



Recology

Yuba-Sutter
WASTE ZERO

November 15, 2012

Mr. Todd Del Frate
California Regional Water Quality Control Board
Central Valley Region
11020 Sun Center Drive, #200
Rancho Cordova, CA 95670-6114

Re: Report on the Evaluation of the Integrity of the Subsurface Pipelines and Paved Surfaces
at LF-1, Recology Yuba Sutter, Yuba County, California

Dear Mr. Del Frate:

Recology Yuba Sutter is transmitting the above referenced report that was prepared by Golder Associates Inc., on behalf of Recology Yuba-Sutter for the Yuba-Sutter Disposal, Inc. Landfill.

As required by the Standard Provisions, "I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

If you have any questions or require additional information, please contact Bryan Clarkson at (707) 678-1492.

Sincerely,

Phillip Graham
General Manager

cc: Stephanie Kendall, Yuba County Environmental Health
Bryan Clarkson, Recology Environmental Solutions



November 15, 2012

Project No. 053-7442-123

Mr. Phil Graham
Recology Yuba Sutter
235 North First Street
Dixon, CA 95620

**RE: REPORT ON THE EVALUATION OF THE INTEGRITY OF THE SUBSURFACE PIPELINES
AND PAVED SURFACES AT LF-1, RECOLOGY YUBA SUTTER LANDFILL**

Dear Phil:

This letter presents Golder Associates Inc.'s (Golder) evaluation report on the integrity of the subsurface pipelines and paved surfaces at the South Area Landfill, LF-1, at Recology Yuba Sutter (Figure 1). This report has been prepared for submittal to the Central Valley Regional Water Quality Control Board (RWQCB). The pipeline and pavement evaluations were included as recommendations in the June 2012 *Engineering Feasibility Study (EFS) and Amended Report of Waste Discharge (AROWD) for LF-1*.

1.0 INTRODUCTION

The Recology Yuba Sutter (RYS) Landfill is a 160-acre facility located in Yuba County, northeast of the City of Marysville (Figure 1). The landfill is comprised of three areas: the South Area (LF-1), the Peach Orchard (LF-2), and the North Area (LF-3) (Figure 2).

Area LF-1 ceased accepting waste in 1984 and was closed by capping the wastes with a minimum 2-foot thick soil in accordance with the regulations that existed at that time. Several facilities and improved surfaces have been constructed on top of the LF-1 soil cap. These include: aggregate to provide a working surface to allow hauling truck and equipment access, both concrete and asphalt paved roadway and parking surfaces, and several buildings (e.g., office, truck maintenance, materials recycling facility). These facilities were constructed on top of the soil cover and are not considered to be part of the landfill cover system.

The intent of the LF-1 pipeline and pavement evaluations was to identify potential areas where surface water runoff could be preferentially entering the subsurface and to minimize the amount of potential surface water infiltration into the landfill. If the sewer and storm drain pipelines are leaking, then water can preferentially flow into the landfill at those leak locations. In addition, if surface water runoff is allowed to pond on the landfill surface, then that ponded water has a greater potential to infiltrate into the landfill.

1.1 Summary of Findings

This evaluation identified several subsurface pipelines that are damaged and in need of repair or replacement. The pipeline damage includes breaks in the pipe, crushed and/or blocked pipe, and sags in the pipe that causes water to back up and not drain. The landfill surface evaluation identified areas where ponding of surface water runoff can occur. These areas include locally depressed areas on: (1) unpaved surfaces (compacted gravel, landscaped areas, and bare soil), (2) paved areas with cracked or broken pavement, and (3) drain inlets that are clogged or located above surrounding grade. The surfaces can be repaired by filling to grade to remove depressions in unpaved areas, filling and repairing damaged pavement, clearing clogged drain inlets, and reconstructing drain inlets to match the local grade and allow water flow to enter the inlets.

YSDI Pavement-Pipeline Evaluation report 11-2012.docx

Golder Associates Inc.
425 Lakeside Drive
Sunnyvale, CA 94085 USA

Tel: (408) 220-9223 Fax: (408) 220-9224 www.golder.com



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1.2 Scope of Work

The scope of work for the pipeline and landfill surface evaluations included the following tasks:

- Fletcher's Plumbing & Contracting, Inc. performed video surveys and evaluated the integrity of the LF-1 sewer and storm drain pipelines.
- Golder reviewed the pipeline videos obtained by Fletcher's and summarized the findings.
- Prepared a map showing the subsurface utilities at LF-1, the pipelines surveyed and any noted damage.
- A Golder civil engineer visited the LF-1 area and evaluated the drainage integrity of the landfill surfaces, specifically noting areas of settlement on damaged pavement and other surfaces that could preferentially convey surface water runoff into the subsurface.
- Prepared a map showing the results of the LF-1 surface integrity evaluation.
- Summarized the pavement evaluation findings.
- Included recommendations for pipeline and surface drainage repairs in this summary report.

2.0 PIPELINE INTEGRITY EVALUATION

Fletcher's Plumbing performed video surveys of the accessible storm drain and sewer pipelines on 11 days between September 25, 2012 and October 22, 2012. To gain better access to some of the pipelines, Fletcher's used water jetting to clear accumulated debris in the pipelines. The pipelines where video was obtained are summarized on Table 1 and shown on Figure 3. The individual pipeline video runs are identified by numbering or naming the drain inlets or cleanout access points as shown on Figure 3. Some pipelines have not been surveyed yet, due to access constraints, but are scheduled for video survey in the near future. These remaining pipeline evaluations will be reported to the RWQCB approximately two weeks following their completion.

Overall, the majority of the storm drains and sewer lines were in good, operable condition. However, the pipeline video surveys identified the issues noted below (also shown on Table 2 and example photographs attached as Appendix A). The pipeline issues have been categorized based on the extent of damage and the potential for water leakage. Pipes with greater damage and higher leakage potential will be prioritized for repair. The following summarizes the pipeline issues:

- Damaged pipelines that need repair (or replaced by an alternative storm water conveyance system, e.g., sump with pump) to prevent water leakage into the landfill -
 - Storm drain from #14 to clarifier sump has a broken left side wall at 3 feet from #14.
 - Storm drain from #7 to 7B, pipe broken and partially missing at 41 feet from #7.
 - Storm drain from SH1 to SH2 is broken on the bottom and cracked in right side wall at 17 feet west of SH1, and has may have a small diameter rod or pipe protruding from the bottom of a pipe joint at 178 feet.
 - Storm drain from #5 to #2 has improper inlet connection in pipe ceiling at 100 feet from #5.
 - Storm drain from #14 to #8 is blocked and apparently back-graded and cannot drain.
 - Storm drain from the clarifier sump going east has a misaligned pipe joint at 34 feet from clarifier sump.
 - Sewer pipeline from F4 toward materials recycling facility appears to be broken in pipe bottom at 132 feet from F4.

- Pipelines with damage, but need future evaluation and do not need immediate replacement –
 - Storm drain from #7 to #8 is under water and may not drain properly (video has no visibility due to water in pipe).
 - Storm drain from SH1 to SH2 has a crack in the upper right side wall at 37 feet, several warped sections in pipe bottom, an inward bulge on right side wall at a pipe joint at 57 feet, and
 - Storm drain from E to D2 might be broken on the bottom left wall at 32 feet from E, and the pipe is partially collapsed from 30 feet to 70 feet with a bottom warp at 50 feet from E.
 - Storm drain from D2 to D1 is broken in the upper left side wall at a pipe joint 3 feet west of D2.
 - Storm drain from D1 to C has a partially collapsed ceiling 30 feet and onward from D1.
 - Sewer line 6C to 7B filled with water and may have a pipe sag from 6 feet to 108 feet.
- Storm drain pipelines that have not been surveyed –
 - B to C
 - #12A and #13A to #13
 - #10 to #10A
 - #8A to line between #7 and #8
 - #7A to #7
- Sewer pipelines that have not been surveyed –
 - T to U
 - U to V
 - W to X
 - X to Y (line may be full of water)
 - Y to Z
 - Office to X
 - Truck Maintenance to Y

3.0 LF-1 SURFACE EVALUATION

Golder evaluated the landfill surface on October 31, 2012. The landfill surface evaluation identified areas where ponding of surface water runoff can occur. These areas are shown on Figure 4 and include:

- Locally depressed areas on unpaved surfaces (compacted gravel, landscaped areas, and bare soil)
- Locally depressed areas on paved surfaces with cracked or broken pavement
- Drain inlets that are clogged or located above surrounding grade

Accumulation of water on top of the landfill surface can increase the rate of water infiltration into the landfill. The surfaces where ponding can occur can be repaired by filling to grade to remove depressions in unpaved areas, filling and then repairing damaged pavement, clearing clogged drain inlets, and reconstructing drain inlets to match the local grade to allow water flow to enter the inlets. Several potential areas of ponding are located in the southern portion of the compost area. This area should be re-graded to promote drainage and remove low spots where surface water runoff can accumulate.

In addition, some potential drainage improvements were identified and are shown on Figure 4. The potential drainage improvements include:

- Grading drainage swales to promote drainage west of the truck maintenance building and in the southeastern area of LF-1.

- Cutting a notch in the speed bump by the site entrance to promote drainage.
- Extending the compacted gravel area to the southern fence line to promote sheet flow runoff and reduce potential for ponding.
- Repair or replace the small equipment shed at the truck wash area, where water can accumulate on the subsided floor.

The identified potential ponding areas will be addressed incrementally. Repaving of the identified concrete and asphalt surfaces will need to occur during dry weather.

4.0 RECOMMENDATIONS

The following recommendations are proposed to reduce the potential for water infiltration in the LF-1 landfill:

- Complete the video survey and evaluation of the remaining subsurface storm drain and sewer pipelines.
- Repair the damaged pipelines that are:
 - Broken and potentially leaking,
 - Clogged with debris and impeding water flow,
 - Collapsed and impeding water flow,
 - Sagging or back-graded and not allowing water flow.
- Periodically (before the start of the next rainy season) inspect and re-evaluate the pipelines that showed minor damage (e.g., warped sections).
- Fill the low areas where ponding can occur on the unpaved surfaces.
- Fill and repave the low areas on damaged pavement (concrete and asphalt) when weather allows.
- Construct drainage swales and make other repairs where identified.
- Periodically (annually prior to the rainy season) inspect the landfill surface for low areas where surface water runoff ponding can occur and make repairs as needed.

Following completion of pipe repairs and surface grading improvements, a report documenting the work that was performed will be prepared and submitted to the RWQCB to show the progress that the site has made toward reducing the potential for surface water runoff to enter LF-1. In addition, the remaining sewer line and storm drain video evaluations will be reported.

Please call if you have any questions regarding this report.

Sincerely,

GOLDER ASSOCIATES INC.



Kris H. Johnson, P.G. 4496, C.E.G. 1763
Associate/Senior Consultant



Peter E. Bowers, P.E.
Senior Engineer

Attachments: Table 1 – Surveyed Pipelines
Table 2 – Damaged Pipelines
Figure 1 – Site Location
Figure 2 – Site Plan
Figure 3 – LF-1 Storm Drain and Sewer Lines

Figure 4 – LF-1 Drainage Review
Appendix A – Example Pipeline Damage Photos

cc: Bryan Clarkson, Recology Environmental Solutions

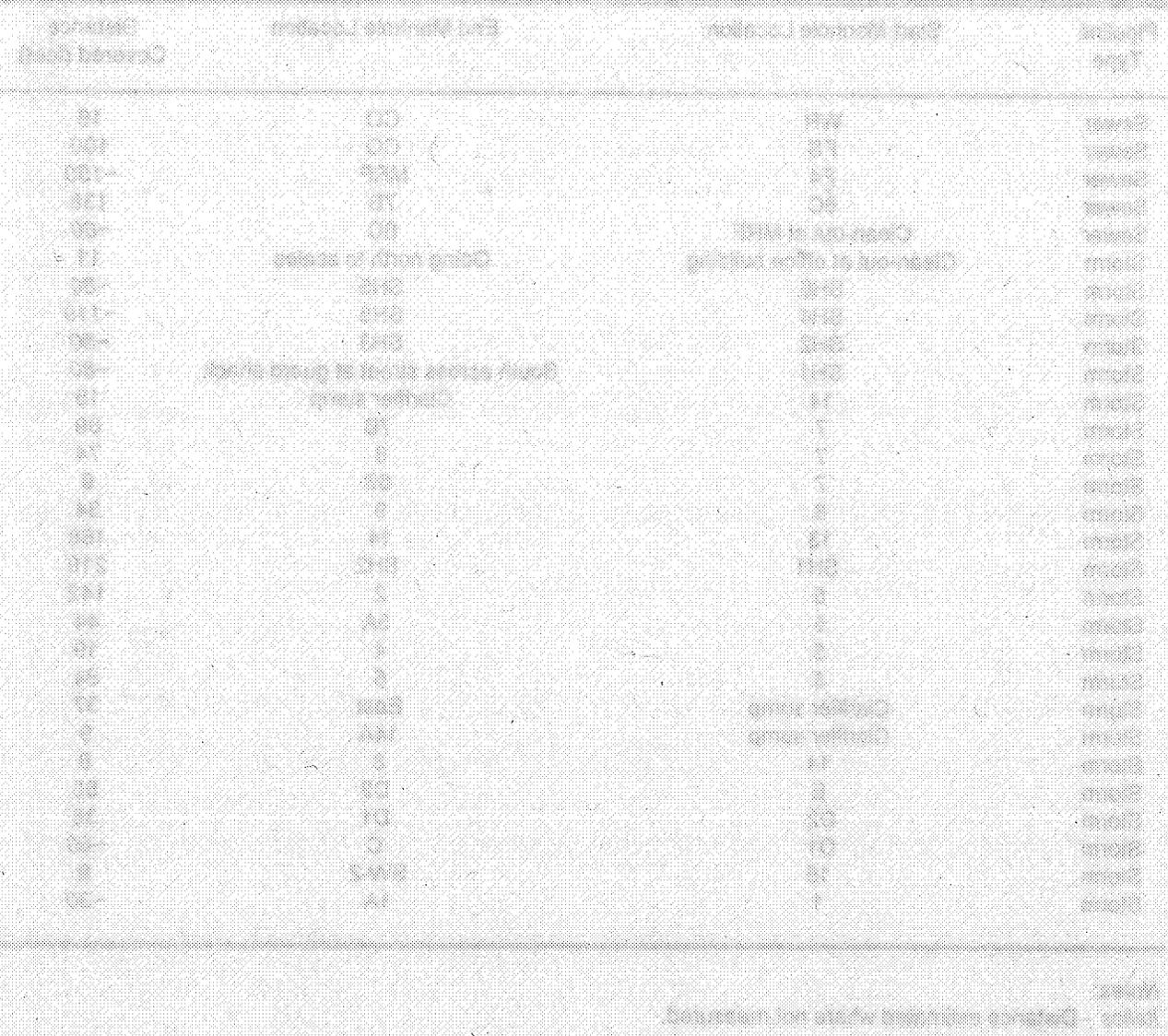


Table 1
Surveyed Pipelines
Recology Yuba Sutter Landfill

Pipeline Type	Start Manhole Location	End Manhole Location	Distance Covered (feet)
Sewer	WR	CO	16
Sewer	FS	CO	100
Sewer	F4	MRF	~150
Sewer	6C	7B	138
Sewer	Clean-out at MRF	6C	~80
Storm	Clean-out at office building	Going north to scales	11
Storm	SH6	SH5	~80
Storm	SH4	SH5	~110
Storm	SH2	SH3	~50
Storm	SH1	South across street at guard shack	~80
Storm	14	Clarifier sump	15
Storm	7	7B	89
Storm	7	8	74
Storm	7	6B	9
Storm	8	9	34
Storm	13	14	168
Storm	SH1	SH2	219
Storm	5	2	142
Storm	5	5A	44
Storm	5	4	19
Storm	5	6	84
Storm	Clarifier sump	East	37
Storm	Clarifier sump	14A	9
Storm	14	8	8
Storm	E	D2	88
Storm	D2	D1	38
Storm	D1	C	~60
Storm	15	SW-2	9
Storm	1	1A	~30

Notes:

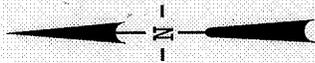
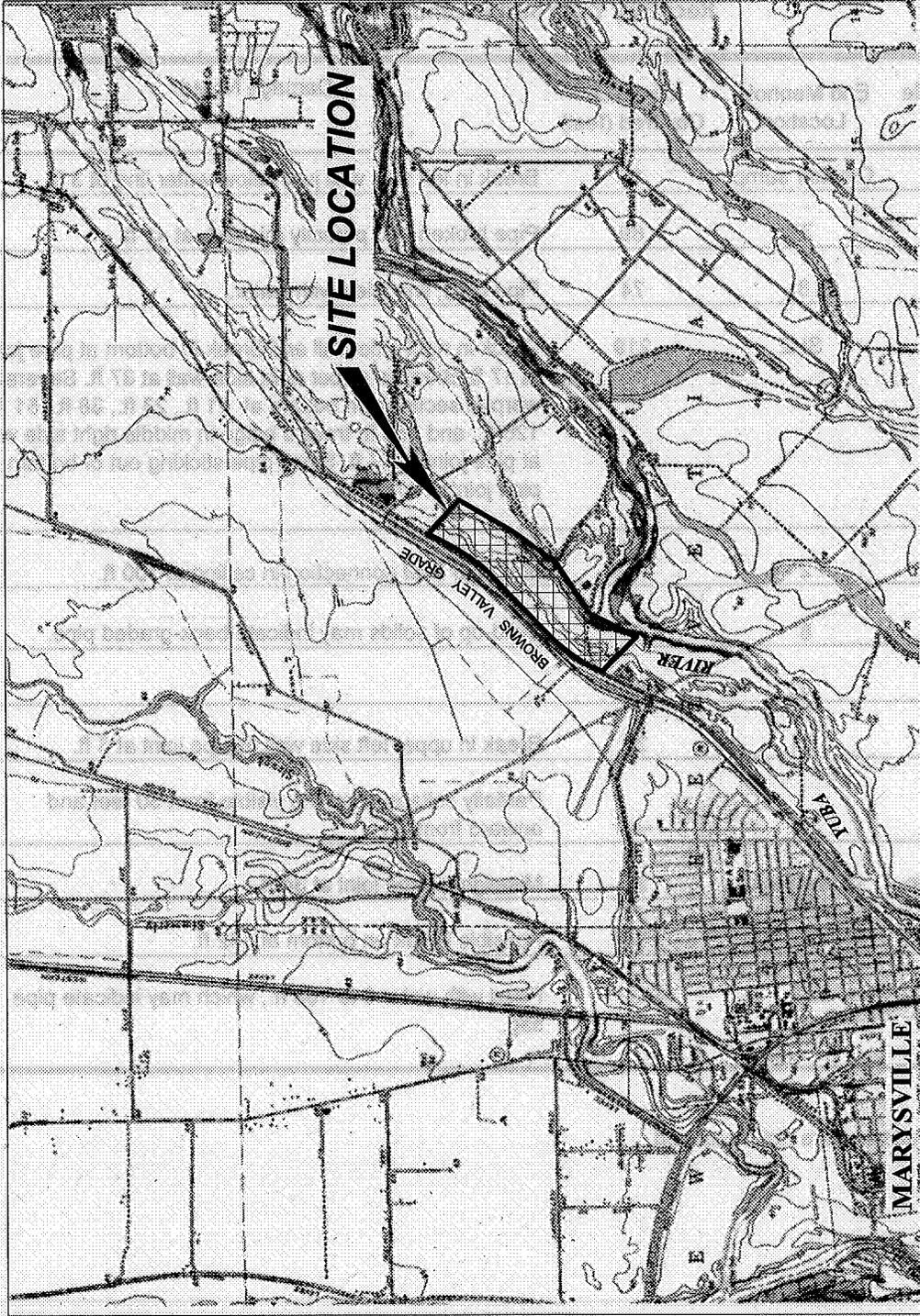
Italics - Distance estimated where not measured.

**Table 2
Pipeline Damages
Recology Yuba Sutter Landfill**

Line Type	Start Manhole Location	End Manhole Location	Distance Covered (feet)	Damage Noted
Storm	14	Clarifier sump	15	Break in left side wall just below water line at 3 ft.
Storm	7	7B	89	Pipe broken and partially missing at 41 ft.
Storm	7	8	74	Pipe belly; line filled with water.
Storm	SH1	SH2	219	Crack in right side wall and break in bottom at pipe joint at 17 ft. Break in upper right side wall at 37 ft. Several warped sections on bottom at 21 ft., 23 ft., 38 ft., 51 ft., 126 ft., and 186 ft. Inward bulge in middle right side wall at pipe joint at 57 ft. Small pipe sticking out of bottom of pipe joint at 178 ft.
Storm	5	2	142	Improper inlet connection in ceiling at 100 ft.
Storm	14	8	8	Build-up of solids may indicate back-graded pipe.
Storm	E	D2	88	
Storm	D2	D1	38	Break in upper left side wall at pipe joint at 3 ft.
Storm	D1	C	~60	Partially collapsed ceiling visible from 30 feet and onward from D1.
Storm	Clarifier sump	Going east	37	Misaligned pipe joint at 34 ft.
Sewer	F4	MRF	~150	Possible break on bottom at 132 ft.
Sewer	6C	7B	138	Filled with water 6 to 108 ft., which may indicate pipe sag.

Notes:

Italics - Distance estimated where not measured.



SCALE: 0 4000 8000 FEET



Base map from USGS 7.5' Quad. Map: Yuba City, CA (PR 1973).



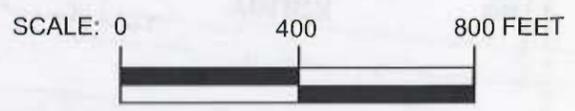
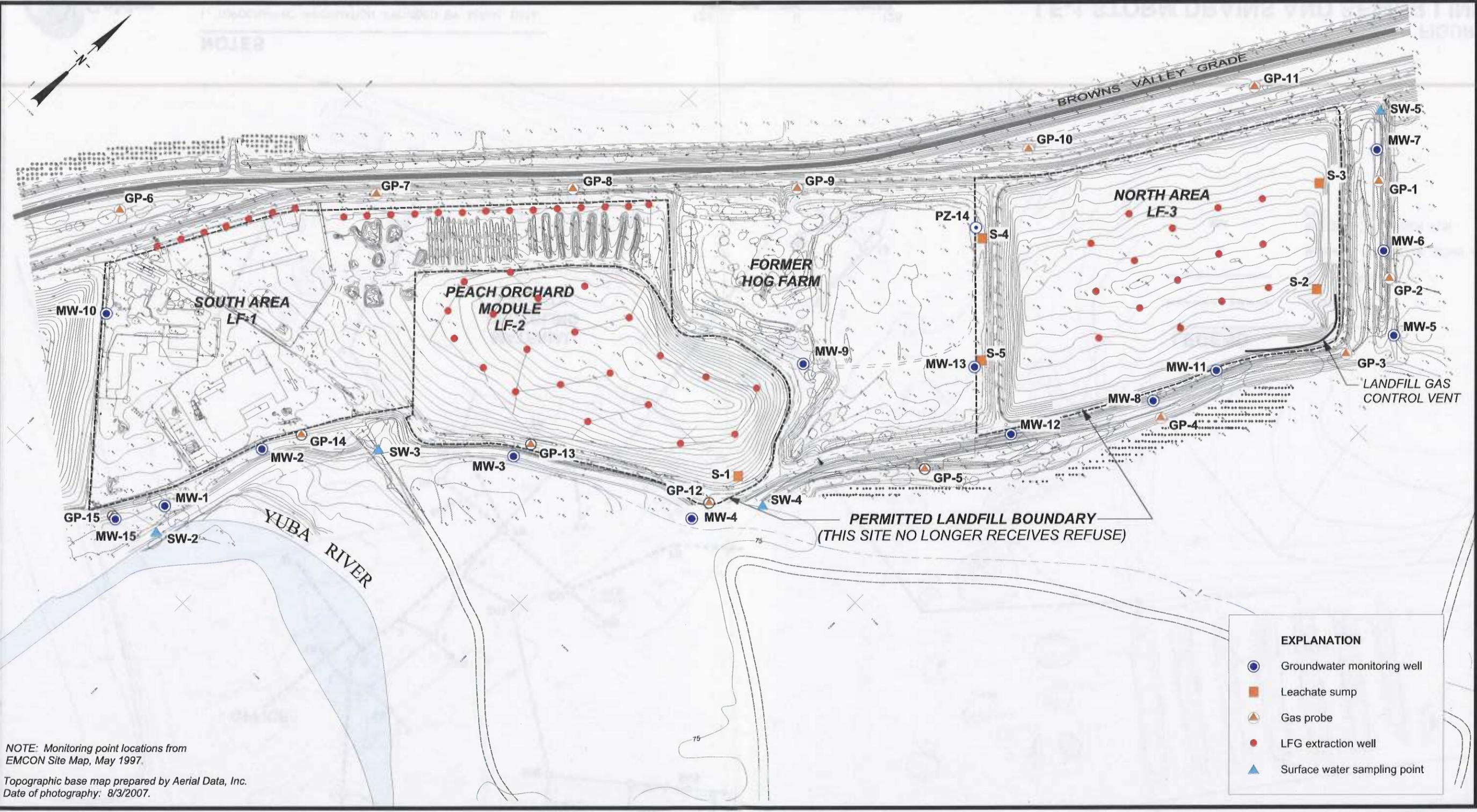
YUBA SUTTER DISPOSAL INC. LANDFILL
 YUBA SUTTER DISPOSAL COMPANY
 YUBA COUNTY, CALIFORNIA

SITE LOCATION

FIGURE

1

PROJECT NO.
 053-7442-08

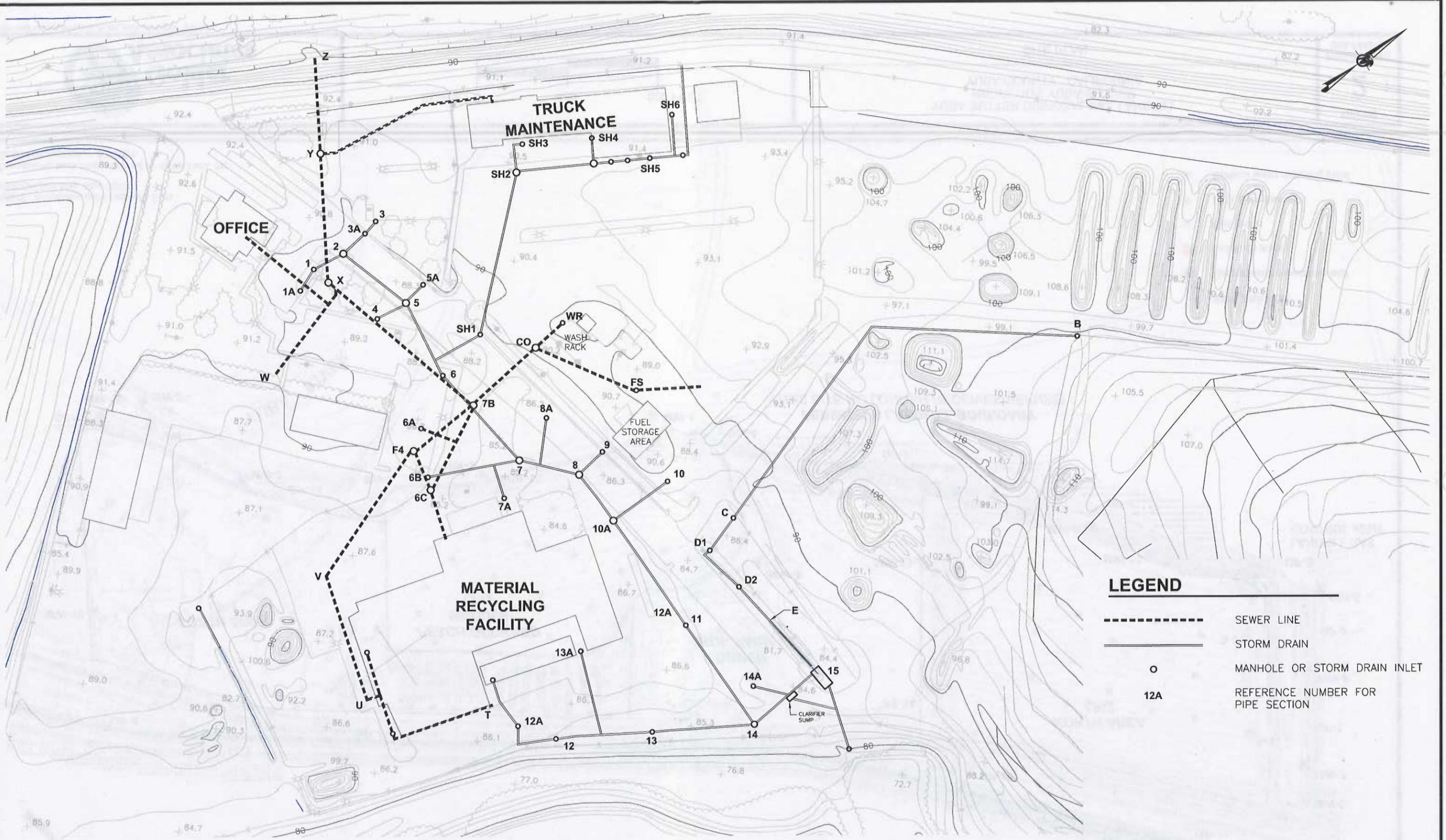


YUBA SUTTER DISPOSAL INC. LANDFILL
RECOLOGY YUBA-SUTTER
YUBA COUNTY, CALIFORNIA

SITE PLAN

FIGURE
2
PROJECT NO.
053-7442-12

C:\Projects\YSDI\053-7442-123 (YSDI Pipeline Pavement Evaluation)\Figures\Pipeline site plan_SV.dwg, 11/15/12 02:20:04pm, kmtroni



LEGEND

- SEWER LINE
- _____ STORM DRAIN
- o MANHOLE OR STORM DRAIN INLET
- 12A REFERENCE NUMBER FOR PIPE SECTION

NOTES

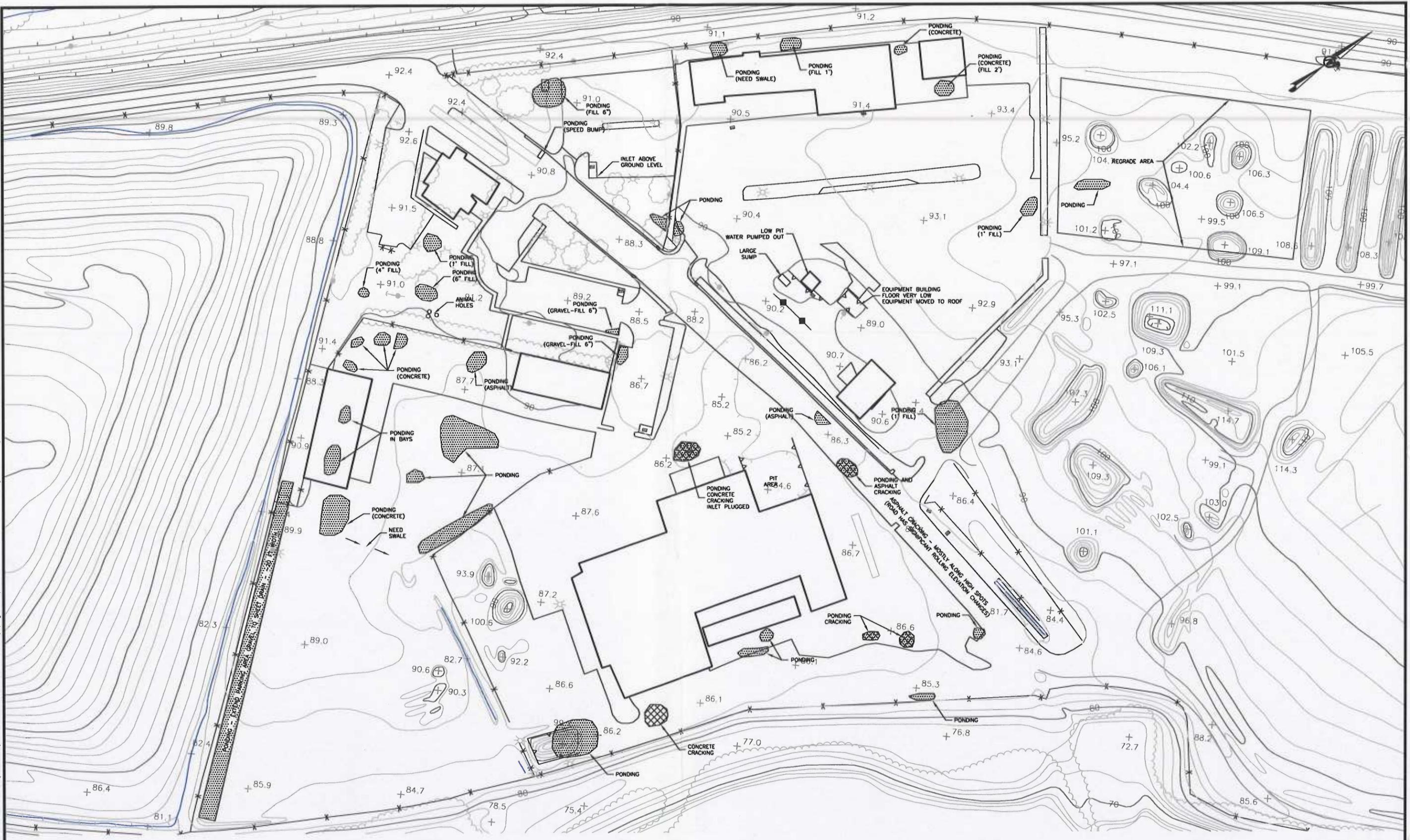
1. TOPOGRAPHIC INFORMATION PROVIDED BY AERIAL DATA INC. DATE OF TOPOGRAPHY: APRIL 30, 2012.
2. SEWER LINES AND STORM DRAINS FROM YSDI SITE PLAN DATED 2/7/90 (REVISED FEB. 2001).



FIGURE 3
LF-1 STORM DRAINS AND SEWER LINES
RECOLOGY YUBA-SUTTER FACILITY



SDI\053-7442-123 (YSDI Pipeline Pavement Evaluation)\Figures\12397495-RYS LF1 Drainage_rev.dwg, 11/14/12 04:24:57pm, kmotroni



NOTES

1. TOPOGRAPHIC INFORMATION PROVIDED BY AERIAL DATA INC. DATE OF TOPOGRAPHY: APRIL 30, 2012.

LEGEND

-  PONDING AREAS
-  ASPHALT/CONCRETE CRACKING AREAS



FIGURE 4
LF-1 DRAINAGE REVIEW
RECOLOGY YUBA-SUTTER FACILITY

Appendix A
Example Pipeline Damage Photos



Appendix A
Example Pipeline Damage Photos



Storm drain from manhole #14 to clarifier sump. Break in left side wall just below water line at 3 ft.



Storm drain from manhole #7 to #7B. Pipe broken and partially missing at 41 ft.



Storm drain from manhole #7 to #7B. Pipe broken and partially missing at 41 ft.



10/4/2012 TO RECOLOGY TUBE 14:08
016FT 13.2

Cracks
FT 16.8 16FT 8.8

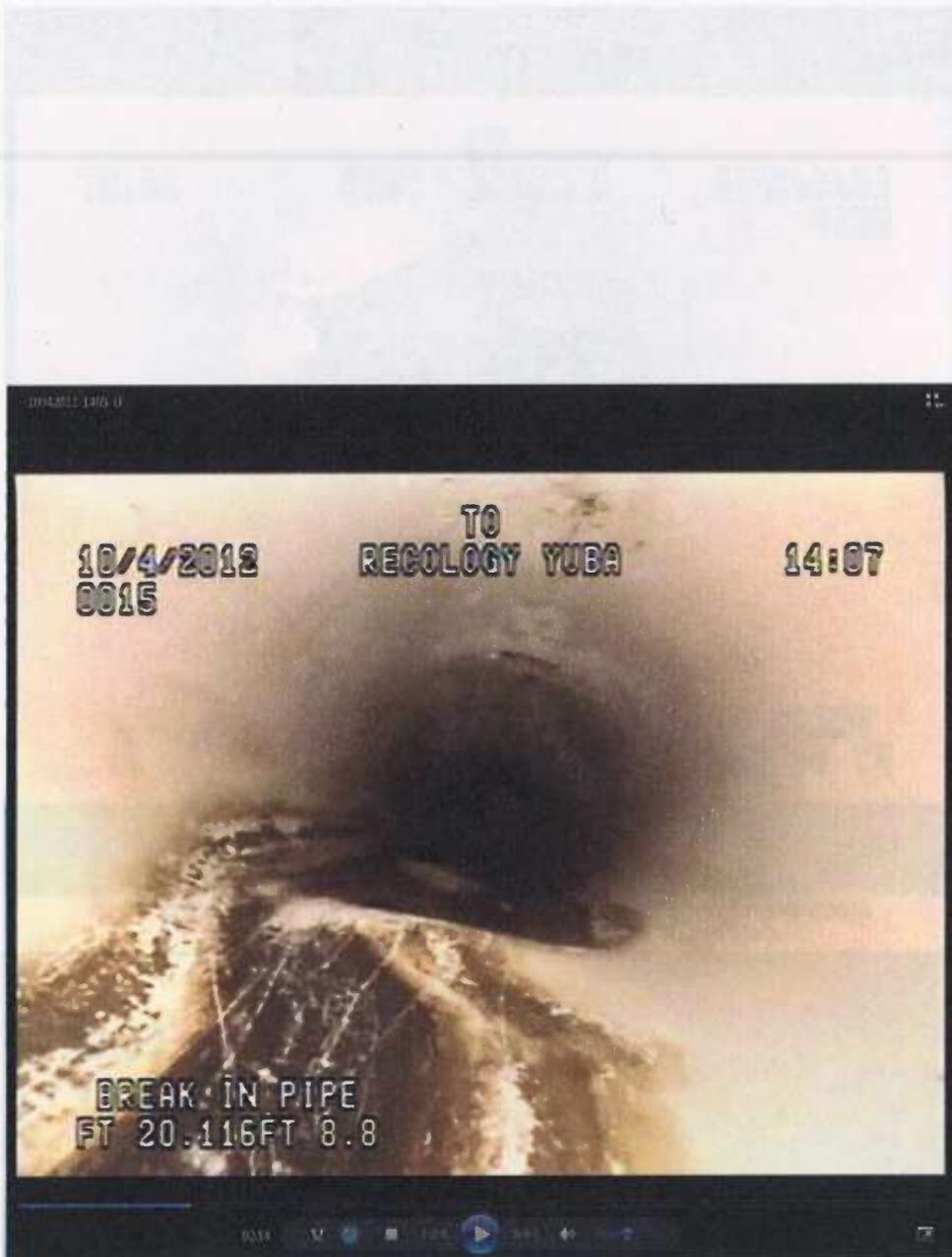
Storm drain from SH#1 to SH#2. Crack in right wall at pipe joint at 17 ft.



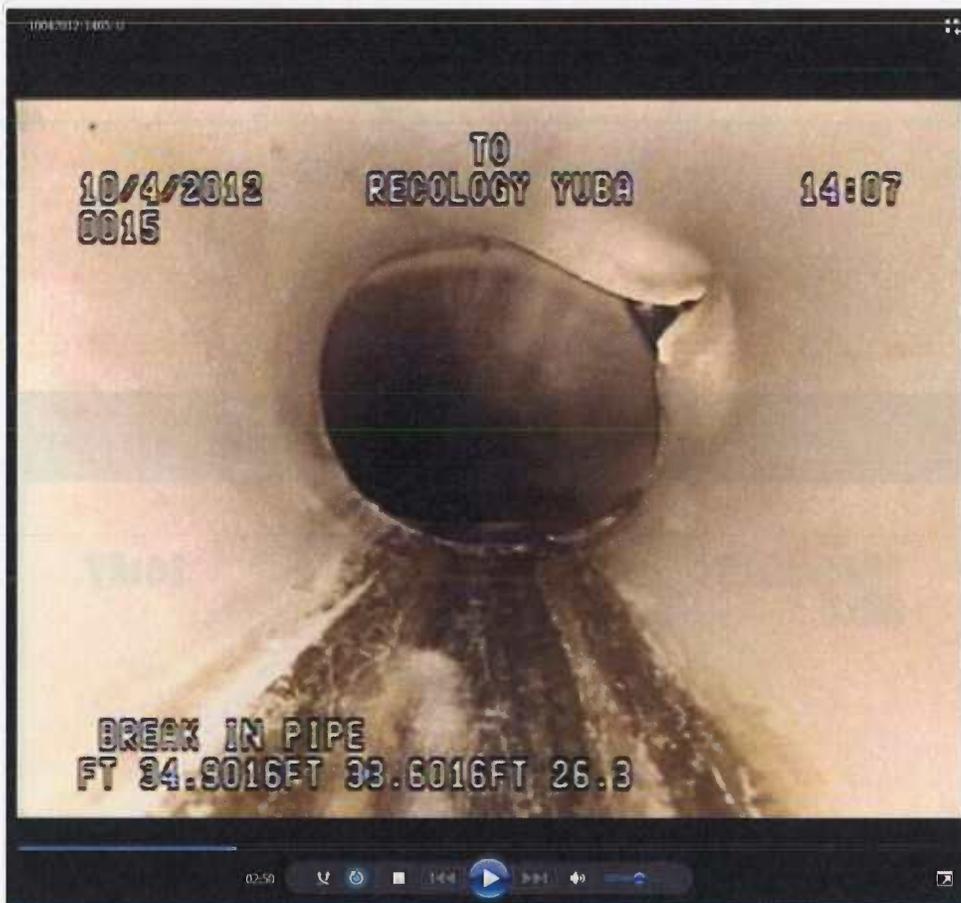
10/4/2012 TO RECOLOGY TUBE 14:08
016FT 13.2

BREAK IN PIPE
FT 16.8 16FT 8.8

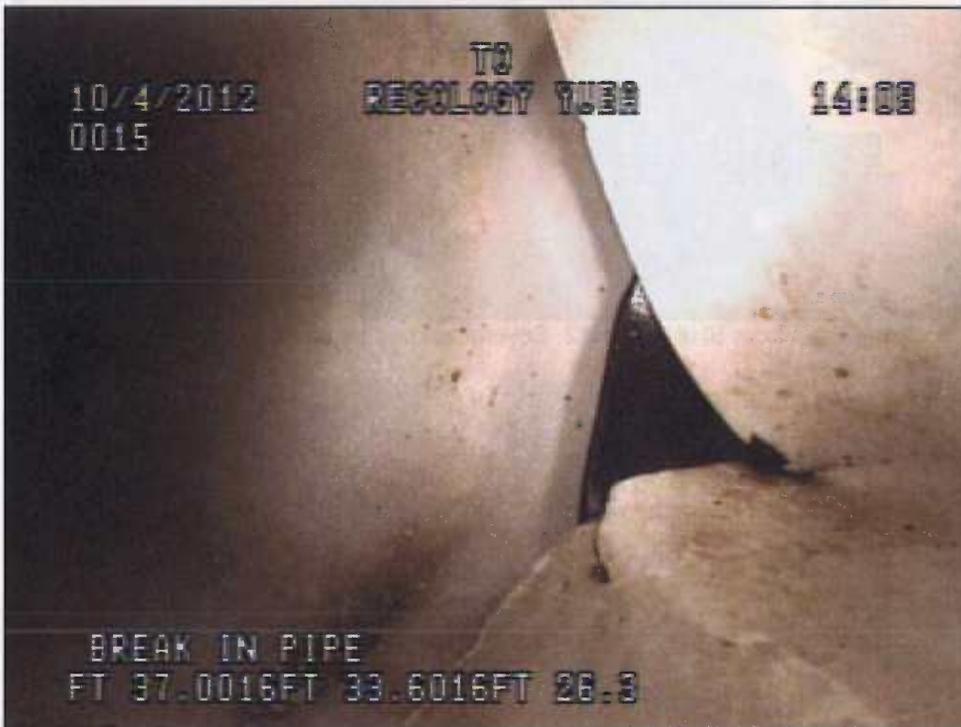
Storm drain from SH#1 to SH#2. Break in bottom at pipe joint at 17 ft.



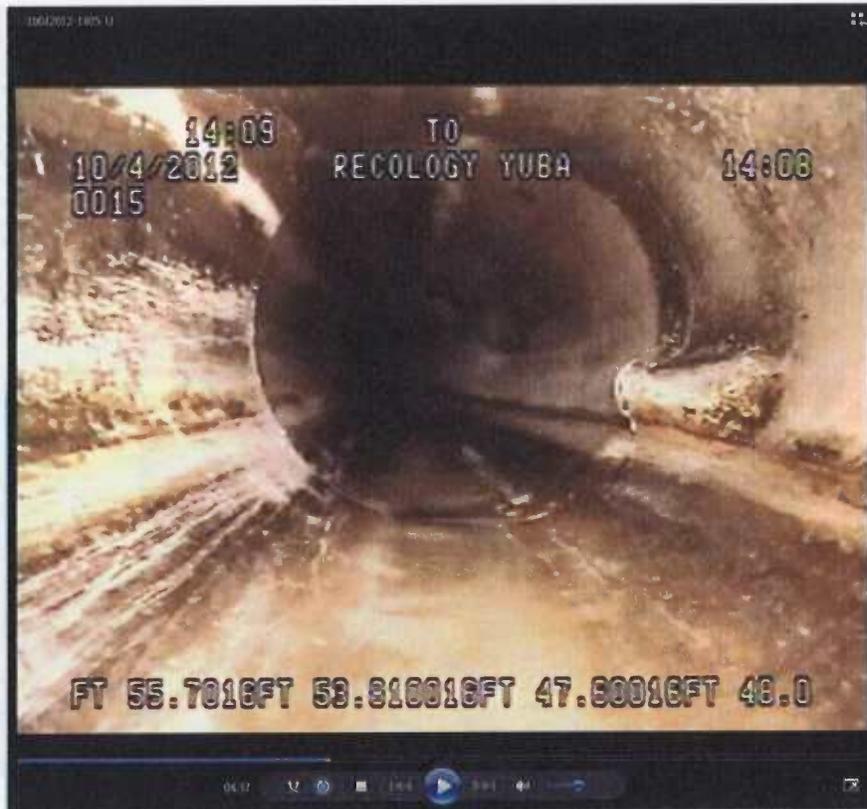
Storm drain from SH#1 to SH#2. Several warped sections on bottom of pipe.



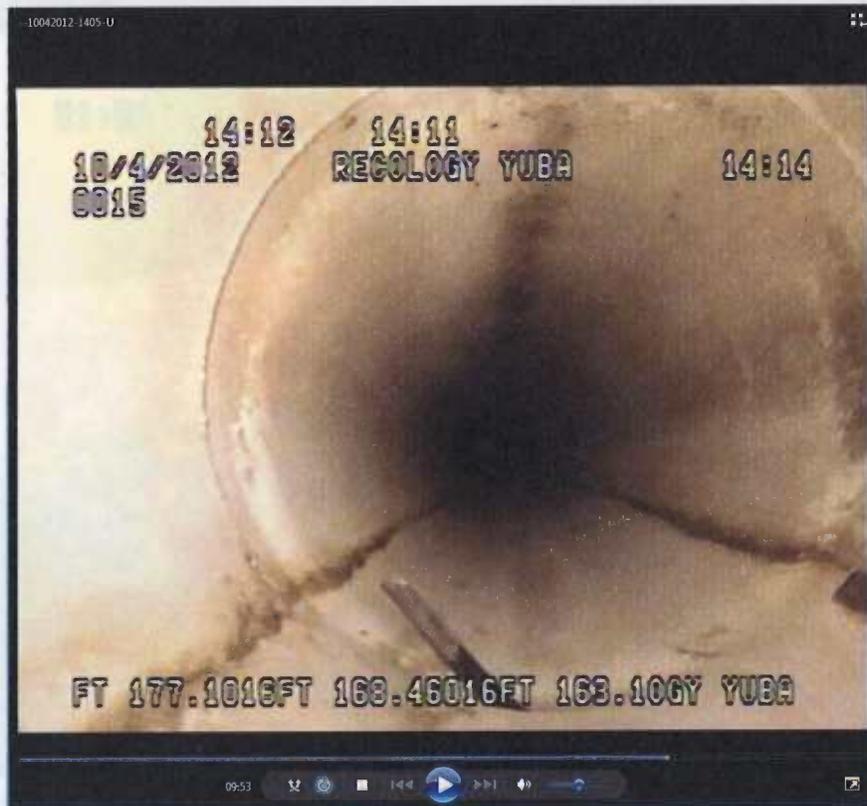
Storm drain from SH#1 to SH#2. Break in upper right side wall at 37 ft.



Storm drain from SH#1 to SH#2. Break in upper right side wall at 37 ft.



Storm drain from SH#1 to SH#2. Inward bulge in middle right side wall at pipe joint at 57 ft.



Storm drain from SH#1 to SH#2. Small pipe sticking out of bottom of pipe joint at 178 ft.



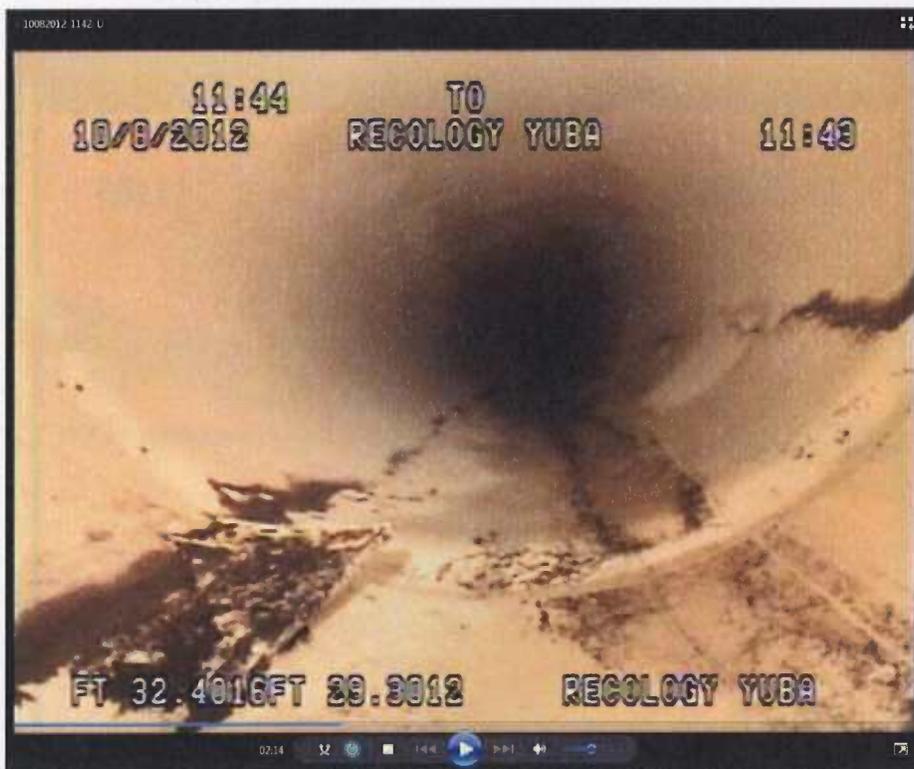
Storm drain from manhole #5 to #2. Improper inlet connection in ceiling at 100 ft.



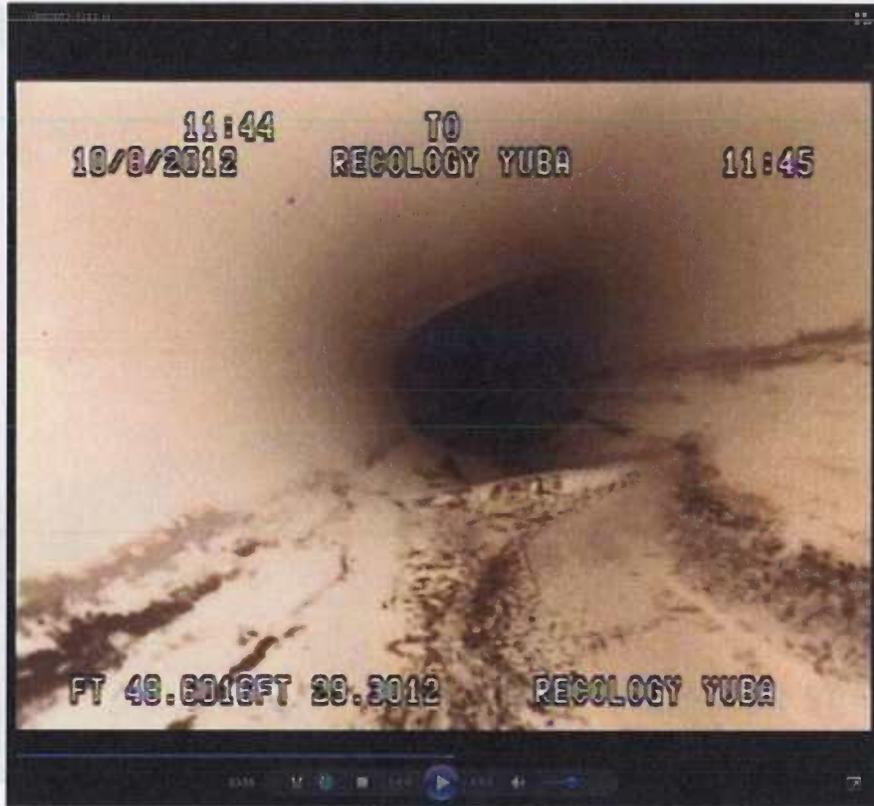
Storm drain from manhole #14 to #8. Build-up of solids may indicate back-graded pipe.



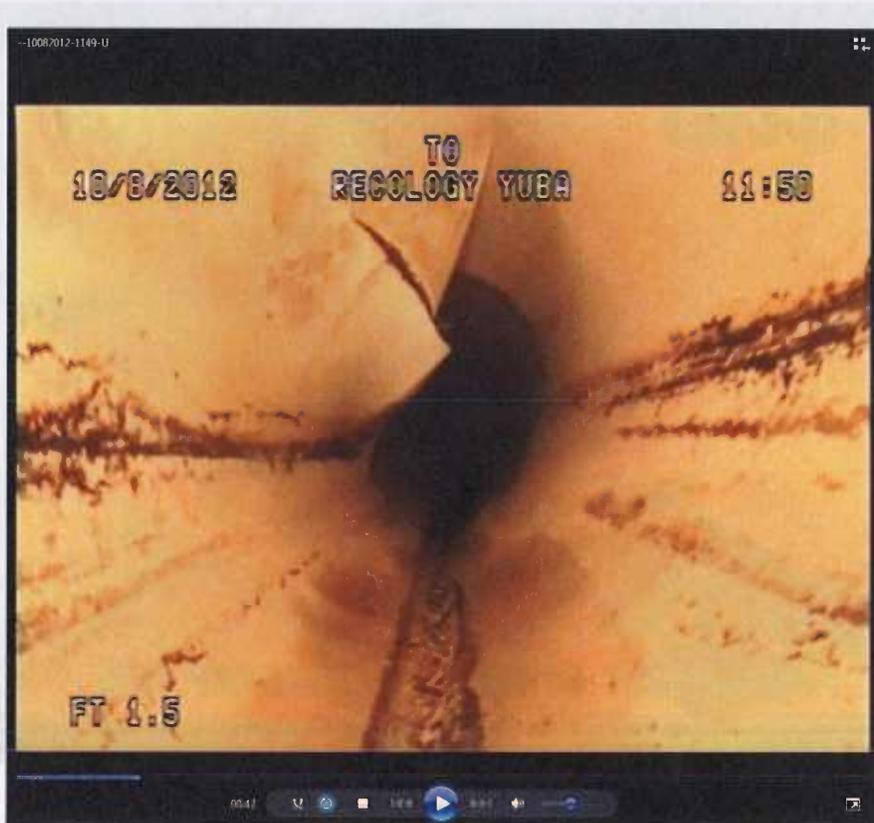
Storm drain from manhole E to D2. Partial ceiling collapse visible from 30 ft. to 70 ft.



Storm drain from manhole E to D2. Possible break on bottom left at 32 ft.



Storm drain from manhole E to D2. Bottom warp at 50 ft.



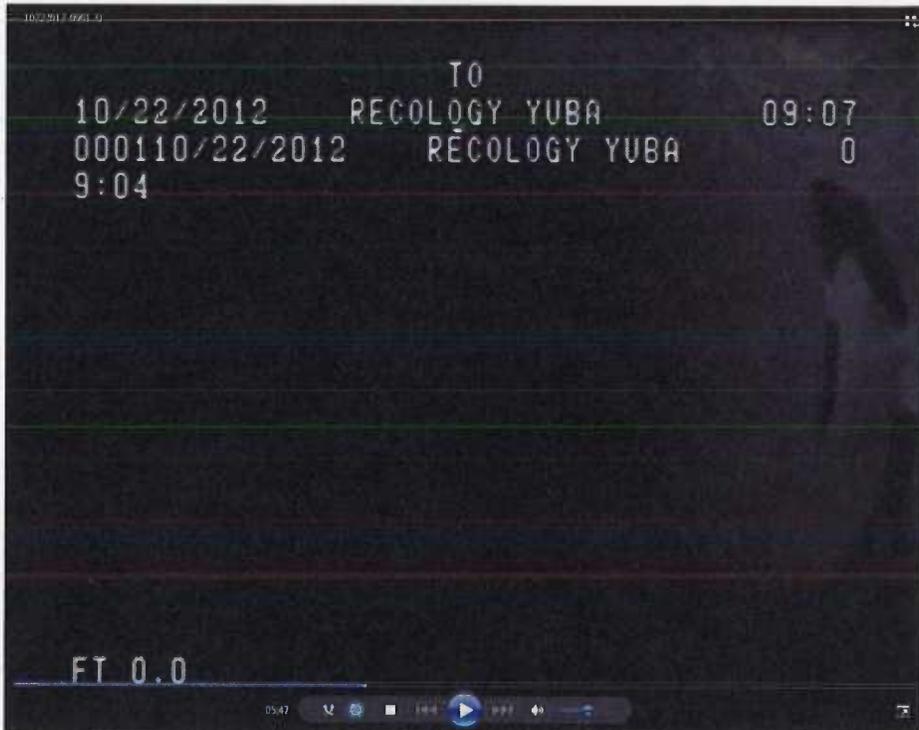
Storm drain from manhole D2 to D1. Break in upper left wall at pipe joint at 3 ft.



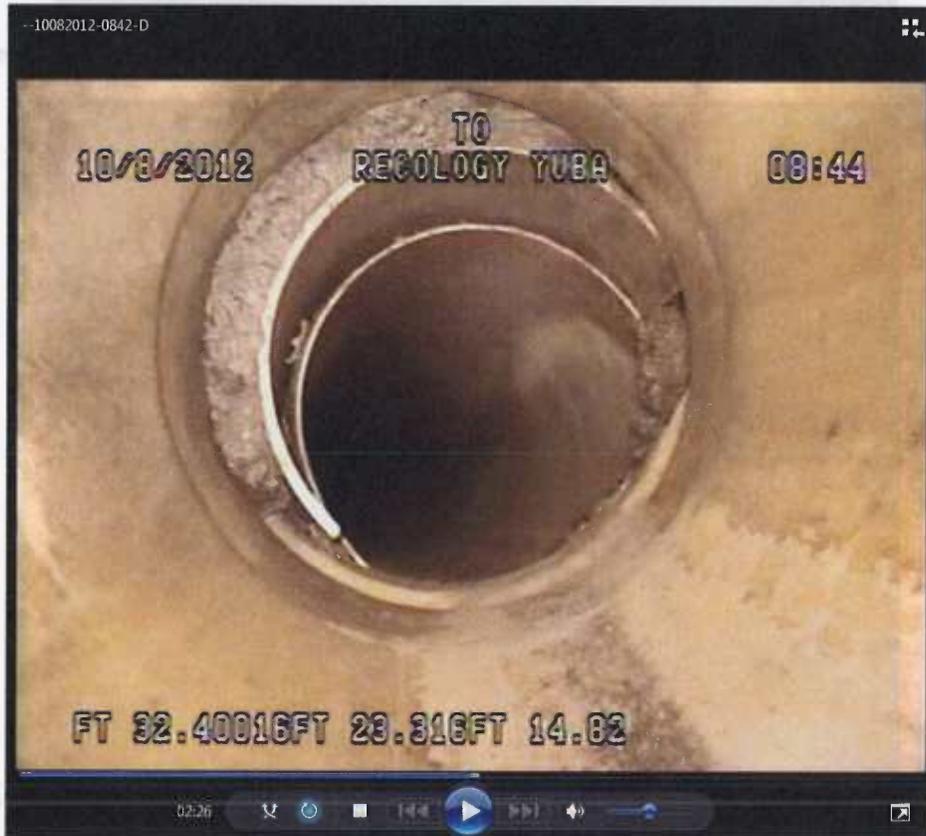
Storm drain from manhole D1 to C. Partially collapsed ceiling from 30 feet and onward from D1.



Storm drain from manhole D1 to C. Partially collapsed ceiling from 30 feet and onward from D1.



Sewer line from manhole F4 going south to MRF. Possible break on bottom at 132 ft.



Storm drain from clarifier sump going east. Misaligned pipe joint at 34 feet.