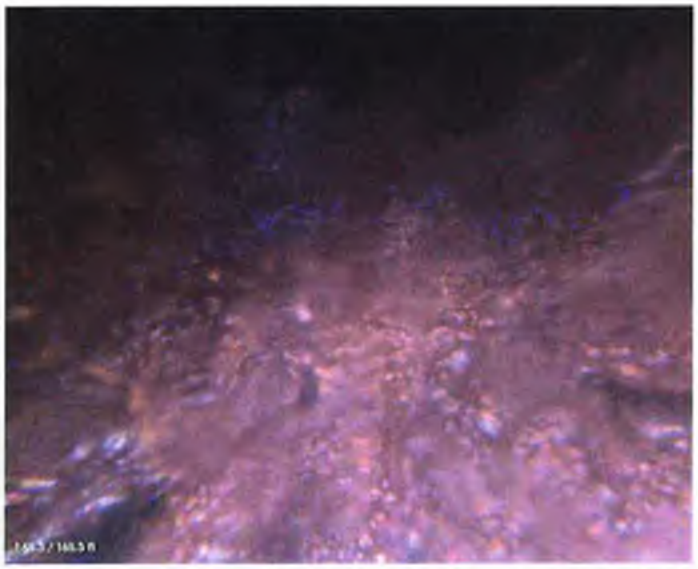
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.06
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.28
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level
Distance (ft):	142.93
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	149.2
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	165.25
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Rec: - open trench replacement full (147') 03-9011 to 03-9014
• Sag for > ½ of reach, MCU

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-9011 — 03-9014

Street: Orange ave.
City:
Use:

Flow Control:
Dia/Height (in): 8"
Material: VCP

Survey Direction:

US Manhole:

DS Manhole:

Total Length Surveyed: 146.5'

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWL	10%		
1'	JOM	Continuous		
53.9	MWLS	Sag 54' – 139' (85') MCU		
106.7'	CL			
102.9	CM			
146.5	AMH	End		

03-9013 to 03-9011

- Rec: - open trench replacement full ; Length unknown
  - Survey abandoned, sags, joints offset

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 03-9012 to 03-9011

Street: Norton PL.
City:
Use:

Flow Control:
Dia/Height (in): 8"
Material: VCP

Survey Direction: DS

US Manhole: 03-9012

DS Manhole: 03-9011

Total Length Surveyed: 93' (total unknown)

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWL	10 %		
0.3'	FM			
7'	CL			
9.4'	JOM	soil visible @ 6:00		
17.5'	JOM	" "		
36.8	TFA			
38.6	TF			
77.7	MWLS	Sag		
92.7'	MCU	underwater		
93'	MSA	abandoned (camera underwater)		

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	0	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12023	Surveyor:	JJC	PSR:	09-0016 to 09-0015
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Potato Rd.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS17-822
Purpose:	Not Known	Dia/Height (in):	10
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Upstream

US MH: 09-0016 DS MH: 09-0015 Total Length Surveyed (ft): 456

09-0015 DS MH

Position	Code	Observation	Video (sec)	Grade
0.01	AMH	Manhole	5	NA
0.01	MWL	Water Level 50%	13	NA
1.36	MCU	Camera Underwater	24	M 4
50.52	MGP	General Photo	131	NA
73.56	MCU	Camera Underwater	185	M 4
94.96	CL	Crack Longitudinal	236	S 2
100.03	MGP	General Photo	255	NA
140.72	MCU	Camera Underwater	345	M 4
150.6	MGP	General Photo	373	NA
200.63	MGP	General Photo	481	NA
204.27	MCU	Camera Underwater	497	M 4
250.45	MGP	General Photo	597	NA
300.88	MGP	General Photo	706	NA
319.07	MCU	Camera Underwater	751	M 4
350.31	MGP	General Photo	822	NA
382.42	MCU	Camera Underwater	894	M 4
400.7	MGP	General Photo	939	NA
455.85	MSA	Abandoned Survey Poor Mobility	1057	NA

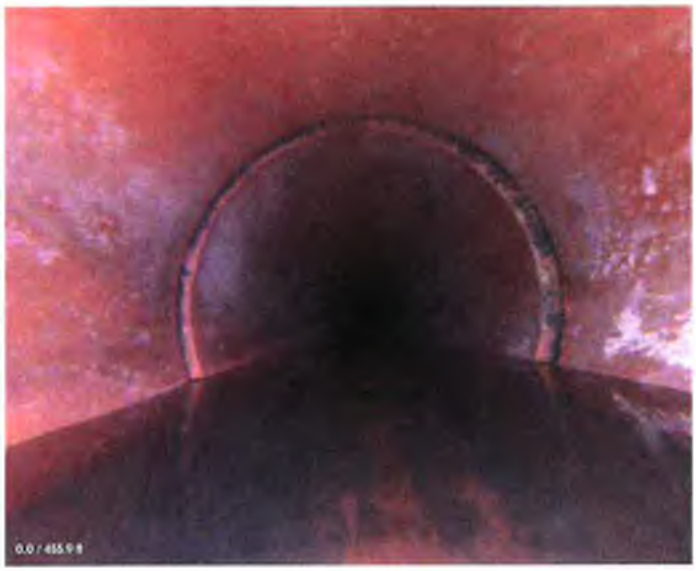
Camera Direction

- For most of this pipe, camera was at 40% or larger, eventually becoming underwater at times

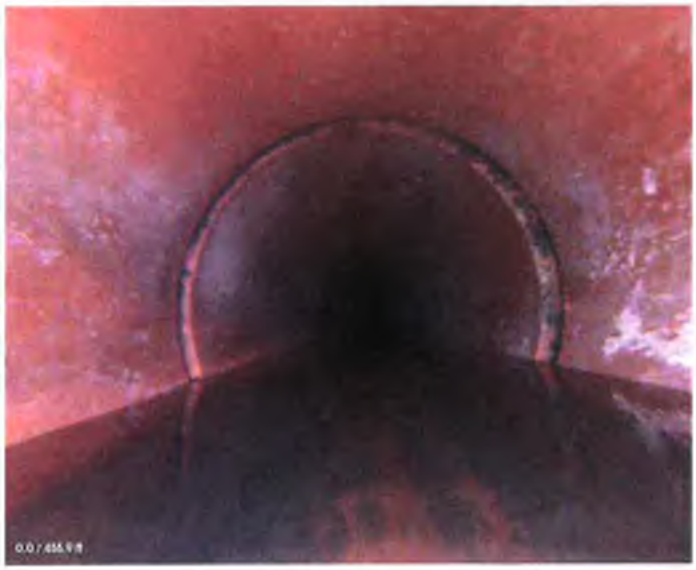
Recommendation

US MH 09-0016

Open Trench Pipe Replacement (640 ft)



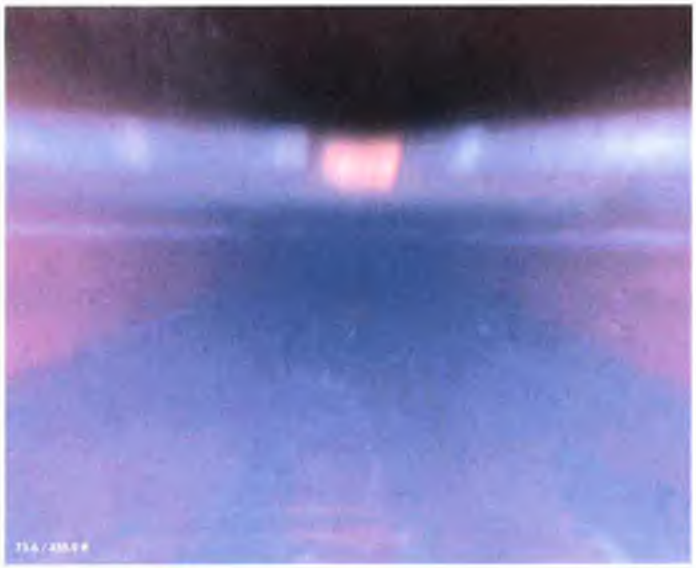
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0.01
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



PACP Code:	MWL
Description:	Water Level
Distance (ft):	0.01
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	1.36
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

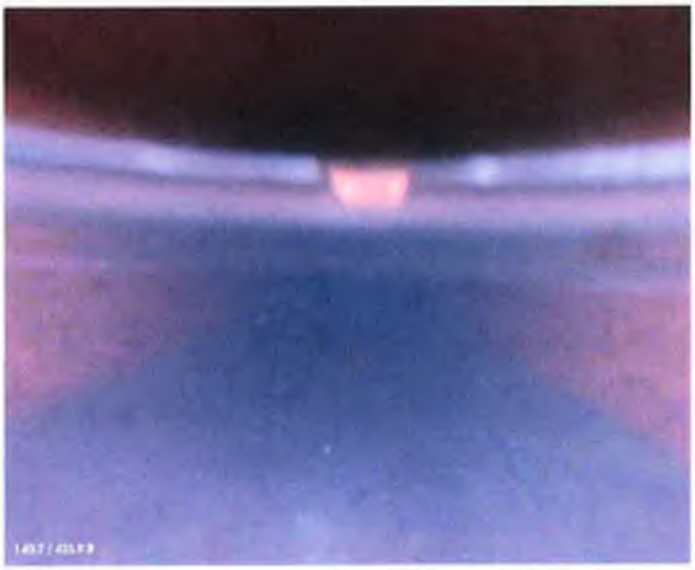
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.52
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



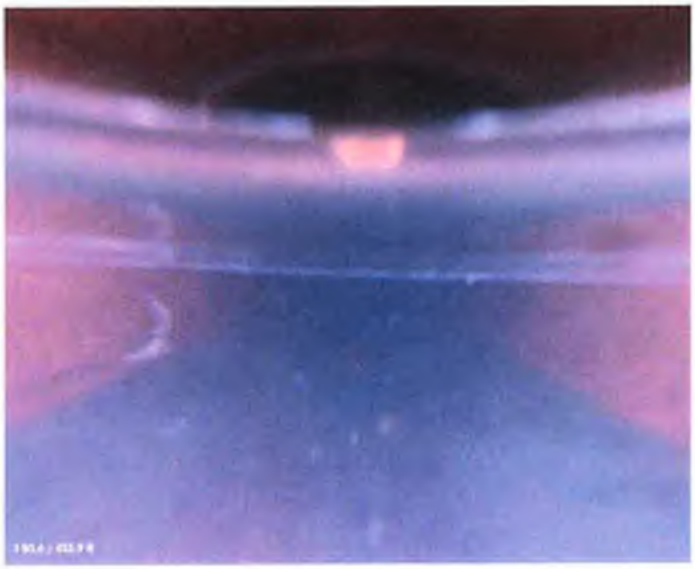
PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	73.56
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	CL
Description:	Crack Longitudinal
Distance (ft):	94.96
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	2
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

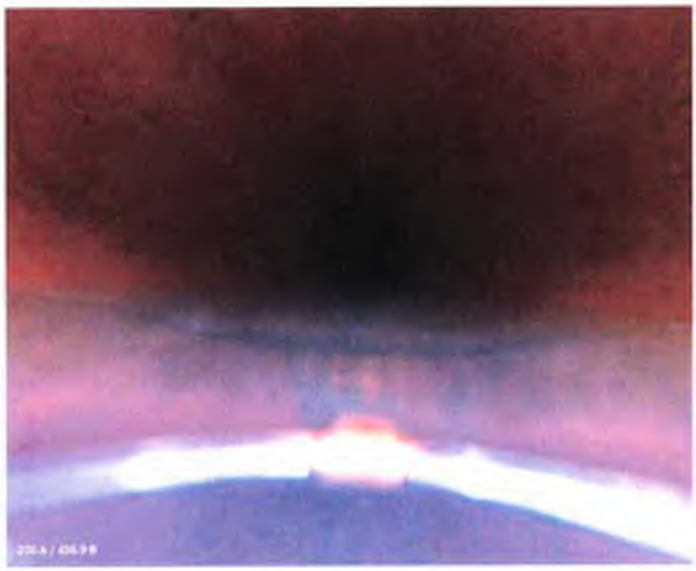
PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.03
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	140.72
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



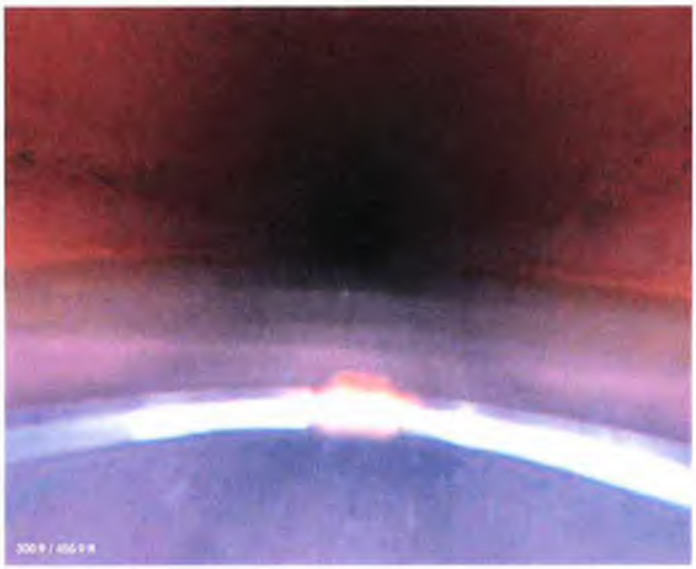
PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.6
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



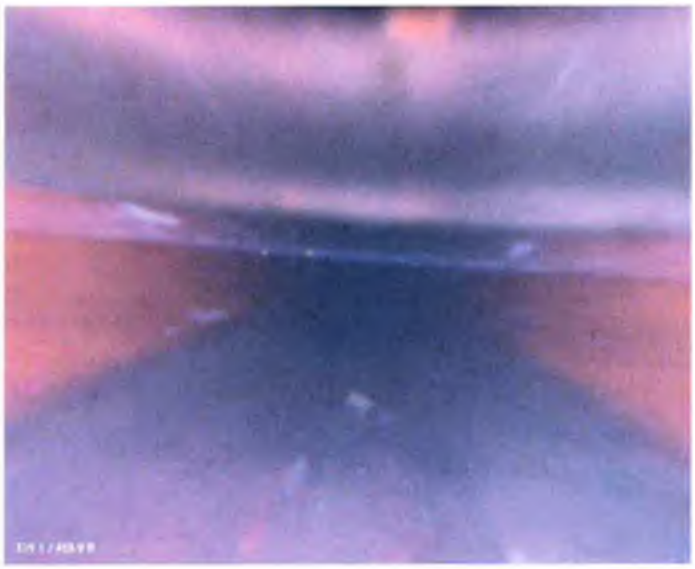
PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.63
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	204.27
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

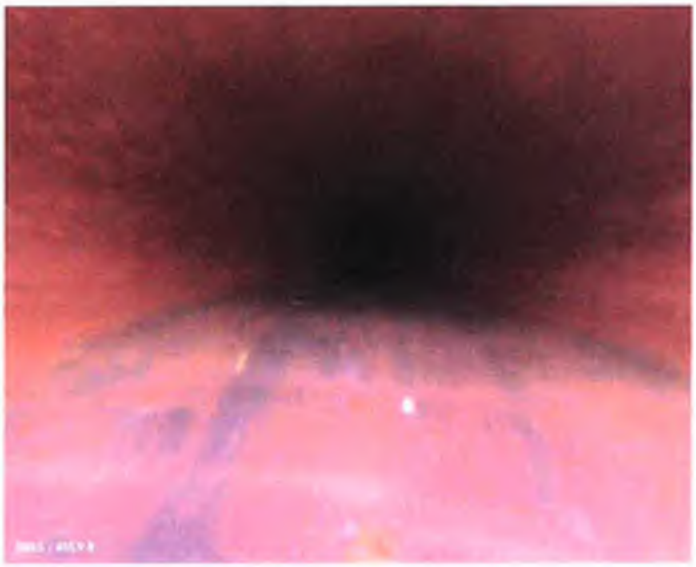
PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.45
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



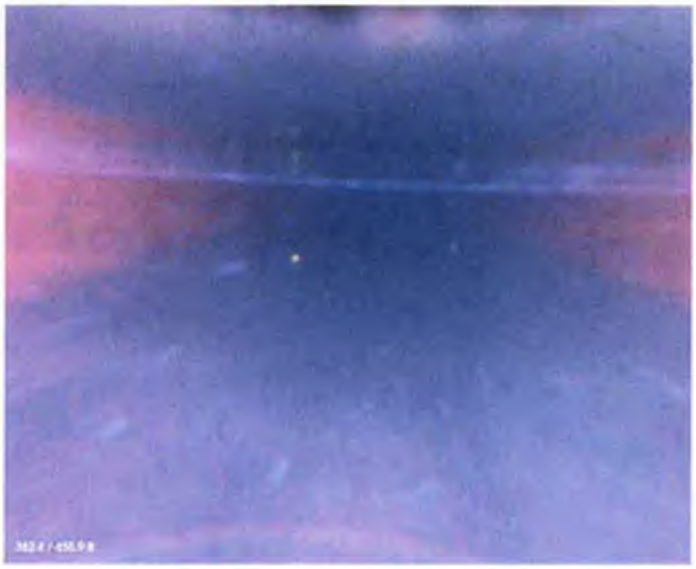
PACP Code:	MGP
Description:	General Photo
Distance (ft):	300.88
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



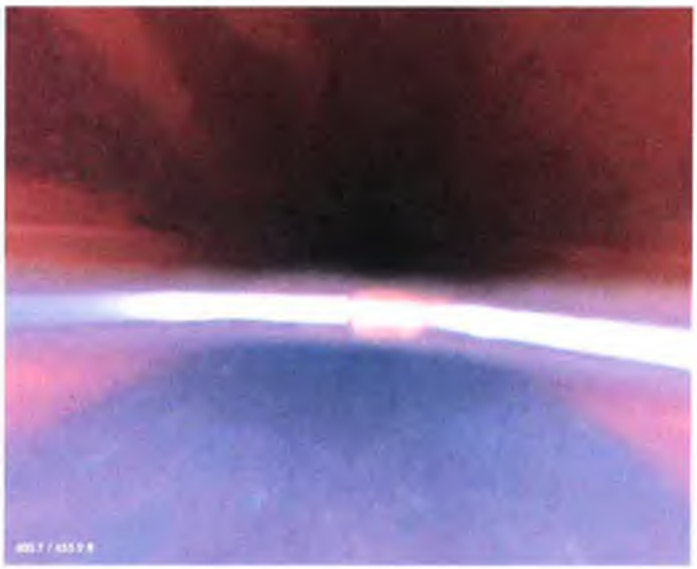
PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	319.07
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MGP
Description:	General Photo
Distance (ft):	350.31
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	382.42
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MGP
Description:	General Photo
Distance (ft):	400.7
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MSA
Description:	Abandoned Survey
Distance (ft):	455.85
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Poor mobility

06-1005 to 06-0008

Q124

CCTV Observation Report

Harris & Associates

Date: 11/14/17
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 06-1005 to 06-0008

Street: Olson Way
City:
Use:

Flow Control:
Dia/Height (in): 8"
Material: PVC

Survey Direction: DS

US Manhole: 06-1005
DS Manhole: 06-0008
Total Length Surveyed: 290.4'

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWL	10%		
63.1'	TF			
127.3'	TFA			
135.7'	TF			
180'	MWLS	Sag J180 → ~280		
190.2'	TF			
256.1'		camera Underwater		
265.7'		Above water		
290.4	AMH	End		

- Rec: - Sag for 1/3 of reach (underwater)
  - open trench replacement; 290.4'

CCTV Observation Report

Harris & Associates

Date:
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 09-5011 to 09-5010

Street:
City:
Use:

Flow Control:
Dia/Height (in):
Material: PVC

Survey Direction:

US Manhole: 09-5011

DS Manhole: 09-5010

Total Length Surveyed: ~100'

Position	Code	Observation	Video (sec)	Grade
		- No Report/video's Open Trench Replacement		

MANHOLE OBSERVATION FORM

Harris & Associates

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06 - 1005

Surveyed by: J-C

Street: Olson Way

Cert. no.:

MH Location Details:

807 Olson Way

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked / corroded

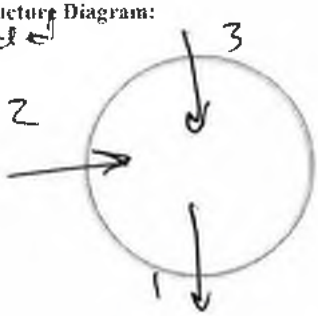
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown I / S

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney / wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-2002 **Surveyed by:** CVT

Street: Poom St **Cert. no.:**

MH Location Details:
Intersection w/ richard st

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
adjustment rings could be improved
wide cracks with missing pieces

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / ~~24~~ 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-8019

Surveyed by: J. L

Street: Shane Ct

Cert. no.:

MH Location Details:

End of Ct.

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-9012

Surveyed by: J-L

Street: Morton pl

Cert. no.:

MH Location Details:

S. of Auto parts store
Int Morton / Tucker

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

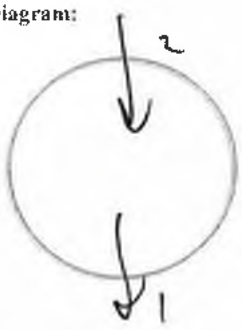
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

- Brick - Replace Immediately

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

MANHOLE OBSERVATION FORM

Harris & Associates

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 9 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-9011

Surveyed by: J-L

Street: Orange / Morton

Cert. no.:

MH Location Details:

Int. Orange / Morton

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing Sound

Chimney Condition: Defective / Sound / Unknown

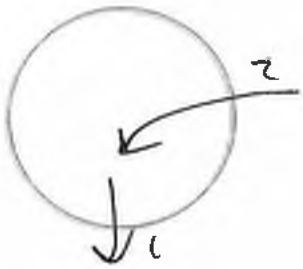
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

- Holes / Breaking - Repair

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03 - 9014

Surveyed by: J-C

Street: Grove St.

Cert. no.:

MH Location Details:

~~In Front~~ Behind + Apartments

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown SAP

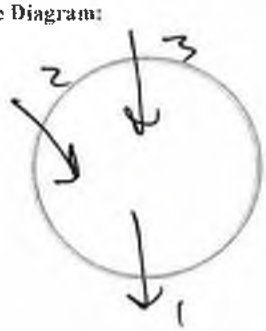
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Appendix Q: Small Spot Repair Projects Reference Materials

Small Spot Repair Projects Cost Estimate

Reach No.	Item	Action	Cost
Number	Reach		
1	07-2014_07-2012_7/15/2013_14:42	Spot Repair	$ 3,000.00
2	05-4006_05-4001_10/26/2009_D	Spot Repair	$ 10,000.00
3	05-4001_05-0017_10/26/2009_D	Spot Repair	$ 18,000.00
4	03_9004_03_9003_9/14/2015_11:26	Spot Repair	$ 2,000.00
5	03-8014_03-8013_11/2/2009_D	Spot Repair	$ 33,000.00
6	06-1006_06-1005_8/23/2017 11:10	Spot Repair	$ 10,000.00
7	03-2002_03-2001_10/30/2009_U	Spot Repair	$ 21,000.00
8	01-4002_01-4001_8/21/2012_13:15	Spot Repair	$ 13,000.00
9	02-2016_02-2015_8/21/2012_13:15	Spot Repair	$ 12,000.00
10	02-2001_02-0007_8/21/2012_13:15	Spot Repair	$ 32,000.00
	Manholes		
	05_4006	Repair	$ 2,000.00
	05_4001	Repair	$ 2,000.00
	07_2014	Repair	$ 2,000.00
	Total Construction Cost		$ 160,000.00
	Engineering & Construction Management	25%	$ 40,000.00
	Contingencies	20%	$ 32,000.00
	Administrative	5%	$ 8,000.00
	CIP Estimate		**$ 240,000.00**

07-2014 to 07-2012

RedZone ROBOTICS

RedZone Solo Project
Profile and Photo Report

rd Street
Pittsburgh PA

Asset

Pipe Segment to	Upstream MH	Downstream MH	Material PVC ~~Vitrified Clay Pipe~~	Height	Width
Shape Circular	Sewer Use Sanitary	Drainage Area NA	Lining Method	Total Length	Joint Length
Pre Cleaning Jetting	Clean Date	Flow Control Not Controlled	Purpose Not Known	Year Laid	Year Renewed

Location

Street	City	Location	Details
North A St	City of Arvin	Light Highway	

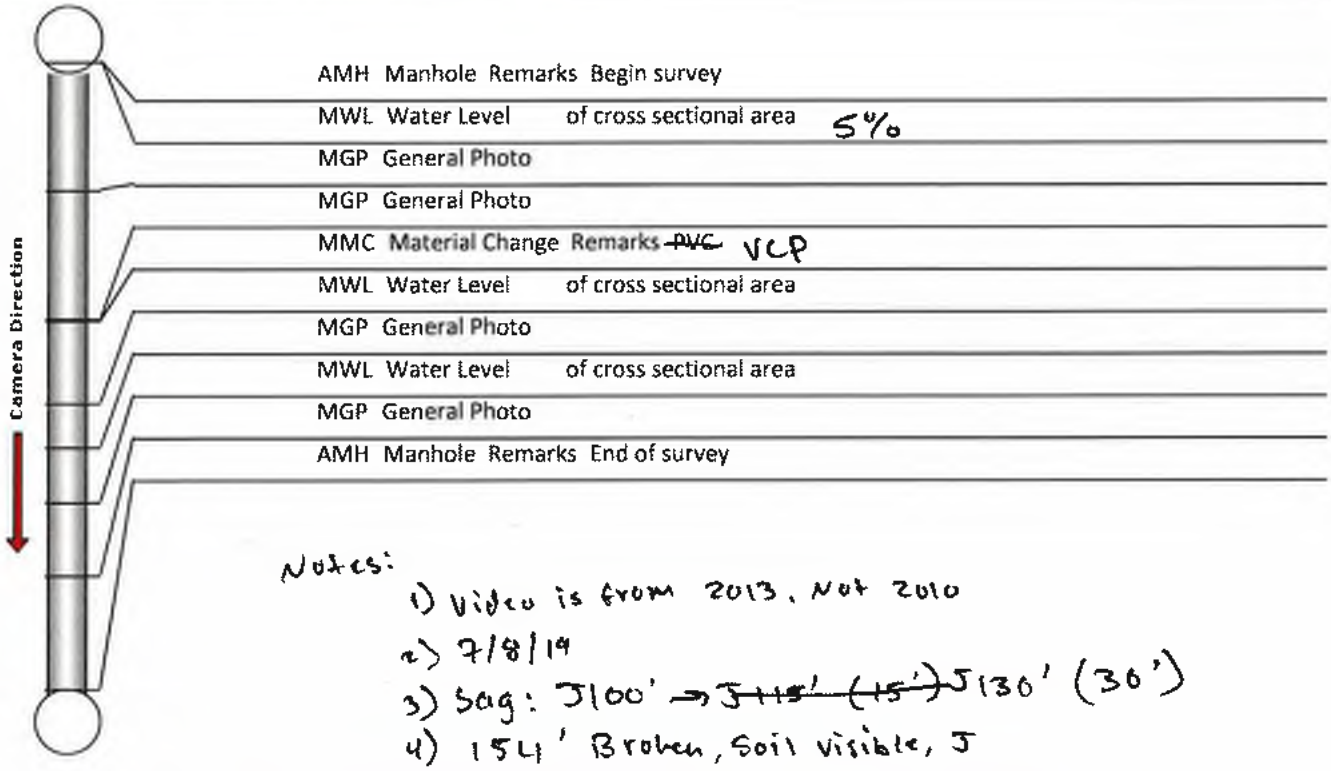
Inspection

Surveyed By	Certificate No	Date	Time	Direction
JJC	U		AM	Upstream
Owner City of Arvin	Customer Veolia	Weather Dry	PO Number	Length Surveyed
Media Label NS	Reverse Setup NO	Work Order No	Additional Info	

Results

Overall Rating	Structural Rating	Maintenance Rating
Overall Index	Structural Index	Maintenance Index
Overall Quick	Structural Quick	Maintenance Quick

Grade	Dist ft	Observation

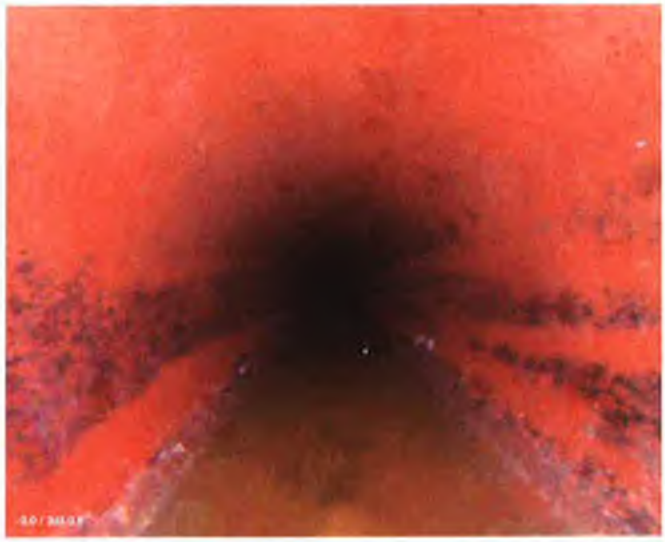


Notes:
1) Video is from 2013, Not 2010
2) 7/8/14
3) Sag: J100' → ~~J115' (15')~~ J130' (30')
4) 154' Broken, Soil visible, J

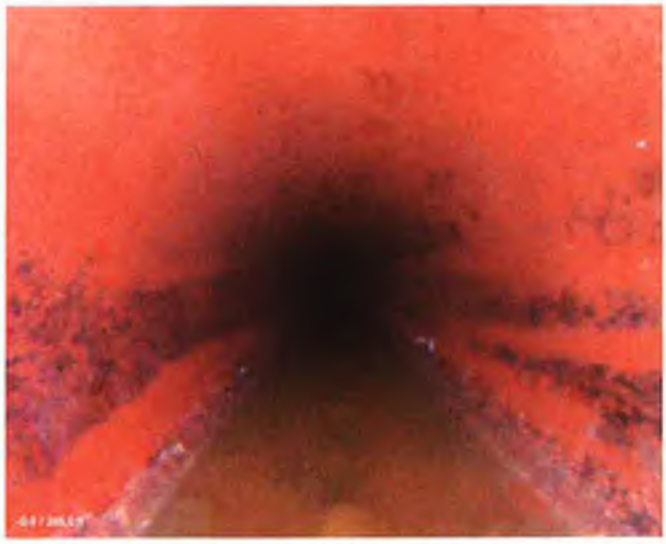
Rec: Spot Repair J154 → J160 (6')

Condition Observations

Grade	Dist ft	Observation		Description	Cont	Values st	Values nd	Values	of Joint	Clock From	Clock To
		AMH	**Manhole**	**Remarks Begin survey**					☐		
		MWL	**Water Level**	**of cross sectional area**					☐		
		MGP	**General Photo**						☐		
		MGP	**General Photo**						☐		
		MMC	**Material Change**	**Remarks PVC**					☐		
		MWL	**Water Level**	**of cross sectional area**					☐		
		MGP	**General Photo**						☐		
		MWL	**Water Level**	**of cross sectional area**					☐		
		MGP	**General Photo**						☐		
		AMH	**Manhole**	**Remarks End of survey**					☐		



PACP Code	**AMH**		
Description	**Manhole**		
Image Name	**e f f e dc e f f d e e d AMH jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**Begin survey**		



PACP Code	**MWL**		
Description	**Water Level**		
Image Name	**bd b d e b ede af bdd MWL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	**MGP**		
Description	**General Photo**		
Image Name	**de ee d bb d cd MGP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	**MGP**		
Description	**General Photo**		
Image Name	**f bb e f a f e MGP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	**MMC**		
Description	**Material Change**		
Image Name	**cb c c a b e MMC jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**PVC**		

PACP Code	**MWL**		
Description	**Water Level**		
Image Name	**ce c c aed dfc cebe MWL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	**MGP**		
Description	**General Photo**		
Image Name	**c b c e cb d bdd df MGP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	**MWL**		
Description	**Water Level**		
Image Name	**be c de a d f ef ce MWL jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	**MGP**		
Description	**General Photo**		
Image Name	**c fad b f e b c a dc MGP jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks			

PACP Code	**AMH**		
Description	**Manhole**		
Image Name	**dcf c f f c aae c f AMH jpg**		
Distance ft			
Structural Grade		Maintenance Grade	
Percent Value			
Clock At From		Clock To	
st Value		nd Value	
Continuous Index		Within of Joint	☐
Remarks	**End of survey**		

3

Profile/Photo Observation Report

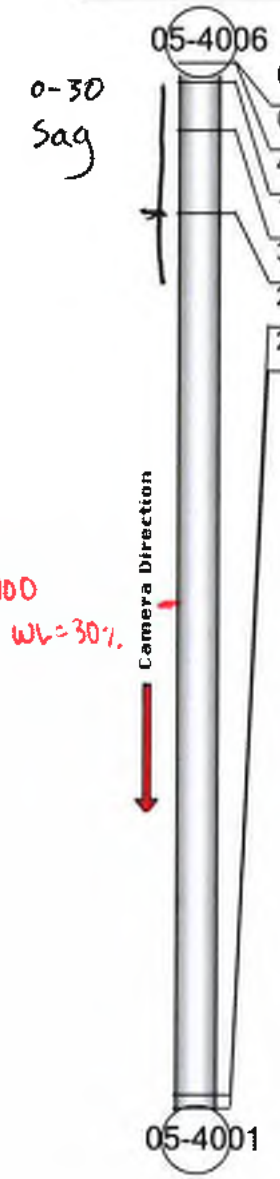
RedZone ROBOTICS

Date:	10/26/2009	Weather:	Dry		
Pipe Length (ft):	244	Owner:	City of Arvin	Pre Clean:	Jetting
P.O.#:	W/O # 12014	Surveyor:	JJC	PSR:	05-4006 to 05-4001
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

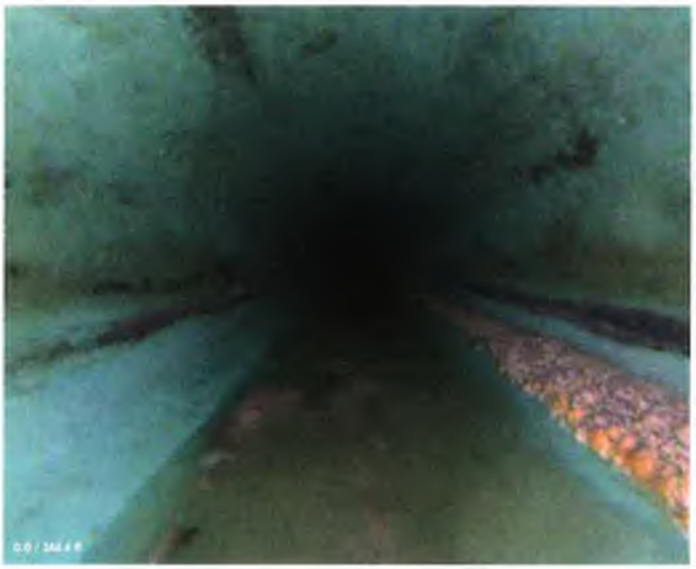
Street:	Packard St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS23-696
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Polyvinyl Chloride
Drain Area:		Lining:	
Category:			
Comment:	Pipe approx. 3/4 full		
Location Details:		Direction of Survey:	Downstream

US MH: 05-4006 DS MH: 05-4001 Total Length Surveyed (ft): 244

Position	Code	Observation		Video (sec)	Grade
0	AMH	Manhole		5	NA
0	MWL	Water Level	30% (40% dia)	13	NA
4.29	MWL	Water Level	50%	30	NA
15.87	MWL	Water Level	50%	61	NA
35.31	MWL	Water Level	10%	108	NA
241.48	MCU	Camera Underwater	starts at 236 (S 229)	529	M 4
244.43	MSA	Abandoned Survey	poor mobility	543	NA



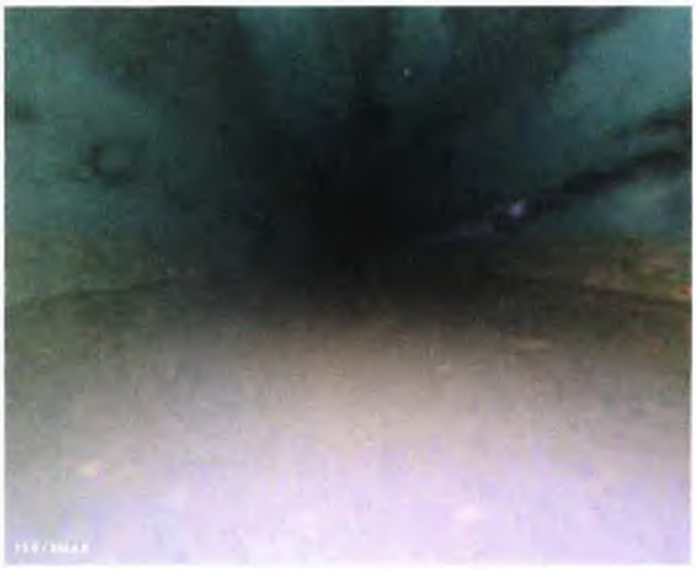
- Open trench Replacement from 229 – End of Pipe (due to Abandoned Survey)



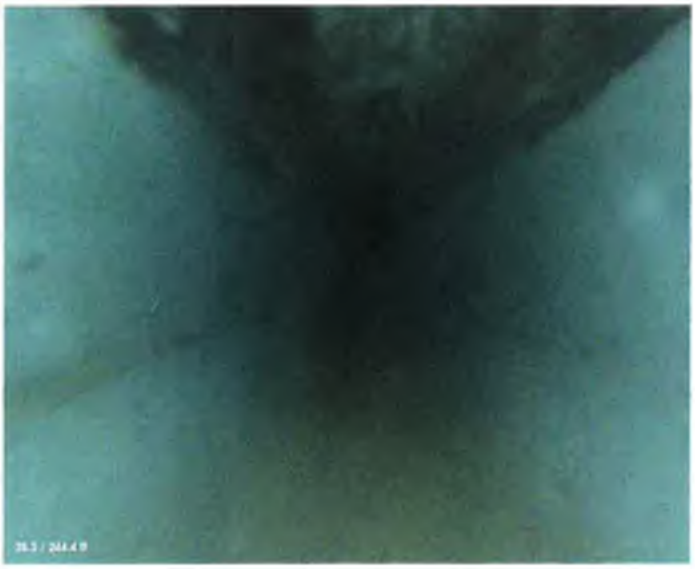
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

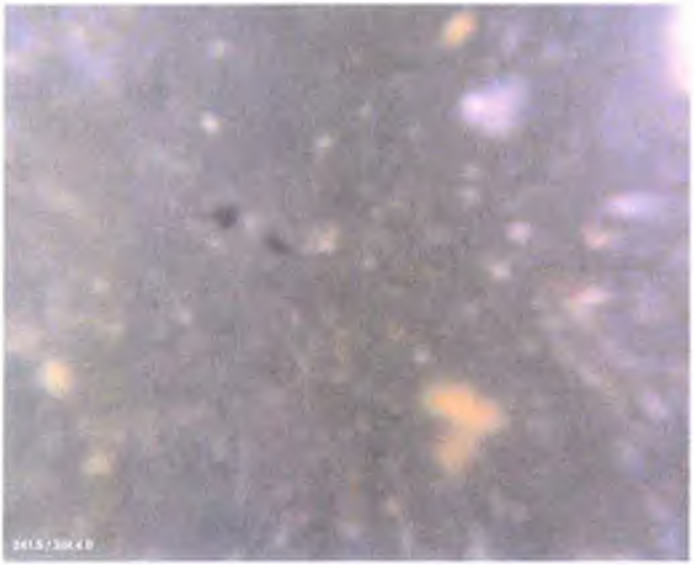
PACP Code:	MWL
Description:	Water Level
Distance (ft):	4.29
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



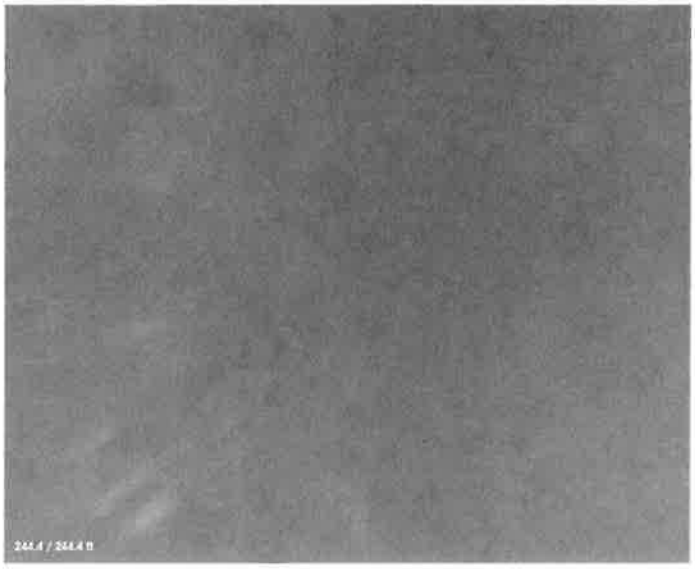
PACP Code:	MWL
Description:	Water Level
Distance (ft):	15.87
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level
Distance (ft):	35.31
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	241.48
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MSA
Description:	Abandoned Survey
Distance (ft):	244.43
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Poor mobility

7/9

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/26/2009	Weather:	Dry		
Pipe Length (ft):	153	Owner:	City of Arvin	Pre Clean:	Jetting
P.O.#:	W/O # 12014	Surveyor:	JJC	PSR:	05-4001 to 05-0017
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Packard St.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS6-811
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Polyvinyl Chloride
Drain Area:		Lining:	
Category:			
Comment:	Pipe approx. 3/4 full		
Location Details:		Direction of Survey:	Downstream

US MH: 05-4001 DS MH: 05-0017 Total Length Surveyed (ft): 153

Position	Code	Observation		Video (sec)	Grade
0	AMH	Manhole		5	NA
0	MWL	Water Level	100% MH to 9ft	13	NA
0	MCU	Camera Underwater		21	M 4
1.07	MWL	Water Level	50%	32	NA
16.49	MWL	Water Level	5%	71	NA
34.07	MWL	Water Level	25%	114	NA
45.95	MWL	Water Level	10%	146	NA
60.1	MWL	Water Level	20%	182	NA
100.86	MGP	General Photo		272	NA
124.46	MWL	Water Level	5%	328	NA
135.55	MWL	Water Level	30% J127	358	NA
143.84	MWL	Water Level	50%	383	NA
153.87	AMH	Manhole	MH	411	NA

- no visible cracks
- high flow, but both start/end to pipe have sags

Recommendation:

Spot Repair → ① MH 05-4001 to J4 ft (9ft)

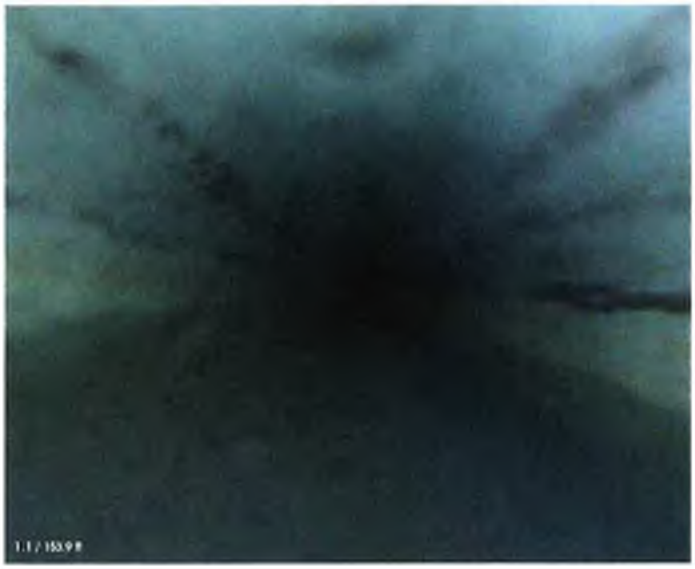
② J127 to MH 05-0017 (26ft)

35ft Total

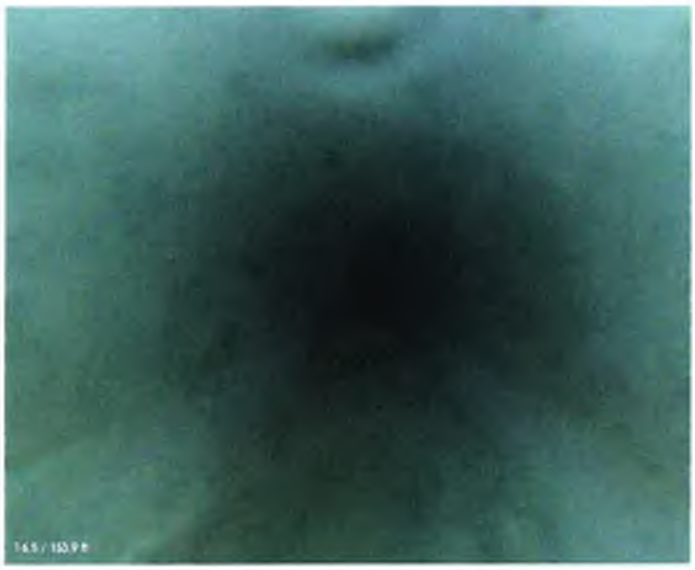
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

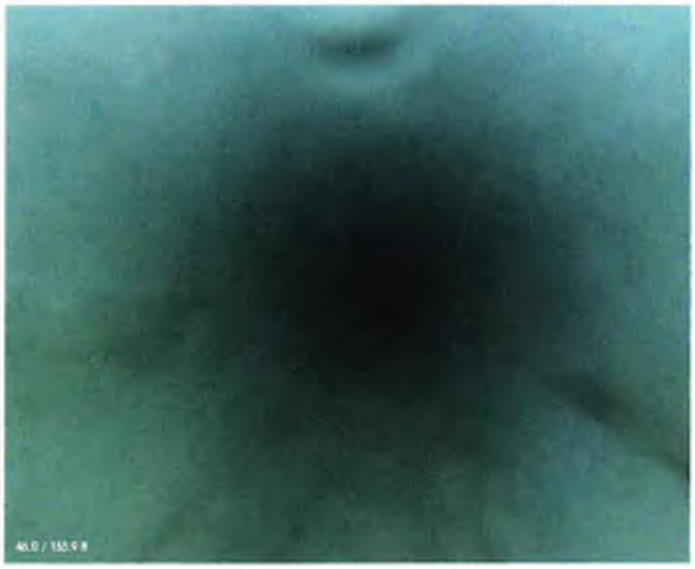


PACP Code:	MWL
Description:	Water Level
Distance (ft):	1.07
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level
Distance (ft):	16.49
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	34.07
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level
Distance (ft):	45.95
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

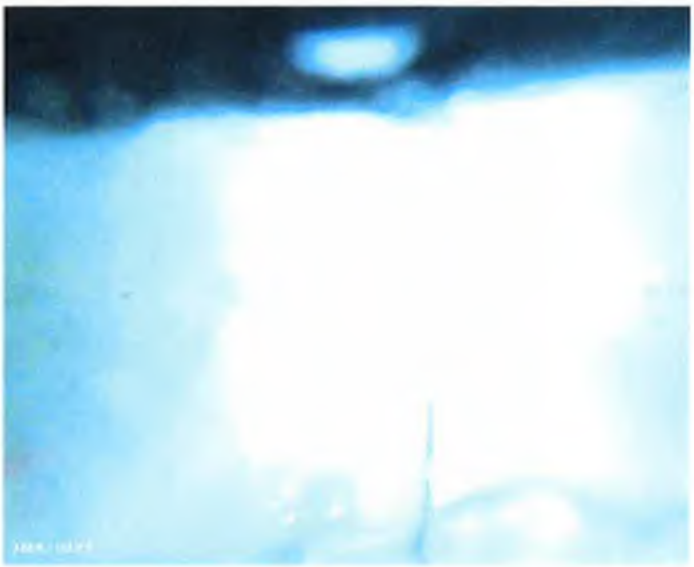
PACP Code:	MWL
Description:	Water Level
Distance (ft):	60.1
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.86
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	124.46
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	135.55
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	143.84
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	153.87
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

CCTV Observation Report

Harris & Associates

Date: 7/8/19
Pipe Length
Customer:

Owner:
Surveyor: [redacted]
Weather:

Pre Clean:
Shape:
Reach: 03-9004 to 03-9003

Street: Monroe St.
City:
Use:

Flow Control:
Dia/Height (in): 8"
Material: VCP

Survey Direction: US

US Manhole: 03-9004
DS Manhole: 03-9003
Total Length Surveyed: 272'

Position	Code	Observation	Video (sec)	Grade
0'	AMH	Start		
0'	MWL	10%		
17.7'	TB			
45.3'	TFC			
113'	TF			
165.2'	TB			
208'	TF			
248'	SSS			501
251'	BSV	Broken	J250' - J253' (3')	54
272'	AMH	End		

Rec: Spot repair J250 - J253 (3')

Profile/Photo Observation Report

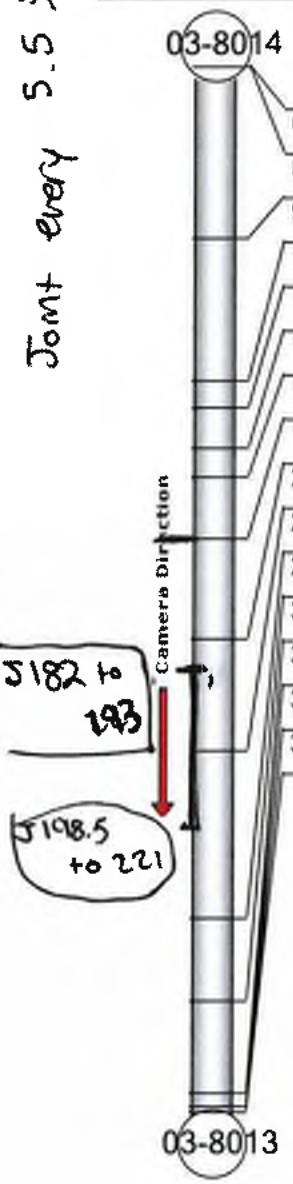
RedZone ROBOTICS

Date:	11/02/2009	Weather:	Dry		
Pipe Length (ft):	307	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12018	Surveyor:	JJC	PSR:	03-8014 to 03-8013
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Easement Off Santa Rosa	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Easement/Right of Way	Tape/Media #:	NS23-740
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:	Re-run		
Location Details:		Direction of Survey:	Downstream

US MH: 03-8014 DS MH: 03-8013 Total Length Surveyed (ft): 307

Joint every 5.5 ft



J182 to 193

J198.5 to 221

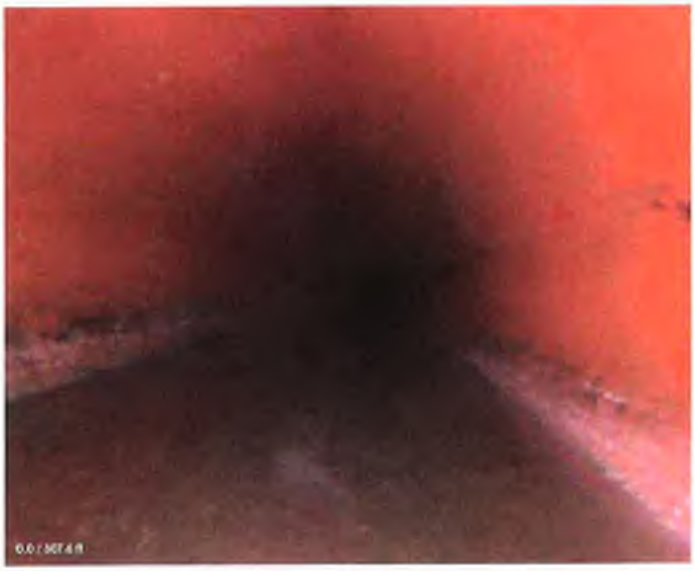
Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level (25%)	13	NA
50.22	MGP	General Photo WL = 15%	122	NA
92.48	MWL	Water Level (40%) (J87 - J98)	214	NA
100.38	MGP	General Photo	238	NA
112.07	MWL	Water Level (15%)	270	NA
120.59	SSS	Surface Spalling	295	S 2
138.61	MWL	Water Level (40%) (J131.5 to 148)	340	NA
168.2	DAGS	Deposits Attached Grease @ 12 O'clock	408 (WL = 25%)	M 3
201.33	MGP	General Photo (30% WL)	483	NA
250.3	MWL	Water Level 10%	589	NA
274.75	MWL	Water Level 20%	654	NA
301.94	MWL	Water Level 10%	717	NA
305.95	IR	Infil Runner @ joint w/i manhole	733	M 4
307.55	DAGS	Deposits Attached Grease	745	M 3
307.55	AMH	Manhole	753	NA

Recommendation

Spot Repair J182 to 221
J132 to 148
J87 to 98
= 66 ft total

from MH3-8014

PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey



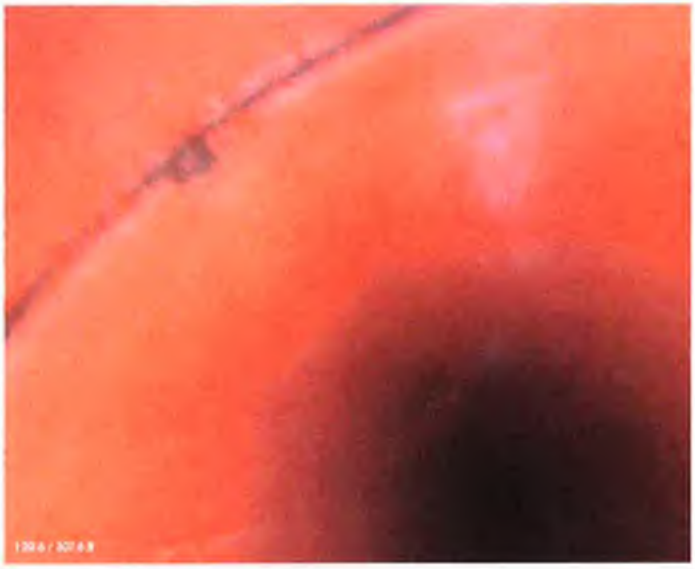
PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.22
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	92.48
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.38
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

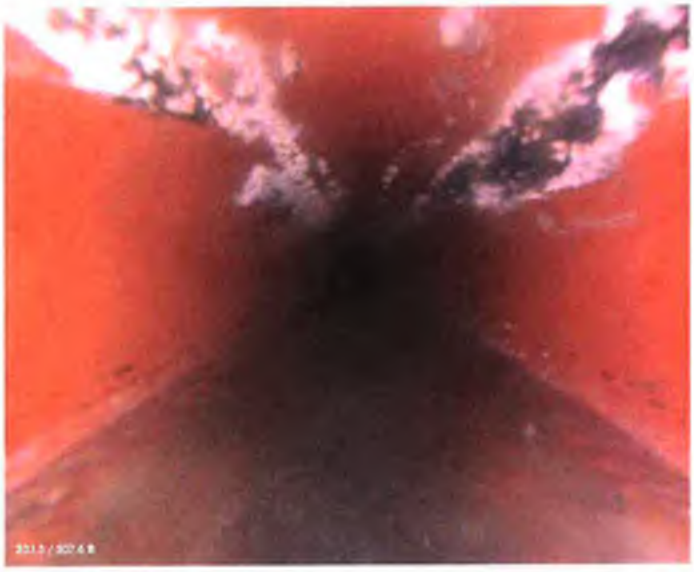
PACP Code:	MWL
Description:	Water Level
Distance (ft):	112.07
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	SSS
Description:	Surface Spalling
Distance (ft):	120.59
Structural Grade:	2
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	True
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	138.61
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

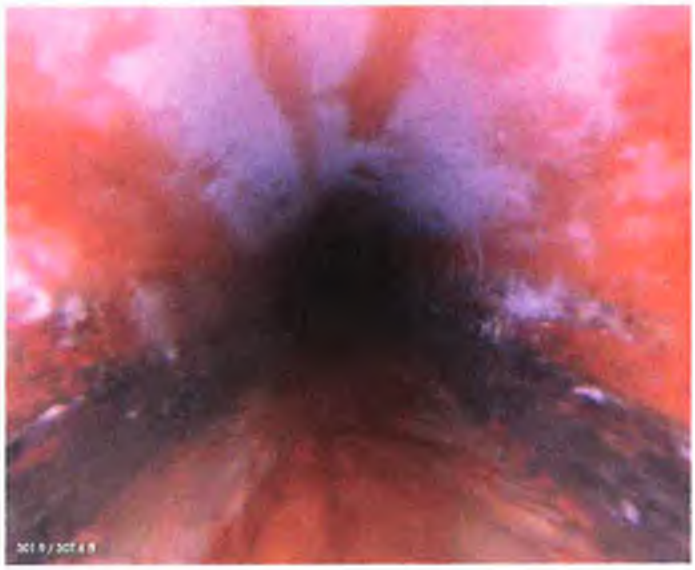
PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	168.2
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	S01
Within 8" of Joint:	False
Remarks:	



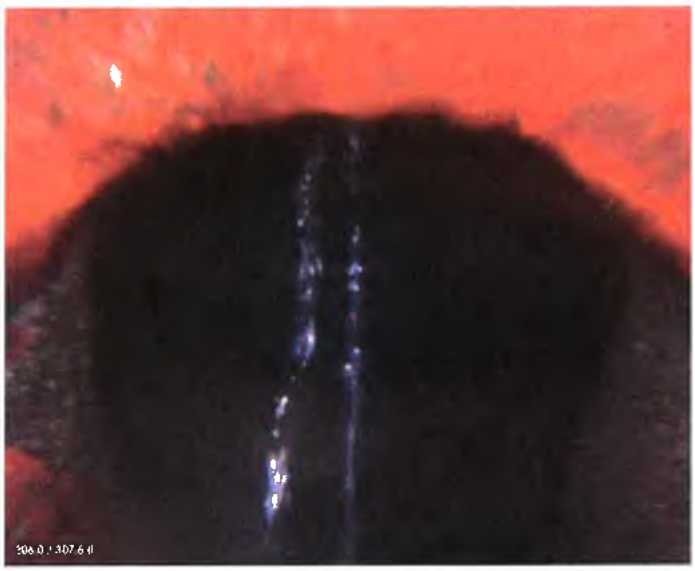
PACP Code:	MGP
Description:	General Photo
Distance (ft):	201.33
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	250.3
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	274.75
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

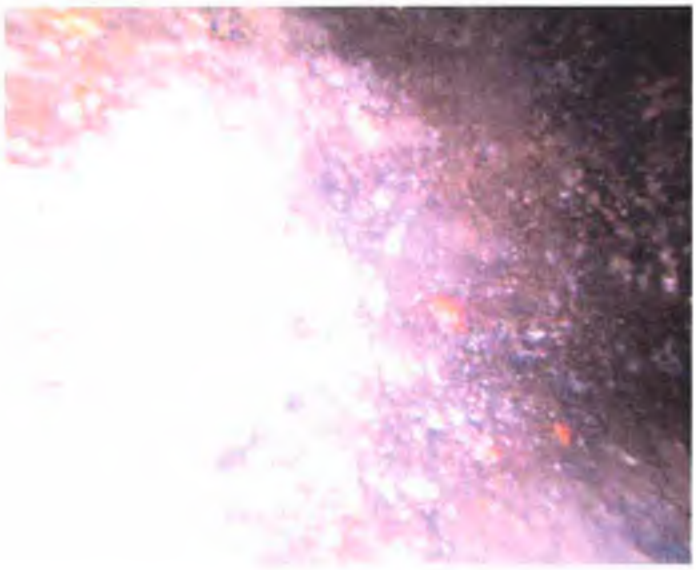


PACP Code:	MWL
Description:	Water Level
Distance (ft):	301.94
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	IR
Description:	Infil Runner
Distance (ft):	305.95
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	12
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	In MH

PACP Code:	DAGS
Description:	Deposits Attached Grease
Distance (ft):	307.55
Structural Grade:	NA
O&M Grade:	3
Clock Start/From:	10
Clock To:	2
1st Value:	
2nd Value:	
Continuous Index:	F01
Within 8" of Joint:	False
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	307.55
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Hotspot

Joints -> 20ft apart

CCTV Observation Report

Harris & Associates

Date: 11/14/17
Pipe Length
Customer:

Owner: City of Arvin
Surveyor: Don Ellsworth
Weather:

Pre Clean:
Shape: Circular
Reach: 06-1006 to 06-1005

Street:
City: Olson Way
Use:

Flow Control:
Dia/Height (in): 8 in
Material: PVC

Survey Direction: Downstream

US Manhole: 06-1006
DS Manhole: 06-1005
Total Length Surveyed: 293.5

Position	Code	Observation	Video (sec)	Grade
0	MWL	WaterLevel 100%		N/A
0	MCU	Camera Underwater	(0-3)	M4
3.5	MWL	Water level	30%	N/A
13.6	MWLS	Water Level Sag	(13ft Sag)	N/A
38.6	TF	Tap Factory		N/A
102.8	TF	Tap Factory		N/A
142.6	TFA	Tap Factory Active		N/A
166	TFA	Tap Factory Active		N/A
228.7	TFA	Tap Factory Active		N/A
293.5	MH	Manhole		

Recommendation

20ft SPOT Repair MH 06-1006 to 20ft

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	10/30/2009	Weather:	Dry		
Pipe Length (ft):	330	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12022	Surveyor:	JJC	PSR:	03-2002 to 03-2001
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Austin Ct.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS11-1204
Purpose:	Not Known	Dia/Height (in):	8
Use:	Sanitary	Material:	Polyvinyl Chloride
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Upstream

US MH: 03-2002 DS MH: 03-2001 Total Length Surveyed (ft): 330

03-2001

Camera Direction

Position	Code	Observation	Video (sec)	Grade
0	AMH	Manhole	5	NA
0	MWL	Water Level 30%	13	NA
1.55	VC	Vermin Cockroach	24	M 1
50.42	MGP	General Photo	133	NA
51.01	TF	Tap Factory	142	NA
53.13	TFA	Tap Factory Active	156	NA
100.3	MGP	General Photo	260	NA
102.67	TF	Tap Factory	273	NA
104.84	TF	Tap Factory	288	NA
150.35	MGP	General Photo	389	NA
163.03	TF	Tap Factory	422	NA
165.68	TFA	Tap Factory Active	437	NA
209.86	TF	Tap Factory	535	NA
211.98	TF	Tap Factory	549	NA
246.89	TF	Tap Factory	629	NA
248.02	TF	Tap Factory	641	NA
249.55	MWL	Water Level	654	NA
251.83	MCU	Camera Underwater	666	M 4
330.19	AMH	Manhole	831	NA

Sag J226 - 268

Recommendations

Spot Repair - J226 - 268

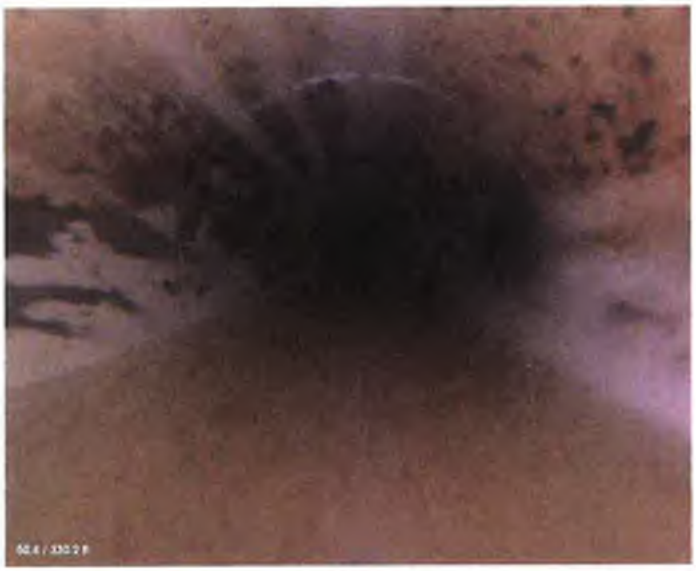
42 Ft

03-2002

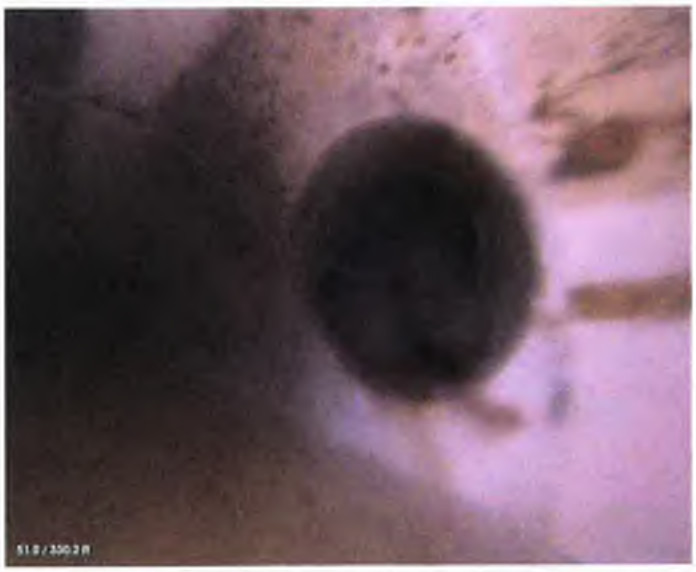
PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	VC
Description:	Vermin Cockroach
Distance (ft):	1.55
Structural Grade:	NA
O&M Grade:	1
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.42
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TF
Description:	Tap Factory
Distance (ft):	51.01
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

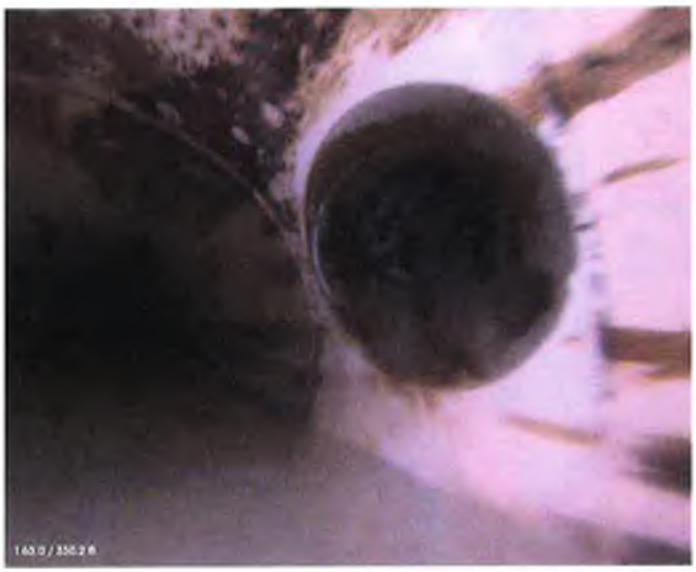
PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	53.13
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	9
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.3
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

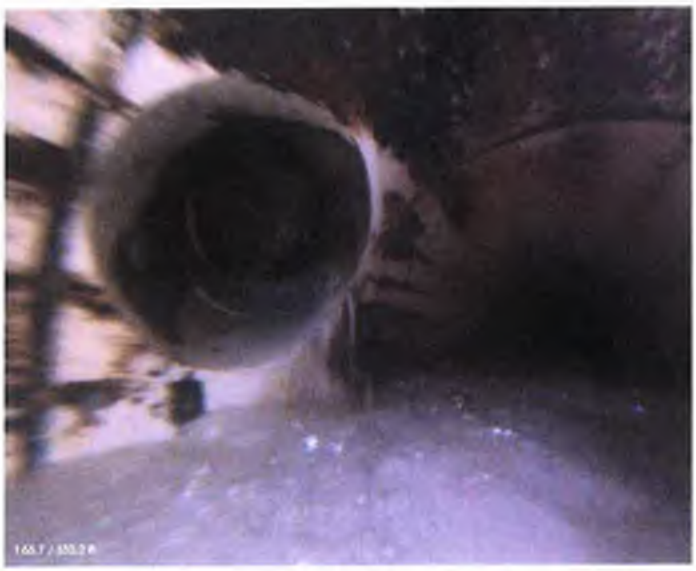
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	102.67
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	104.84
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	9
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.35
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

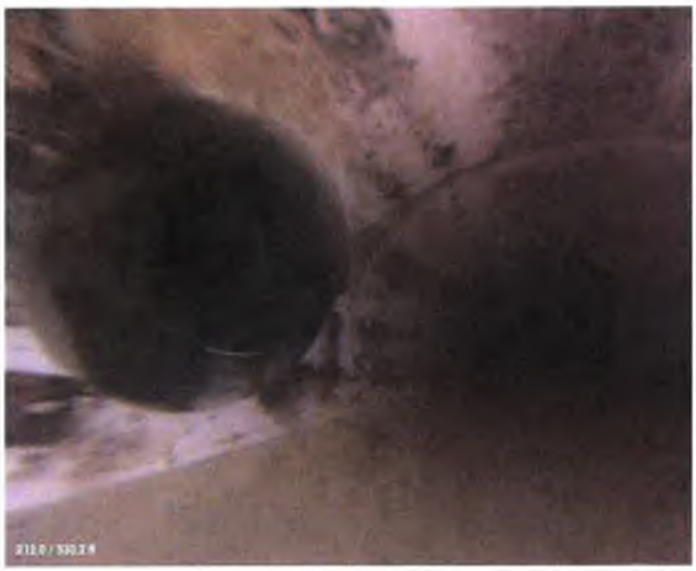


PACP Code:	TF
Description:	Tap Factory
Distance (ft):	163.03
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	TFA
Description:	Tap Factory Active
Distance (ft):	165.68
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	209.86
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



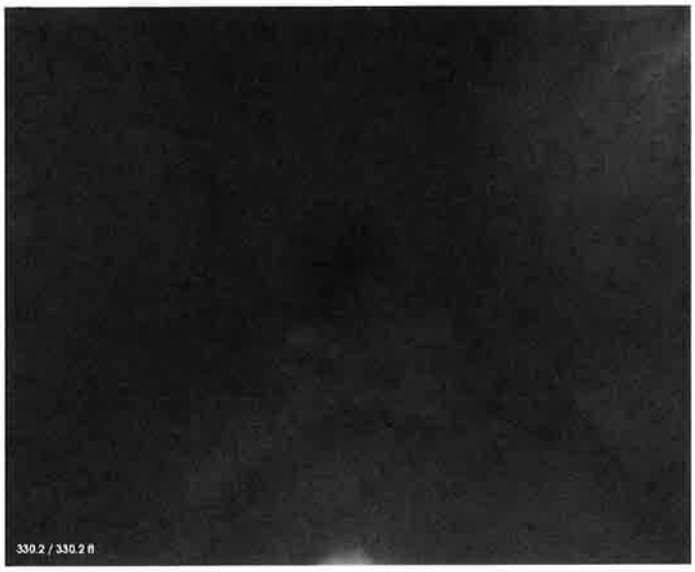
PACP Code:	TF
Description:	Tap Factory
Distance (ft):	211.98
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	246.89
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	10
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	TF
Description:	Tap Factory
Distance (ft):	248.02
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	3
Clock To:	
1st Value:	4
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	249.55
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	251.83
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	AMH
Description:	Manhole
Distance (ft):	330.19
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

01-4002 to 01-4001

Rec: Spot repair J310 → MH 01-4001 (25')
• Sag

CCTV Observation Report

Harris & Associates

Date: 10/29/12
Pipe Length
Customer:

Owner:
Surveyor:
Weather:

Pre Clean:
Shape:
Reach: 01-4002 to 01-4001

Street: La Mesa Ct.
City:
Use: Villa Dr.

Flow Control:
Dia/Height (in): 8"
Material: PVC

Survey Direction: DS

US Manhole: 01-4002

DS Manhole: 01-4001

Total Length Surveyed:

Position	Code	Observation	Video (sec)	Grade
0	AMH	Start MH		
0	MWL	5 %		
0	MWM	Water mark 20 %		
11'2"	TFA			
73'3"	TFA			
82'10"	TF			
135'4"	TFA			
145'6"	TF			
195'5"	TF			
205'7"	TFA			
264'9"	TF			
320'1"	MWLS	Sag J310 → end (25')		
323'4"	TF			
325'2"	TF			
335'10"	AMH	End MH		

CCTV Observation Report

Harris & Associates

Date: 10/31/12
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 02-2016 to 02-2015

Street: Tesoro Dr
City: Arvin
Use: Sanitary
US Manhole: 02-2016

Flow Control: Not Controlled
Dia/Height (in): 8
Material: PVC
DS Manhole: 02-2015

Survey Direction: Downstream
Total Length Surveyed: 147

Position	Code	Observation	Video (sec)	Grade
6	MWL	Water Level (10%)	0	—
0	MWM	Water Mark (25%)	—	—
16	TF	Tap Factory	—	—
73.25	TFA	Tap Factory Active		
78.75	TF	Tap Factory		
137	TFA	Tap Factory Active		

- Sag J123 to MH 02-2015 (24 ft)

- Water Level Low
- one part of pipe contains a sag
- Pipe PVC Condition OK

Recommendation

① Spot Repair J 123 to MH 02-2015 (24 ft)

CCTV Observation Report

Harris & Associates

"in Excell Data"
02-2001 to 02-0007

Date: 11/1/12
Pipe Length
Customer: Veolia

Owner: City of Avon
Surveyor:
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 02-2001 to 02-2007

Street: Tesoro Dr.
City: Avon
Use: Sanitary

Flow Control: Not Controlled
Dia/Height (in): 8
Material: PVC

Survey Direction: Downstream

US Manhole: 02-2001
DS Manhole: 02-2007
Total Length Surveyed: 272

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (15%)	–	–
0	MWM	Water Mark (40%)	–	–
105	MWL	Water Level (40%)	–	–
118	MWL	Water Level (50%)	J 105 to 143	
231	MCW	Camera Underwater	J219 - 244	

- water level varied, contained 2 sags
- condition of pipe is OK
- only needs spot repair. (if not 2/3 reach length)

Recommendation

Spot Repair J105 - 143 (38ft)
J 219 + 244 (25ft)

63ft

CCTV Observation Report

Harris & Associates

Date: 11/2/12
Pipe Length
Customer: veolia

Owner: City of Arvin
Surveyor: J. NGO.
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 01-0011 to 01-0010

Street: S Comanche DR
City: Arvin
Use: Sanitary
US Manhole: 01 - 0011

Flow Control: Not Controlled
Dia/Height (in): 18
Material: VCP
DS Manhole: 01-0010

Survey Direction: Downstream
Total Length Surveyed: 210

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (25%)	–	–
0	MWM	Water Mark (50% (A)	–	–
53	MWL	Water Level (50%)	–	–
90	WWL	Water Level (30%)	–	–
150	MWL	Water Level (40%)	–	–
195	MWL	Water Level (50%)	–	–
210	AMH	Manhole (	–	–

- highest water level is 50%
- located in high traffic flow area
- mains designed for high flow into treatment plant.

Recommendation
keep as Existing (210) (*noting high traffic area)

CCTV Observation Report

Harris & Associates

Date: 11/2/12
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 01-0009 to 01-0008

Street: S Comanche DR
City: Arvin
Use: Sanitary
US Manhole: 01-0009

Flow Control: Not Controlled
Dia/Height (in): 18
Material: VCP
DS Manhole: 01-0008

Survey Direction: Downstream
Total Length Surveyed: 434

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (30%)	–	–
185.5	MWL	Water Level (50%)	–	–
251	MWL	Water Level (30%)	–	–
260	MWL	Water Level (60%)	–	–
315	MWL	Water Level (50%)	–	–

- again, sewer main is located in high traffic flow area so main is designed for these conditions
- waterlevel consistent at around 50%
- no visual defects,

Recommendation
- keep as existing (high traffic flow)

CCTV Observation Report

Harris & Associates

Date: 11/2/12
Pipe Length
Customer: Veolia

Owner: City of Arvin
Surveyor:
Weather: Dry

Pre Clean: Jetting
Shape: Circular
Reach: 01-0008 to 01-0007

Street: S Comanche DR
City: Arvin
Use: Sanitary

Flow Control: Not Controlled
Dia/Height (in): 18
Material: VCP

Survey Direction: Downstream

US Manhole: 01-0008

DS Manhole: 01-0007

Total Length Surveyed: 482

Position	Code	Observation	Video (sec)	Grade
0	MWL	Water Level (50%)		–
215	MWL	Water Level (40%)		–
404	MWL	Water Level (40%)		–
458	MWL	Water Level (70%)		–
465	MCU	Camera Underwater	(S 265 - MH 01-0007)	
482	AMH	Manhole		–

- water level between 50-60%, due to location and traffic of the flow
- camera underwater for last 20 ft of reach

Recommendation

- keep as Existing (high capacity flow) 70%

Profile/Photo Observation Report

RedZone ROBOTICS

Date:	11/02/2009	Weather:	Dry		
Pipe Length (ft):	328	Owner:	City of Arvin	Pre Clean:	Not Known
P.O.#:	W/O # 12023	Surveyor:	JJC	PSR:	09-0012 to 09-0011
Customer:	Veolia Water NA	Clean Date:		Shape:	Circular

Street:	Potato Rd.	Flow Control:	Not Controlled
City:	Arvin, CA	Year Renewed:	
Location:	Light Highway	Tape/Media #:	NS9-848
Purpose:	Not Known	Dia/Height (in):	10
Use:	Sanitary	Material:	Vitrified Clay Pipe
Drain Area:		Lining:	
Category:			
Comment:			
Location Details:		Direction of Survey:	Downstream

US MH: 09-0012 DS MH: 09-0011 Total Length Surveyed (ft): 328

Position	Code	Observation		Video (sec)	Grade
0	AMH	Manhole		5	NA
0	MWL	Water Level	20%	13	NA
50.85	MGP	General Photo		131	NA
100.58	MGP	General Photo		239	NA
150.03	MGP	General Photo	20% WL	346	NA
200.74	MGP	General Photo	20% WL	456	NA
250.02	MGP	General Photo		562	NA
286.9	MWL	Water Level	J282.5 to MH	644	NA
290.39	MCU	Camera Underwater		659	M 4
320.83	MWL	Water Level	40%	729	NA
328.47	AMH	Manhole		752	NA

- Overall Condition of pipe is fine

Recommendations

Spot Repair J282.5 to MH 09-0011

PACP Code:	AMH
Description:	Manhole
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	Begin survey

PACP Code:	MWL
Description:	Water Level
Distance (ft):	0
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

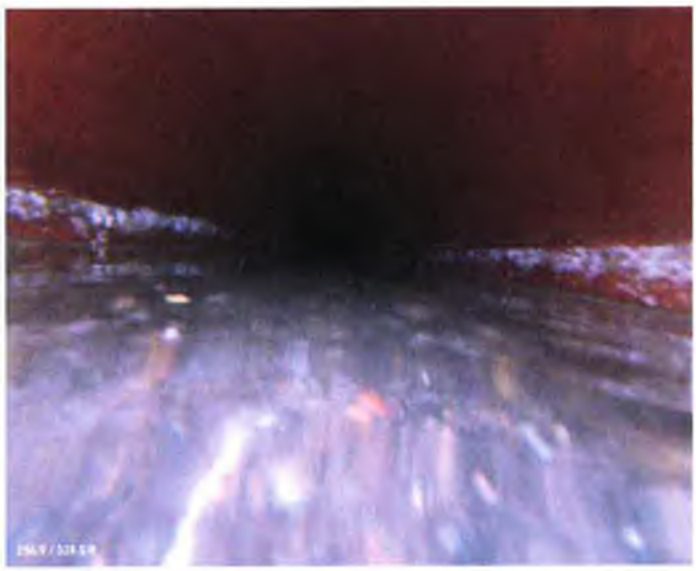
PACP Code:	MGP
Description:	General Photo
Distance (ft):	50.85
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	100.58
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

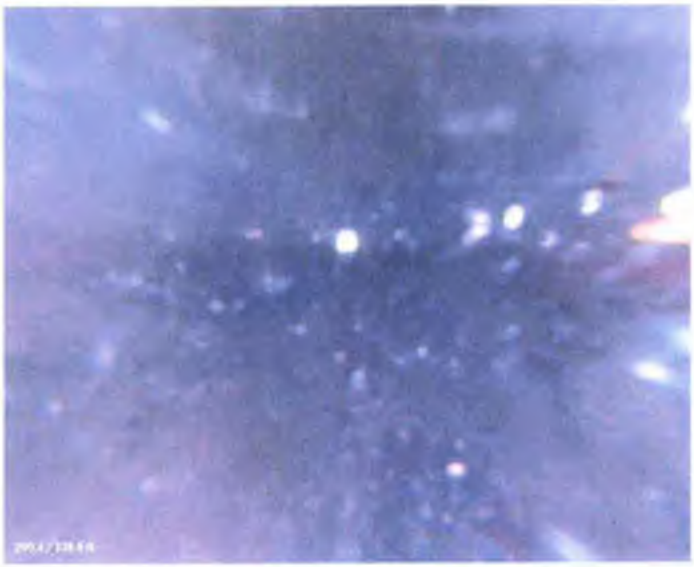
PACP Code:	MGP
Description:	General Photo
Distance (ft):	150.03
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	200.74
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MGP
Description:	General Photo
Distance (ft):	250.02
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MWL
Description:	Water Level
Distance (ft):	286.9
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	



PACP Code:	MCU
Description:	Camera Underwater
Distance (ft):	290.39
Structural Grade:	NA
O&M Grade:	4
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	MWL
Description:	Water Level
Distance (ft):	320.83
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	

PACP Code:	AMH
Description:	Manhole
Distance (ft):	328.47
Structural Grade:	NA
O&M Grade:	NA
Clock Start/From:	
Clock To:	
1st Value:	
2nd Value:	
Continuous Index:	
Within 8" of Joint:	False
Remarks:	End of survey

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

Sheet: 1 / 1

MANHOLE NO.: 07 - 2014

Surveyed by: J - L

Street: Bautista st.

Cert. no.:

MH Location Details:
4041 Bautista St.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Material def.

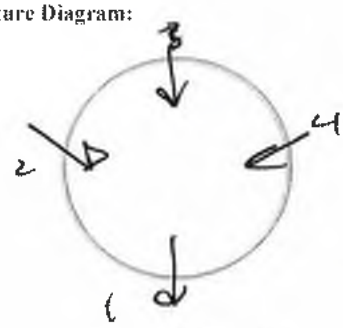
Cone Condition: Defective / Sound / Unknown Hole

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
chimney / ~~Cone~~ Cone repairs

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	S.I. (surface inspection)

Date: 7 FEB / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - 4001

Surveyed by: Calvan

Street: Redwood Ct + Redwood Dr

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

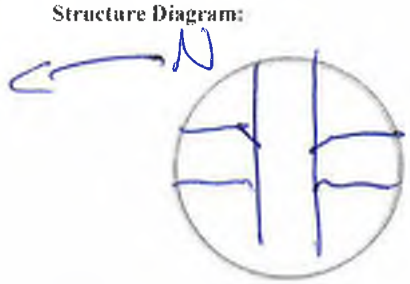
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
bench is worn down
infiltration present

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: M5-4006

Surveyed by: Calvin

Street: Packard Dr

Cert. no.:

MH Location Details: Head St x Packard Dr

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

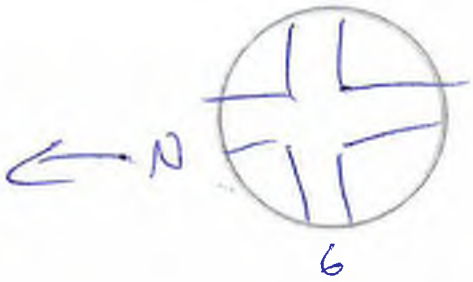
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments: chimney cracked + worn

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

MANHOLE OBSERVATION FORM

Harris & Associates

Project:	Arvin Sewer Master Plan	Project No.:	1800032001
City:	Arvin, CA	Task Order No.:	3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

Sheet: 1 / 1

MANHOLE NO.: D7 - 2012 **Surveyed by:** J-L

Street: Simpson Ct. **Cert. no.:**

MH Location Details:

Adj. to Basketball ct.

Access Type: Assumes Manhole: *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

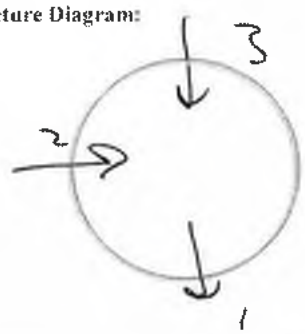
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:30

MH Condition Comments:

Good

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Appendix R: Organization of Sewer Master Plan

Organization of Report

This Sewer Master Plan is organized as a series of chapters intended to present information concisely and clearly to the reader. The chapters are in a logical order according to the structure described in the following subsections.

Foundational Chapters

Chapter 1 (Introduction) provides administrative information related to the purpose, organization, and use of the Sewer Master Plan.

Chapter 2 (Existing System) provides a summary of infrastructure currently in use.

Chapter 3 (Land Use and Population) provides a basis for identifying and quantifying the beneficiaries of improvements made to the wastewater collection system. This chapter relies heavily on the General Plan for land use and provides a forecast for population growth.

Chapter 4 (Wastewater Generation) demonstrates the relationship between water sales, indoor water use, and wastewater influent to the Water Reclamation Plant (WRP). In addition, wastewater generation is projected as a function of population growth.

Analytical Chapters

Chapter 5 (Hydraulic Analysis) presents the tools and methodologies for determining the capacity of the wastewater collection system. Capacity refers to the size of the individual system components as required to satisfy design criteria.

Chapter 6 (Condition Assessment) presents the tools and methodologies for determining the performance of the wastewater collection system. Performance refers to the ability of individual system components to function as designed.

Implementation Chapters

Chapter 7 (Capital Improvement Program) presents the culmination of the analytical chapters in terms of recommending improvements to the wastewater collection system that will satisfy both capacity and performance requirements. Improvements are presented as projects to be implemented on a schedule that addresses perceived urgency.

Chapter 8 (Environmental Assessment) presents a review of potential environmental impacts that may result from implementation of the CIP. The assessment is programmatic rather than project-specific, which tends to streamline the implementation of common projects without the need for additional assessment.

Appendices provide data necessary to facilitate implementation of the CIP. In the event priorities change in the future, there is sufficient information contained in the appendices to adapt to new condition without the need for extensive research or analysis.

Coordination with STANTEC

Preparation of this Sewer Master Plan by Harris coincides with planning to improve the Water Reclamation Plant (WRP) by STANTEC.

Harris and STANTEC verified that each firm's understanding of future wastewater generation was consistent. As a result, we are confident the collection system and treatment system will complement each other and work together as designed.

Coordination with RWQCB

The Regional Water Quality Control Board (RWQCB) is the permitting agency for the Water Reclamation Plant. As a condition of the permit, the Board expects the City to review the capacity and performance of the wastewater collection system, and implement a plan to avoid overflows and outages. The contents of this Sewer Master Plan have been provided to the Board in a manner consistent with the City's discharge permit to demonstrate the City has fulfilled its obligation.

Appendix S: Development of Wastewater Generation Factors

Wastewater Generation

General Background

This chapter describes the process for determining the location, nature and intensity of wastewater generation in the City of Arvin and associates current wastewater generation to current occupancy in terms of wastewater generation per land use designation. The relationship between wastewater generation and land use can be applied to future development to project loading on the wastewater collection system and the water reclamation plant (WRP).

Water Use and Wastewater Generation Correlation

There is an indirect relationship between water use and wastewater generation: only indoor water use is converted into wastewater. In general, water use by every customer is known because it is metered, but wastewater generation is only metered at the WRP not at the customer's location. An algorithm was developed as a tool to more accurately define the relationship between water use and wastewater generation, and a solution was found that satisfies the conditions of the algorithm.

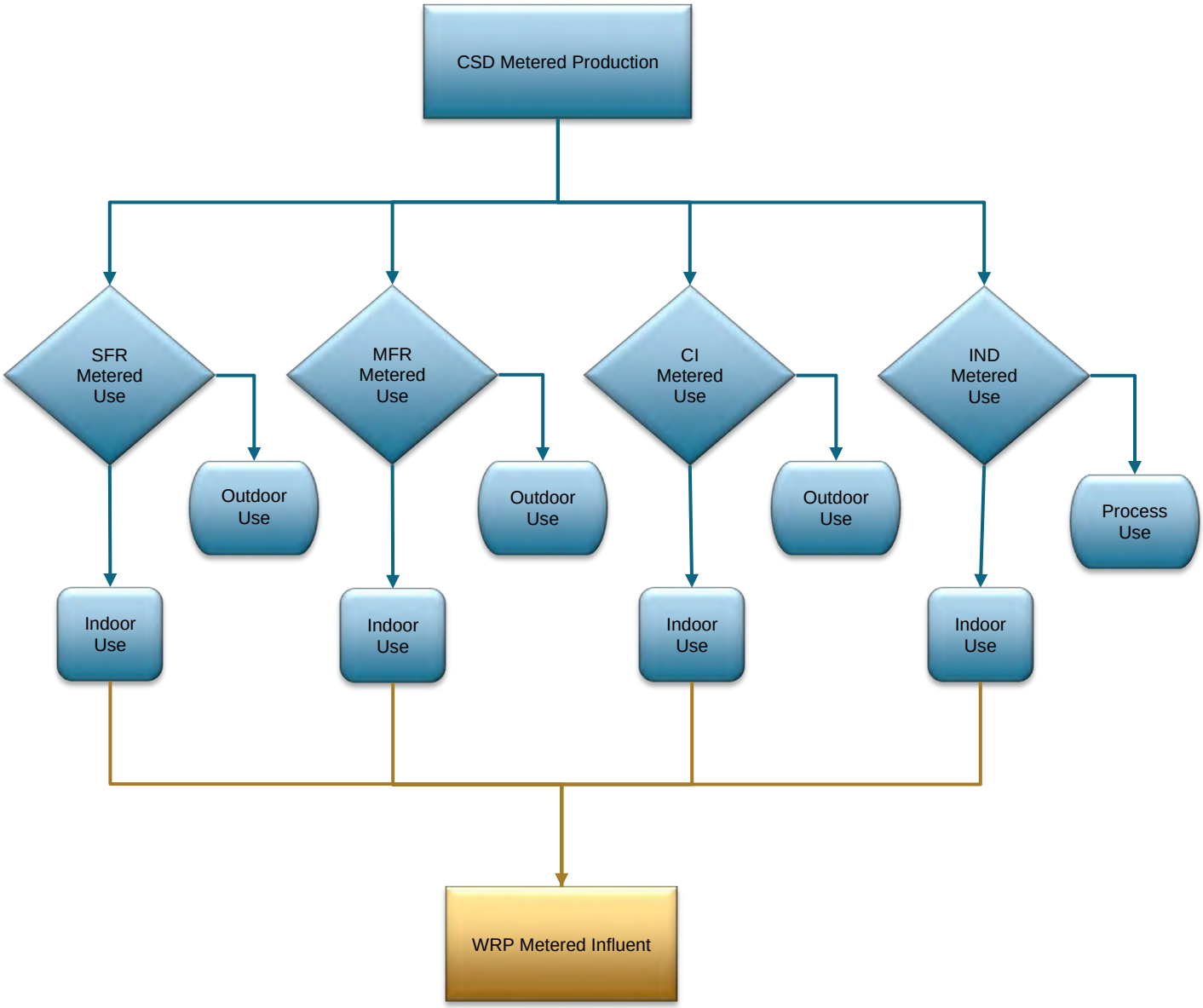
Historical daily drinking water production is known, and historical daily WRP influent is known. The objective of the algorithm is to trace and reconcile the path from drinking water production to WRP influent. For planning purposes, the primary component of that path is determining the rate of wastewater generation for each land use type in terms of average gallons of wastewater generated per day per acre.

Following is the wastewater generation process:

- Drinking water is produced by CSD
- Drinking water is delivered to City customers via the CSD distribution system through each customer's water meter.
- Residential, Commercial and Institutional customers allocate their water use to indoor (i.e. domestic) and outdoor (i.e. irrigation) uses. Industrial customers allocate their water use to indoor (i.e. domestic) and industrial process water. Note that indoor use tends to be driven by population, outdoor use tends to be driven by meteorological conditions, and industrial process use tends to be driven by economics.
- A portion of a customer's indoor water use is converted to wastewater, which enters the collection system serving the customer's location.
- Cumulative wastewater generation enters the collection system where it flows to the WRP.

This sequence of events is shown in the figure below.

Wastewater Generation Flow Chart



Data Sources

Data from 2016, 2017 and 2018 were reviewed. There are four primary sources of data used in the wastewater generation analysis: drinking water production and sales, land use allocation, wastewater influent, meteorological records.

CSD provided data related to production and sales of drinking water. These data include daily production (i.e. water pumped from wells each day), monthly sales by customer class (i.e. total volume based on meter readings), and estimates for system losses (i.e. the difference between production and sales).

Land use data were taken from the General Plan. Each parcel within the City Boundary was programmed into a Geographic Information System (GIS) including location, acreage, land use designation and occupancy. Occupied parcels were correlated to CSD customer classes in terms of land use designation. CSD customer classes and General Plan land use designations were correlated as shown in the table below.

Correlation between Customer Class and Land Use Designations

CSD Customer Classes	General Plan Land Use Designation
Single Family Residential (SFR)	Estate Residential
	Residential Reserve
	Low Density Residential
	Medium Density Residential
Multi-Family Residential (MFR)	High Density Residential
Commercial & Institutional (CI)	General Commercial
	Public Facilities
	Schools
Industrial	Light Industrial
	Heavy Industrial
Non-Contributors	Vacant
	Agricultural
	Parks

Veolia provided daily WRP influent totals (i.e. the volume of wastewater entering the WRP each day).

Meteorological data were taken from the California Irrigation Management Information System (CIMIS) Weather Station #125 designated as Arvin-Edison. These data include precipitation and evapotranspiration index (ET_0). ET_0 is the amount of water required to maintain healthy turf grass under local conditions. The parameters considered in the ET_0 include solar radiation, soil temperature, air temperature, relative humidity, wind direction, wind speed and precipitation. ET_0 is scalable based on the requirements of the subject landscaping.

Methodology

A database was constructed to relate the four datasets and calibrate wastewater generation with WRP influent according to the Wastewater Generation Flow Chart.

The following parameters are known:

- Drinking water production
- Drinking water sales by customer class
- Drinking water loss
- Occupied area by customer class
- Meteorological conditions influencing regional outdoor water use
- WRP influent

The following parameters are unknown:

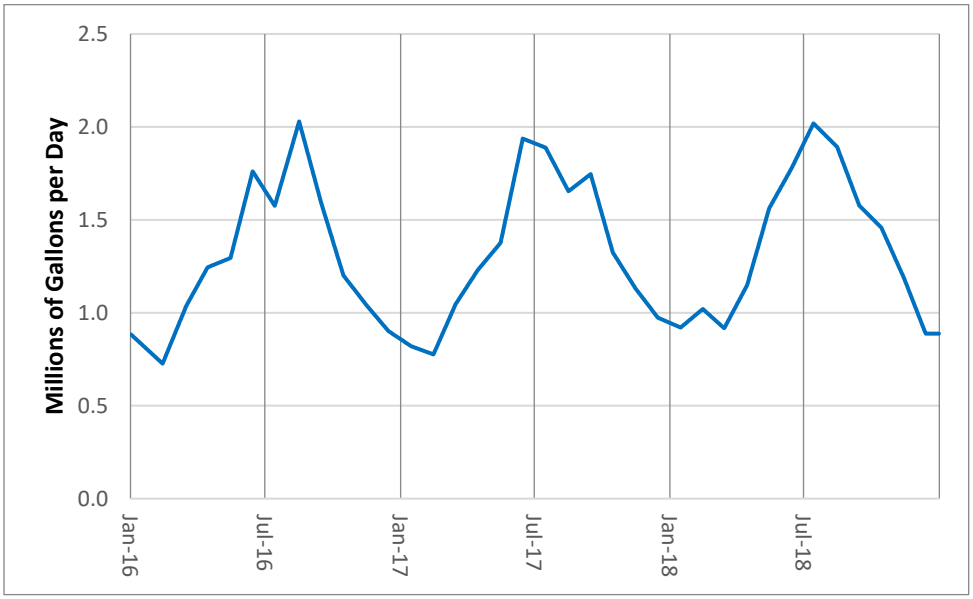
- Indoor vs. outdoor water use for the SFR[1], MFR[2] and CI[3] customer classes
- Indoor vs. process water use for the Industrial customer class
- Volume of water loss converted to indoor water use
- Volume of indoor water use converted to wastewater

To solve the first unknown, a relationship was developed for each customer class between total water use and the ET_0. Outdoor water use is assumed to be proportional to ET_0 and indoor water use is assumed to be constant.

[1] SFR = Single Family Residential
[2] MFR = Multi-Family Residential
[3] CI = Commercial and Institutional

As an example, the solution for indoor vs. outdoor water use for the Single Family Residential customer class is described below. The figure below shows water sales to Single Family Residential customers for 2016 to 2018. The average demand for the period is approximately 1.4 million gallons per day.

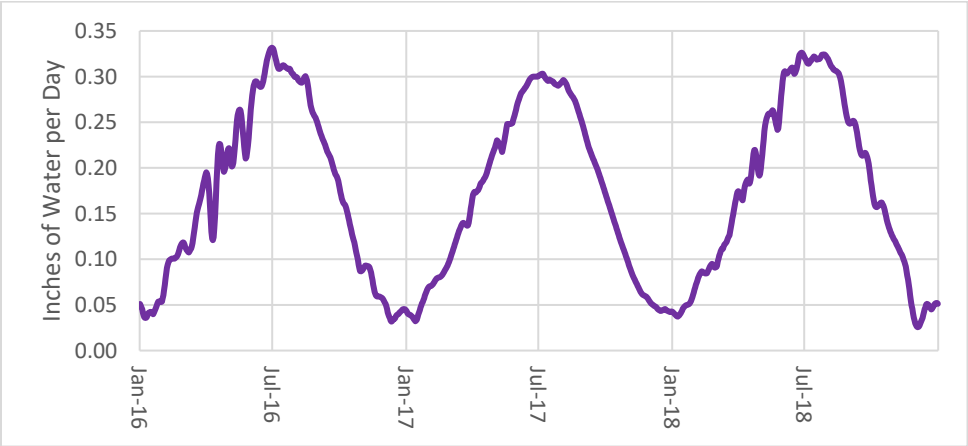
Water Sales for Single Family Residential



Residential water use varies by season. In the winter, demand is low in response to cold wet weather; and in the summer, demand is high in response to hot dry weather.

The figure below provides the Arvin-Edison regional ET_0 for the same time period showing the recommended irrigation allocation for turf grass in units of inches of water per day.

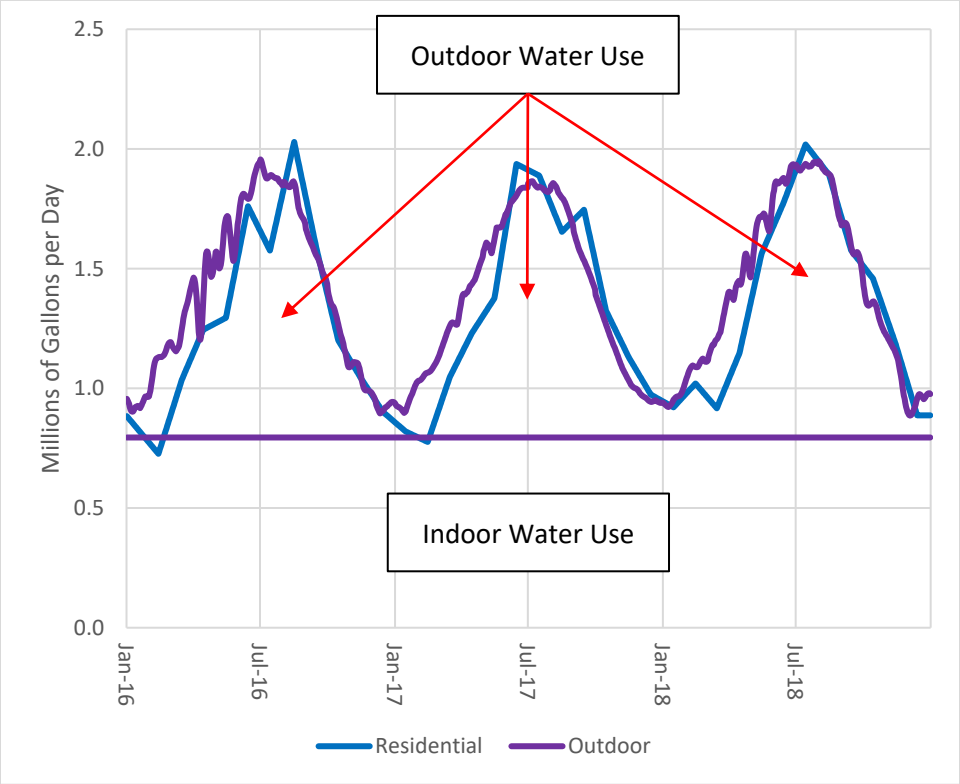
Evapotranspiration Index (ET_0)



Note that the water sales curve and the ET_0 curve have a similar shape.

The figure below shows a best-fit ET_0 curve in relation to Single Family Residential water sales. The area between the purple curves represents outdoor water use and the area below the purple line represents indoor water use.

Separation of Indoor and Outdoor Water Use



The process of separating indoor and outdoor water use was repeated for the Multi-Family Residential and Commercial / Institutional customer classes.

To solve the second unknown (indoor vs. process water use for the Industrial customer class), the third unknown (volume of water loss converted to indoor water use) and the fourth unknown (volume of indoor water use converted to wastewater), a viable solution was developed through an iterative process using the algorithm represented in **Error! Reference source not found.**.

The relative initial conditions for the iterative process were based on conversations with the WRP Chief Operator and the CSD General Manager, as shown below:

- Per the WRP Chief Operator, industrial process water is retained and treated on-site and does not enter the wastewater collection system. A small proportion of industrial water use was allocated to indoor water use.
- Per the CSD General Manager, water loss varies widely and the causes of water loss are not well known. A small proportion of water loss was allocated to indoor water use representing customer meter inaccuracy. This allocation was made proportional to indoor water use by customer class.
- The majority of indoor water use is converted into wastewater. A large proportion of indoor water use was allocated to wastewater generation.

The goal of the iterative process was to calibrate cumulative wastewater generation with wastewater influent by making incremental adjustments to (1) the relationship between industrial water sales and indoor water use for the Industrial customer class, (2) water loss allocation, and (3) conversion of indoor water use to wastewater. The results of the process are as follows:

- 30% of industrial water use is allocated to indoor water use
- 30% of water loss is allocated to indoor water use
- 95% of indoor water use is allocated to wastewater generation

1.1. – Application

Error! Reference source not found. and **Error! Reference source not found.** provide the iterative solution to the wastewater generation analysis described in the previous subsections.

The table below is a summary of indoor water use by customer class.

Summary of Indoor Use

Sector	MFR[4]	SFR[5]	CI[6]	Industrial
Water Sales (MGD[7])	0.269	1.397	0.120	0.044
Indoor Use (MGD)	0.174	0.795	0.118	0.013
Losses Attributed to Indoor Use (MGD)	0.010	0.048	0.007	0.001
Total Indoor Use (MGD)	0.184	0.843	0.125	0.014

- Water Sales were provided by the Arvin Community Service District.
- Indoor Water Use for the MFR, SFR and CI customer classes was calculated by separating irrigation from sales.
- Indoor Water Use for the Industrial customer class is 30% of Water Sales.
- Losses Attributed to Indoor Water Use are 30% of total water loss distributed proportionally to indoor water use by customer class.
- Total Indoor Use is the sum of Indoor Use and Losses Attributed to Indoor Use

[4] MFR = Multi-Family Residential
[5] SFR = Single Family Residential
[6] CI = Commercial and Institutional
[7] MGD = millions of gallons per day

The table below demonstrates the relationships between indoor water use, wastewater generation and occupied area by customer class.

Development of Wastewater Generation Factors

Sector	MFR	SFR	CI	Industrial
Total Indoor Use (MGD)	0.184	0.843	0.125	0.014
Wastewater Generation (MGD)	0.175	0.801	0.119	0.013
Occupied Area (acres)	101.74	589.08	185.05	125.26
Wastewater Generation Factor (GPD[8]/acre)	**1,720**	**1,360**	**643**	**104**

- Total Indoor Water Use was taken from the table above.
- Wastewater Generation is 95% of the Total Indoor Use.
- Occupied Area is the acreage associated with each customer class per the current General Plan.
- Wastewater Generation Factor is Wastewater Generation divided by Occupied Area for each customer class.

The table below provides a summary of existing build-out wastewater generation.

Summary of Existing and Build-Out Wastewater Generation

Model Results	MFR	SFR	CI	Industrial[9]	Total
Existing Wastewater Generation (MGD)	0.175	0.801	0.119	0.013	1.108
Build-Out Wastewater Generation (MGD)	0.272	2.053	0.211	0.100	2.636

Existing Wastewater Generation comes from the table at the top of the page. Build-Out Wastewater Generation is the application of the Wastewater Generation Factors to the Build-Out land use provided in Table 3.1 of the Sewer Master Plan Report.

[8] GPD = gallons per day

[9] Build-Out wastewater generation for industrial land use assumes future customers are similar to existing customers. This may change if water-intensive or worker-intensive industries are developed in the future.

Appendix T: Stand-Alone Manhole Repair and Replacement Reference Materials

Stand-Alone Manhole Repair and Replacement Cost Estimate

Manhole	Action	Cost
05_4003	Repair	$ 2,000.00
05_4004	Repair	$ 2,000.00
05_4007	Repair	$ 2,000.00
05_4017	Repair	$ 2,000.00
05_4018	Repair	$ 2,000.00
05_4020	Repair	$ 2,000.00
05_4021	Repair	$ 2,000.00
05_4023	Repair	$ 2,000.00
05_4025	Repair	$ 2,000.00
03_6006	Replace	$ 8,000.00
03_4001	Repair	$ 2,000.00
03_0010	Repair	$ 2,000.00
03_0008	Repair	$ 2,000.00
03_3002	Repair	$ 2,000.00
04_0008	Repair	$ 2,000.00
07_5004	Replace	$ 8,000.00
07_5003	Replace	$ 8,000.00
07_5002	Replace	$ 8,000.00
07_0005	Replace	$ 8,000.00
07_2009	Repair	$ 2,000.00
07_2010	Repair	$ 2,000.00
03_9017	Repair	$ 2,000.00
03_9010	Replace	$ 8,000.00
03_9009	Replace	$ 8,000.00
03_9015	Replace	$ 8,000.00
03_0023	Replace	$ 8,000.00
03_7011	Repair	$ 2,000.00
03_0016	Repair	$ 2,000.00
03_7006	Replace	$ 8,000.00
03_8011	Repair	$ 2,000.00
03_8010	Repair	$ 2,000.00
03_0020	Repair	$ 2,000.00
03_6015	Replace	$ 8,000.00
03_8012	Replace	$ 8,000.00
03_8016	Repair	$ 2,000.00
05_2003	Repair	$ 2,000.00
05_2004	Repair	$ 2,000.00
05_2005	Repair	$ 2,000.00
05_2006	Repair	$ 2,000.00
05_3001	Repair	$ 2,000.00
05_3002	Repair	$ 2,000.00

05_3003	Repair	$	2,000.00
05_3004	Repair	$	2,000.00
05_3005	Replace	$	8,000.00
05_3008	Repair	$	2,000.00
05_3009	Repair	$	2,000.00
05_4010	Repair	$	2,000.00
05_4011	Repair	$	2,000.00
05_4002	Repair	$	2,000.00
09_0022	Repair	$	2,000.00
05_4101	Repair	$	2,000.00
06_0089	Repair	$	2,000.00
06_0010	Repair	$	2,000.00
06_0012	Repair	$	2,000.00
06_2003	Repair	$	2,000.00
06_2004	Repair	$	2,000.00
06_3005	Repair	$	2,000.00
06_4011	Repair	$	2,000.00
06_4010	Repair	$	2,000.00
06_4012	Replace	$	8,000.00
06_4018	Repair	$	2,000.00
06_4019	Replace	$	8,000.00
06_3003	Replace	$	8,000.00
06_5008	Repair	$	2,000.00
06_5009	Repair	$	2,000.00
06_4020	Repair	$	2,000.00
06_4026	Replace	$	8,000.00
06_4025	Replace	$	8,000.00
04_4006	Replace	$	8,000.00
04_3006	Repair	$	2,000.00
04_4005	Repair	$	2,000.00
04_3001	Replace	$	8,000.00
04_3002	Replace	$	8,000.00
04_3003	Replace	$	8,000.00
04_3004	Replace	$	8,000.00
04_3005	Replace	$	8,000.00
04_3007	Repair	$	2,000.00
03_1004	Repair	$	2,000.00
03_2004	Repair	$	2,000.00
03_2003	Repair	$	2,000.00
07_2016	Repair	$	2,000.00
07_2021	Repair	$	2,000.00
10_1001	Repair	$	2,000.00
10_1004	Repair	$	2,000.00
10_1005	Repair	$	2,000.00
10_1006	Repair	$	2,000.00

Additional Repairs	Repair	$	126,000.00
Additional Replacements	Replace	$	504,000.00

Total Construction Cost		$	946,000.00
Engineering & Construction Management	25%	$	237,000.00
Contingencies	20%	$	189,000.00
Administrative	5%	$	47,000.00
CIP Estimate		**$**	**1,419,000.00**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 29 / 30

MANHOLE NO.: 03 - 1004 **Surveyed by:** Danny and Johnny

Street: Wernil Ct Cul-de-sac **Cert. no.:**

MH Location Details:
North end of Wernil Ct cul-de-sac

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Corrosion in frame, repair chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 28 / 30

MANHOLE NO.: 03 - 2003 **Surveyed by:** Johnny and Danny

Street: Cul-de-sac Austin Ct. **Cert. no.:**

MH Location Details:
In cul-de-sac of Austin Ct.

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

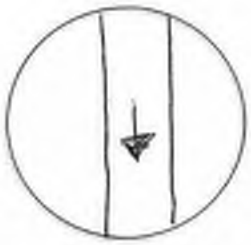
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Cracks in chimney and in cone

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 27 / 30

MANHOLE NO.: 03 - 2004 **Surveyed by:** Danny and Johnny

Street: Cul-de-sac on Austin CT **Cert. no.:**

MH Location Details:
North end of cul de sac on Austin Ct.

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Can see aggregate, re-line

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

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MANHOLE NO.: 06 - 4018

Surveyed by: Danny and Johnny

Street: Franklin Street

Cert. no.:

MH Location Details:
Between Strand Ave and A street

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / ~~Sound~~ / Unknown

Channel Condition: Defective / ~~Sound~~ / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Aggregate in Chimney showing

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 22 / 30

MANHOLE NO.: 06 - 4012

Surveyed by: Danny and Johny

Street: Franklin Street

Cert. no.:

MH Location Details:
Across from school on Franklin street. Between Butler street and road west of Butler
Could not open

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

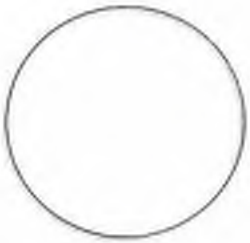
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 21 / 30

MANHOLE NO.: 06 - 4010

Surveyed by: Danny and Johnny

Street: Intersection of Butler and Franklin St.

Cert. no.:

MH Location Details:
At the intersection of Butler and Franklin Street

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Stairs Corroded

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: [redacted] / 30

MANHOLE NO.: 06-4011

Surveyed by: Danny and Johny

Street: Franklin Road

Cert. no.:

MH Location Details:
Inbetween Butler and Derby Street

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Aggregate showing in Chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019
Sheet: 13 / 30

MANHOLE NO.: 07-5003
Surveyed by: Danny and Johnny
Street: Alleyway
Cert. no.:

MH Location Details:
Alleyway (east/west) between S Hill Street and A Street

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

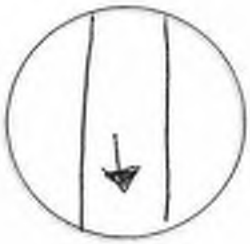
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Brick manhole, corroded stairs, benches partiall broken

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 14 / 30

MANHOLE NO.: 07 - 5002

Surveyed by: Danny and Johnny

Street: On Hill Street

Cert. no.:

MH Location Details:
In middle of roadway and alleys [redacted] on Hill Street

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

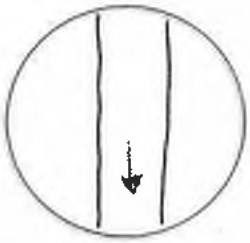
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Infiltration, Brick Manhole, Corroded Stairs

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 8 / 8 / 2019

Sheet: 12 / 30

MANHOLE NO.: 03 – 5004

Surveyed by: Danny and Johnny

Street: Alleyway

Cert. no.:

MH Location Details:
Alleyway east/west between Hill Street and A street

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

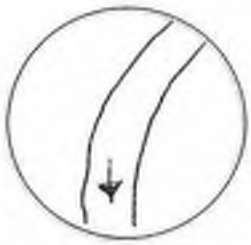
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Brick Manhole - flow not moving in channel

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 8 / 8 / 2019

Sheet: 4 / 30

MANHOLE NO.: 10 - 1006

Surveyed by: Danny and Johnny

Street: N Walnut Street

Cert. no.:

MH Location Details:
North of N Walnut Street and Richard St Intersection

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: ~~Defective~~ / Sound / Unknown

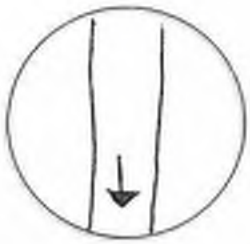
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Plaster on Chimney Walls cracked and breaking

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 3 / 30

MANHOLE NO.: 10 - 1005

Surveyed by: Danny and Johnny

Street: N Walnut Street

Cert. no.:

MH Location Details:
North of N Walnut Street and Richardson St intersection

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Plaster Coming off of Chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 2 / 30

MANHOLE NO.: 10 – 100[redacted]4

Surveyed by: Danny [redacted] and Johnny

Street: N Walnut Street

Cert. no.:

MH Location Details:
North of Bear Mountain Blvd on N Walnut Street turn-in

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown N/A

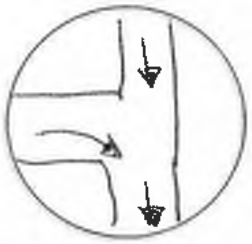
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Plaster around frame cracking, and plaster on cone

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 8 / 2019

Sheet: 1 / 30

MANHOLE NO.: 10 _ 1001

Surveyed by: Danny and Johnny

Street: N Walnut Street

Cert. no.:

MH Location Details:
North of Bear Mountain Blvd and N Walnut Street Turn-in

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown [redacted]

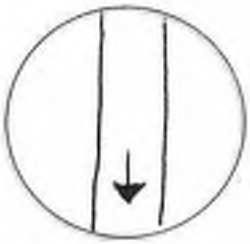
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:
Fix [redacted] Frame - cracking and Corroded and Cone (top)

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-3003

Surveyed by: J-L

Street: Cardiff Ave

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Broken

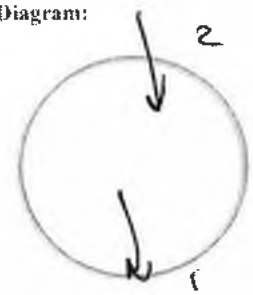
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Replace (Breaking)

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-2005

Surveyed by: J.L

Street: Hanson St.

Cert. no.:

MH Location Details:

Hanson / A before int.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Sound **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Broken

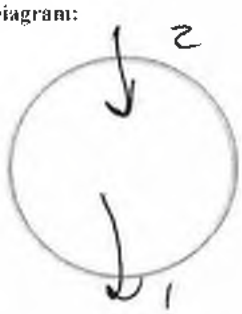
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

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MANHOLE NO.: 06-0014

Surveyed by: J-L

Street: Hanson / A

Cert. no.:

MH Location Details:

Int Hanson / A st.

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Sound **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Offset

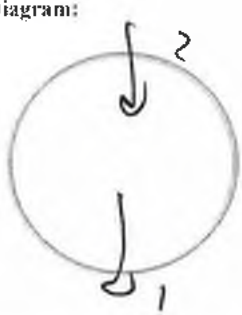
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

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MANHOLE NO.: 06-4020

Surveyed by: J-L

Street: A St.

Cert. no.:

MH Location Details:

Adj to Alley on A, Between Franklin & Comts

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Broken

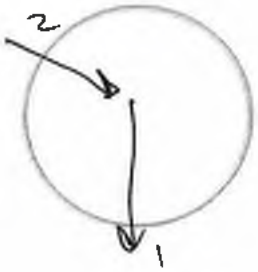
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown I/I

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney → wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8 / 1 / 2019

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MANHOLE NO.: 06-5008

Surveyed by: J-L

Street: S. Hill

Cert. no.:

MH Location Details:

Int S. Hill / Combs

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

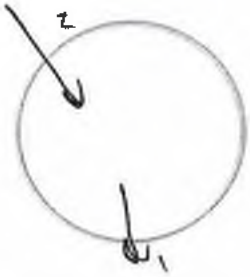
Cone Condition: Defective / Sound / Unknown H_2S

Wall Condition: Defective / Sound / Unknown cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney → wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 8/ 1 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-5009

Surveyed by: J-L

Street: Combs ave.

Cert. no.:

MH Location Details:

End of ct

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown cracked

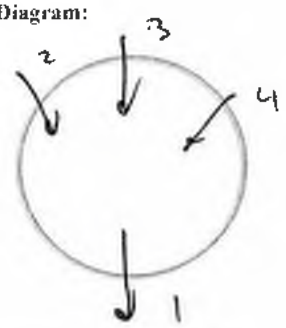
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-3002

Surveyed by: J-L

Street: Polly ct

Cert. no.:

MH Location Details:

Polly ct "Sanitary Sewer"

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

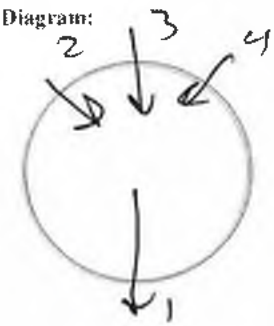
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03 - 0008

Surveyed by: J-L

Street: Walnut / Schipper

Cert. no.:

MH Location Details:

Int Walnut / Schipper

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

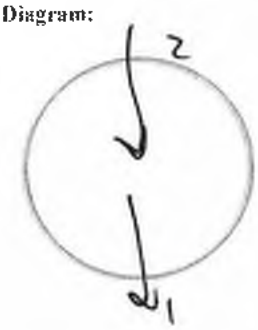
Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

corroded

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair concrete chimney → wall

Recommendation Replace / Repair / Do-Nothing

Level 2 Inspection Recommended? Yes / No

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-4601

Surveyed by: J-L

Street: Olson Way

Cert. no.:

MH Location Details:

1109 Olson Way Int

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown cracked

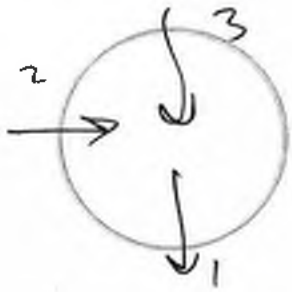
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown Cracked I/I

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair Chimney/wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-0010

Surveyed by: J-L

Street: Olson / Walnut

Cert. no.:

MH Location Details:

Int. Olson / Walnut

Access Type: Assumes Manhole: *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Insp. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown corroded

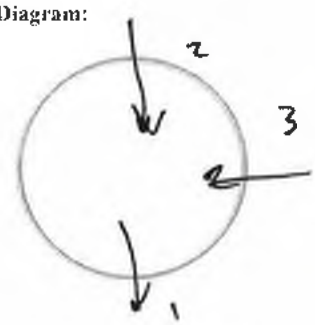
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown Cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03 - 6006

Surveyed by: J - L

Street: Royal St

Cert. no.:

MH Location Details:

Adj. Pink house

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6.00

MH Condition Comments:

Brick - collapsing - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 31 / 2019

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MANHOLE NO.: 03-0016

Surveyed by: J-C

Street: Walnut Dr.

Cert. no.:

MH Location Details:

730 Walnut Dr.

Access Type: Assumes Manhole: *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Corroded

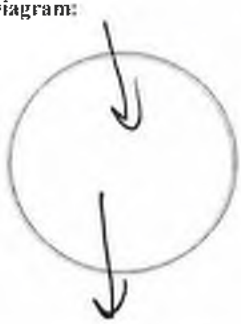
Cone Condition: Defective / Sound / Unknown Corroded

Wall Condition: Defective / Sound / Unknown Cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair corroded Concrete

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7/31/2019

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MANHOLE NO.: 03-6015

Surveyed by: J-L

Street: Hark rd.

Cert. no.:

MH Location Details:

1593 Hark rd.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

collapsed?

Structure Diagram:

Assumes outgoing pipe @ 6.00

MH Condition Comments:

collapsed or filled in

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-4026

Surveyed by: J-L

Street: Fabian/S. A st

Cert. no.:

MH Location Details: 401 ~~S~~ Fabian

Access Type: Assumes Manhole; *Specify if other:* M ff

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Structure Diagram:

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

?

Assumes outgoing pipe @ 6:00

MH Condition Comments: Manhole collapsed / Filled

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 06-4025

Surveyed by: J-L

Street: Hill / Fabian

Cert. no.:

MH Location Details:

Int Hill / Fabian

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Corroded

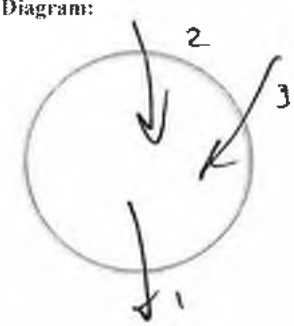
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Severely corroded, needs replacement

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 /30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 07-5002

Surveyed by: J-L

Street: S. Hill St.

Cert. no.:

MH Location Details:

Adj. Auto ~~Parts~~ Shop (Blue

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

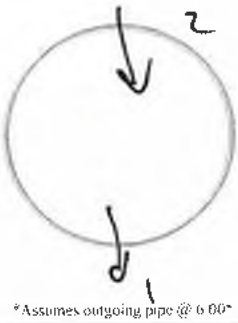
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

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MANHOLE NO.: 04 - [redacted] 0008

Surveyed by: J-L

Street: S. A st.

Cert. no.:

MH Location Details:

150 S. A st.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Breaking

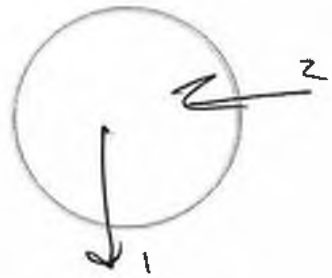
Cone Condition: Defective / Sound / Unknown corroded

Wall Condition: Defective / Sound / Unknown cracked

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair Frame Down

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

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MANHOLE NO.: 04-3007

Surveyed by: J-L

Street: S. A St.

Cert. no.:

MH Location Details: 209 S. A St.

Access Type: Assumes Manhole; *Specify if other:* M H

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown corroded.

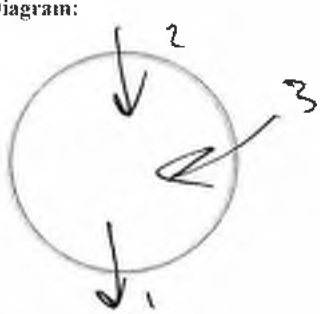
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments: Chimney Corroded

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

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MANHOLE NO.: 04-3006

Surveyed by: J-L

Street: Haven / S.A

Cert. no.:

MH Location Details:

Int. Haven / S.A. St.
S.E. MH ↑ N

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Insl. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown cracked

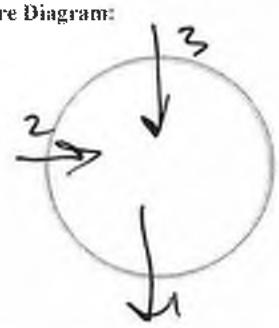
Cone Condition: Defective / Sound / Unknown I/I

Wall Condition: Defective / Sound / Unknown I/I H2S

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney, Cone, Wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7/30/2019

Sheet: 1 / 1

MANHOLE NO.: 04-4005

Surveyed by:

Street: Haven Dr. / S.A

Cert. no.:

MH Location Details:

Int. Haven / S.A

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Int. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Chimney Offset

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown H2S

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

~~Chimney~~ Chimney / Cone Broken
Misaligned

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

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MANHOLE NO.: 04-4006

Surveyed by: J-L

Street: Haven Dr.

Cert. no.:

MH Location Details:

356 Haven Dr.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

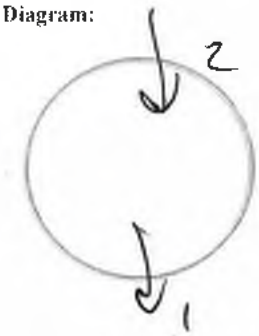
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

H_2S damage
Cracks/Breaking throughout

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: OH - 3002

Surveyed by: J - L

Street: Haven Dr.

Cert. no.: ~~[illegible]~~

MH Location Details: Adj. to School
Furthest East ↑ N

Access Type: Assumes Manhole; *Specify if other:* H H

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Broken Concrete

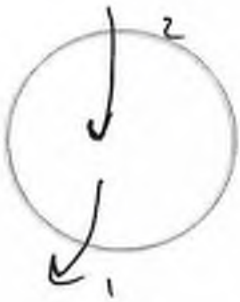
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6.00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

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MANHOLE NO.: 04-3005

Surveyed by: J-L

Street: Haven Dr.

Cert. no.:

MH Location Details:

116 Haven Dr.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

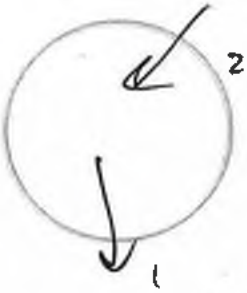
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

- Asphalt / Road weaving away near MH
- Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 04 - 3004

Surveyed by: J-L

Street: Haven Dr.

Cert. no.:

MH Location Details: 208 Haven Dr.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Insp. / Sound

- Lid too Small

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Too Large

Chimney Condition: Defective / Sound / Unknown

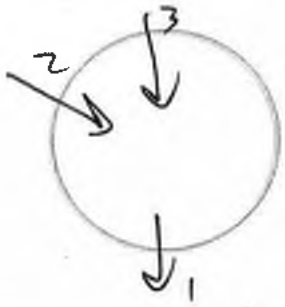
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



* Assumes outgoing pipe @ 6:00*

MH Condition Comments: Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

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MANHOLE NO.: 04-3003

Surveyed by: J-L

Street: Haven Dr.

Cert. no.:

MH Location Details:

240 Haven Dr.

Access Type: Assumes Manhole: *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

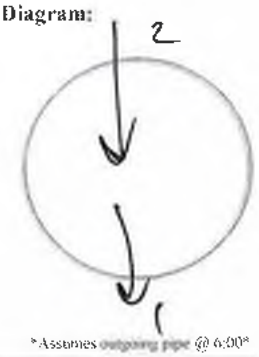
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 30 / 2019

Sheet: 1 / 1

MANHOLE NO.: 09-0022

Surveyed by: J-L

Street: St. Thomas St.

Cert. no.:

MH Location Details:

NXS to church

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Ins / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

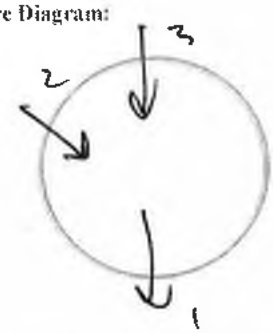
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown I/I soil, H_2S

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair chimney/wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-8012

Surveyed by: J. L

Street: Santa Rosa St.

Cert. no.:

MH Location Details:

333 Santa Rosa

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

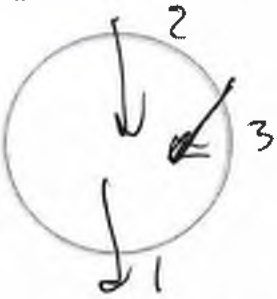
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

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MANHOLE NO.: 03-6010

Surveyed by: J-L

Street: Walnut Dr

Cert. no.:

MH Location Details: Across 266 Walnut dr

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Corroded

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments: Material Deteriorating

Recommendation Replace / Repair / Do-Nothing

Level 2 Inspection Recommended? Yes / No

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 /25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-8011

Surveyed by: J-L

Street: Walnut Dr

Cert. no.:

MH Location Details:

Next to Car wash

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown cracked

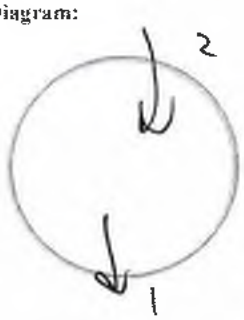
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown Holes

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair Frame / Wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-0020

Surveyed by: J-C

Street: Walnut / Hood

Cert. no.:

MH Location Details:

Int Walnut/Hood (Right) ↑N

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown ~~SAP~~ H_2S

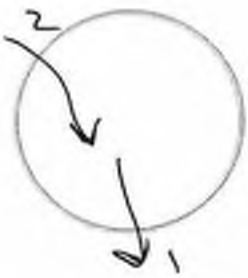
Cone Condition: Defective / Sound / Unknown SAP

Wall Condition: Defective / Sound / Unknown SAP

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Material Deterioration

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-9009

Surveyed by: J-C

Street: Orange ave.

Cert. no.:

MH Location Details:

7221 Orange Ave

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

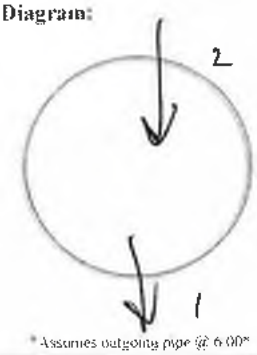
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-9010

Surveyed by: J-L

Street: Orange Ave

Cert. no.:

MH Location Details:

1011 Orange Ave

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

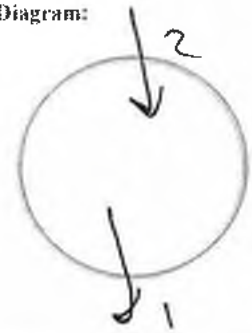
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

- Brick Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

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MANHOLE NO.: 03-9017

Surveyed by: J-1

Street: Haven / Grove

Cert. no.:

MH Location Details:

Int. of Haven / Grove

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Breaking

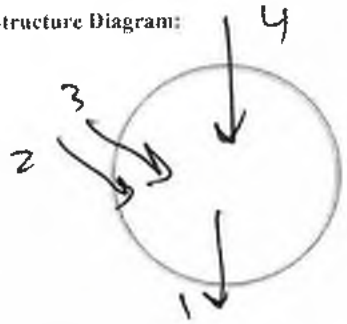
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown SAP

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Aggregate projecting
Material deterioration

Recommendation **Replace / Repair / Do-Nothing**

Level 2 Inspection Recommended? **Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

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MANHOLE NO.: 03-9015

Surveyed by: J-L

Street: Grove

Cert. no.:

MH Location Details:

↑N. of Int Haven / Grove

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

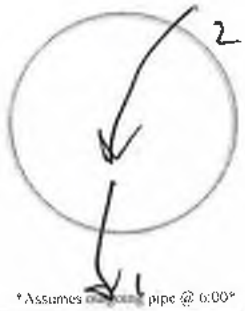
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes [illegible] pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

MANHOLE OBSERVATION FORM

Harris & Associates

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-0023

Surveyed by: J-2

Street: Walker St.

Cert. no.:

MH Location Details:

501 Walker St.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

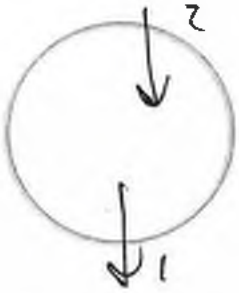
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick - Replace

Recommendation **Replace / Repair / Do-Nothing**

Level 2 Inspection Recommended? **Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 037011

Surveyed by: J-L

Street: HAVEN / WALKER

Cert. no.:

MH Location Details:

Int HAVEN / WALKER (BOTTOM)
N

Access Type: Assumes Manhole; *Specify if other:* NA

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Insp / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

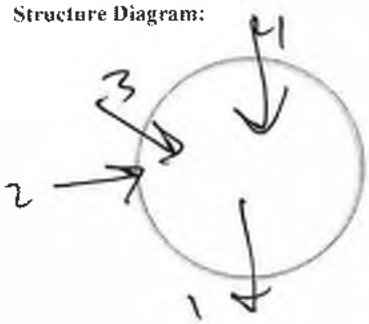
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Concrete deteriorating throughout

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-7006

Surveyed by: J-C

Street: Monroe St.

Cert. no.:

MH Location Details:

S. of Haven / Monroe

Access Type: Assumes Manhole; *Specify if other:* M.H

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

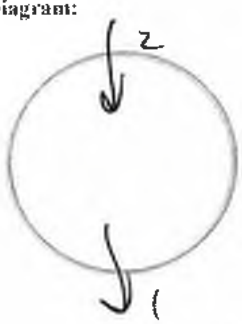
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Brick – Replace
Outlet Clogged

Recommendation **Replace / Repair / Do-Nothing**

Level 2 Inspection Recommended? **Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 25 / 2019

Sheet: 1 / 1

MANHOLE NO.: 03-8016

Surveyed by: J-L

Street: Shaw Ct.

Cert. no.:

MH Location Details:

1541 Shaw Ct.

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

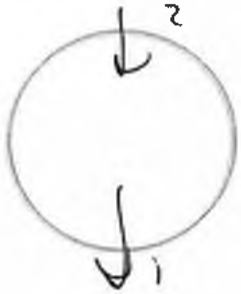
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Chimney Breaking, Wall has small cracks

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

Sheet: 1 / 1

MANHOLE NO.: 07-2010

Surveyed by: J-L

Street: North A St.

Cert. no.:

MH Location Details:

Int. North A / Vicki

Access Type: Assumes Manhole: *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Cracked

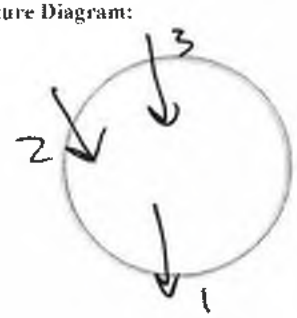
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

H_2S damage chimney / wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

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MANHOLE NO.: 07-2016

Surveyed by: J-L

Street: Bautista St.

Cert. no.:

MH Location Details:

Int. Cornel / Bautista

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown cracked

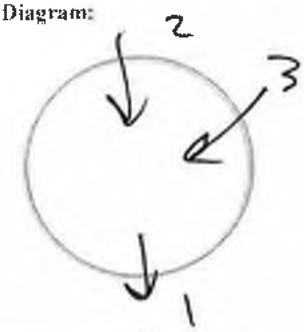
Cone Condition: Defective / Sound / Unknown Hole

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Frame / chimney / cone cracks + holes

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

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MANHOLE NO.: 07-2021

Surveyed by: J-L

Street: Capistrano

Cert. no.:

MH Location Details:

512 Capistrano Ct

End of Ct

Access Type: Assumes Manhole; *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown Hole

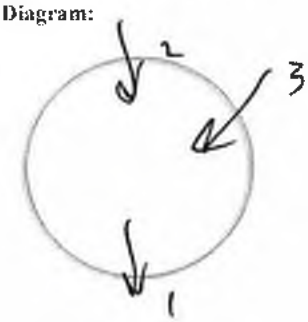
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Chimney Breaking

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: / / 2019

Sheet: /

MANHOLE NO.: 67 - 2009

Surveyed by: J - L

Street: 5th ave

Cert. no.:

MH Location Details:

Int. 5th / N. A St.

Access Type: Assumes Manhole: *Specify if other:* MH

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown H_2S

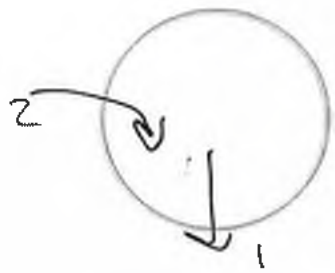
Cone Condition: Defective / Sound / Unknown H_2S

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

H_2S damage chimney / wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - 2003

Surveyed by: CXT

Street: Rixford St

Cert. no.:

MH Location Details:

113

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

ring & chimney cracked
could be resurfaced

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-2004

Surveyed by: CYT

Street: Rikard St

Cert. no.:

MH Location Details:

next to 2005 #121

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

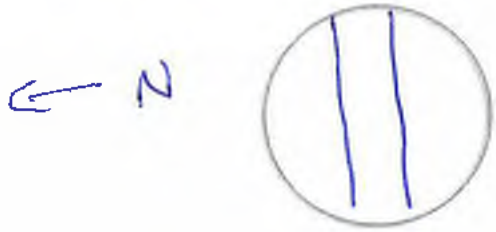
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

chimney can be resurfaced

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7-24 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - ~~[illegible]~~ 2005 *

Surveyed by: C4T

Street: Richard St

Cert. no.:

MH Location Details:

[illegible] 125 * was 2004 in video

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Bldg cracks throughout
ring + Frame piece missing

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-2006 *

Surveyed by: CXT

Street: Adrid

Cert. no.:

MH Location Details:

133 ~~not next to 05-2006 next to 06-2006~~ next to new MH 2007?

* was 2005 Invoice

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

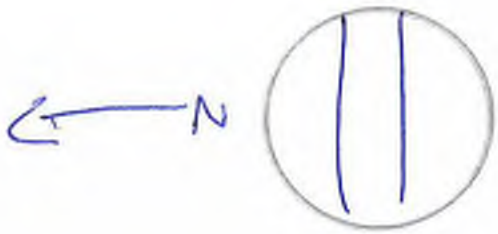
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 24 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-4010

Surveyed by: CYT

Street: Vics Ct

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / ~~Pick Hole~~ / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound — Lightly

Chimney Condition: Defective / Sound / Unknown

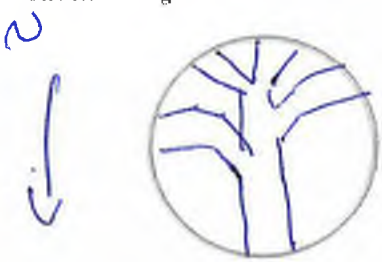
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:30

MH Condition Comments:

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 24 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 -4011

Surveyed by: CYT

Street: Packard

Cert. no.:

MH Location Details:

Packard w/ Ives 1308

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

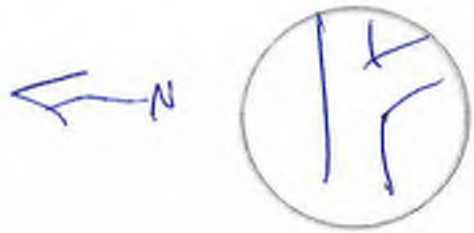
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

adj ring isn't sealed against frame

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 7 / 24 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-3009

Surveyed by: AJS

Street: Chanes

Cert. no.:

MH Location Details:
325

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:
Lots of Infiltration

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-4018

Surveyed by: CXT

Street: Staples

Cert. no.:

MH Location Details:

123 intersection w/ Arvin

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

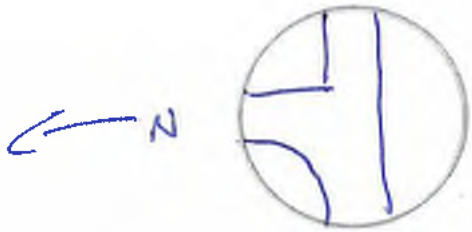
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

crack in cone
& little infiltration

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - 4101

Surveyed by: CYT

Street:

Cert. no.:

MH Location Details:

no access

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

rust

Chimney Condition: Defective / Sound / Unknown

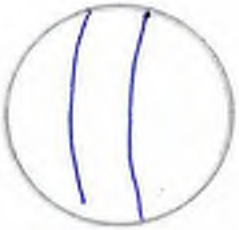
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

repair adj ring

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-3066

Surveyed by: CYT

Street: La Madd / Alderete

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

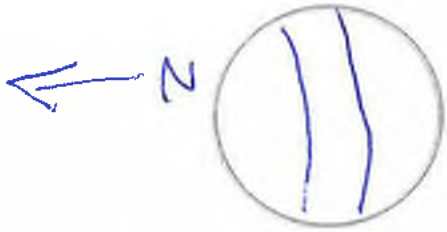
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

channel can be reinforced
infiltration

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-3001

Surveyed by: CYK

Street: Wooster Cn

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

top of cone has cracks chimney can be resurfaced Infiltration

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - 3005

Surveyed by: CYT

Street: Wooner / La Madrid

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments: Lid Stuck

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - 3004

Surveyed by: Calvin

Street: Wooner [illegible]

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

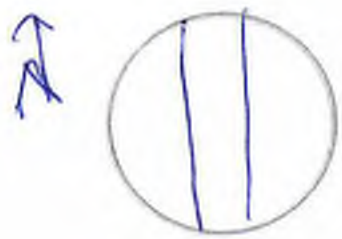
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

chimney can be resurfaced

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 053003

Surveyed by: Calvin

Street: Woodes

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

chimney could be lowered

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - 3002

Surveyed by: Calvin

Street: Wooller Ln

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

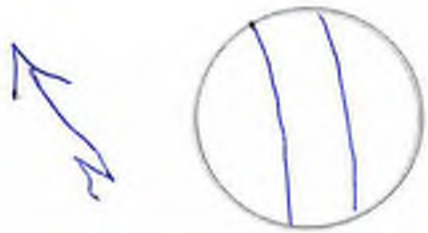
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair cleaning

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-4002

Surveyed by: Calvin

Street: Barlow Ct

Cert. no.:

MH Location Details:

cul de sac

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Insl. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Frame lightly corroded
hole between bench wall

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level I
Inspection Status:	S.I. (surface inspection)

Date: 7 FEB / 2019

Sheet: ____ / ____

MANHOLE NO.: 054008

Surveyed by: Calvin

Street: Barlow Ct

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole: *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

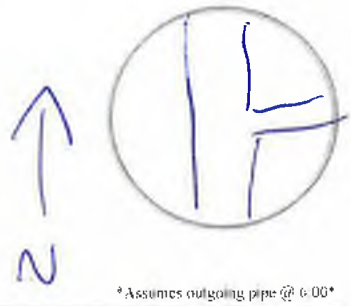
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments: Repair Pulling apart top of cone broken

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - 4004

Surveyed by: Calvin

Street: Badlow Ct

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

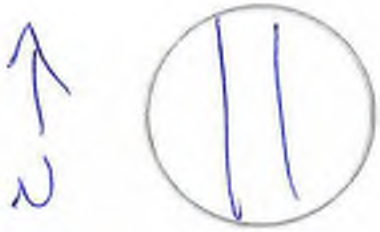
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

Top of cone cracked

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level I**
Inspection Status:	**S.I.** (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 4 05-4007

Surveyed by: Calvin

Street: Steel Head / Staples

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

* Assumes outgoing pipe @ 6:00*

MH Condition Comments:

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: / / 2019

Sheet: /

MANHOLE NO.: 05-4017

Surveyed by: Calvin

Street: Shafer / Peterson

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Repair driveway

Recommendation	**Replace / Repair / Do Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05-4020

Surveyed by: Calvin

Street: Petersen Dr

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

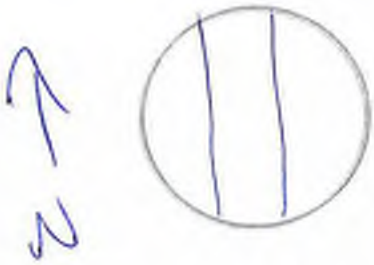
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments: infiltration weepes

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 180003200I
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	**Level 1**
Inspection Status:	**S.I.** (surface inspection)

Date: 7 [illegible] / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - 4021

Surveyed by: Calvin

Street: Nance / Pedersen

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:

Assumes outgoing pipe @ 6:00

MH Condition Comments:

Small cracks in chimney

Recommendation	**Replace / Repair / Do-Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: 05 - 4023

Surveyed by: Calvin

Street: Tower / Nance

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

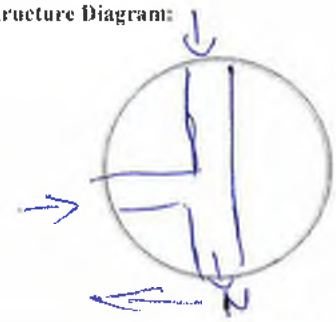
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6.00

MH Condition Comments:

I I I nfiltration

Recommendation	**Replace / Repair / Do Nothing**
Level 2 Inspection Recommended?	**Yes / No**

Harris & Associates

MANHOLE OBSERVATION FORM

Project: Arvin Sewer Master Plan
City: Arvin, CA

Project No.: 1800032001
Task Order No.: 3.11 (Manhole Inspection)

Purpose:	G (CIP Assessment)
Inspection level:	Level 1
Inspection Status:	S.I. (surface inspection)

Date: 7 / 23 / 2019

Sheet: ____ / ____

MANHOLE NO.: OB-4025

Surveyed by: Calvin

Street: Nelson / Tamo

Cert. no.:

MH Location Details:

Access Type: Assumes Manhole; *Specify if other:*

Component Conditions (Circle one):

Cover Condition: Bolts Missing / Broken / Corroded / Cracked / Missing / Restraint Missing / Restraint Defective / Sound

Cover Adjustment Ring: **Type:** Adjustable / None / Solid **Condition:** Broken / Corroded / Cracked / Poor Inst. / Sound

Frame Condition: Broken / Coated / Corroded / Cracked / Missing / Sound

Chimney Condition: Defective / Sound / Unknown

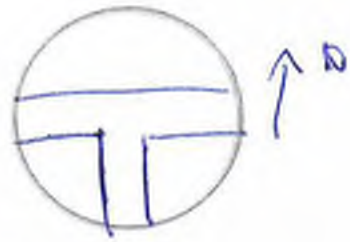
Cone Condition: Defective / Sound / Unknown

Wall Condition: Defective / Sound / Unknown

Bench Condition: Defective / Sound / Unknown

Channel Condition: Defective / Sound / Unknown

Structure Diagram:



Assumes outgoing pipe @ 6:00

MH Condition Comments:

chimney cracked

Recommendation	Replace / Repair / Do-Nothing
Level 2 Inspection Recommended?	Yes / No

Appendix U: Pump Rehabilitation and Replacement Reference Materials

Pump Rehabilitation and Replacement Cost Estimate

Item	Quantity	Unit Cost	Cost
Replacement As Needed	2	$20,000.00	$40,000.00
Rewind As Needed	4	$10,000.00	$40,000.00
Total Construction Cost			$ 80,000.00
Engineering & Construction Management		0%	$ 0.00
Contingencies		20%	$ 16,000.00
Administrative		5%	$ 4,000.00
CIP Estimate			**$100,000.00**

Appendix V: Prioritization Matrix

Prioritization Concept

Each project was assigned a score based on eight weighted parameters, as shown below.

Parameter	Description	Weight
%hotspot	Percentage of pipes in project related to Hot Spots	100
%concrete	Percentage of pipes in project related to Older Reinforced Concrete	60
%qr5	Percentage of pipes in project related to NASSCO Quick Rating 5	30
%qr4	Percentage of pipes in project related to NASSCO Quick Rating 4	20
%mhreplace	Percentage of manholes in project recommended for replacement	10
%mhrepair	Percentage of manholes in project recommended for repair	5
LOF	Engineer's opinion on overall likelihood of failure	40
COF	Engineer's opinion on overall consequence of failure	50

Raw Data

Project	Total Pipes	Hotspots	Concrete	QR5	QR4	Total Manholes	Replace	Repair
Campus Drive Alley Pipeline Project	6	0	0	1	5	7	7	0
Plum Tree Drive Alleys Pipeline Project	12	0	0	0	12	14	5	9
Southwest Kovacevich Park Pipeline Rehab Project	22	7	12	1	2	21	21	0
East Kovacevich Park Rehab Project	21	3	17	0	1	16	13	3
East A Street Pipeline Rehab Project	13	0	12	0	1	14	14	0
East Meyer Street Pipeline Rehab Project	9	2	0	1	6	14	14	0
Haven Drive Pipeline Rehab Project	10	2	1	1	5	12	12	0
West Di-Giorgio Park Rehab Project	16	4	0	9	3	7	7	0
East Di Giorgio Park Pipeline Rehab Project	7	3	0	3	1	9	9	0
East Langford Neighborhood Pipeline Project	11	4	0	4	3	10	7	3
West Smothermon Park Pipeline Project	13	7	0	2	4	18	17	1
Outflow Mains Pipeline Replacement Project	4	0	0	0	4	8	8	0

Input Data

Project	%hotspot	%concrete	%qr5	%qr4	%mhreplace	%mhrepair	LOF	COF
Campus Drive Alley Pipeline Project	0%	0%	17%	83%	100%	0%	2	3
Plum Tree Drive Alleys Pipeline Project	0%	0%	0%	100%	36%	64%	2.5	1
Southwest Kovacevich Park Pipeline Rehab Project	32%	55%	5%	9%	100%	0%	3	1
East Kovacevich Park Rehab Project	14%	81%	0%	5%	81%	19%	3	1.5
East A Street Pipeline Rehab Project	0%	92%	0%	8%	100%	0%	3	1.5
East Meyer Street Pipeline Rehab Project	22%	0%	11%	67%	100%	0%	2.5	2
Haven Drive Pipeline Rehab Project	20%	10%	10%	50%	100%	0%	2	1.5
West Di-Giorgio Park Rehab Project	25%	0%	56%	19%	100%	0%	2.5	1
East Di Giorgio Park Pipeline Rehab Project	43%	0%	43%	14%	100%	0%	2	1
East Langford Neighborhood Pipeline Project	36%	0%	36%	27%	70%	30%	2	1
West Smothermon Park Pipeline Project	54%	0%	15%	31%	94%	6%	3	3
Outflow Mains Pipeline Replacement Project	0%	0%	0%	100%	100%	0%	3	4

Score and Ranking

Project	Score	Ranking
Campus Drive Alley Pipeline Project	262	5
Plum Tree Drive Alleys Pipeline Project	177	12
Southwest Kovacevich Park Pipeline Rehab Project	248	7
East Kovacevich Park Rehab Project	268	3
East A Street Pipeline Rehab Project	262	4
East Meyer Street Pipeline Rehab Project	249	6
Haven Drive Pipeline Rehab Project	204	9
West Di-Giorgio Park Rehab Project	206	8
East Di Giorgio Park Pipeline Rehab Project	199	10
East Langford Neighborhood Pipeline Project	191	11
West Smothermon Park Pipeline Project	344	2
Outflow Mains Pipeline Replacement Project	350	1

Appendix U: Hydraulic Modeling Output

Hydraulic Model Output for Average Loading under Existing Conditions

Average Loading under Existing Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
662	517-518	15.0	3.02	0.338	712,731
663	351-349	10.0	2.81	0.218	181,231
664	810-1020	18.0	0.33	0.437	156,166
666	1158-353	10.0	1.55	0.150	54,601
667	1116-653	10.0	1.86	0.509	336,522
670	994-800	18.0	3.17	0.389	1,301,654
671	812-1020	18.0	2.55	0.467	1,336,146
672	233-234	8.0	1.20	0.102	46,063
674	535-547	18.0	2.08	0.108	138,216
682	1077-1034	10.0	1.66	0.127	81,139
683	702-703	10.0	1.68	0.152	70,681
684	541-548	15.0	2.25	0.463	809,893
686	959-WetWell	8.0	0.60	0.021	3,909
687	544-548	15.0	3.06	0.234	433,629
694	1076-1077	10.0	0.78	0.045	11,914
695	1076-1033	15.0	0.00	0.117	75
696	958-959	8.0	(N/A)	(N/A)	(N/A)
702	1075-1033	10.0	0.43	0.170	17,010
703	1077.5-1077	10.0	1.32	0.205	68,961
710	1034-1075	10.0	1.75	0.148	82,254
713	808-806	18.0	4.10	0.355	1,488,000
723	20-200	15.0	2.09	0.140	140,343
732	300-301	12.0	1.96	0.235	179,230
737	534-877	15.0	3.33	0.341	796,060
753	504-506	15.0	2.61	0.359	670,946
761	308-310	10.0	1.21	0.198	60,292
774	513-517	15.0	2.47	0.389	704,406
780	337-351	10.0	1.31	0.316	125,050
790	949-1076.5	10.0	0.76	0.041	11,906
791	503-504	15.0	2.78	0.338	655,264
797	506-513	15.0	2.25	0.410	690,589
802	1031-1030	18.0	1.27	0.132	112,918
805	1024-1023	18.0	1.32	0.150	142,133
809	355-354	10.0	1.03	0.145	32,772
814	547-994	18.0	3.20	0.386	1,300,392
815	949-949.5	8.0	0.78	0.060	10,452
822	918-547	15.0	3.12	0.483	1,182,839
832	356-355	10.0	1.06	0.098	19,872
836	145-300	12.0	1.71	0.258	177,623

Average Loading under Existing Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
851	1030-1029	18.0	1.11	0.150	118,596
858	800-801	18.0	2.92	0.414	1,303,326
883	877-884	15.0	2.89	0.381	803,924
884	1101-1088	10.0	0.82	0.059	9,697
890	801-802	18.0	2.91	0.415	1,306,980
895	1032-1031	18.0	1.19	0.131	105,134
896	951-1079	10.0	0.99	0.196	48,216
897	1088-1085	10.0	1.03	0.094	17,630
899	999-995	18.0	2.65	0.450	1,320,661
903	1106-1101	10.0	0.65	0.030	4,115
904	1078-1077.5	10.0	0.96	0.251	66,808
914	1079-1078	10.0	0.94	0.236	59,653
926	404-405	10.0	0.96	0.076	18,998
927	1080-951	10.0	0.94	0.179	39,993
929	960-959	8.0	(N/A)	(N/A)	(N/A)
930	884-541	15.0	2.31	0.454	809,130
939	1085-1080	10.0	0.96	0.135	27,488
941	1020-808	18.0	2.87	0.462	1,482,054
945	802-999	18.0	3.10	0.397	1,312,632
984	641-645	10.0	1.26	0.380	154,627
987	1075-1032	18.0	1.18	0.127	99,341
990	1028-1027	18.0	0.91	0.186	133,931
1020	1025-1024	18.0	1.20	0.160	142,127
1022	1029-1028	18.0	0.88	0.182	126,066
1023	1027-1026	18.0	1.00	0.180	139,773
1024	855-918	15.0	2.97	0.497	1,170,070
1025	1026-1025	18.0	1.30	0.151	142,127
1055	864-534	15.0	2.66	0.399	785,318
1056	656-655	10.0	1.16	0.338	121,135
1074	650-649	10.0	1.74	0.518	321,635
1077	266-503	15.0	2.54	0.354	637,984
1081	705-707	10.0	1.11	0.245	74,616
1086	654-1116	10.0	1.27	0.317	121,960
1092	306-317	10.0	1.45	0.246	98,050
1097	651-650	10.0	1.80	0.514	329,160
1098	500-510	15.0	1.61	0.166	139,614
1109	652-651	10.0	1.83	0.515	334,184
1110	243-238	15.0	2.12	0.339	502,503
1112	235-234	15.0	2.00	0.369	531,637
1113	653-652	10.0	1.85	0.511	335,071
1115	317-329	10.0	1.35	0.279	109,034

Average Loading under Existing Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
1117	345-343	12.0	1.51	0.368	255,673
1119	146-145	10.0	1.14	0.225	67,862
1120	352-349	12.0	0.61	0.008	8,500
1122	518-524	15.0	2.79	0.363	724,355
1129	329-337	10.0	1.31	0.309	121,330
1132	347-345	12.0	2.03	0.284	241,103
1133	644-643	10.0	0.92	0.253	64,496
1134	658-641	10.0	1.29	0.324	128,394
1135	531-864	15.0	2.84	0.374	766,980
1136	310-307	10.0	1.20	0.234	75,380
1137	646-649	10.0	1.37	0.380	168,848
1141	642-658	10.0	1.21	0.296	105,951
1143	643-642	10.0	1.08	0.278	86,899
1147	260-266	15.0	2.69	0.331	617,166
1148	238-235	15.0	2.20	0.337	516,689
1151	524-531	15.0	2.77	0.372	744,719
1155	348-347	12.0	1.28	0.376	223,030
1169	349-348	12.0	1.84	0.268	201,229
1172	354-1158	10.0	0.93	0.201	47,142
1177	655-654	10.0	1.31	0.310	122,089
1180	343-243	15.0	2.28	0.315	486,917
1182	307-306	10.0	1.27	0.238	81,902
1196	657-656	10.0	1.22	0.315	116,735
1206	645-646	10.0	1.40	0.367	163,820
1209	706-657	10.0	1.19	0.318	114,681
1212	12-20	12.0	0.00	0.000	0
1219	545-855	15.0	3.16	0.470	1,157,000
1221	353-351	10.0	1.06	0.212	57,856
1227	707-706	10.0	1.27	0.299	113,111
1231	209-222	15.0	1.64	0.165	140,319
1232	548-545	15.0	3.05	0.479	1,143,810
1235	814-813	18.0	3.03	0.409	1,333,450
1236	274-500	15.0	1.61	0.167	139,779
1237	301-322	12.0	2.22	0.226	190,884
1238	257-274	15.0	1.55	0.171	139,941
1239	813-811	18.0	3.09	0.404	1,334,215
1242	6-12	12.0	0.00	0.000	0
1243	1022-1021	18.0	0.51	0.296	145,084
1248	825-1160	12.0	0.00	0.000	0
1249	1021-810	18.0	0.34	0.398	145,751
1250	406-407	10.0	0.96	0.063	25,773

Average Loading under Existing Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
1251	995-805	18.0	3.07	0.405	1,329,613
1253	542-544	15.0	1.55	0.384	434,592
1254	649-543	15.0	1.60	0.385	449,395
1257	543-542	15.0	1.50	0.398	442,869
1258	704-705	10.0	1.33	0.215	73,966
1259	200-209	15.0	1.46	0.178	140,351
1260	805-807	18.0	3.05	0.407	1,332,071
1262	1023-1022	18.0	1.11	0.171	143,492
1263	807-814	18.0	3.08	0.405	1,332,962
1264	811-812	18.0	3.01	0.412	1,335,322
1266	510-521	15.0	1.59	0.167	139,421
1267	401-404	10.0	0.78	0.043	12,533
1268	533-535	15.0	1.64	0.163	138,390
1270	222-247	15.0	1.63	0.166	140,248
1272	979-958	8.0	(N/A)	(N/A)	(N/A)
1273	700-701	10.0	1.45	0.134	49,914
1274	407-700	10.0	1.10	0.085	31,969
1275	703-704	10.0	1.45	0.198	71,808
1276	521-532	15.0	1.60	0.167	139,122
1277	532-533	15.0	1.55	0.170	138,768
1278	247-257	15.0	1.58	0.169	140,121
1297	701-702	10.0	1.61	0.169	63,286
1301	234-260	15.0	2.38	0.349	586,733
1305	322-343	12.0	2.14	0.254	217,592
1306	405-406	10.0	0.95	0.067	22,028
1319	806-OF1	18.0	5.64	0.282	1,490,943
1466	CO-2	24.0	0.63	0.005	11,314

Hydraulic Model Output for Peak Loading under Existing Conditions

Peak Loading under Existing Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
662	517-518	15.0	3.43	0.479	1,285,227
663	351-349	10.0	3.29	0.325	326,729
664	810-1020	18.0	0.35	0.661	278,341
666	1158-353	10.0	1.8	0.212	98,439
667	1116-653	10.0	1.99	0.608	446,927
670	994-800	18.0	3.57	0.562	2,364,618
671	812-1020	18.0	2.93	0.681	2,427,502
672	233-234	8.0	1.59	0.281	82,913
674	535-547	18.0	2.65	0.137	249,781
682	1077-1034	10.0	2.4	0.187	144,954
683	702-703	10.0	2.03	0.24	132,612
684	541-548	15.0	2.46	0.702	1,460,321
686	959-WetWell	8.0	0.68	0.036	7,036
687	544-548	15.0	2.00	0.471	734,104
694	1076-1077	10.0	0.93	0.064	21,444
695	1076-1033	15.0	0.00	0.189	135
696	958-959	8.0	(N/A)	(N/A)	(N/A)
702	1075-1033	10.0	0.38	0.278	30,588
703	1077.5-1077	10.0	1.70	0.260	123,782
710	1034-1075	10.0	2.50	0.207	146,932
713	808-806	18.0	4.84	0.492	2,707,653
723	20-200	15.0	2.59	0.180	252,625
732	300-301	12.0	2.41	0.310	322,658
737	534-877	15.0	3.94	0.468	1,435,500
753	504-506	15.0	3.08	0.496	1,209,675
761	308-310	10.0	1.48	0.262	108,527
774	513-517	15.0	3.00	0.527	1,270,159
780	337-351	10.0	1.64	0.413	225,219
790	949-1076.5	10.0	0.97	0.073	21,431
791	503-504	15.0	3.31	0.461	1,181,411
797	506-513	15.0	2.75	0.555	1,245,068
802	1031-1030	18.0	1.32	0.191	201,153
805	1024-1023	18.0	1.50	0.203	249,451
809	355-354	10.0	0.97	0.230	59,200
814	547-994	18.0	3.81	0.533	2,362,259
815	949-949.5	8.0	0.99	0.102	18,814
822	918-547	15.0	3.70	0.688	2,154,554
832	356-355	10.0	0.96	0.163	35,975
836	145-300	12.0	2.08	0.342	319,754

Peak Loading under Existing Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
851	1030-1029	18.0	1.24	0.206	210,681
858	800-801	18.0	3.50	0.573	2,367,780
883	877-884	15.0	3.40	0.530	1,449,698
884	1101-1088	10.0	1.02	0.092	17,455
890	801-802	18.0	3.47	0.578	2,374,879
895	1032-1031	18.0	1.22	0.193	188,046
896	951-1079	10.0	1.16	0.265	86,663
897	1088-1085	10.0	0.98	0.147	31,735
899	999-995	18.0	3.21	0.623	2,399,590
903	1106-1101	10.0	0.74	0.045	7,408
904	1078-1077.5	10.0	1.24	0.319	119,968
914	1079-1078	10.0	1.20	0.301	107,190
926	404-405	10.0	1.25	0.115	34,620
927	1080-951	10.0	1.00	0.257	71,910
929	960-959	8.0	(N/A)	(N/A)	(N/A)
930	884-541	15.0	2.73	0.637	1,459,061
939	1085-1080	10.0	0.94	0.207	49,479
941	1020-808	18.0	3.44	0.649	2,697,205
945	802-999	18.0	3.63	0.559	2,385,064
984	641-645	10.0	1.55	0.509	278,516
987	1075-1032	18.0	1.17	0.191	178,306
990	1028-1027	18.0	1.12	0.240	236,225
1020	1025-1024	18.0	1.42	0.211	249,569
1022	1029-1028	18.0	1.03	0.245	223,121
1023	1027-1026	18.0	1.21	0.234	245,937
1024	855-918	15.0	3.49	0.720	2,131,209
1025	1026-1025	18.0	1.56	0.198	249,700
1055	864-534	15.0	3.14	0.554	1,416,134
1056	656-655	10.0	1.48	0.463	235,912
1074	650-649	10.0	1.91	0.639	454,359
1077	266-503	15.0	3.01	0.486	1,150,225
1081	705-707	10.0	1.19	0.384	148,186
1086	654-1116	10.0	1.62	0.435	237,754
1092	306-317	10.0	1.84	0.317	176,550
1097	651-650	10.0	2.00	0.621	459,227
1098	500-510	15.0	2.02	0.214	251,771
1109	652-651	10.0	2.01	0.616	458,762
1110	243-238	15.0	2.54	0.461	905,596
1112	235-234	15.0	2.41	0.502	958,322
1113	653-652	10.0	2.02	0.604	450,216
1115	317-329	10.0	1.69	0.364	196,323

Peak Loading under Existing Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
1117	345-343	12.0	1.84	0.496	461,031
1119	146-145	10.0	1.49	0.283	122,151
1120	352-349	12.0	0.83	0.042	15,297
1122	518-524	15.0	3.29	0.500	1,306,159
1129	329-337	10.0	1.62	0.406	218,462
1132	347-345	12.0	2.46	0.379	434,686
1133	644-643	10.0	1.19	0.321	116,095
1134	658-641	10.0	1.60	0.429	231,175
1135	531-864	15.0	3.35	0.517	1,383,024
1136	310-307	10.0	1.55	0.297	135,698
1137	646-649	10.0	1.64	0.521	304,194
1141	642-658	10.0	1.52	0.386	190,718
1143	643-642	10.0	1.37	0.360	156,419
1147	260-266	15.0	3.19	0.453	1,112,652
1148	238-235	15.0	2.62	0.460	931,266
1151	524-531	15.0	3.27	0.514	1,342,912
1155	348-347	12.0	1.59	0.499	402,054
1169	349-348	12.0	2.24	0.355	362,726
1172	354-1158	10.0	1.08	0.274	85,045
1177	655-654	10.0	1.67	0.425	237,940
1180	343-243	15.0	2.72	0.427	877,402
1182	307-306	10.0	1.63	0.304	147,458
1196	657-656	10.0	1.56	0.431	227,165
1206	645-646	10.0	1.70	0.493	295,181
1209	706-657	10.0	1.52	0.434	222,324
1212	12-20	12.0	0.00	0.000	0
1219	545-855	15.0	3.65	0.683	2,107,241
1221	353-351	10.0	1.32	0.275	104,278
1227	707-706	10.0	1.63	0.407	218,909
1231	209-222	15.0	2.03	0.214	252,635
1232	548-545	15.0	3.54	0.694	2,079,765
1235	814-813	18.0	3.57	0.574	2,425,466
1236	274-500	15.0	2.00	0.216	251,994
1237	301-322	12.0	2.72	0.297	343,648
1238	257-274	15.0	1.92	0.222	252,211
1239	813-811	18.0	3.63	0.567	2,425,822
1242	6-12	12.0	0.00	0.000	0
1243	1022-1021	18.0	0.43	0.518	254,877
1248	825-1160	12.0	0.00	0.000	0
1249	1021-810	18.0	0.35	0.619	257,031
1250	406-407	10.0	1.30	0.102	48,419

Peak Loading under Existing Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
1251	995-805	18.0	3.61	0.569	2,419,919
1253	542-544	15.0	1.85	0.498	730,933
1254	649-543	15.0	1.85	0.499	730,240
1257	543-542	15.0	1.76	0.519	732,021
1258	704-705	10.0	1.41	0.332	144,682
1259	200-209	15.0	1.82	0.231	252,651
1260	805-807	18.0	3.58	0.574	2,424,804
1262	1023-1022	18.0	1.31	0.225	251,696
1263	807-814	18.0	3.61	0.570	2,425,586
1264	811-812	18.0	3.53	0.581	2,426,503
1266	510-521	15.0	1.99	0.217	251,508
1267	401-404	10.0	0.99	0.075	22,559
1268	533-535	15.0	2.04	0.211	250,069
1270	222-247	15.0	2.02	0.214	252,562
1272	979-958	8.0	(N/A)	(N/A)	(N/A)
1273	700-701	10.0	1.40	0.244	93,247
1274	407-700	10.0	1.48	0.123	60,254
1275	703-704	10.0	1.51	0.306	137,686
1276	521-532	15.0	1.99	0.216	251,099
1277	532-533	15.0	1.93	0.221	250,606
1278	247-257	15.0	1.97	0.219	252,415
1297	701-702	10.0	1.52	0.272	118,367
1301	234-260	15.0	2.82	0.479	1,057,690
1305	322-343	12.0	2.61	0.336	391,736
1306	405-406	10.0	1.26	0.106	40,804
1319	806-OF1	18.0	6.70	0.385	2,712,899
1466	CO-2	24.0	0.71	0.005	19,714

Hydraulic Model Output for Average Loading under Build-Out Conditions

Average Loading under Build-Out Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
662	517-518	15.0	3.14	0.367	829,215
663	351-349	10.0	3.23	0.247	220,508
664	810-1020	18.0	1.11	0.753	1,021,213
666	1158-353	10.0	1.51	0.144	52,512
667	1116-653	10.0	2.21	1.000	780,136
670	994-800	18.0	3.51	0.526	2,138,936
671	812-1020	18.0	2.32	0.769	2,183,555
672	233-234	8.0	1.37	0.126	58,393
674	535-547	18.0	2.31	0.119	177,526
682	1077-1034	10.0	2.72	0.204	176,967
683	702-703	10.0	2.28	0.274	178,936
684	541-548	15.0	1.63	0.664	914,783
686	959-WetWell	8.0	0.60	0.021	3,909
687	544-548	15.0	2.78	0.477	1,038,277
694	1076-1077	10.0	1.41	0.162	52,327
695	1076-1033	15.0	0.00	0.312	626
696	958-959	8.0	(N/A)	(N/A)	(N/A)
702	1075-1033	10.0	1.57	0.501	277,843
703	1077.5-1077	10.0	1.72	0.262	126,815
710	1034-1075	10.0	2.82	0.225	178,038
713	808-806	18.0	5.05	0.544	3,206,087
723	20-200	15.0	2.30	0.155	180,128
732	300-301	12.0	2.19	0.271	244,307
737	534-877	15.0	3.46	0.364	902,011
753	504-506	15.0	2.74	0.390	786,853
761	308-310	10.0	1.45	0.257	103,986
774	513-517	15.0	2.60	0.420	820,538
780	337-351	10.0	1.46	0.359	166,220
790	949-1076.5	10.0	1.06	0.198	52,327
791	503-504	15.0	2.92	0.367	770,608
797	506-513	15.0	2.38	0.443	806,637
802	1031-1030	18.0	1.83	0.290	503,641
805	1024-1023	18.0	2.47	0.388	1,011,416
809	355-354	10.0	1.09	0.133	30,346
814	547-994	18.0	3.70	0.504	2,137,836
815	949-949.5	8.0	0.93	0.283	48,925
822	918-547	15.0	3.62	0.653	1,988,112
832	356-355	10.0	0.99	0.086	17,584
836	145-300	12.0	1.90	0.299	242,614

Average Loading under Build-Out Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
851	1030-1029	18.0	1.67	0.333	556,203
858	800-801	18.0	3.40	0.541	2,140,424
883	877-884	15.0	3.00	0.407	908,790
884	1101-1088	10.0	1.04	0.095	18,218
890	801-802	18.0	3.37	0.545	2,143,963
895	1032-1031	18.0	1.69	0.290	464,563
896	951-1079	10.0	1.26	0.287	105,410
897	1088-1085	10.0	0.98	0.171	39,127
899	999-995	18.0	3.10	0.586	2,156,645
903	1106-1101	10.0	0.72	0.041	6,209
904	1078-1077.5	10.0	1.26	0.324	124,661
914	1079-1078	10.0	1.24	0.313	117,506
926	404-405	10.0	1.30	0.230	79,590
927	1080-951	10.0	1.11	0.279	89,217
929	960-959	8.0	(N/A)	(N/A)	(N/A)
930	884-541	15.0	2.36	0.491	914,194
939	1085-1080	10.0	0.99	0.248	67,215
941	1020-808	18.0	3.62	0.722	3,200,995
945	802-999	18.0	3.54	0.524	2,149,183
984	641-645	10.0	1.36	0.420	190,257
987	1075-1032	18.0	1.65	0.293	458,285
990	1028-1027	18.0	1.66	0.399	705,270
1020	1025-1024	18.0	2.27	0.407	992,501
1022	1029-1028	18.0	1.48	0.396	623,744
1023	1027-1026	18.0	1.87	0.394	780,117
1024	855-918	15.0	3.43	0.681	1,975,770
1025	1026-1025	18.0	2.32	0.359	858,198
1055	864-534	15.0	2.76	0.427	891,830
1056	656-655	10.0	2.00	0.869	651,702
1074	650-649	10.0	2.25	0.983	789,679
1077	266-503	15.0	2.66	0.385	750,165
1081	705-707	10.0	1.12	0.477	186,272
1086	654-1116	10.0	1.96	1.000	691,629
1092	306-317	10.0	1.68	0.284	138,096
1097	651-650	10.0	2.24	1.000	790,602
1098	500-510	15.0	1.78	0.184	179,339
1109	652-651	10.0	2.23	1.000	787,563
1110	243-238	15.0	2.23	0.368	589,686
1112	235-234	15.0	2.10	0.400	624,090
1113	653-652	10.0	2.22	1.000	781,648
1115	317-329	10.0	1.54	0.321	149,809

Average Loading under Build-Out Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
1117	345-343	12.0	1.56	0.388	284,583
1119	146-145	10.0	1.30	0.247	88,046
1120	352-349	12.0	0.61	0.008	8,863
1122	518-524	15.0	2.91	0.391	837,468
1129	329-337	10.0	1.46	0.352	162,084
1132	347-345	12.0	2.13	0.304	277,775
1133	644-643	10.0	1.02	0.276	80,463
1134	658-641	10.0	1.41	0.361	162,311
1135	531-864	15.0	2.95	0.400	873,550
1136	310-307	10.0	1.46	0.278	116,770
1137	646-649	10.0	1.14	0.531	216,558
1141	642-658	10.0	1.34	0.330	136,121
1143	643-642	10.0	1.19	0.306	108,830
1147	260-266	15.0	2.82	0.360	726,638
1148	238-235	15.0	2.30	0.366	605,217
1151	524-531	15.0	2.88	0.399	853,027
1155	348-347	12.0	1.36	0.406	262,896
1169	349-348	12.0	1.96	0.291	241,050
1172	354-1158	10.0	0.95	0.192	45,052
1177	655-654	10.0	1.96	0.927	669,327
1180	343-243	15.0	2.40	0.342	574,218
1182	307-306	10.0	1.51	0.281	122,788
1196	657-656	10.0	2.04	0.825	633,662
1206	645-646	10.0	1.51	0.408	203,822
1209	706-657	10.0	2.03	0.821	627,657
1212	12-20	12.0	0.00	0.000	0
1219	545-855	15.0	3.60	0.650	1,963,150
1221	353-351	10.0	1.07	0.206	55,959
1227	707-706	10.0	2.19	0.757	626,831
1231	209-222	15.0	1.80	0.184	180,134
1232	548-545	15.0	3.49	0.663	1,945,516
1235	814-813	18.0	3.47	0.539	2,183,305
1236	274-500	15.0	1.77	0.186	179,544
1237	301-322	12.0	2.45	0.257	253,172
1238	257-274	15.0	1.70	0.191	179,746
1239	813-811	18.0	3.53	0.532	2,183,351
1242	6-12	12.0	0.00	0.000	0
1243	1022-1021	18.0	1.34	0.629	1,012,080
1248	825-1160	12.0	0.00	0.000	0
1249	1021-810	18.0	1.18	0.700	1,011,057
1250	406-407	10.0	1.67	0.293	144,054

Average Loading under Build-Out Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
1251	995-805	18.0	3.51	0.532	2,167,317
1253	542-544	15.0	2.07	0.592	1,011,073
1254	649-543	15.0	1.99	0.589	969,291
1257	543-542	15.0	1.92	0.616	983,146
1258	704-705	10.0	1.54	0.372	184,508
1259	200-209	15.0	1.61	0.198	180,143
1260	805-807	18.0	3.48	0.538	2,178,094
1262	1023-1022	18.0	1.97	0.460	1,012,607
1263	807-814	18.0	3.51	0.535	2,183,409
1264	811-812	18.0	3.42	0.546	2,183,614
1266	510-521	15.0	1.76	0.186	179,100
1267	401-404	10.0	1.36	0.142	41,731
1268	533-535	15.0	1.81	0.182	177,769
1270	222-247	15.0	1.79	0.184	180,072
1272	979-958	8.0	(N/A)	(N/A)	(N/A)
1273	700-701	10.0	1.76	0.312	165,260
1274	407-700	10.0	1.69	0.296	147,457
1275	703-704	10.0	1.67	0.347	181,905
1276	521-532	15.0	1.76	0.186	178,711
1277	532-533	15.0	1.71	0.189	178,255
1278	247-257	15.0	1.74	0.188	179,943
1297	701-702	10.0	1.78	0.326	177,680
1301	234-260	15.0	2.50	0.381	693,271
1305	322-343	12.0	2.34	0.286	279,561
1306	405-406	10.0	1.59	0.277	126,475
1319	806-OF1	18.0	7.01	0.422	3,208,749
1466	CO-2	24.0	0.63	0.005	11,413

Hydraulic Model Output for Peak Loading under Build-Out Conditions

Peak Loading under Build-Out Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
662	517-518	15.0	2.91	0.298	575,462
663	351-349	10.0	2.36	0.200	133,012
664	810-1020	18.0	0.91	0.880	967,857
666	1158-353	10.0	1.58	0.191	74,305
667	1116-653	10.0	5.52	1.000	1,945,774
670	994-800	18.0	3.65	0.632	2,773,694
671	812-1020	18.0	2.80	0.965	3,162,367
672	233-234	8.0	0.82	0.069	11,947
674	535-547	18.0	2.28	0.118	173,327
682	1077-1034	10.0	1.18	0.108	30,031
683	702-703	10.0	2.57	1.000	907,391
684	541-548	15.0	0.81	0.857	586,975
686	959-WetWell	8.0	0.52	0.005	552
687	544-548	15.0	3.56	0.664	1,990,385
694	1076-1077	10.0	0.70	0.033	7,389
695	1076-1033	15.0	0.00	0.206	88
696	958-959	8.0	(N/A)	(N/A)	(N/A)
702	1075-1033	10.0	1.41	0.384	176,106
703	1077.5-1077	10.0	1.05	0.111	22,605
710	1034-1075	10.0	1.22	0.116	30,188
713	808-806	18.0	5.41	0.666	4,373,143
723	20-200	15.0	2.26	0.153	173,797
732	300-301	12.0	2.33	0.295	292,517
737	534-877	15.0	3.03	0.292	585,476
753	504-506	15.0	2.49	0.331	569,825
761	308-310	10.0	0.95	0.127	24,781
774	513-517	15.0	2.31	0.351	574,213
780	337-351	10.0	0.94	0.233	58,832
790	949-1076.5	10.0	0.73	0.041	7,386
791	503-504	15.0	2.66	0.314	567,785
797	506-513	15.0	2.11	0.374	572,364
802	1031-1030	18.0	1.42	0.208	243,524
805	1024-1023	18.0	1.92	0.276	491,343
809	355-354	10.0	0.71	0.196	34,505
814	547-994	18.0	3.98	0.580	2,735,091
815	949-949.5	8.0	0.79	0.071	6,904
822	918-547	15.0	3.89	0.780	2,585,053
832	356-355	10.0	0.62	0.184	27,775
836	145-300	12.0	2.02	0.326	289,419

Peak Loading under Build-Out Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
851	1030-1029	18.0	1.36	0.233	275,378
858	800-801	18.0	3.65	0.638	2,806,816
883	877-884	15.0	2.63	0.324	586,404
884	1101-1088	10.0	0.84	0.066	8,451
890	801-802	18.0	3.66	0.647	2,861,137
895	1032-1031	18.0	1.29	0.205	217,588
896	951-1079	10.0	0.69	0.134	19,584
897	1088-1085	10.0	0.76	0.085	11,021
899	999-995	18.0	3.41	0.708	2,951,931
903	1106-1101	10.0	0.69	0.038	4,350
904	1078-1077.5	10.0	0.63	0.156	22,301
914	1079-1078	10.0	0.64	0.150	21,291
926	404-405	10.0	1.21	1.000	424,868
927	1080-951	10.0	0.67	0.126	17,301
929	960-959	8.0	(N/A)	(N/A)	(N/A)
930	884-541	15.0	1.64	0.461	587,082
939	1085-1080	10.0	0.69	0.109	14,447
941	1020-808	18.0	3.94	0.865	4,132,607
945	802-999	18.0	3.79	0.637	2,912,899
984	641-645	10.0	0.57	0.202	29,161
987	1075-1032	18.0	1.24	0.203	206,644
990	1028-1027	18.0	1.29	0.284	343,634
1020	1025-1024	18.0	1.79	0.288	488,662
1022	1029-1028	18.0	1.15	0.283	306,640
1023	1027-1026	18.0	1.43	0.282	377,089
1024	855-918	15.0	3.63	0.839	2,583,318
1025	1026-1025	18.0	1.85	0.251	414,757
1055	864-534	15.0	2.43	0.343	584,088
1056	656-655	10.0	5.65	1.000	1,990,539
1074	650-649	10.0	5.53	1.000	1,948,566
1077	266-503	15.0	2.43	0.330	556,877
1081	705-707	10.0	2.85	1.000	1,004,614
1086	654-1116	10.0	5.52	1.000	1,946,879
1092	306-317	10.0	1.10	0.199	54,841
1097	651-650	10.0	5.52	1.000	1,947,730
1098	500-510	15.0	1.76	0.182	173,907
1109	652-651	10.0	5.52	1.000	1,946,122
1110	243-238	15.0	2.10	0.334	488,289
1112	235-234	15.0	1.95	0.355	493,434
1113	653-652	10.0	5.52	1.000	1,944,627
1115	317-329	10.0	1.00	0.217	56,504

Peak Loading under Build-Out Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
1117	345-343	12.0	1.33	0.311	178,686
1119	146-145	10.0	0.99	0.130	26,904
1120	352-349	12.0	0.73	0.112	22,731
1122	518-524	15.0	2.60	0.323	576,550
1129	329-337	10.0	0.95	0.231	58,235
1132	347-345	12.0	1.82	0.247	177,416
1133	644-643	10.0	0.66	0.112	14,409
1134	658-641	10.0	0.62	0.174	25,696
1135	531-864	15.0	2.61	0.324	581,573
1136	310-307	10.0	0.75	0.177	31,654
1137	646-649	10.0	0.10	1.000	35,683
1141	642-658	10.0	0.65	0.153	22,088
1143	643-642	10.0	0.65	0.134	18,319
1147	260-266	15.0	2.56	0.307	528,846
1148	238-235	15.0	2.16	0.329	490,383
1151	524-531	15.0	2.57	0.327	578,750
1155	348-347	12.0	1.17	0.337	175,328
1169	349-348	12.0	1.73	0.250	172,290
1172	354-1158	10.0	0.86	0.228	52,159
1177	655-654	10.0	5.52	1.000	1,947,748
1180	343-243	15.0	2.27	0.315	486,055
1182	307-306	10.0	0.84	0.182	36,836
1196	657-656	10.0	5.65	1.000	1,993,669
1206	645-646	10.0	0.09	1.000	33,387
1209	706-657	10.0	5.65	1.000	1,991,333
1212	12-20	12.0	0.00	0.000	0
1219	545-855	15.0	3.76	0.809	2,581,566
1221	353-351	10.0	1.15	0.240	74,808
1227	707-706	10.0	5.63	1.000	1,984,824
1231	209-222	15.0	1.78	0.181	173,928
1232	548-545	15.0	3.68	0.826	2,579,000
1235	814-813	18.0	3.79	0.669	3,079,816
1236	274-500	15.0	1.75	0.183	173,944
1237	301-322	12.0	2.60	0.279	301,276
1238	257-274	15.0	1.68	0.188	173,973
1239	813-811	18.0	3.85	0.664	3,100,262
1242	6-12	12.0	0.00	0.000	0
1243	1022-1021	18.0	0.67	0.726	593,218
1248	825-1160	12.0	0.00	0.000	0
1249	1021-810	18.0	0.61	0.825	617,112
1250	406-407	10.0	1.82	1.000	643,087

Peak Loading under Build-Out Conditions					
ID	Label	Diameter (in.)	Max Velocity (fps)	Max d/D	Max Flow (mgd)
1251	995-805	18.0	3.80	0.653	3,005,548
1253	542-544	15.0	2.65	0.897	1,987,074
1254	649-543	15.0	2.49	1.000	1,975,319
1257	543-542	15.0	2.50	1.000	1,983,362
1258	704-705	10.0	2.81	1.000	991,682
1259	200-209	15.0	1.59	0.195	173,852
1260	805-807	18.0	3.77	0.666	3,050,310
1262	1023-1022	18.0	1.26	0.401	538,263
1263	807-814	18.0	3.81	0.664	3,073,512
1264	811-812	18.0	3.66	0.702	3,132,653
1266	510-521	15.0	1.74	0.184	173,830
1267	401-404	10.0	0.57	1.000	199,221
1268	533-535	15.0	1.79	0.180	173,414
1270	222-247	15.0	1.77	0.182	173,969
1272	979-958	8.0	(N/A)	(N/A)	(N/A)
1273	700-701	10.0	2.35	1.000	827,231
1274	407-700	10.0	2.00	1.000	704,847
1275	703-704	10.0	2.69	1.000	949,697
1276	521-532	15.0	1.74	0.184	173,715
1277	532-533	15.0	1.69	0.187	173,573
1278	247-257	15.0	1.72	0.185	173,987
1297	701-702	10.0	2.59	1.000	912,957
1301	234-260	15.0	2.27	0.324	506,971
1305	322-343	12.0	2.41	0.298	305,039
1306	405-406	10.0	0.89	1.000	314,182
1319	806-OF1	18.0	7.65	0.509	4,473,705
1466	CO-2	24.0	2.03	0.143	363,392

Appendix V: CCTV Assessment

The table below summarizes the recommendations for mitigation based on review of CCTV.

Pipe diameters are given in inches. Recommended mitigation is given in feet.

Reach	Category	Pipe Diameter	Lining	Spot Repair	Pipe Replacement
03-6008_03-6007_10/30/2009_D	Hot Spot	8	0	30	0
03-6009_03-6008_10/30/2009_U	Hot Spot	8	0	0	165
03-7004_03-7001_10/30/2009_D	Hot Spot	8	324	0	6
03-7009_03-7004_10/30/2009_D	Hot Spot	8	0	0	338
03-7014_03-7009_10/29/2009_D	Hot Spot	8	162	0	0
03-7019_03-7014_10/29/2009_U	Hot Spot	8	0	0	340
04-8004_04-8003_10/28/2009_U	Hot Spot	8	375	0	0
04-8005_04-8003_10/28/2009_D	Hot Spot	8	290	0	0
05-4006_05-4001_10/26/2009_D	Hot Spot	8	0	19	0
06-1006_06-1005_8/23/2017 11:10	Hot Spot	8	0	20	0
06-4001_06-0015_10/30/2009_D	Hot Spot	8	0	0	367
06-4015_06-4001_10/30/2009_D	Hot Spot	8	0	35	0
06-5001_06-0015_10/30/2009_D	Hot Spot	8	21	0	0
06-5002_06-5001_10/30/2009_U	Hot Spot	8	0	0	176
07-0002_07-0001_7/15/2013 15:47	Hot Spot	12	0	0	410
07-0004_07-0003_10/27/2009_D	Hot Spot	12	220	0	0
07-0005_07-0004_10/27/2009_D	Hot Spot	10	0	0	340
07_0006_07_0005_9/14/2015_11:40	Hot Spot	8	0	0	330
07-2001_07-0006_10/27/2009_U	Hot Spot	8	284	40	0
07-4002_07-4001_10/27/2009_D	Hot Spot	8	0	0	216
07-4003_07-4002_10/27/2009_U	Hot Spot	8	162	0	0
07_4004_07_4002_9/11/2015_16:27	Hot Spot	8	0	0	447
03-6007_03-0013_10/30/2009_D	Hot Spot	8	0	3	0
03_8004_03_8003_9/14/2015_11:26	Hot Spot	8	0	0	250
03_8003_03_8002_9/14/2015_11:26	Hot Spot	8	0	0	350
03-5001_03-0011_11/9/2011_549.299988_D	Hot Spot	6	0	0	531
03-5003_03-5001_11/9/2011_393.100006_D	Hot Spot	6	0	0	400
03-5005_03-5003_11/9/2011_410.100006_D	Hot Spot	6	0	0	400
03-7022_03-7019_11/9/2011_430.100006_D	Hot Spot	6	0	0	420
03-7023_03-7022_11/9/2011_430.100006_D	Hot Spot	6	0	0	430
03-7024_03-7023_11/8/2011_596.299988_D	Hot Spot	6	0	0	591
04-0001_03-0025_7/15/2013_15:47	Hot Spot	12	0	0	320
04-7002_04-7001_10/28/2009_U	Hot Spot	8	0	0	294
03-5006_03-5005	Hot Spot	6	0	0	140

Reach	Category	Pipe Diameter	Lining	Spot Repair	Pipe Replacement
04_4001_04_0005_9/14/2015_11:26	Old Concrete	8	0	0	338
04_4002_04_4001_9/14/2015_11:26	Old Concrete	8	0	0	342
04_4003_04_4002_9/14/2015_11:26	Old Concrete	8	333	0	0
04_4004_04_4003_9/14/2015_11:26	Old Concrete	8	0	0	294
04_5001_04_0006_9/14/2015_11:26	Old Concrete	8	0	0	340
04_5002_04_5001_9/14/2015_11:26	Old Concrete	8	345	60	0
04_5003_04_5002_9/14/2015_11:26	Old Concrete	8	0	0	330
04_5004_04_5003_9/14/2015_11:26	Old Concrete	8	0	0	275
04_6002_04_6002A_9/14/2015_11:26	Old Concrete	8	0	0	342
04_6002A_04_6001_9/14/2015_11:26	Old Concrete	8	0	0	336
04_6003_04_6002_9/14/2015_11:26	Old Concrete	8	333	34	0
04_6004_04_6003_9/14/2015_11:26	Old Concrete	8	0	12	0
04_8009_04_8008_9/14/2015_11:26	Old Concrete	8	425	3	0
04_8014_04_8013_9/14/2015_11:26	Old Concrete	8	0	0	280
04_8015_04_8014_9/14/2015_11:26	Old Concrete	8	0	0	454
04_8017_04_8016_9/14/2015_11:26	Old Concrete	8	0	0	640
04-8006_04-8005_12/2/2010_U	Old Concrete	8	120	0	0
04-8007_04-8005_12/2/2010_U	Old Concrete	8	133	9	0
04-8008_04-8003_12/1/2010_D	Old Concrete	8	0	0	327
04-8011_04-8010_12/2/2010_U	Old Concrete	8	119	6	0
04-8012_04-8010_12/2/2010_U	Old Concrete	8	108	0	0
04-8013_04-8008_12/1/2010_U	Old Concrete	8	0	0	161
04-8016_04-8013_12/1/2010_D	Old Concrete	8	210	0	0
04-8018_04-8017_12/1/2010_U	Old Concrete	8	260	20	0
04-8019_04-8018_12/2/2010_U	Old Concrete	8	350	40	0
07_4005_07_4004_9/11/2015_16:27	Old Concrete	8	0	0	600
07-0007_07-0006_11/30/2010_D	Old Concrete	8	0	0	160
07-0008_07-0007_11/30/2010_U	Old Concrete	8	0	0	340
07-0009_07-0008_11/30/2010_U	Old Concrete	8	0	0	158
07-2003_07-2001_11/30/2010_D	Old Concrete	8	0	0	332
07_2004_07_2003_9/11/2015_16:27	Old Concrete	8	615	23	0
07-2005_07-2003_11/30/2010_D	Old Concrete	8	0	0	331
07-2008_07-2007_11/30/2010_U	Old Concrete	8	0	0	335
07-3001_07-0007_11/30/2010_U	Old Concrete	8	0	0	252
07_3002_07_0008_9/14/2015_11:26	Old Concrete	8	185	0	0
07-4001_07-0009_11/30/2010_U	Old Concrete	8	0	0	53
07_2002_07_2001_9/11/2015_16:27	Old Concrete	8	0	0	614
04-8001_04-0010_11/2/2009_D	Old Concrete	8	0	0	150

Reach	Category	Pipe Diameter	Lining	Spot Repair	Pipe Replacement
04-8002_04-8001_10/28/2009_D	Old Concrete	8	0	0	200
03-9001_03-0022_10/29/2009_D	Old Concrete	8	0	0	430
04-7001_04-0010_10/28/2009_D	Old Concrete	8	324	82	0
04-8003_04-8002_10/28/2009_D	Old Concrete	8	192	10	0
06_4016_06_4015_8/10/2016_10:34	Quick Rating 5	8	332	30	0
07-1004_07-1003_10/27/2009_D	Quick Rating 5	8	0	0	443
07-2014_07-2012_7/15/2013_14:42	Quick Rating 5	8	0	6	0
03_9004_03_9003_9/14/2015_11:26	Quick Rating 5	8	0	3	0
01-4001_01-0015_8/21/2012_13:15	Quick Rating 5	8	0	0	0
03_6017_03_6016_8/10/2016_10:34	Quick Rating 5	8	0	3	0
03_7003_03_7002_8/10/2016_10:34	Quick Rating 5	6	6	0	0
03_7005_03_7004_8/10/2016_10:34	Quick Rating 5	8	0	9	0
03_7012_03_7013_8/10/2016_10:34	Quick Rating 5	8	304	6	0
03_7013_03_7014_8/10/2016_10:34	Quick Rating 5	8	0	70	0
03_7016_03_7015_8/10/2016_10:34	Quick Rating 5	8	307	0	0
03_7020_03_7019_8/10/2016_10:34	Quick Rating 5	8	305	0	0
03_7021_03_7020_8/10/2016_10:34	Quick Rating 5	8	306	3	0
06_3002_06_3001_8/10/2016_10:34	Quick Rating 5	8	302	0	0
06_3004_06_3001_8/10/2016_10:34	Quick Rating 5	8	343	0	0
06_4019_06_4015_8/23/2017_11:10	Quick Rating 5	8	0	0	381
06_5004_06_5003_8/10/2016_10:34	Quick Rating 5	8	0	0	315
07_2006_07_2005_9/11/2015_16:27	Quick Rating 5	8	620	0	0
03_8008_03_8007_8/23/2017_11:10	Quick Rating 5	8	0	0	300
03-6003_03-0013_11/10/2011_690.5_D	Quick Rating 5	8	0	0	640
03-6004_03-6003_11/10/2011_589.099976_D	Quick Rating 5	8	0	0	667
03-6022_03-6023_11/11/2011_201.600006_U	Quick Rating 5	8	0	0	192
03-7026_03-7025_11/8/2011_579.200012_D	Quick Rating 5	8	0	0	591
04-1000_04-1001_11/9/2011_594.299988_U	Quick Rating 5	6	0	0	341
06-4023_06-4024_11/8/2011_600.799988_U	Quick Rating 5	6	0	0	624
09-5011_09-5010_12/2/2010_U	Quick Rating 5	8	0	0	107
03-8014_03-8013_11/2/2009_D	Quick Rating 4	8	0	66	0
05-4001_05-0017_10/26/2009_D	Quick Rating 4	8	0	35	0
07-1003_07-1002_10/26/2009_D	Quick Rating 4	8	308	42	0
03-7010_03-7009_10/29/2009_D	Quick Rating 4	8	306	0	0
07-1002_07-1001_10/26/2009_D	Quick Rating 4	8	0	0	193
03-8002_03-8007_10/29/2009_D	Quick Rating 4	8	0	0	318
09-0012_09-0011_11/2/2009_D	Quick Rating 4	10	0	46	0
07-1005_07-1004_10/26/2009_D	Quick Rating 4	8	498	93	0

Reach	Category	Pipe Diameter	Lining	Spot Repair	Pipe Replacement
07-1006_07-1005_10/26/2009_U	Quick Rating 4	8	0	0	488
09-0016_09-0015_10/30/2009_U	Quick Rating 4	10	0	0	640
03-2002_03-2001_10/30/2009_U	Quick Rating 4	8	0	42	0
07-1007_07-1006_10/26/2009_U	Quick Rating 4	8	0	0	500
03-8018_03-8015_10/28/2009_U	Quick Rating 4	8	0	0	165
05-2002_05-2001_10/26/2009_U	Quick Rating 4	8	0	0	154
07-2007_07-2005_11/30/2010_D	Quick Rating 4	8	0	0	195
07-1018_07-1009_12/1/2010_D	Quick Rating 4	8	170	34	0
07-1021_07-1020_12/1/2010_D	Quick Rating 4	8	400	0	0
07-1015_07-1014_12/1/2010_D	Quick Rating 4	8	85	0	0
07-1019_07-1018_12/1/2010_D	Quick Rating 4	8	323	64	0
07-1016_07-1017_12/1/2010_D	Quick Rating 4	8	309	0	0
07-1011_07-1010_12/1/2010_D	Quick Rating 4	8	327	0	0
07-1022_07-1021-a_12/1/2010_D	Quick Rating 4	8	313	63	0
07-1011_07-1012_12/1/2010_D	Quick Rating 4	8	422	6	0
07-1024_07-1023_12/1/2010_U	Quick Rating 4	8	0	0	241
04-8010_04-8008_12/1/2010_U	Quick Rating 4	8	0	0	287
07-1010_07-1018_12/1/2010_U	Quick Rating 4	8	329	83	0
07-1020_07-1019_12/1/2010_U	Quick Rating 4	8	0	0	400
07-1012_07-1013_12/1/2010_U	Quick Rating 4	8	280	0	0
03-6002_03-6001_11/10/2011_645.5_D	Quick Rating 4	6	0	0	645.5
03-6001_03-0012_11/10/2011_644.200012_	Quick Rating 4	6	0	0	644.2
03-6005_03-0015_11/10/2011_643.400024_	Quick Rating 4	6	0	0	643.4
04-1010_04-1009_11/11/2011_337.299988_	Quick Rating 4	6	0	0	337.3
04-1009_04-1005_11/11/2011_337_D	Quick Rating 4	6	0	0	337
04-1004_04-1003_11/11/2011_610.599976_	Quick Rating 4	6	0	0	610.6
03-9007_03-9006_11/11/2011_316.799988_	Quick Rating 4	6	0	0	316.8
03-6014_03-0017_11/11/2011_645.900024_	Quick Rating 4	6	0	0	645.9
02-0002_02-0001_8/21/2012_13:15	Quick Rating 4	18	0	0	0
02-0004_02-0003_8/21/2012_13:15	Quick Rating 4	18	0	0	0
01-0001_01-0000_8/21/2012_13:15	Quick Rating 4	18	0	0	99
01-0002_01-0001_8/21/2012_13:15	Quick Rating 4	18	0	0	0
01-0004_01-0003_8/21/2012_13:15	Quick Rating 4	18	0	0	0
01-0005_01-0004_8/21/2012_13:15	Quick Rating 4	18	0	0	0
01-0006_01-0005_8/21/2012_13:15	Quick Rating 4	18	0	0	0
01-0007_01-0006_8/21/2012_13:15	Quick Rating 4	18	0	0	500
01-0008_01-0007_8/21/2012_13:15	Quick Rating 4	18	0	0	0
01-0009_01-0008_8/21/2012_13:15	Quick Rating 4	18	0	0	0

Reach	Category	Pipe Diameter	Lining	Spot Repair	Pipe Replacement
01-0011_01-0010_8/21/2012_13:15	Quick Rating 4	18	0	0	0
02-2001_02-0007_8/21/2012_13:15	Quick Rating 4	8	0	63	0
02-2016_02-2015_8/21/2012_13:15	Quick Rating 4	8	0	24	0
01-2002_01-2001_8/21/2012_13:15	Quick Rating 4	8	0	0	0
01-0012_01-0011_8/21/2012_13:15	Quick Rating 4	18	0	0	274
01-0014_01-0013_8/21/2012_13:15	Quick Rating 4	18	0	0	236
01-0015_01-0014_8/21/2012_13:15	Quick Rating 4	18	0	0	0
01-0016_01-0015_8/21/2012_13:15	Quick Rating 4	18	0	0	0
01-4002_01-4001_8/21/2012_13:15	Quick Rating 4	8	0	25	0
02-0001_01-0002_8/21/2012_14:27	Quick Rating 4	18	0	0	0
01-0003_01-0002_8/21/2012_14:27	Quick Rating 4	18	0	0	0
07-5001_07-0002_7/15/2013_15:47	Quick Rating 4	6	0	0	335
04-0003_04-0002_7/15/2013_15:47	Quick Rating 4	12	0	0	340
04-0006_04-0005_7/15/2013_15:47	Quick Rating 4	10	0	0	335
07-0001_03-0025_7/15/2013_15:47	Quick Rating 4	12	0	0	696
01-2003_01-2002_8/21/2012_13:15U	Quick Rating 4	8	0	0	0
01-0011A_01-0010_10/24/2014_12:2	Quick Rating 4	18	0	0	0
01-0010_01-0009_10/24/2014_12:2	Quick Rating 4	18	0	0	0
03_8001_03_0021_9/11/2015_16:27	Quick Rating 4	8	0	0	21
03_9011_03_9014_9/14/2015_11:26	Quick Rating 4	8	0	0	147
03_9012_03_9011_9/14/2015_11:26	Quick Rating 4	8	0	0	333
03_0022_03_0021_9/14/2015_11:26	Quick Rating 4	15	0	0	332
03_8002_03_8001_9/14/2015_11:26	Quick Rating 4	8	0	0	315
03_8006_03_8005_9/14/2015_11:26	Quick Rating 4	6	0	0	414
03_8019_03_8006_9/14/2015_11:26	Quick Rating 4	6	0	0	54
06_4023_06_4002A_8/10/2016_10:34	Quick Rating 4	8	345	0	0
06_4013_06_4002_8/10/2016_10:34	Quick Rating 4	8	0	5	0
06_3007_06_3006_8/10/2016_10:34	Quick Rating 4	8	0	10	0
03_6018_03_6017_8/10/2016_10:34	Quick Rating 4	8	340	10	0
03_7017_03_7018_8/10/2016_10:34	Quick Rating 4	8	306	14	0
06_4002_06_4001_8/23/2017_11:10	Quick Rating 4	8	0	5	0
06_1005_06_0008_8/23/2017_11:10	Quick Rating 4	8	0	0	291