

Country Club Sewer Maintenance District Final Facilities Assessment Report



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Executive Summary

Bureau Veritas North America, Inc.'s (Bureau Veritas') division of Public Works Services was retained by the Imperial County Department of Public Works, acting on behalf of the Country Club Sewer Maintenance District (CCSMD), to evaluate the condition of the wastewater conveyance facilities serving CCSMD. The facilities that were evaluated included gravity sewer mains, sewer manholes, a wastewater pump station, and a sewer force main. CCSMD facilities include the following:

- Approximately 8,830 feet of 8-inch vitrified clay pipe (VCP) and 1,450 feet of 10-inch polyvinyl chloride (PVC) gravity sewer main
- 34 manholes, identified as MH 1 through MH 11, MH 13 through 33, MH 12 North, and MH 12 South
- 9,963 feet of four-inch PVC sewer force main
- Duplex pumps and motors housed in a fiberglass enclosure above the wet well of the pump station

The gravity sewage collection system serving CCSMD was found to be in poor condition due a lack of regular maintenance and large amounts of debris found in the system. Most of the system had to be pumped or cleaned out before being inspected. The pipeline segments that were cleaned and inspected were in generally in good condition with the typical minor issues such as cracked pipes, root intrusions, and offset pipe joints. The original sewer pipelines were installed with slopes and sags that are too flat to be self-cleaning; it is not economical to completely remedy this issue and needs to be addressed through a long-term maintenance program. The sewer system also has inherent problems with maintenance access, as most of the manholes are located in the front and back yards of residences. A preliminary estimate of the capital repairs required for the collection system is \$450,000, including contingencies.



Vector truck cleaning operations.



24 of the 34 total manholes within the CCSMD system were inspected and were found to be in fair to very poor condition, depending on location. The remaining manholes were not found, buried, or otherwise inaccessible when the inspections were performed. The lower, base portions of most manholes were found to be in good condition, with the upper portions suffering from concrete corrosion, damaged grade rings, poorly fitted frames and covers, and obstructions blocking access to the manhole opening. Most of the manholes had concentric cones and steel rungs, features no longer considered acceptable for safety reasons. A total of \$460,000 in capital improvements is recommended for the CCSMD manholes, including contingencies.



Manhole 5 showing corrosion.

The pump station was last upgraded in 2004, and is considered to be in fair condition. The duplex motors, pumps, controls, wet well, and enclosure were evaluated and found to be in acceptable condition. Relatively minor upgrades to the pump station are recommended, totaling approximately \$20,000 with contingencies.

The sewer force main from the pump station was evaluated and found to be undersized from a hydraulic perspective, not allowing the pumps to function in their optimum operating range. The existing force main has also ruptured at least three times in the past several years, most likely due to the marginal strength rating of the original pipe, poor quality control during the initial construction, heat degradation of the pipe material, and pressure spikes from the newer, more powerful pumps. A preliminary estimate of \$740,000 in improvements, including contingencies, are recommended for the sewer force main, the bulk of which is replacement of the existing four-inch force main with a six-inch pipeline.



Existing 4-inch force main pipe removed from the trench.



Background and Overview

The land around the Barbara Worth Country Club was developed in the early 1970s, and included single family residences and a number of duplexes. The country club and the golf course were the only commercial properties in the CCSMD. The CCSMD was originally served by a collection system conveying wastewater to a small package treatment plant located on Barbara Worth Drive, which treated the effluent and discharged it into the Barbara Worth Drain. It is not known to what level the effluent was treated at that time. This arrangement proved unworkable over the long term and, in 1974, a new 10-inch gravity sewer main was constructed and connected to a new wastewater pump station located on Holton Road near the Barbara Worth Drain. The existing treatment plant was then removed from service. Concurrently, a 1.9-mile force main was constructed from the pump station north along Imperial Irrigation District and County rights-of-way to a manhole at the intersection of Kamm Road and Gowling Road. At this manhole the effluent was discharged into the City of Holtville's outfall sewer and conveyed west via gravity to the City's wastewater plant for treatment.



Wastewater pump station



Barbara Worth Drain



Barbara Worth Country Club golf course



Pipeline Inspections

Gravity sewer pipeline inspections were initially performed from September 24 to September 27, 2012 by Affordable Pipeline Services. The inspections were completed using a Cues Inc. OZII Pan-Tilt Optical Zoom II camera mounted on an Ultra Shorty tracked, self-propelled camera transporter. The camera was connected via video cable to a mobile CCTV van that was specially equipped for inspecting underground pipelines.



Image taken directly from CCTV camera shows an 8-inch pipeline between MH 19 and 21 that is 25%+ full of silt and debris.

Initially access to the system was difficult because of several factors. It was quickly determined that portions of the system were not constructed according to the plans; many manholes were buried under dirt or asphalt; several manholes were located within private yards; and other manholes were not found at all. Several of the manholes were later found by using a tracking device attached to the video camera, which could then be electronically located from the surface. Other manholes could not be located using the camera without clearing the main of debris, nor could they be located on the surface with a metal detector because of the access issues described above.

Portions of the sewer system as constructed did not match the record drawings provided by the County, particularly along Murray Drive. The residences on the east side of Murray Drive appear to be served by a sewer main running through their backyards along the west side of the golf course. Pending full cleaning, inspection, and additional investigation of the system it is still not clear precisely how the block bounded by Murray Drive, Barbara Worth Drive, and Country Club Drive receives sewer service. MH 28 has a small four-inch pipe coming from the west, the direction where MH 33 should be located;



Video inspection operations at MH 26. Note the location of the manhole and sewer line at the rear of the van within private backyards; this is one of the more accessible locations.



however, a four-inch main is totally inadequate to serve the 10 residences within that block. MH 33 was not found during the inspections, but it is believed to be located in the backyard of 2093 Murray Drive. This block may be served by wye lateral connections across Murray Drive to the east; via a main paralleling Murray Drive along the rear property lines and connecting to MH 28; or connecting to the newer 10-inch sewer north of Barbara Worth Drive. No trench cuts were observed in Barbara Worth Drive to support this latter alternative.

When the actual inspection effort began on September 24, it was quickly apparent that the pipelines were suffering from a lack of regular maintenance. It was not possible to get the camera into many of the sewer mains due to extensive accumulations of silt, dirt, grease, and other debris. Nearly all of the sewer mains were found to be as much as 90% full of silt and debris; others had blockages from large clumps of grease and tree roots; and others were surcharged with effluent, preventing inspection. Imperial County Department of Public Works (ICDPW) staff arranged to pump out the surcharged mains between MH 1 and MH 5 for inspection, revealing that they were also mostly blocked by debris. Attempted flushing of the lines with a water truck only served to move the debris to the next section of pipe. Following this effort a solid clump of grease and debris was observed in MH 1 that was approximately 6 inches by 6 inches by 24 inches and is illustrative of the debris issues with the system.

As a result of the poor conditions, only 2,703 feet of the 12,000 feet of gravity sewer were inspected during the initial mobilization. Only 6 of the 34 gravity sewer main segments were initially inspected due to debris problems. The portions of the VCP that could be inspected were generally in good condition, with the typical cracks, misaligned/open joints, sags, small roots, projecting laterals, and other relatively minor issues. Unusual conditions that were found include a massive taproot intrusion near MH 25; sharp horizontal bends in the main south of MH 31 that prevented inspection by the camera; and undesirable drop manhole plumbing at MH 31.

A second mobilization to the site on October 25 was accompanied by a Vactor truck, which was used to clean the debris out of the north section of the system along Barbara Worth Drive to allow for inspection. With camera access to the system the lines could not only be inspected but several additional buried manholes were located, including MHs 7, 11 and 29. It should be noted that inspections were not performed on the newly located manholes. Once the debris was removed the pipelines were found to be in generally good condition. A four-inch lateral coming from the west into MH 28 was also inspected by push camera as far as the centerline of Murray Drive. It is presumed, but not confirmed, that this pipe continues west to MH 33 as noted above.



The CCSMD system has several inherent conditions that contribute to long-term maintenance issues. Although the system has not been surveyed it appears that the pipeline slopes are all less than 0.5 percent, and it is believed that most are in the 0.2 to 0.3 percent range. Several sags and adverse slopes were noted in the inspections. These very mild slopes do not provide for cleansing velocities even at peak flows, so the solids are deposited in the pipelines and are unmoved by subsequent flows, even during peak periods. Eight-inch sewer lines should be sloped at a minimum of 0.4 percent to provide cleansing velocities at peak flow rates (refer to Appendix B for the CCSMD Sewer Study estimated flows and velocities).



Vactor truck cleaning operations at newly located MH 7 within the golf course. Note the size of the equipment required to efficiently maintain the system.

The pipeline sections that cross the golf course were found to be nearly full of silt that prevented access for inspections. The heavy irrigation of the golf course can carry fine material from the soil into the sewer pipeline through small cracks or open joints, eventually filling the pipe with silt. Replacing the entire gravity collection system at the proper minimum slope is not economically feasible, and would in turn require replacement of the pump station and likely the force main. Instead, CCSMD should institute a program of regular annual maintenance to address these issues, as well as a capital repair program to address the existing operational issues that have been identified.

Right-of-way preservation and maintenance access is also a major issue with the CCSMD system. The existing sewer mains are located in the parkways of the streets - which is not desirable as most homeowners consider that strip as part of their front yards - and along rear property lines, which places them in resident's backyards. No maintenance or utility easements were noted in the documents that were reviewed; it appears maintenance access rights are prescriptive within CCSMD. The backyard sewer locations are very problematic as maintenance access for the proper equipment (i.e., a large Vactor truck) is extremely difficult. In many locations the residents have constructed patios, landscaping, building structures, walls, and fences over the sewer mains and manholes, apparently without knowledge of the facilities' presence or regard for maintenance access. Some of the most serious examples are a large tree



planted directly over the main north of MH 25, which has created a taproot intrusion almost blocking the main, and an enclosed patio structure built over the main behind a residence on Anderholt Road.

In addition to the siltation problems noted above, grease clogs were found to be a recurring issue within the system. Cooking grease, fats, and oils discharged into the system eventually congeal and collect other debris, forming large, solid clumps that block flows. Residents can be educated to avoid discharging large quantities of grease into the sewer, and any commercial kitchens connected to the system should have a grease trap installed.

Another maintenance issue related to the pump station is that the float switches in the wet well are set so high that the collection system was surcharged or backwatered more than 2,000 feet, all the way up to MHs 5, 6, and 28. This is also an undesirable situation, because as noted previously it causes the solids to drop out of suspension and be deposited in the pipelines. It also causes floating debris, including grease, to congeal and clog the pipeline rather than be conveyed to the pump station. The system cannot be properly inspected or maintained when it is under a constant surcharge.

Video logs from the pipeline inspections are included as Appendix F, and the related digital files are included on compact disks in the rear pocket of this report.



Location of MH 25 within a private patio, as located by the video camera with a tracking device.



Manhole Inspections

Bill Grigsby, PE, performed inspections on 24 of the 34 manholes within the CCSMD system on September 24 and September 25, 2012. Following the initial reconnaissance, one additional manhole was located on the golf course between manholes 11 and 12, so they are delineated as manholes 12 North and 12 South. Most of the manholes are relatively shallow, at less than eight feet deep, with a 24-inch diameter manhole opening expanding to 48-inches at the base. Most manholes appear to have concentric cones and steel rungs for access, features not typically seen in



The worker is holding the probe at the center of MH 29, which is in a private backyard underneath the decorative wall on the left and the wrought iron fence on the right.

current installations for safety reasons. Several of the manholes were located within the yards of private residences (MHs 24 through 27 and MHs 29 through 33); some were accessible for inspection while many others were not. ICDPW management asked that Bureau Veritas inspectors not enter private yards to perform inspections.

Many other manholes are located in the parkway of the public street, which residents typically consider part of their front yard. As a result, residents have placed soil, paving landscaping, or decorative walls over the tops of the manholes. After several days of work at the site, Bureau Veritas, Affordable Pipeline Services, and ICDPW crews were able to locate all manholes except MHs 31 and 33. MH 31 is believed to be located in the backyard of 2068 or 2070 Country Club Drive; it was not able to be located by tracing the tractor camera because of sharp horizontal bends in the pipe to the south and the lack of camera access to MH 30 immediately to the north. MH 33 is suspected to be located in the backyard of 2093 Murray Drive and was not accessible to the tractor camera or locating crews for similar reasons.

Crews were not able to obtain access to MHs 10, 11, 25, 27, 29, and 30 for inspection as they are located in private yards or are otherwise obstructed by private improvements. Typical situations include MHs 11 and 25, which are covered by homeowner's brick patio paving; MH 10, which is behind a small retaining wall under 1 to 2 feet of earth in the front yard of 1345 Barbara Worth Drive; and the most



extreme case of MH 29, which is under a small decorative wall and a wrought iron fence in the backyards of 2090/2092 Murray Drive.

As with the sewer mains, the manholes are also suffering from lack of regular maintenance. The interior surfaces of many of the manholes were originally lined with a bituminous coating. This coating has now largely flaked and peeled off to such a point that it is ineffective, exposing the concrete rings and cone to corrosion from hydrogen sulfide sewer gases. Many cases of concrete corrosion were observed in the field due to the trapped gas, high temperatures, and confined atmosphere. Many of the manhole troughs and shelves were deteriorating in a similar manner.



Typical concrete corrosion found within the cone of many of the CCSMD manholes. The concrete cone on the right should be smooth with no exposed aggregate, similar to the section below.

Rebar was observed in broken grade rings during the manhole inspections, indicating that the manhole rings and cones are precast reinforced concrete. As no exposed rebar or evidence of rebar corrosion was observed inside the manholes it is probable that all manholes inspected can be rehabilitated in place, as opposed to being completely replaced. Bureau Veritas recommends replacing and coating all manhole shelves, troughs, and rings internally with a corrosion resistant coating such as epoxy.

Manholes 8 and 15 had nonstandard channels that were originally constructed with such a tight angle that inspection and maintenance of the connecting sewer main is difficult to perform with modern equipment. These nonstandard angles also create increased flow resistance and increase the need for maintenance. Bureau Veritas recommends reforming the channels to reduce flow restrictions and improve accessibility for inspection and maintenance.

Other maintenance and repair issues include some damaged and/or detached manhole frames and covers (a few were replaced during the field work). These conditions pose a public safety concern and allow vandals to deposit debris in the system. A total of 21 manholes are recommended to be either raised (15) or have repairs made (6) to the frame and cover as a first order of work. Adjusting the buried manholes will make them accessible to perform other work needed on the system. Manholes with unsecured



frames should also be repaired.

At least four different sizes of manhole rings and covers were observed during the inspections. Bureau Veritas recommends using one standard size manhole frame and cover throughout the system. A standard size for manhole frames and covers increases maintenance efficiency and reduces storage of repair parts.

Manhole locations (northings and eastings) were collected with a Garmin Etrex Vista HCx handheld GPS unit with a <10 meter 95% degree of accuracy, and locations are considered approximate. We recommend surveying the location, rim, and invert elevations for all manholes in the system as one of the first orders of work in the rehabilitation of the system.

Photographs from the manhole inspections, such as those shown below, are included on compact disks in the rear pocket of this report, and the field manhole inspection logs are included as Appendix E.



Manhole 12 North



Manhole 28



Manhole 13



Manhole 9



MANHOLE (MH) SUMMARY

MH No.	Northing	Easting	Depth (ft)	Condition Issues
1	32° 48.231'	115° 25.371'	10.5	FC
2	32° 48.236'	115° 25.304'	10.5	FC
3	32° 48.242'	115° 25.234'	9.5	
4	32° 48.247'	115° 25.166'	10	FC
5	32° 48.237'	115° 25.166'	8	FC
6	32° 48.231'	115° 25.164'	Unknown	NI, BUR, ADJ
7	32° 48.188'	115° 25.151'	Unknown	NI, BUR, ADJ
8	32° 48.177'	115° 25.125'	5.5	CH
9	32° 48.185'	115° 25.098'	5	
10	32° 48.209'	115° 25.069'	Unknown	NI, BUR, ADJ
11	32° 48.167'	115° 25.147'	Unknown	NI, BUR, ADJ
12N	32° 48.132'	115° 25.091'	6	
12S	32° 48.110'	115° 25.059'	6	
13	32° 48.079'	115° 25.008'	9	FC, CGR
14	32° 48.037'	115° 24.944'	7	
15	32° 47.995'	115° 24.871'	6.5	ADJ, CH
16	32° 47.960'	115° 24.900'	6	
17	32° 47.964'	115° 24.913'	5	
18	32° 47.959	115° 24.956'	4	ADJ
19	32° 47.925'	115° 24.895'	5.5	
20	32° 47.922'	115° 24.929'	5	
21	32° 47.881'	115° 24.890'	6	
22	32° 47.848'	115° 24.885'	5	
23	32° 48.002'	115° 24.858'	6.5	ADJ
24	32° 47.986'	115° 24.834'	6.5	ADJ
25	32° 47.928'	115° 24.838'	Unknown	NI, BUR, ADJ
26	32° 47.862'	115° 24.831'	4.5	ADJ
27	32° 47.800'	115° 24.834'	Unknown	NI, BUR, ADJ
28	32° 48.235'	115° 25.196'	8	CC, FC
29	Not Available	Not Available	Unknown	NI, BUR, ADJ
30	32° 48.140	115° 25.284'	Unknown	NI, BUR, ADJ
31	Not Available	Not Available	Unknown	NF, NI, ADJ
32	32° 48.033'	115° 25.279'	6	
33	Not Available	Not Available	Unknown	NF, NI, ADJ

Manhole Condition Codes:

NF = Manhole Not Found
 BUR = Manhole Buried
 FC = Frame/Cover Needs Repair
 CGR = Replace Cone/Grade Rings

NI = Manhole Not Inspected
 CC = Concrete Corrosion
 CH = Manhole Channel Needs Repair
 ADJ = Adjust MH to grade





Pump Station Inspections

The inspection and evaluation of the pump station was performed by Carl Sepponen, PE, on September 25, with the assistance of John Burnworth of ICDPW. The Country Club pump station features duplex Gorman Rupp model T4A3-B suction-lift sewage pumps powered by two (2) 1740-RPM electrical motors with belt drives and controls housed in a fiberglass enclosure. From the information available, the current pumps and motors were installed as an upgrade in 2004 to a 1994 Gorman Rupp pump station. This is at least the second replacement pump system installed at this location since the pump station and wet well were originally constructed in 1974. The newer 2004 pumps continue to use the original wet well, inlet piping, force main, and electrical service.



Performance of pump station data collection and operational tests. The pump station was last upgraded in 2004 and was found to be in acceptable condition, with only minor modifications required.

The serial numbers of Pumps #1 and #2, respectively, are 1292436 and 1292435. The Pump Control Panel is drawing number D-4-02729, S/N 0-1502-AM. The panel is rated for 240-volt, 3-phase, 3-wire, 60-HZ. The sheaves (pulleys) on the motors are nine inches in diameter, and the sheaves on the pumps are 11 inches in diameter. Note that this data differs from that described in the operations and maintenance manual for the pumps installed in 1994, which was provided by ICDPW.

According to the Gorman-Rupp Pumps factory, the basic pumps were manufactured and shipped to Mexicali, Mexico, in 2004 for assembly with their motors and appurtenances. Further information was not available from the factory. Information regarding the pumps was requested from the Mexican factory in Mexicali, but it was not available. Precise information regarding the pump design point (flow and head) was not available. Further, the exact pump RPM is not known, but it can be estimated from other parameters. These motors and pumps are more powerful than previous units at the site, to the point that they may be contributing to distress and failures of the original force main, which was not upgraded.



The wet well consists of precast concrete manhole sections that are six feet in diameter. The condition of the wet well concrete is good to very good, considering it was originally installed in 1974. Substantial concrete corrosion from sulfuric acid is not evident from a visual inspection, although older embedded steel items are severely corroded. The concrete ground slab surrounding the wet well is in poor condition, and rebar is exposed in at least one location. Fortunately, this does not affect the functioning of the pump station. There is clear evidence of the original corroded metal embedded in the upper concrete slab. There is an opening on the east side of the wet well where the new fiberglass enclosure does not cover the original opening; it may be advisable to cover this opening with screen for safety reasons.

It is possible that the openings at the top of the wet well may be the principal reason that the wet well concrete is not badly corroded. The "natural" ventilation may prevent an accumulation of corrosive fumes, thereby preventing corrosion of the concrete. The other reason is that the sewage is relatively "fresh" and is not yet anaerobic, which reduces the corrosive effect.

The suction pipe of Pump #1 is shorter than the suction pipe of Pump #2. This was confirmed by the operator, who said that Pump #1 had its suction pipe replaced (date unknown). This is the likely reason the level control floats are set much higher than the inlet pipe, and why the sewage is always backed up in the collection system.

Based on the pump curves (Figure 1) it is assumed the motors run at a nominal 1760 RPM. The sheaves on the motors and pumps reduce the pump RPM to approximately 1450 or 1550 RPM (Figure 1).

Field measurements indicate the pump station delivers approximately 75 gallons per minute (gpm). However, inspection of the force main indicates the actual flow may be higher due to a relatively clean force main.

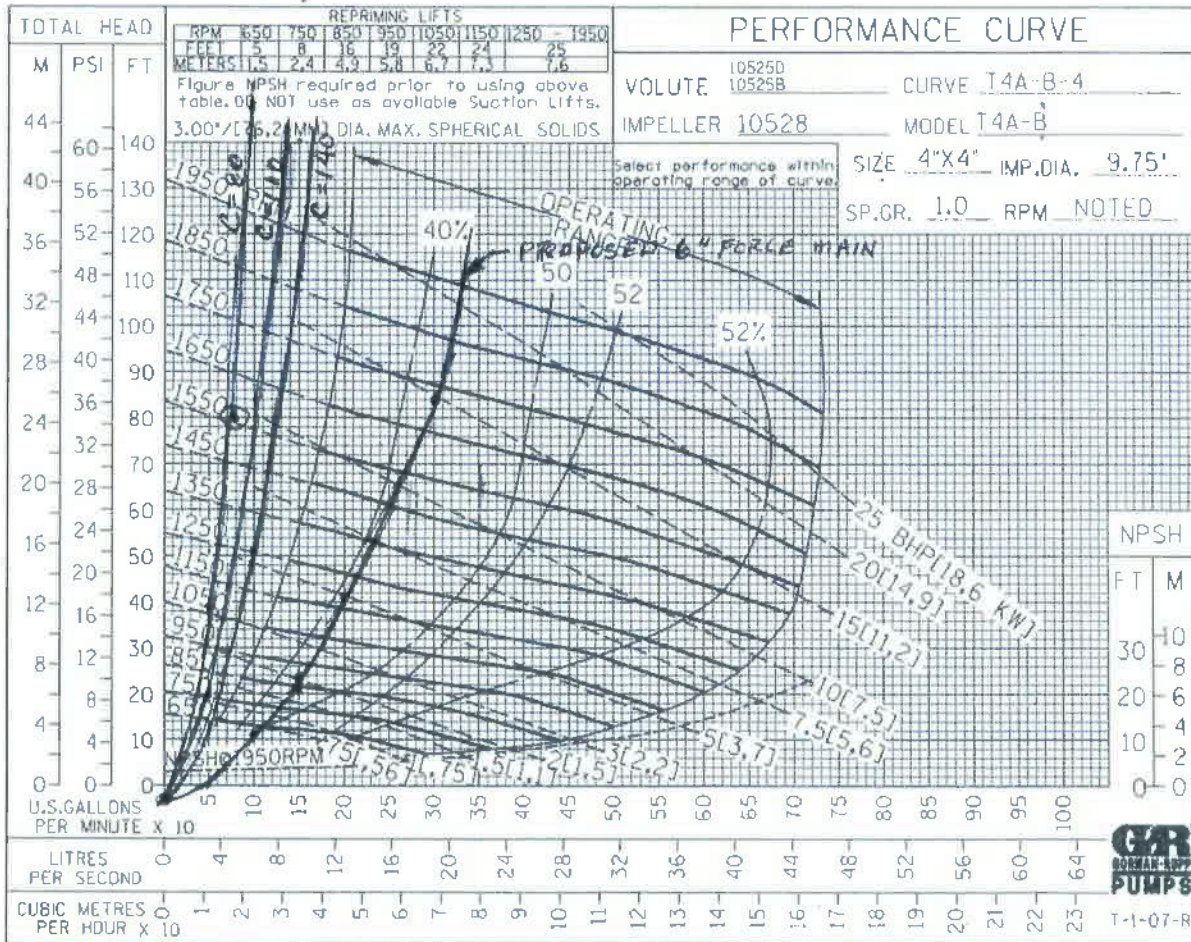


Figure 1: Gorman-Rupp T4A-B-4 Pump Performance Curve. Note the circled point on left side, which represents the operating point for the existing pumps and is outside the manufacturer's preferred operating range. Replacement of the force main with a six-inch pipeline would bring the curve back into the optimum operating range as indicated by the hand drawn curve.

The Sewer Study calculations (dated 3 October 2012, Appendix B) give the Average Dry Weather Flow as 0.02432 mgd (about 17 gpm), and the Peak Dry Weather Flow as 0.09728 mgd (about 68 gpm). Based on these calculations the pumps appear adequate for the flow from the development. This is verified by the fact that sewer overflows have not occurred when the pumps are able to operate.

The pumps are operating to the left side of the pump curve (Figure 1), in an area that is outside the operating range recommended by the manufacturer. This occurrence usually results in discharge cavitation, which can adversely affect the pump impeller and its performance. Cavitation issues can be corrected by increasing the flow rate, which could be accomplished by increasing the force main size, thereby lowering the friction head loss in the pipeline.





ICDPW's operator indicated that Pump #2 functions better than Pump #1. The Gorman-Rupp factory engineers strongly recommend that the pump impellers and wear plates be adjusted by factory technicians at least once a year to assure good performance.

The pump station does not have emergency power at the site and is at risk of overflow if there is an extended power outage.

Photographs from the pump station inspection are included on compact disks in the rear pocket of this report.

Comparison with Previous Pump Station Studies

Previous studies have been prepared to evaluate the Barbara Worth pump station and force main. The following discussion is a comparison of the recommendations of this evaluation with the recommendations of two previous reports, both of which are attached to the *Country Club Sewer Maintenance District Informational Report* (June 2006). The two previous reports are:

- *The Master Plan of Sewer* (1998) by Kennedy Jenks Consultants (KJC)
- *2006 Barbara Worth Wastewater Force Main Installation and Sanitary Sewer Pump Station Replacement Report* by the Holt Group, Inc.

The Master Plan of Sewer (1998) by KJC presents a sewer plan for the year 2020, including future development. The following text is a summary of the KJC report that is in the *District Informational Report*:

"The report concluded that the Barbara Worth Pump Station and its force main are undersized and recommends increasing the 4-inch sewer force main pipe to an 8-inch pipeline to accommodate the existing demands placed on the system within the current boundaries of the CCSMD."

There is no detailed evaluation of the Barbara Worth Pump Station included in the KJC report. The pump station is assumed to have a 400 gpm existing capacity per available information (source not given) and 750 gpm is required for future development.

Immediately after addressing the Barbara Worth pump station deficiencies, the report includes the following disclaimer on page 5.5:

"It should be noted that since actual pump operating capacities and wastewater flows were not provided, these results are based on several assumed or simulated conditions. Although, these results provide an indication of probable deficiencies, actual field measurements and testing should be conducted prior to final remedial design."



The 2006 report by the Holt Group recommended replacing the existing 4-inch sanitary sewer pipeline with a 10-inch force main in order to facilitate future development and expansion. The following excerpt is from pages 6 and 7 of that report:

“In this report the Holt Group, Inc. concluded that during the last 10-years the existing wastewater pump station has continued to deteriorate and periodically fail. The maintenance cost, time and effort devoted to keep the pump station in a working condition is significant and far in excess of what is normally required. It is apparent that the Pump Station has exhausted its useful life and should be replaced as soon as possible. The physical P.C.C. wet well structure is deteriorated and at the point of collapse. The wet well is no longer salvageable. The electrical panels and pumping units are also aged, outdated, inefficient and in a deteriorated condition. The replacement of the existing 4-inch diameter force main with a 10-inch diameter force main would allow for the installation of the wastewater pumps at a lower total dynamic head requiring less energy to operate. The pumps would produce a greater flow at less total dynamic head (and pressure) resulting in less maintenance. The electrical costs associated with the wastewater pump station would decrease even though the flow capability of the pump station would be dramatically increased (from 400-gallons per minute to 750-gallons per minute).

The 10,200 lineal foot wastewater force main extending downstream of the Pump Station has been a source of pipeline ruptures, pipeline clogs, and pump maintenance problems for over 2 decades. The continued rupturing of the 4-inch wastewater force main results in health and safety issues in the vicinity of the Imperial Irrigation District Canal Network. It would be prudent for Imperial County to replace the existing undersized 4-inch diameter force main with a heavy wall 10-inch diameter AWWA C-900, Class 150 PVC wastewater force main as soon as possible.”

The 2006 Holt Group report indicates the pump flow rate was not checked in the field or with the operator. Rather, that report took information directly from the 1998 KJC report (which is unsupported). There is no record of pump serial numbers. No contact with the pump manufacturer is mentioned, there is no pump curve in the report, and no system curves are provided.

In conclusion, all the reports recommend the force main be replaced with a larger size force main. We recommend a 6-inch pipe, the KJC report recommended an 8-inch pipe, and the Holt Group recommended a 10-inch pipe to provide for future development. Our analysis indicates that six inches is the optimum pipe size. It provides a large increase in capacity, allows the pumps to function much more efficiently, and will reduce the risk of force main ruptures in the future.

Our report recommends only minor improvements to the pump station, whereas the Holt Group report recommended the installation of a new pump station. Note that the



Holt Group considered additional flow from future development, which our report does not include. The consideration of additional flow is one of the main reasons the Holt Group's report recommends a new pump station. The Holt Group report concluded the wet well was in such poor condition that it should be replaced. Our recommendations are based on a significantly more thorough analysis than those of the Holt Group. It should be noted that although the pump station and the wet well are not in fine or new condition and have some deficiencies, they are adequate for current needs if the force main is upgraded and some other minor improvements are made.

Our recommendations are based a detailed analysis of the present conditions, whereas the previous reports spent little or no effort in researching the actual pump station condition or gathering field data. No detailed analysis was conducted by KJC or by the Holt Group on the pump station, although some head loss calculations were prepared to show that the existing 4-inch force main is inadequate.



Force Main Inspection

Initial inspection and evaluation of the sewer force main was conducted by Philip Kern, PE, with the assistance of Carl Sepponen, PE, and Affordable Pipeline Services staff on September 25, 2012. One of the main challenges of evaluating the condition of the existing force main is, quite simply, accessibility. Without physically excavating and cutting the existing force main there are only four points at which to inspect the interior of this small diameter pipeline: the force main at the pump station, the discharge manhole at Kamm Road and Gowling Road, and two



Initial video inspection of the force main with a push camera. Pump station is on the left and force main is on the right. Note the sharp 90-degree bend in the force main next to the fence.

cleanouts located on either side of the Alamo River. Neither ICDPW nor Bureau Veritas staffs were able to confirm location of the cleanouts at the Alamo River. Further, the four-inch diameter pipeline is too small to admit a tractor camera for inspection.

These conditions limited the initial inspection opportunities to the use of a small specialized “push camera” inserted from either end of the force main. On September 25 a trailer jetter was used at the Kamm Road manhole to drag the push camera into the main, with video data collected as the camera was withdrawn from the main. The crew discovered that the force main was not constructed on a straight grade as indicated on the plans but rather “porpoises” up and down with high and low spots in the profile. These high and low spots prevent full draining of the line as well as clear visibility for inspection. The



Second video inspection of the force main along Barbara Worth Drain, pump station is in the left background. The end of the pipeline can be seen in the trench, one line in the pipe is the video cable, the other is the jetter line used to pull the camera into the pipe.



portions of this section of force main which were visible on the video appeared to be in good condition, and no ruptures have been reported near the north end.

Unfortunately, two sharp 90-degree bends on the pump station discharge line prevented insertion of the push camera and jetter any significant distance into the south portion of the force main during the September 25 inspection, even with removal of a section of the discharge line at the pump station. ICDPW staff has reported three ruptures in recent memory of the force main in this section of the pipeline so it was a priority for inspection. A small washout about 200 feet north of the pump station along Barbara Worth Drain was reportedly the location of the last pipeline failure. The short distance that was able to be inspected showed a fairly thick slime coating on the interior of the pipe, which masked details of the condition of the PVC pipeline.

At the request of the Director of ICDPW, the crew returned to the site on October 25. ICDPW crews excavated and removed an eight foot section of the force main approximately 200 feet north of the pump station and the Affordable Pipeline Services crew inserted a push camera, again using the trailer jetter to draw it into the pipeline. The pipeline was accessed 308 feet to the north and 178 feet to the south toward the pump station. The results were similar to the previous inspection in that the force main was not installed on a grade and would not fully drain. As a result, the camera was submerged for much of the time and the interior of the pipeline could not be seen clearly. The portions that were visible appeared to be in good condition, with some debris noted in the pipeline and the slime coating appearing to diminish as the camera traveled further from the pump station.

The eight-foot portion of the pipe that was excavated and removed was particularly instructive. This section contained a repair coupling where a previous break had been repaired; had a 4-inch to 6-inch lengthwise crack on the spigot end where it would normally be protected by the bell end of the next section of pipe; and also exhibited some splintering from damage incurred by the backhoe when it was removed, which is unusual for PVC pipe. The force main pipe was inscribed with the following description: *4" J-M Ring-Tite PVC 1120 IPS 125 PSI SDR 32.5 ASTM D-2241*. By current standards this is relatively thin-wall, light-duty pressure pipe that would be considered marginally acceptable for this application. No sand bedding, tracer wire, or warning tape was observed within the excavation, which is not consistent with current public works standards. Further, there is no information available regarding compaction of the trench backfill. PVC pipe, being a flexible pipe, is particularly sensitive to the type and compaction of the bedding and backfill as it uses these elements to resist internal forces. Use of uncontrolled and/or poorly compacted native material for bedding can create stress points along the pipeline, which can lead to pipe failures. Stress points can



be even more of a concern on a force main which experiences pressure spikes due to pump operations, as opposed to a gravity-fed water supply main which would normally see consistent pressure levels. PVC pipe is also sensitive to ultraviolet (UV) radiation if installed or stored outdoors for extended periods without protection. Older, above-ground sections of pipe at the pump station had some indications of UV degradation, although it is not known if UV exposure contributed to the cracking or splintering of the force main sections that were inspected. It is more likely that the crack was caused by rough handling of the pipe at the time of installation.



Existing 4-inch force main pipe removed from the trench. Note the splintered section on the left, repair coupling in the middle, and the barely visible chip and crack in the spigot end of the shorter section on the right.

The force main pipe was found to be a JM Eagle brand I.P.S. Pressure PVC Pipe conforming to ASTM D2241 for standard dimension ratios (SDRs). It is available in varying strengths, including SDR 64 (63 psi), SDR 41 (100 psi), SDR 32.5 (125 psi), SDR 26 (160 psi), SDR 21 (200 psi), and SDR 17 (250 psi). This force main is a SDR 32.5 (125 psi pressure rating) pipe with an internal diameter of 4.207 inches. For comparison, 4-inch PVC Schedule 40 has an ID of 4.026 inches (maximum working pressure of 220 psi), and Schedule 80 has an ID of 3.826 inches (maximum working pressure of 320 psi). The 4-inch ductile iron pipe (DIP) inside the Gorman-Rupp pump station has a nominal pressure rating of 350 psi.

There are several reasons why the force main may be breaking and leaking:

- **The line is operating at a pressure higher than the original design.** The pumps installed in 1994 were design for 200 gpm at just 21 feet of head according to the operations and maintenance (O&M) manual. The pumps installed in 2004 have a much high rpm and produce a higher pressure. A higher pressure, combined with any of the factors listed above, can lead to breaks.
- **Pressure surges are occurring when the pumps stop.** Each time the pumps start and stop, but especially when they stop, a pressure surge occurs



that increases the pressure in the pipeline.

- **High temperature of the water and / or soil may be reducing the strength of the PVC.** High temperature decreases the strength and therefore the pressure rating of the pipe as follows:

Temperature (°F)	De-Rating Factor
73	1.00
80	0.88
90	0.75
100	0.62
110	0.51
120	0.40
130	0.31
140	0.22

For example, if the PVC temperature is 90 degrees, the pressure rating is decreased from 125 psi to 94 psi. Given the ambient temperatures in the summer months in the Imperial Valley, the force main pipe could be at 50 to 75 percent of its rated strength.

- **Poor installation may have caused breaks.** Poor installation can stress a PVC pipe and create a weak point and eventually the pipe may break under high pressure.
- **Storage in sunlight prior to installation may have caused the PVC to become brittle.** It is well known that PVC pipe should be stored away from sunlight prior to installation. The UV rays affect the chemical structure of the PVC and it can become brittle and can easily be shattered and broken. PVC pipe is usually stored in bundles, and only some of the pipe lengths are subject to high UV exposure. Those subject to the high UV exposure are the ones most likely to break.

Video data from the force main inspection are included on compact disks in the rear pocket of this report, and inspection logs from the force main inspection are included as Appendix F.



Conclusions and Recommendations

The following recommendations are based on analysis of data collected in the field and through research of available documentation. Although much of this work could be performed by ICDPW forces, the repair cost estimates in Appendix D presume that these tasks would be accomplished by outside contractors. As the entire CCSMD system has not yet been inspected, allowances and contingencies have been made in the estimate. These costs are considered preliminary in nature and suitable for planning purposes only.

Pipelines

The principal issue with the gravity pipelines is their very flat slope, which will require regular long-term maintenance to effectively function. It is not considered economical to replace the entire collection system to remedy this issue. Other than implementation of a long-term regular maintenance plan, the following capital repairs are recommended:

- Locate remaining sewer mains and manholes
- Complete cleaning of all pipelines with Vactor truck
- Complete inspection of all pipelines
- Perform spot repairs on root intrusions
- Install grease traps on commercial laterals
- Inform residents of pipeline location and remove trees over pipelines
- Replace sag portions of pipe at the proper grade
- Replace undersized mains with 8-inch pipe
- Replace pipelines with horizontal bends
- Replace drop manhole plumbing

Manholes

The lower portions of existing manholes were found to be in generally good condition. Capital repairs for manholes are focused on providing access for maintenance and repairing or replacing deteriorated items in the upper portions.

- Survey manhole locations, rim, and invert elevations to establish grades
- Adjust to grade and secure manhole frame and covers, replace with standard frame and cover if necessary
- Modify utilities, irrigation lines, paving and structures which are obstructing manhole openings



- Rechannel manhole troughs for proper flow, inspection and maintenance access
- Replace corroded manhole cones with new T-lock or epoxy-coated cones
- Remove steps and coat interior, trough, and shelf of all manholes with T-Lock or epoxy coating

Pump Station

The pump station was found to be in acceptable condition with adequate capacity. The 8-year old pumps do not need to be replaced, although some of the following observations and recommendations are important to improve pump performance and life expectancy.

- The Pump #1 suction pipe should be replaced with a longer pipe to match that of Pump #2, and the level control floats should be set much lower so that the collection system pipes drain during every pumping cycle. The start level can be set several feet above the inlet pipe, but the stop point should be set below the inlet pipe level. These changes will improve the collection system capability and reduce the amount of sediment in the collection system. Although it is best to have both the start and stop levels below the inlet pipe, it is not always possible. In this case the floats are located not much below the inlet pipe, and the suction-lift pumps function better when the start level is not set too low.
- Some of the gauges need to be replaced. Each pump should have two working pressure gauges - one gauge on the discharge side and one gauge on the suction side of the pump. Having two gauges is the best way to quickly evaluate any pump problems that may occur.
- The pump impellers should be inspected and adjusted by a factory technician annually (or at least every two years; the official Gorman-Rupp recommendation is to have the pumps checked every six months). Gorman-Rupp should be contacted to conduct this service.
- The concrete wet well does not need to be replaced, although epoxy lining the wet well for longevity is recommended.
- Although the concrete base slab around the wet well is in poor condition, replacement is not critical. If its condition interferes with the operator's work at the station, it is recommended that the concrete base slab be replaced. The replacement cost is not high and could be easily accomplished.



- The pump station should have some means of functioning during a prolonged power outage. If not already provided, it is recommended that the electric service be configured for connection to a portable generator, and a portable generator be purchased or a standby rental agreement be made with a local company.
- Install screen across wet well opening(s)

Force Main

The force main has been problematic in the past and has had several failures. In addition to being undersized, the pipe strength is marginal for this application and it was not installed to current standards. The following recommendations are suggested:

- Replace the existing 10,000 feet force main with a stronger and larger pipeline. It is recommended the force main be replaced with a 6-inch PVC pipe with a higher pressure rating and to current standards, such as a minimum of AWWA C-900 Class 150. The AWWA C-900 pipe has higher safety factor than the IPS pipe presently installed.

In addition to the higher safety factor, increasing the pipeline size and reducing the friction headloss is recommended to increase the pump flow rate and move the operating point near or into the recommended operating range. This will eliminate impeller cavitation. As shown in Appendix A, the plot on the pump curve shows an operating point of 260 gpm at 60 feet TDH. The pipeline velocity is 2.8 fps, well above the recommended minimum of 2.0 fps.

As an alternative to replacing the entire force main, the section under the Alamo River could be left in place. However, if there is a history of pipeline breaks in this section under or near the Alamo River, this alternate approach is not advisable because it may cause additional pipeline breaks.

- Replace sharp 90 degree bends in force main at pump station with larger radius bends
- Install cleanouts at regular intervals for inspection and maintenance



References

1. *Plans for Interceptor Sewer, City of Holtville*, prepared by Wilsey & Ham, Sheets 1-5, approved May 21, 1974
2. *Plans for Improvements, Tract No. 839*, prepared by The Parker-Riddle Co., sheets 1-4, approved May 23, 1978

Credits

The following personnel contributed to the data collection, field investigations and development of this report:

Imperial County Department of Public Works
John Burnworth
David Krommenhoek
Martin Lang
Affordable Pipeline Services
Duane Johnson, Supervisor
Nick Provencio, Camera Operator
Mark Enrique, Video Assistant
Bureau Veritas
Bill Grigsby, PE, Manhole Evaluation
Carl Sepponen, PE, Pump Station and Force Main Evaluation
Steve Dodge, Graphics
Ruth Licht, Report Preparation
Philip Kern, PE, Project Manager





Appendix A

Pump Station and Force Main Calculations



Pump Station and Force Main Calculations

Pump Speed (RPM)

The Pump RPM can be calculated by knowing the motor RPM and diameter of the sheaves (pulleys):

Motor RPM = approximately 1760 RPM

Motor sheave diameter = 9.0 inches

Pump sheave diameter = 11.0 inches

Pump Speed = Motor RPM x (Motor sheave diameter / Pump sheave diameter)

$$= 1760 \text{ RPM} \times (9.0" / 11.0")$$

= 1440 RPM, say 1450 RPM (which is shown on the Gorman-Rupp pump curves)

System Curves (to graph on pump flow vs. head chart)

The force main is mainly 4-inch J-M Ring-Tite PVC 1120 IPS 125 PSI SDR 32.5 ASTM D-2241, and the piping at the pump station is 4-inch Ductile Iron Pipe (DIP). The internal diameter of the PVC pipe is 4.207 inches according to the manufacturer's data. The internal diameter of the DIP is 4.15 inches, but the difference will be ignored. Since the length of the DIP is insignificant compared to the long PVC force main, the entire force main will be assumed to have an internal diameter of 4.207 inches.

The length of the force main is 9,440 feet. Adding 523 feet for station equation equals 9,963 feet.

Equivalent lengths are calculated for the minor losses and added to the actual force main length for the following head loss calculations:

Item	Number	Equivalent Length (Ft) Each	Total Equiv. Length (Ft)
90° bend	5 + 4 = 9	13	117
45° bend (or less than 90°)	6	5	30
Plug valve	1	10	10
Tee (run)	3	8	24
Tee (branch flow)	1	22	22
Total Head Loss Lengths			203





Total Equivalent Length = 9,963 feet + 203 feet = 10,166 feet

Prepare System Curves for C = 140, C = 110, and C = 80 for comparison

Static Head

Ground elevation at pump station from plans is approximately 945.0 feet

The force main discharge elevation is given as 933.70 feet

The distance from the pump station ground elevation to the water levels during pumping varies from approximately 82 to 116 inches (or elevations 938.2 feet to 935.3 feet)

Therefore, the static lift varies from minus 4.5 feet to minus 1.6 feet (the discharge is lower than the wet well level). Alternatively, the static lift is -3 feet, ±1.5 feet.

Calculate Headloss and Total Dynamic Head (TDH) for various flows at 3 “C” values using Hazen-Williams equation

$$\text{Friction loss} = ((0.2083 \times (100/C)^{1.852} \times (\text{flow})^{1.852}) / (\text{diameter})^{4.8655})$$

Diameter = 4.207 inches in all cases

C = 140			
Flow (gpm)	Headloss (ft/100 ft)	Headloss (feet)	Total Dynamic Head (feet)
0	0	0	-3
50	0.144	15	12
100	0.520	53	50
150	1.10	112	109

C = 110			
Flow (gpm)	Headloss (ft/100 ft)	Headloss (feet)	Total Dynamic Head (feet)
0	0	0	-3
50	0.225	23	20
100	0.81	82	79
150	1.72	175	172





C = 80			
Flow (gpm)	Headloss (ft/100 ft)	Headloss (feet)	Total Dynamic Head (feet)
0	0	0	-3
50	0.406	41	38
100	1.466	149	146
150	3.107	316	313

The calculated TDH / flow points are plotted on the pump curve as shown on the next page. The 3-system curves are labeled for each of the “C” values.

Operating Point

During the field investigation the flow and head was estimated as follows:

The wet well was pumped down to below the inlet pipe using Pump #2. The wet well depth was observed and recorded over an 11-minute period and averaged 13.3 gpm. The drawdown was observed for several minutes and recorded after the pump started; the pumping rate was 61.6 gpm. Then the average inflow was added to the observed pumping rate to account for the sewage coming into the wet well while the pump was running.

The pumping rate was = $61.6 \text{ gpm} + 13.3 \text{ gpm} = 74.9 \text{ gpm}$, say 75 gpm

The pumps usually operate at a pressure of 26 to 28 psi (60 to 65 feet), which is taken at the top of the pumps, about 3 feet above the pump station ground slab. To get the TDH the distance from the pressure gauge to the water level below is added to the pressure reading:

$\text{TDH} = 62 \text{ feet} + 3 \text{ feet} + 14 \text{ feet} = 79 \text{ feet}$ at flow of 75 gpm – This point is also plotted on the pump / system curves.

Conclusions from the graph

Looking at the graph it appears the pump is likely running at 1550 rpm (not 1450 rpm as calculated above). But other field readings and / or measurements could be in error, so the actual value of the pump rpm is uncertain.

One can see that the system is running at a “C” value of approximately 90.





Force Main Velocity

The velocity in the force main at different flows is:

At 50 gpm = 1.15 fps

At 100 gpm = 2.31 fps

At 150 gpm = 3.46 fps

The velocity of the sewage in the force main with a flow of 75 gpm is only 1.7 fps, which is below the recommended minimum of 2.0 fps to maintain sewage solids in suspension.

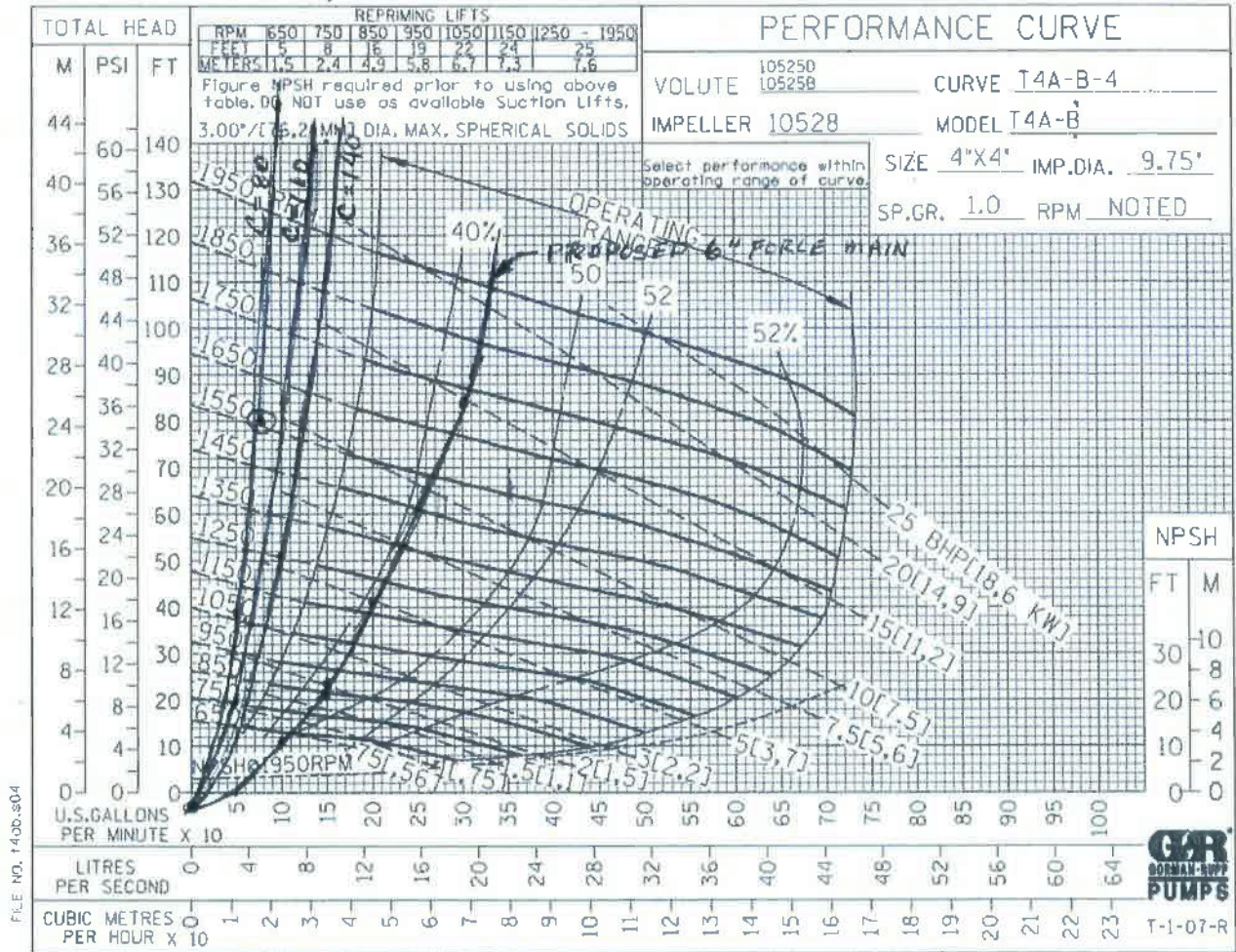
Calculation of Flow and TDH for Proposed 6-Inch Force Main

Assume a new 6-inch PVC force main with ID = 6.13 inches

C = 120

Flow (Gpm)	Headloss (Ft/100 Ft)	Headloss (Feet)	Total Dynamic Head (Feet)
0	0	0	-3
50	0.031	3	0
100	0.111	11.4	8
150	0.235	24	21
200	.40	41	38
300	0.848	86	83

The plot on the pump curve shows an operating point of 260 gpm at 60 feet TDH. The pipeline velocity is 2.8 fps, well above the recommended minimum of 2.0 fps.





Appendix B

CCSMD Sewer Study



Project: 18020.06
 By: P. Kern

**Country Club Sewer Maintenance District
 Sewer Study**

Sheet 1 Of 1
 Date 3-Oct-12

Line	From	To	Popul. per DU	In-line DUs	Popul. In-Line	Popul. Cumulative	Sewage Per Capita/Day (gpd)	Average Dry Weather Flow (mgd)	Peaking Factor	Peak Dry Weather Flow (mgd)	Line Size, D (in)	Design Slope (%)	Normal Depth, dn (in)	% Full dn/D	Flow Velocity (ft/s)
1	MH 27	MH 15	3.0	24	72	72	80	0.00576	4.0	0.02304	8	0.25	1.32	17%	0.95
2	MH 22	MH 15	3.0	33	99	99	80	0.00792	4.0	0.03168	8	0.25	1.55	19%	1.04
3	MH 15	MH 7	3.0	0	0	171	80	0.01368	4.0	0.05472	8	0.25	2.03	25%	1.22
4	MH 10	MH 7	3.0	14	42	42	80	0.00336	4.0	0.01344	8	0.25	1.00	13%	0.80
5	MH 7	MH 5	3.0	0	0	213	80	0.01704	4.0	0.06816	8	0.25	2.26	28%	1.30
6	MH 32	MH 5	3.0	27	91	91	80	0.00728	4.0	0.02912	8	0.25	1.48	19%	1.01
7	MH 5	MH 1	3.0	0	0	304	80	0.02432	4.0	0.09728	8	0.25	2.72	34%	1.43

Notes:

1. Assume 50% duplexes on Anderholt Rd. , all duplexes on Country Club Drive, 10 EDUs for BWCC
2. Line sizes and design slopes assumed pending completion of survey
3. Generation rate and peaking factors per City of SD Sewer Design Guide
4. Manning's n=0.013 for all lines

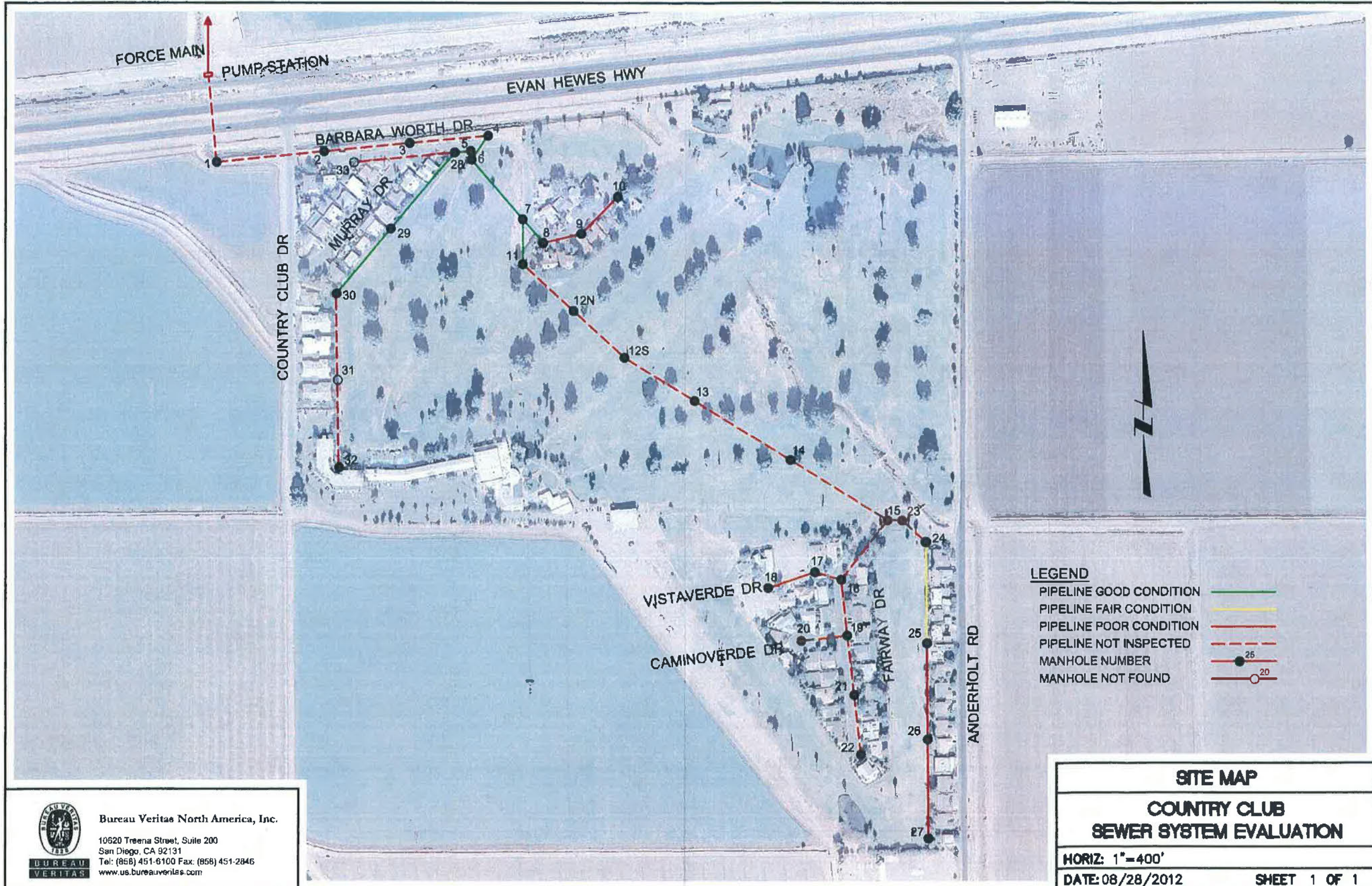
B-2





Appendix C

CCSMD System Map



 Bureau Veritas North America, Inc.
 10620 Treana Street, Suite 200
 San Diego, CA 92131
 Tel: (858) 451-6100 Fax: (858) 451-2846
 www.us.bureauveritas.com





Appendix D

Repair Cost Estimate



**COUNTRY CLUB SEWER MAINTENANCE DISTRICT
PRELIMINARY REPAIR COST OPINION**

Item Description	Quantity	Unit	Unit Cost	Total Cost
PIPELINES				
Locate Sewer Mains and MHs	1	LS	\$5,000	\$5,000
Clean Sewer Mains	5	Days	\$3,000	\$15,000
Inspect Sewer Mains	3	Days	\$2,500	\$7,500
Spot Repairs (Root Intrusions, etc.)	4	Each	\$5,000	\$20,000
Install Grease Trap	1	Each	\$5,000	\$5,000
Inform Residents of Sewer Locations	1	LS	\$5,000	\$5,000
Replace Sag Portions of 8" sewer to grade	2,000	LF	\$100	\$200,000
Replace 4" VCP with 8" PVC	500	LF	\$100	\$50,000
Replace 8" VCP Bends with 8" PVC pipe	200	LF	\$100	\$20,000
Replace drop MH plumbing	1	EA	\$5,000	\$5,000
MANHOLES				
Survey Manhole Locations	1	LS	\$7,500	\$7,500
Adjust MH to grade, replace frame and cover	17	EA	\$2,000	\$34,000
Modify Private Facilities Obstructing Manholes	1	LS	\$100,000	\$100,000
Rechannel MH Troughs	4	EA	\$2,500	\$10,000
Replace MH Cone	30	EA	\$4,000	\$120,000
Line Interior of MH with Epoxy	34	EA	\$2,000	\$68,000
PUMP STATION				
Reset Float Switch Levels	1	LS	\$1,000	\$1,000
Extend Suction Line for Pump #2	1	LS	\$3,000	\$3,000
Install Screen on Wet Well Opening	1	LS	\$1,000	\$1,000
Line Wet Well with Epoxy Coating	1	LS	\$10,000	\$10,000
FORCE MAIN				
Locate Existing Cleanouts	1	LS	\$2,500	\$2,500
Replace Sharp Bends at Pump Station	1	LS	\$5,000	\$5,000
Install Force Main Cleanouts	20	EA	\$2,000	\$40,000
Replace 4" PVC with 6" PVC force main	10,000	LF	\$50	\$500,000
Subtotal Construction				\$1,234,500
Construction Contingency	20%			\$246,900
Administration & Design	15%			\$185,175
GRAND TOTAL				\$1,666,575





Appendix E

Manhole Inspection Logs

MANHOLE INSPECTION REPORT

MANHOLE #: 3 STREET: Barbra Worth Drive DATE: 9-24-12
 WEATHER: Sunny Hot INSPECTOR(S): Shirley

MANHOLE COVER

DIAMETER: 27 INCHES
 NO. OF HOLES IN COVER: 1
 CONDITION OF FIT: LOOSE TIGHT
 SEALED BOLTED
 EVIDENCE OF LEAKAGE: YES NO

MANHOLE FRAME

CONDITION: SOUND BROKEN
 EVIDENCE OF LEAKAGE: YES NO

CORBEL AND WALLS

CONSTRUCTION: PRECAST BRICK
 CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

BENCH WALLS

CONDITION: GOOD DETERIORATING
 DEPOSITS: MUD DEBRIS SLUDGE
 DEPTH OF DEPOSITS: 4" INCHES

STEPS

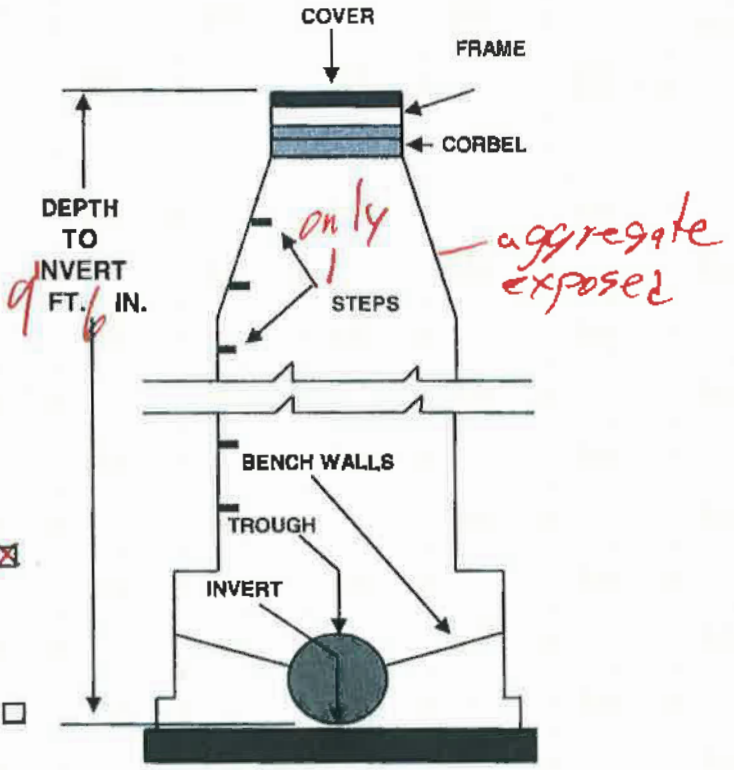
CONDITION: GOOD DETERIORATING
 EVIDENCE OF DEBRIS ON STEPS: YES NO

TROUGH

CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

INFLOW AND INFILTRATION

EVIDENCE OF INFLOW: YES NO EVIDENCE OF SURCHARGING: YES NO
 INCHES ABOVE INVERT: 103 INCHES
 EVIDENCE OF INFILTRATION: YES NO ESTIMATED FLOW RATE: 2 GPM
 LOCATION/DESCRIPTION OF INFILTRATION: _____



TYPICAL MANHOLE

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # <u>4</u>	FROM MH # _____	FROM MH # _____	TO MH # _____
DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	
DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

MANHOLE #: A STREET: Barbra Worth Drive DATE: 9-24-12
 WEATHER: Hot sunny INSPECTOR(S): DR/B

MANHOLE COVER

DIAMETER: 24 INCHES
 NO. OF HOLES IN COVER: 1
 CONDITION OF FIT: LOOSE TIGHT
 SEALED BOLTED
 EVIDENCE OF LEAKAGE: YES NO

25.5"

Frame not lined up with rings

Surcharged 6:00 pm 24th

MANHOLE FRAME

CONDITION: SOUND BROKEN
 EVIDENCE OF LEAKAGE: YES NO

CORBEL AND WALLS

CONSTRUCTION: PRECAST BRICK
 CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

BENCH WALLS

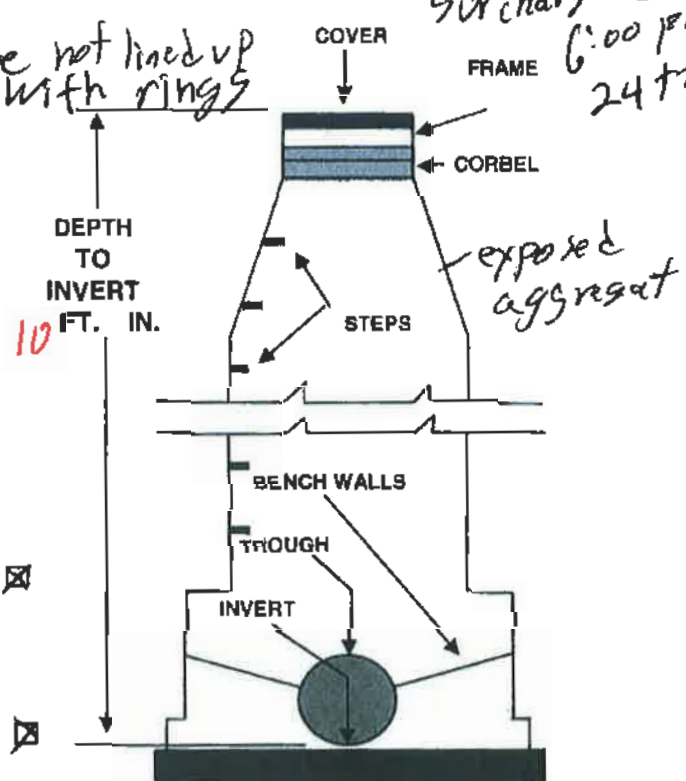
CONDITION: GOOD DETERIORATING
 DEPOSITS: MUD DEBRIS SLUDGE
 DEPTH OF DEPOSITS: 6" INCHES

STEPS

CONDITION: GOOD DETERIORATING
 EVIDENCE OF DEBRIS ON STEPS: YES NO

TROUGH

CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO



TYPICAL MANHOLE

INFLOW AND INFILTRATION

EVIDENCE OF INFLOW: YES NO EVIDENCE OF SURCHARGING: YES NO
 INCHES ABOVE INVERT: 4 INCHES
 EVIDENCE OF INFILTRATION: YES NO ESTIMATED FLOW RATE: Trickle GPM
 LOCATION/DESCRIPTION OF INFILTRATION: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # <u>5</u>	FROM MH # _____	FROM MH # _____	TO MH # _____
DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	
DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS: 10" pvc in & out

MANHOLE INSPECTION REPORT

MANHOLE #: 9 STREET: _____ DATE: _____
 WEATHER: Sunny Hot INSPECTOR(S): Ar/S

MANHOLE COVER

DIAMETER: 14 INCHES
 NO. OF HOLES IN COVER: 1
 CONDITION OF FIT: LOOSE TIGHT
 SEALED BOLTED
 EVIDENCE OF LEAKAGE: YES NO

MANHOLE FRAME

CONDITION: SOUND BROKEN *Poor Heavy corrosion*
 EVIDENCE OF LEAKAGE: YES NO

CORBEL AND WALLS

CONSTRUCTION: PRECAST BRICK
 CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

BENCH WALLS

CONDITION: GOOD DETERIORATING
 DEPOSITS: MUD DEBRIS SLUDGE
 DEPTH OF DEPOSITS: 4 INCHES
evidence of surcharge

STEPS

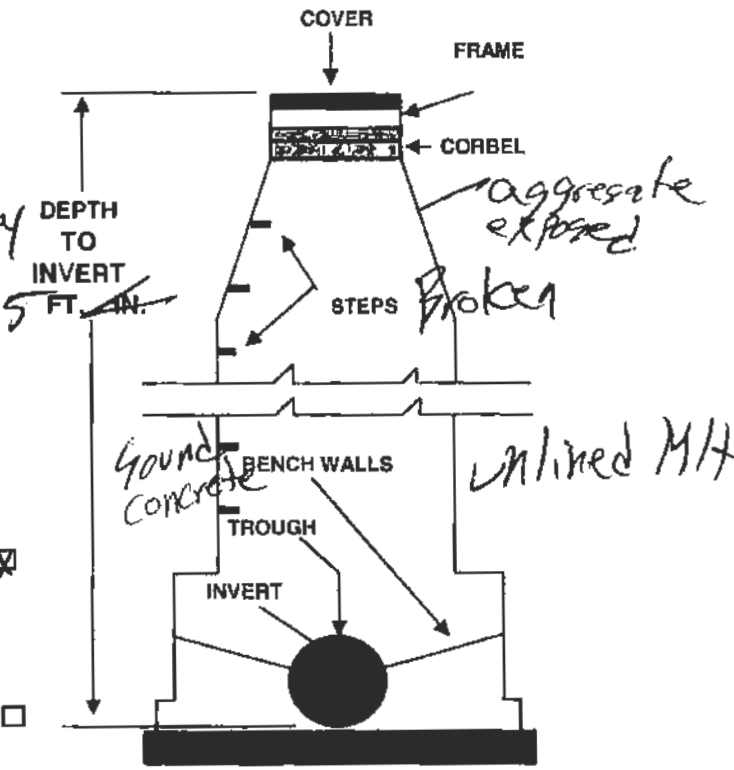
CONDITION: GOOD DETERIORATING
 EVIDENCE OF DEBRIS ON STEPS: YES NO

TROUGH

CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

INFLOW AND INFILTRATION

EVIDENCE OF INFLOW: YES NO EVIDENCE OF SURCHARGING: YES NO
 INCHES ABOVE INVERT: 2 INCHES
 EVIDENCE OF INFILTRATION: YES NO ESTIMATED FLOW RATE: trickle GPM
 LOCATION/DESCRIPTION OF INFILTRATION: _____



TYPICAL MANHOLE

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE	
	FROM MH # <u>10</u>	FROM MH # _____	FROM MH # _____	TO MH # _____	
DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	DIP LINE <input type="checkbox"/>		
DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	
TYPE					
DIAMETER					
FLOW					

COMMENTS:

MANHOLE INSPECTION REPORT

MANHOLE #: 12 STREET: GOLF COURSE DATE: 9-25-12
 WEATHER: Hot sunny INSPECTOR(S): B/S

MANHOLE COVER

DIAMETER: 14 INCHES
 NO. OF HOLES IN COVER: 1
 CONDITION OF FIT: LOOSE TIGHT
 SEALED BOLTED
 EVIDENCE OF LEAKAGE: YES NO

MANHOLE FRAME

CONDITION: SOUND BROKEN
 EVIDENCE OF LEAKAGE: YES NO

CORBEL AND WALLS

CONSTRUCTION: PRECAST BRICK
 CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

BENCH WALLS

CONDITION: GOOD DETERIORATING
 DEPOSITS: MUD DEBRIS SLUDGE
 DEPTH OF DEPOSITS: .5" INCHES

STEPS

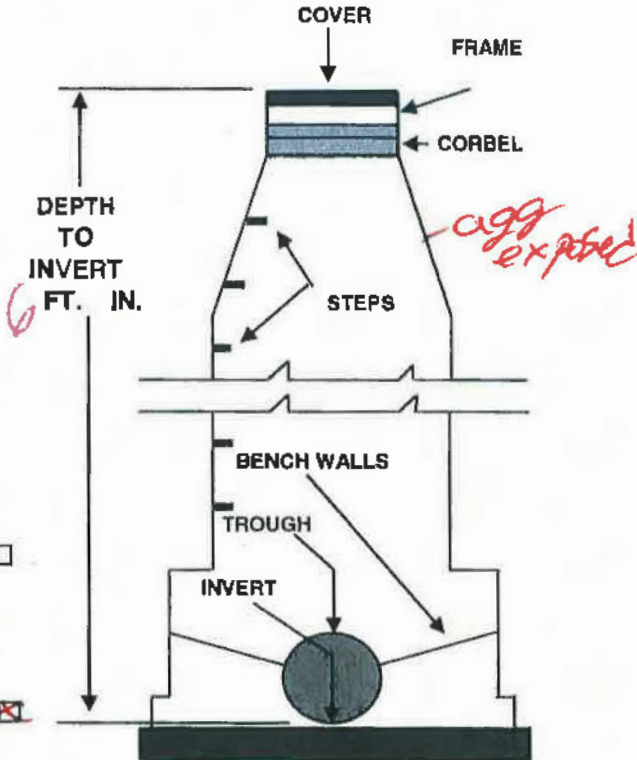
CONDITION: GOOD DETERIORATING
 EVIDENCE OF DEBRIS ON STEPS: YES NO

TROUGH

CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

INFLOW AND INFILTRATION

EVIDENCE OF INFLOW: YES NO EVIDENCE OF SURCHARGING: YES NO
 INCHES ABOVE INVERT: 2" INCHES
 EVIDENCE OF INFILTRATION: YES NO ESTIMATED FLOW RATE: 1 GPM
 LOCATION/DESCRIPTION OF INFILTRATION: _____



TYPICAL MANHOLE

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE	
	FROM MH # <u>13</u>	FROM MH # <u>12 North</u>	FROM MH # _____	TO MH # _____	
DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>	DROP LINE <input type="checkbox"/>		
DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	DISTANCE _____ FT	
TYPE					
DIAMETER					
FLOW					

COMMENTS:

2nd #12 found in field appears to match map for 12

MANHOLE INSPECTION REPORT

MANHOLE #: 246 STREET: Vista Verde DATE: 9-24-12
 WEATHER: evening INSPECTOR(S): AW/S

MANHOLE COVER

DIAMETER: 27 INCHES
 NO. OF HOLES IN COVER: 1
 CONDITION OF FIT: LOOSE TIGHT
 SEALED BOLTED
 EVIDENCE OF LEAKAGE: YES NO

MANHOLE FRAME

CONDITION: SOUND BROKEN
 EVIDENCE OF LEAKAGE: YES NO

CORBEL AND WALLS

CONSTRUCTION: PRECAST BRICK
 CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

BENCH WALLS

CONDITION: GOOD DETERIORATING
 DEPOSITS: MUD DEBRIS SLUDGE
 DEPTH OF DEPOSITS: 3 1/2 INCHES
Heavy deposit blocking

STEPS

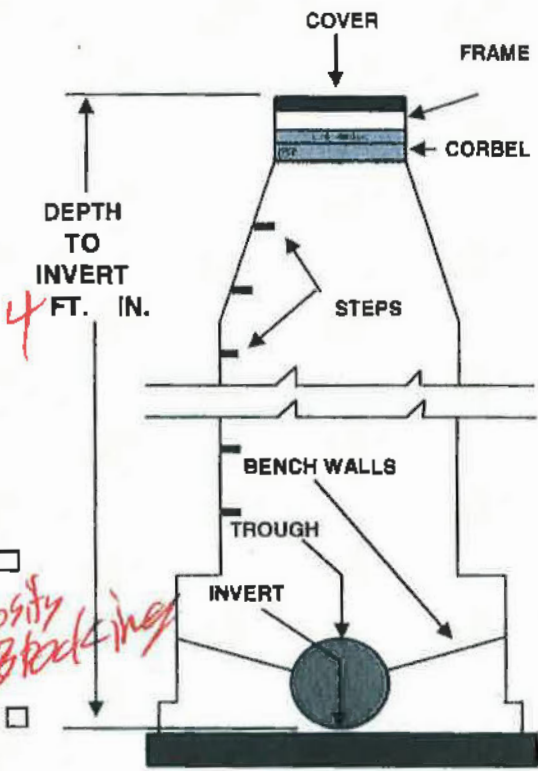
CONDITION: GOOD DETERIORATING
 EVIDENCE OF DEBRIS ON STEPS: YES NO

TROUGH

CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

INFLOW AND INFILTRATION

EVIDENCE OF INFLOW: YES NO EVIDENCE OF SURCHARGING: YES NO
 INCHES ABOVE INVERT: .25 INCHES
 EVIDENCE OF INFILTRATION: YES NO ESTIMATED FLOW RATE: Trickle GPM
 LOCATION/DESCRIPTION OF INFILTRATION: _____



TYPICAL MANHOLE

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE	
	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	TO MH # _____	DISTANCE _____ FT
TYPE					
DIAMETER					
FLOW				<u>to MH 17 clay pipe</u>	

COMMENTS:

Blocking lateral to 1366 Vista Verde

MANHOLE INSPECTION REPORT

MANHOLE #: 27 STREET: Golf Course DATE: 9-24
 WEATHER: sunny INSPECTOR(S): M/S

MANHOLE COVER

DIAMETER: _____ INCHES
 NO. OF HOLES IN COVER: _____
 CONDITION OF FIT: LOOSE TIGHT
 SEALED BOLTED
 EVIDENCE OF LEAKAGE: YES NO

Manhole in Back yard
not inspected as Directed

MANHOLE FRAME

CONDITION: SOUND BROKEN
 EVIDENCE OF LEAKAGE: YES NO

CORBEL AND WALLS

CONSTRUCTION: PRECAST BRICK
 CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

BENCH WALLS

CONDITION: GOOD DETERIORATING
 DEPOSITS: MUD DEBRIS SLUDGE
 DEPTH OF DEPOSITS: _____ INCHES

STEPS

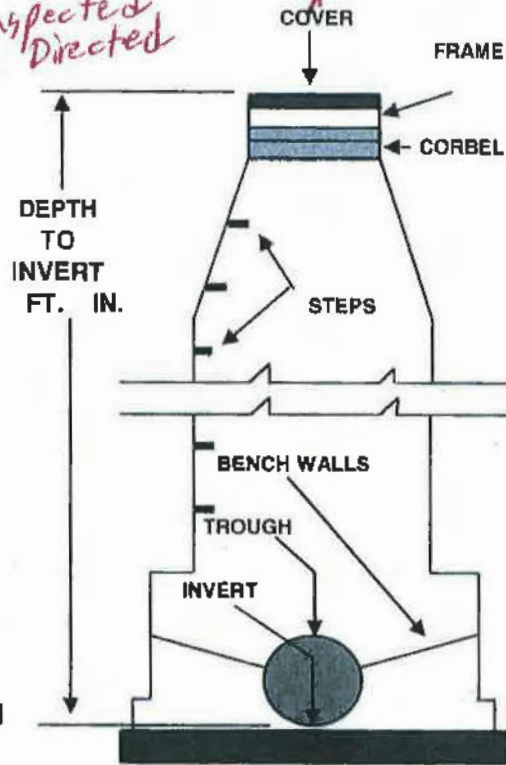
CONDITION: GOOD DETERIORATING
 EVIDENCE OF DEBRIS ON STEPS: YES NO

TROUGH

CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

INFLOW AND INFILTRATION

EVIDENCE OF INFLOW: YES NO EVIDENCE OF SURCHARGING: YES NO
 INCHES ABOVE INVERT: _____ INCHES
 EVIDENCE OF INFILTRATION: YES NO ESTIMATED FLOW RATE: _____ GPM
 LOCATION/DESCRIPTION OF INFILTRATION: _____



TYPICAL MANHOLE

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

MANHOLE #: 32 STREET: Behind Hotel near Golf course DATE: 9-25-12
 WEATHER: Sunny Hot INSPECTOR(S): [Signature]

MANHOLE COVER 24

DIAMETER: 24 INCHES
 NO. OF HOLES IN COVER: 1
 CONDITION OF FIT: LOOSE TIGHT
 SEALED BOLTED
 EVIDENCE OF LEAKAGE: YES NO

MANHOLE FRAME

CONDITION: SOUND BROKEN
 EVIDENCE OF LEAKAGE: YES NO

CORBEL AND WALLS

CONSTRUCTION: PRECAST BRICK
 CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

BENCH WALLS

CONDITION: GOOD DETERIORATING
 DEPOSITS: MUD DEBRIS SLUDGE
 DEPTH OF DEPOSITS: 0 INCHES

STEPS None

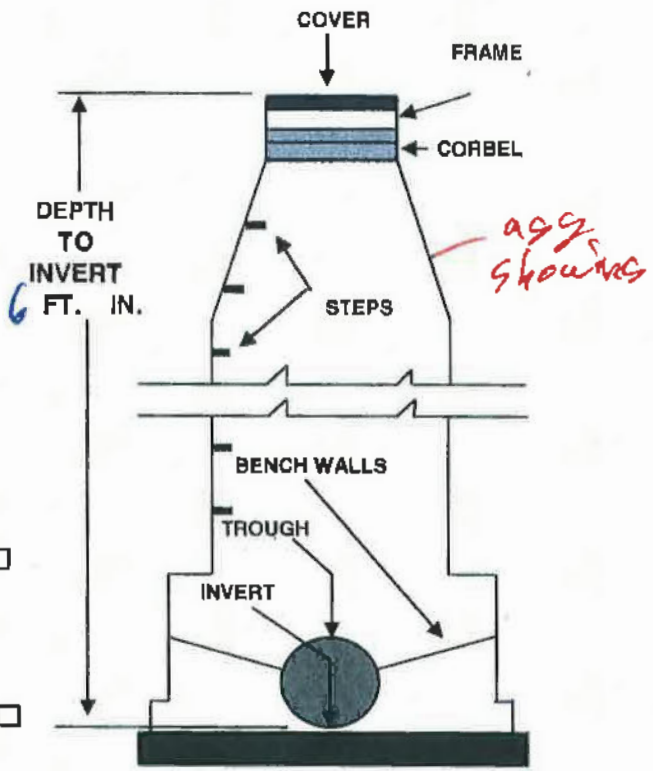
CONDITION: GOOD DETERIORATING
 EVIDENCE OF DEBRIS ON STEPS: YES NO

TROUGH

CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

INFLOW AND INFILTRATION

EVIDENCE OF INFLOW: YES NO EVIDENCE OF SURCHARGING: YES NO
 INCHES ABOVE INVERT: 1 INCHES
 EVIDENCE OF INFILTRATION: YES NO ESTIMATED FLOW RATE: _____ GPM
 LOCATION/DESCRIPTION OF INFILTRATION: _____



TYPICAL MANHOLE

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE	
	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	TO MH # _____	DISTANCE _____ FT
TYPE					
DIAMETER					
FLOW					

COMMENTS: 1 in 1 out 1 Drop connection intruding into MH

Photo taken

MANHOLE INSPECTION REPORT

MANHOLE #: 33 STREET: Barbara Worth Drive DATE: 9-24-12
 WEATHER: Hot sunny INSPECTOR(S): WLB

MANHOLE COVER

DIAMETER: _____ INCHES
 NO. OF HOLES IN COVER: _____
 CONDITION OF FIT: LOOSE TIGHT
 SEALED BOLTED
 EVIDENCE OF LEAKAGE: YES NO

MANHOLE FRAME

CONDITION: SOUND BROKEN
 EVIDENCE OF LEAKAGE: YES NO

CORBEL AND WALLS

CONSTRUCTION: PRECAST BRICK
 CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

BENCH WALLS

CONDITION: GOOD DETERIORATING
 DEPOSITS: MUD DEBRIS SLUDGE
 DEPTH OF DEPOSITS: _____ INCHES

STEPS

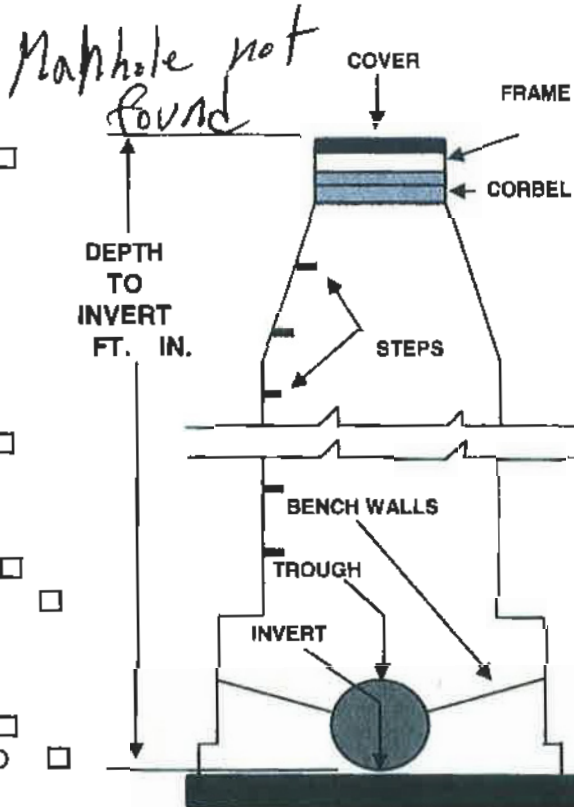
CONDITION: GOOD DETERIORATING
 EVIDENCE OF DEBRIS ON STEPS: YES NO

TROUGH

CONDITION: GOOD DETERIORATING
 EVIDENCE OF LEAKAGE: YES NO

INFLOW AND INFILTRATION

EVIDENCE OF INFLOW: YES NO EVIDENCE OF SURCHARGING: YES NO
 INCHES ABOVE INVERT: _____ INCHES
 EVIDENCE OF INFILTRATION: YES NO ESTIMATED FLOW RATE: _____ GPM
 LOCATION/DESCRIPTION OF INFILTRATION: _____



TYPICAL MANHOLE

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	FROM MH # _____ DROP LINE <input type="checkbox"/> DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:



Appendix F

Pipeline and Force Main Inspection Logs

Tabular Report of PLR 01

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 25 Surveyed On 09/25/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 01	Depth Ft
Shape Circular	Size 10 by ins	To PUMP STATION	Depth Ft
Material Polyvinyl chloride	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note Line leads across Even Hewes Hwy		Structural	Service
Location note		Miscellaneous	Constructional

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					01
	0.0		WL Water level				10	
	2.0		DEG Debris (Grease)	L				1/3 to 1/2 PIPE
	2.0		GO General observation					BLOCKED BY LARGE DEBRIS IN MH.
	2.0		SA Survey abandoned					

2.0 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 75



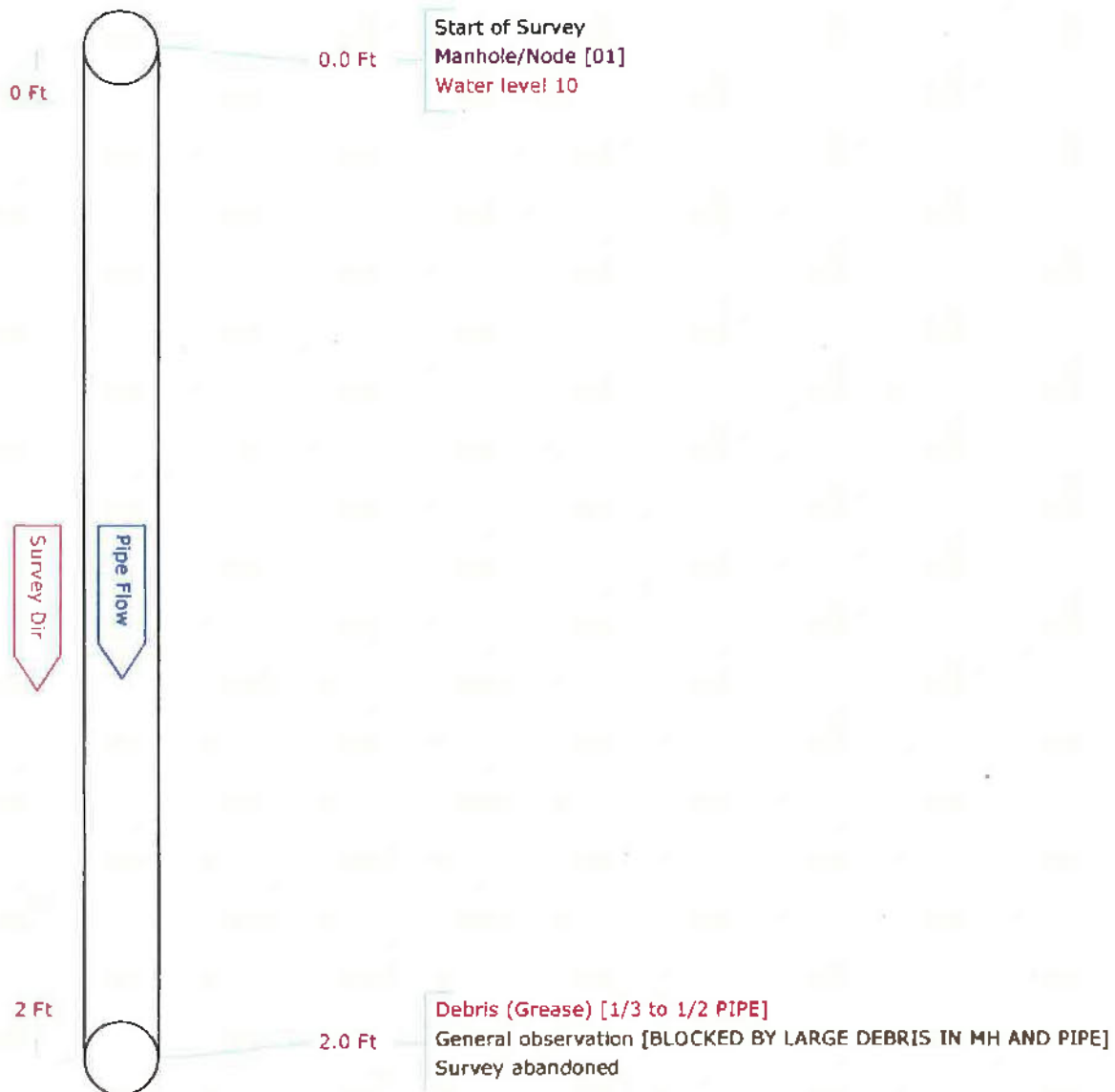
PipeLogix Inc.
 Phone: 866-299-3150
 Fax: 760-406-6023

Pipe Graphic Report of PLR 01

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 25
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 10 by	ins
Material	Polyvinly chloride	Joint spacing	Ft
Lining		Year laid	
From	01	Depth	Ft
To	PUMP STATION	Depth	Ft
Direction	Downstream		
Pre-clean	N	Last cleaned	
General note	Line leads across Evan Hewes Hwy	Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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CCTV pictures of 01

X

for Bureau Veritas NA

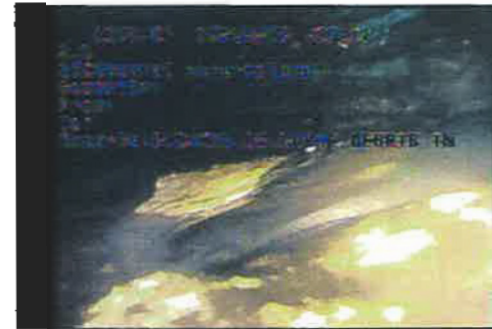
Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 25
Street Name Barbara Worth Rd	City Name Holtville	Weather Dry		
Location	From Manhole 01	To Manhole PUMP STATION		

Date: 09/25/2012
Distance: 2.0 Ft
Obs: Debris (Grease)



Comments:
1/3 to 1/2 PIPE

Date: 09/25/2012
Distance: 2.0 Ft
Obs: General observation



Comments:
BLOCKED BY LARGE
DEBRIS IN MH AND PIPE

Tabular Report of PLR 02

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 23 Surveyed On 09/25/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 02	Depth Ft
Shape Circular	Size 8 by Ins	To 01	Depth Ft
Material Polyvinyl chloride	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					02
	0.0		WL Water level				10	
	8.0		DE Debris	L				
	12.9		DE Debris	L				
	24.9		DE Debris	L				CONTINUING
	25.3		GO General observation					BLOCKED BY DEBRIS
	25.3		GO General observation					DEBRIS TOO HEAVY FOR US ATTEM..
	25.6		SA Survey abandoned					

25.6 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 450	Mean Defect 112.5	Peak 150	Mean Pipe 17.6



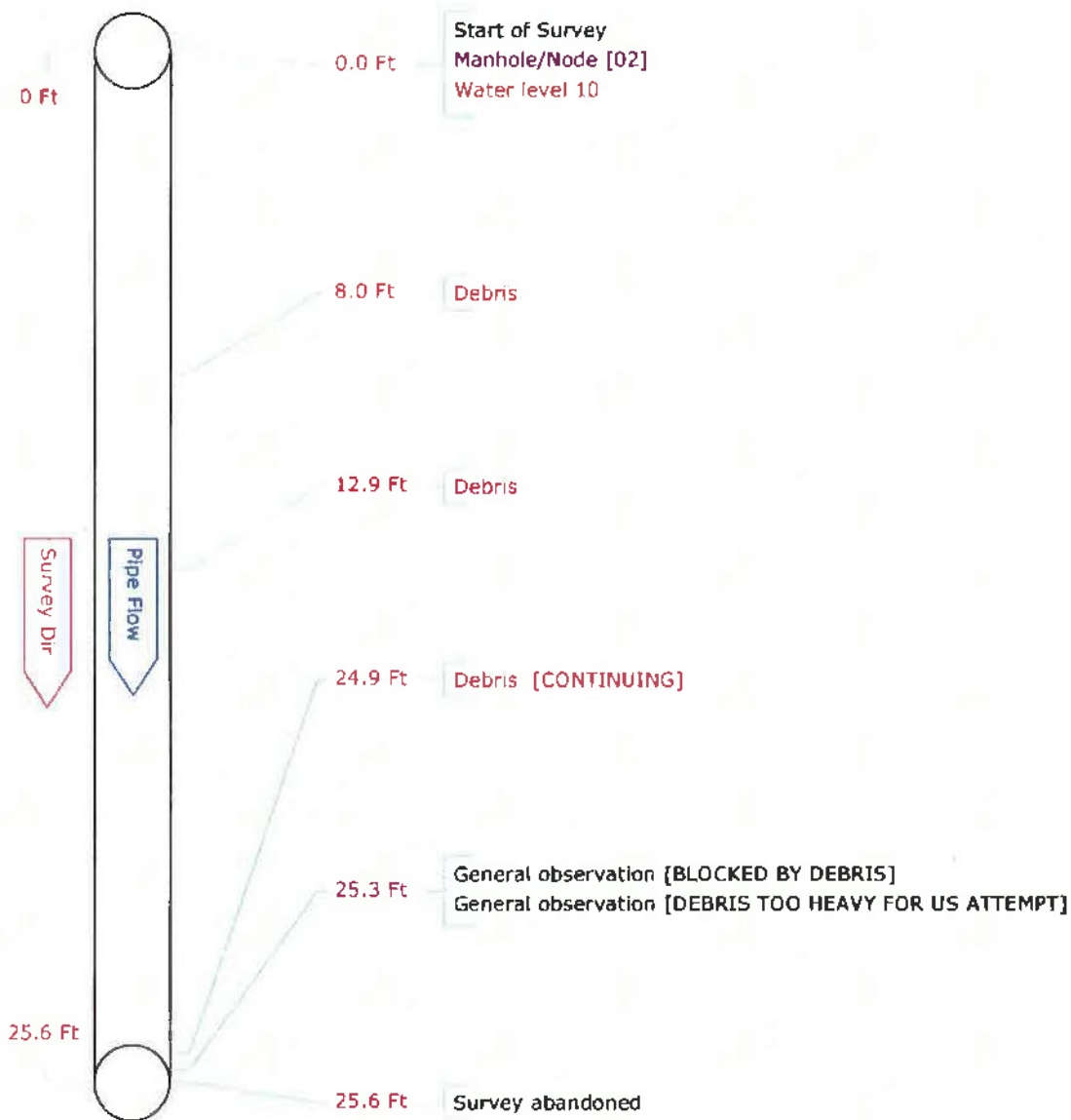
PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-6023

Pipe Graphic Report of PLR 02

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 23
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by ins	From 02 Depth Ft
Material	Polyvinyl chloride	Joint spacing	Ft
Lining		Year laid	
General note		Direction	Downstream
Location note		Pre-clean	N Last cleaned
		Structural	Service Constructional
		Miscellaneous	Hydraulic



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CCTV pictures of 02

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 23
Street Name Barbara Worth Rd	City Name Holtville	Weather Dry		
Location	From Manhole 02	To Manhole 01		

Date: 09/25/2012

Distance: 8.0 Ft

Obs: Debris

Comments:



Date: 09/25/2012

Distance: 12.9 Ft

Obs: Debris

Comments:



Date: 09/25/2012

Distance: 24.9 Ft

Obs: Debris

Comments:
CONTINUING



Tabular Report of PLR 03

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 24
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name Barbara Worth Rd	City Holtville		
Location type	Surface		
Survey purpose Random survey of pipes and things	Weather Dry		
Pipe Use Sanitary	Sched length	Ft	From 03
Shape Circular	Size 8	by ins	To 02
Material Polyvinyl chloride	Joint Spacing	Ft	Direction Down
Lining	Year laid		Pre-clean N Last Cleaned
General note CREATED SURVEY. HEAVY GREASE IN MH			Structural Service Constructional
Location note			Miscellaneous Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH					Manhole/Node 03
	0.0		WL					Water level 10
	0.0		GO					General observation HEAVY GREASE IN MH
	0.0		GO					General observation PUMP STATION PUMPED DOWN FOR ...
	0.0		GO					General observation LINE 1/3 TO 1/2 FULL OF DEBRI...
	0.0		GO					General observation DID NOT ATTEMPT VIDEO DUE TO ...
	0.0		SA					Survey abandoned

0.0 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0



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Tabular Report of PLR 04

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 22 Surveyed On 09/25/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 04	Depth Ft
Shape Circular	Size 8 by ins	To 03	Depth Ft
Material Polyvinyl chloride	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		MH Manhole/Node					04
	0.0		WL Water level				5	
	0.0		DE Debris	L				LARGE DEBRIS IN MH
	1.0		GO General observation					DS MH SURCHARGED, FULL OF DEB..
	1.2		GO General observation					BLOCKED BY DEBRIS
	1.2		SA Survey abandoned					

1.2 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 125



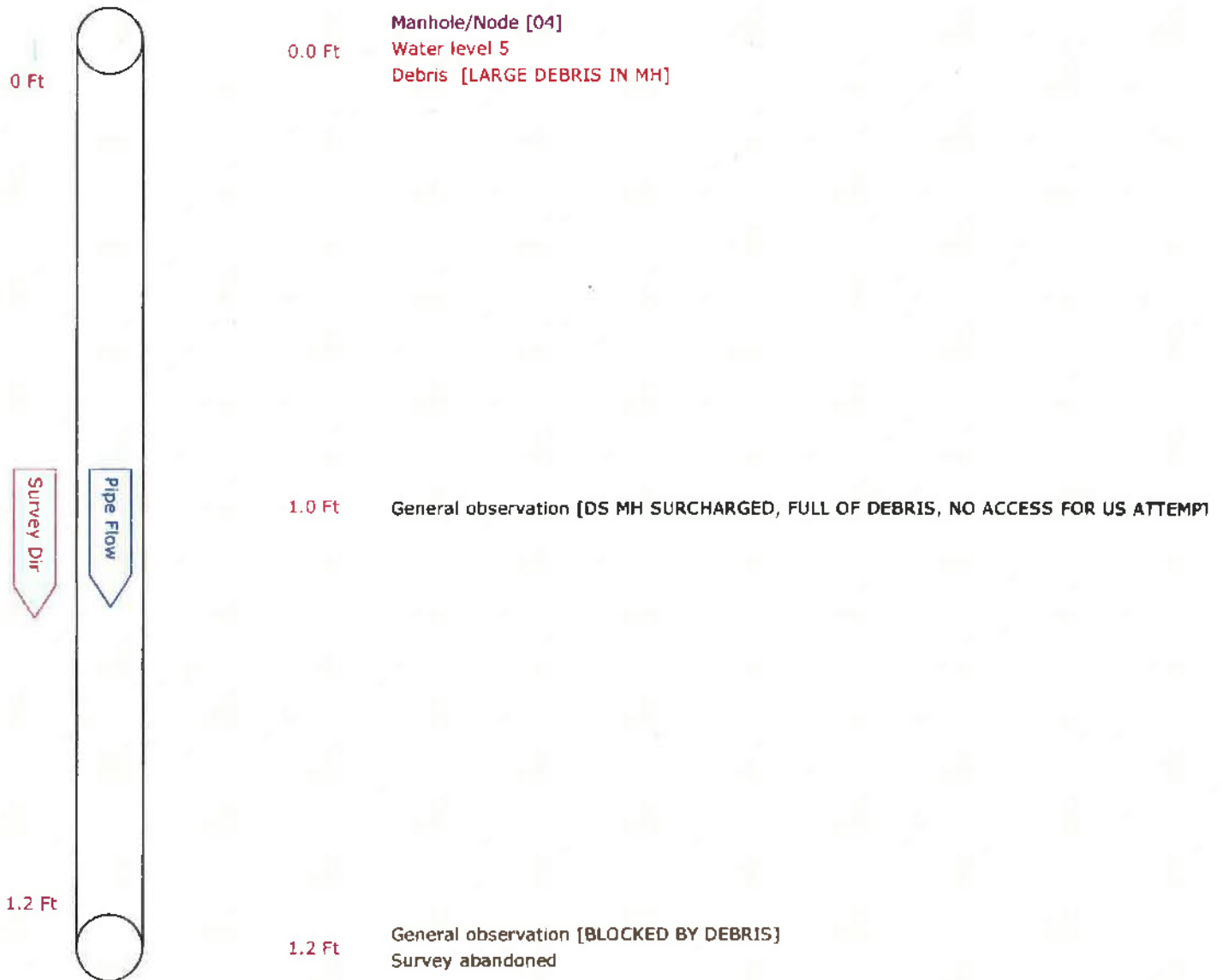
PipeLogix Inc.
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Fax: 760-406-6023

Pipe Graphic Report of PLR 04

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 22
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surfaces			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by ins	
Material	Polyvinly chloride	Joint spacing	Ft
Lining		Year laid	
From	04	Depth	Ft
To	03	Depth	Ft
Direction	Downstream		
Pre-clean	N	Last cleaned	
General note	Structural	Service	Constructional
Location note	Miscellaneous	Hydraulic	



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CCTV pictures of 04

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 22
Street Name Barbara Worth Rd	City Name Holtville	Weather Dry		
Location	From Manhole 04	To Manhole 03		

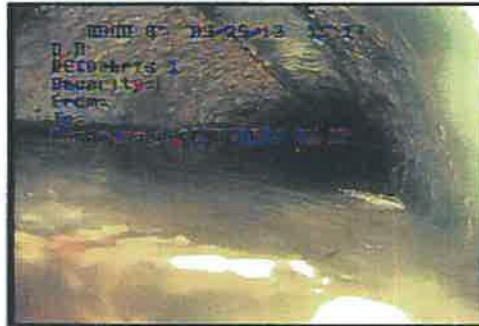
Date: 09/25/2012

Distance: 0.0 Ft

Obs: Debris

Comments:

LARGE DEBRIS IN MH



Tabular Report of PLR 05

A

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 34 Surveyed On 09/27/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 05	Depth Ft
Shape Circular	Size 8 by ins	To 06	Depth Ft
Material Vitrified clay	Joint Specing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note Created survey. Could not attempt line.		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				05	
	0.0		WL Water level				0	
	0.0		GO General observation					MAPS INCORRECT. MH 05 LEADS D...
	0.0		GO General observation					BOTH US AND DS MH'S SURCHARGE...
	0.0		GO General observation					LINES POSSIBLY SURCHARGED DUE...

0.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Tabular Report of PLR 06

A

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 33 Surveyed On 09/27/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary Shape Circular Material Vitrified clay Lining	Sched length Ft Size 8 by ins Joint Spacing Ft Year laid	From 06 To 04 Direction Down Pre-clean N Last Cleaned	Depth Ft Depth Ft
General note Created survey. Could not attempt line. Location note		Structural Miscellaneous	Service Hydraulic
Constructional			

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH					08
	0.0		WL				0	
	0.0		GO					BOTH US AND DS MH'S SURCHARGE...
	0.0		GO					NO ACCESS OR VISIBILITY
	0.0		GO					LINES POSSIBLY SURCHARGED DUE...
	0.0		GO					MAPS INCORRECT. MH 08 LEADS D...

0.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Tabular Report of PLR 07

A

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 32 Surveyed On 09/27/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 07	Depth Ft
Shape Circular	Size 8 by Ins	To 08	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note Created survey. Could not attempt line.		Structural	Service
Location note		Miscellaneous	Constructional Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					07
	0.0		WL Water level				0	
	0.0		GO General observation					US MH NOT FOUND
	0.0		GO General observation					DS MH SURCHARGED, NO ACCESS O...
	0.0		GO General observallon					COULD NOT ATTEMPT LINE
	0.0		GO General observation					LINE POSSIBLY SURCHARGED DUE ...

0.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Tabular Report of PLR 09

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 28 Surveyed On 09/26/2012
Street Name Barbera Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 09	Depth Ft
Shape Circular	Size 8 by ins	To 08	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH					Manhole/Node 09
	0.0		WL					Water level 3
	6.0		CB			09		Break in Connection
	8.0		DE		M			Debris
	41.8		CN			09		Service Connection
	51.5		DE		L			Debris CONTINUING
	84.8		CN			10		Service Connection
	128.1		CN			09		Service Connection
	146.3		MH					Manhole/Node 08
	146.3		FH					Finish of Surveys

146.3 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 225	Mean Defect 75	Peak 150	Mean Pipe 1.5



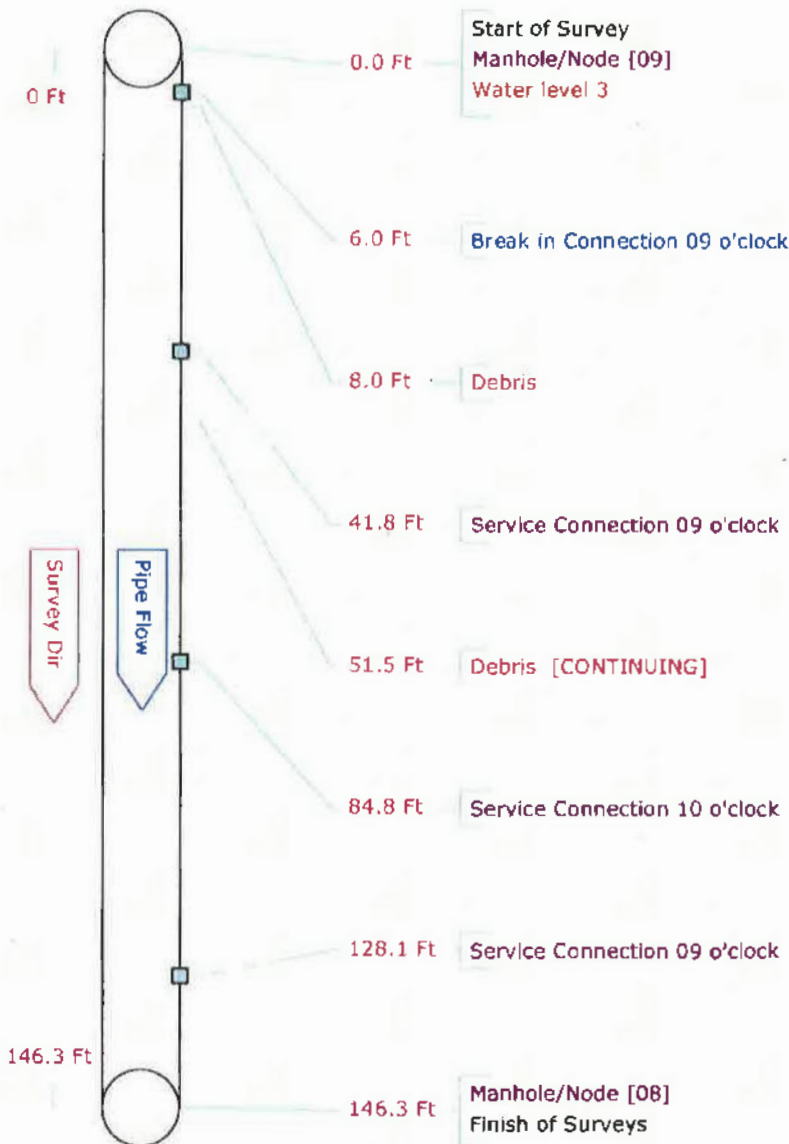
PipeLogix Inc.
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Fax: 760-406-6023

Pipe Graphic Report of PLR 09

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 28
Facility	Operator NJP	Van Ref 10	Surveyed On 09/26/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
From	09	Depth	Ft
To	08	Depth	Ft
Direction	Downstream		
Pre-clean	N	Last cleaned	
General note	Structural	Service	Constructional
Location note	Miscellaneous	Hydraulic	



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Work Order	Video	Surveyed On 09/26/2012	Direction Downstream	Setup 28
Street Name Barbara Worth Rd	City Name Holtville	Weather Dry		
Location	From Manhole 09		To Manhole 08	

Date: 09/26/2012

Distance: 6.0 Ft

Obs: Break in Connection

Comments:



Date: 09/26/2012

Distance: 8.0 Ft

Obs: Debris

Comments:



Date: 09/26/2012

Distance: 41.8 Ft

Obs: Service Connection

Comments:



Date: 09/26/2012

Distance: 51.5 Ft

Obs: Debris

Comments:
CONTINUING



Date: 09/26/2012

Distance: 84.8 Ft

Obs: Service Connection

Comments:



Date: 09/26/2012

Distance: 128.1 Ft

Obs: Service Connection

Comments:



Tabular Report of PLR 10

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 27 Surveyed On 09/26/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 09	Depth Ft
Shape Circular	Size 8 by ine	To 10	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					09
	0.0		WL Water level				3	
	5.0		DE Debris	S				
	11.6		CN Service Connection			10		
	20.1		CN Service Connection			02		
	55.6		DEG Debris (Grease)	S				
	69.5		CRA Roots around Lateral	S		03		
	69.7		CB Break in Connection			03		
	73.8		CN Service Connection			10		
	84.4		CB Break in Connection			02		
	87.0		CN Service Connection			02		
	87.6		DEG Debris (Grease)	M				CONTINUING
	115.6		DEG Debris (Grease)	M				CONTINUING
	139.2		CN Service Connection			10		
	152.4		CN Service Connection			02		
	166.5		DEG Debris (Grease)	L				CONTINUING
	196.6		CP Plugged Connection			03		
	201.4		GO General observation					LINE CONTINUES US
	201.4		MH Manhole/Node					10
	201.4		FH Finish of Surveys					

201.4 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 420	Mean Defect 60	Peak 150	Mean Pipe 2.1



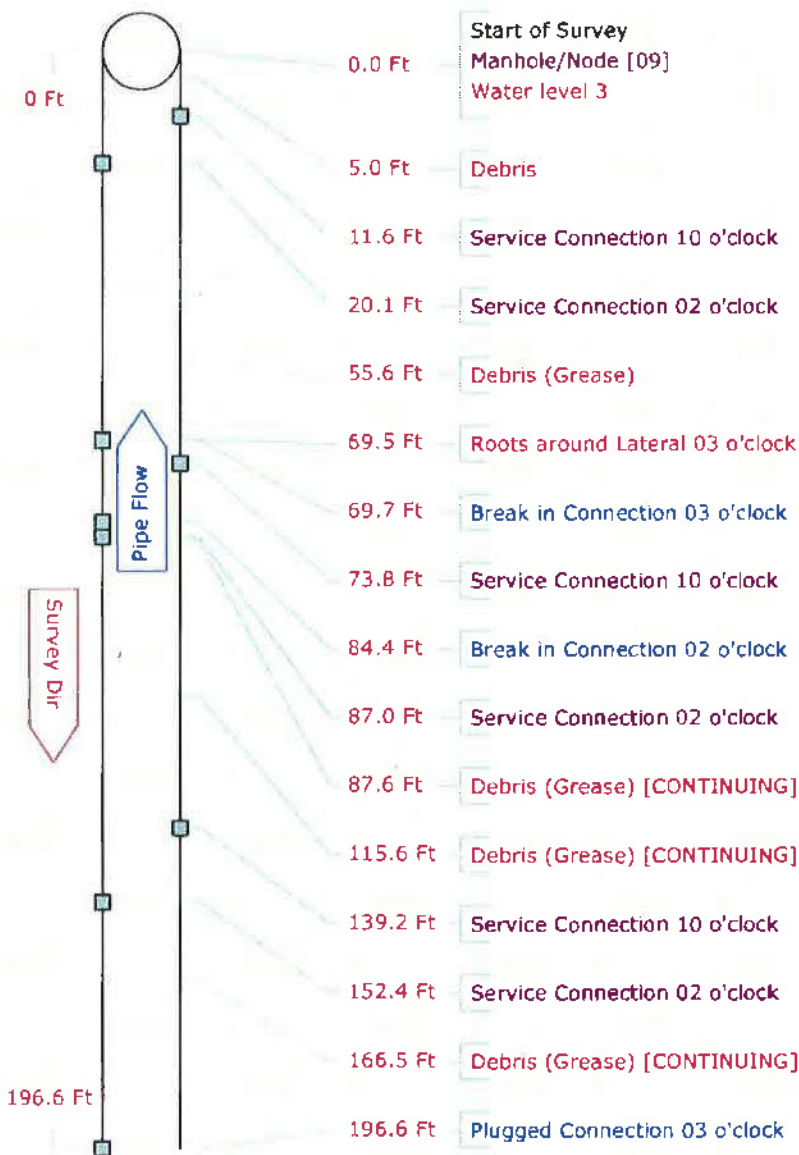
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Pipe Graphic Report of PLR 10

X

for Bureau Veritas NA

Work Order	Contract		Video	Setup 27
Facility	Operator NJP		Van Ref 10	Surveyed On 09/26/2012
Street Name	Barbara Worth Rd	City	Holtville	
Location type				
Surface				
Survey purpose	Random survey of pipes and things		Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft	From 09
Shape	Circular	Size 8	by ins	To 10
Material	Vitrified clay	Joint spacing	Ft	Depth
Lining		Year laid		Direction Upstream
				Pre-clean N Last cleaned
General note			Structural	Service Constructional
Location note			Miscellaneous	Hydraulic



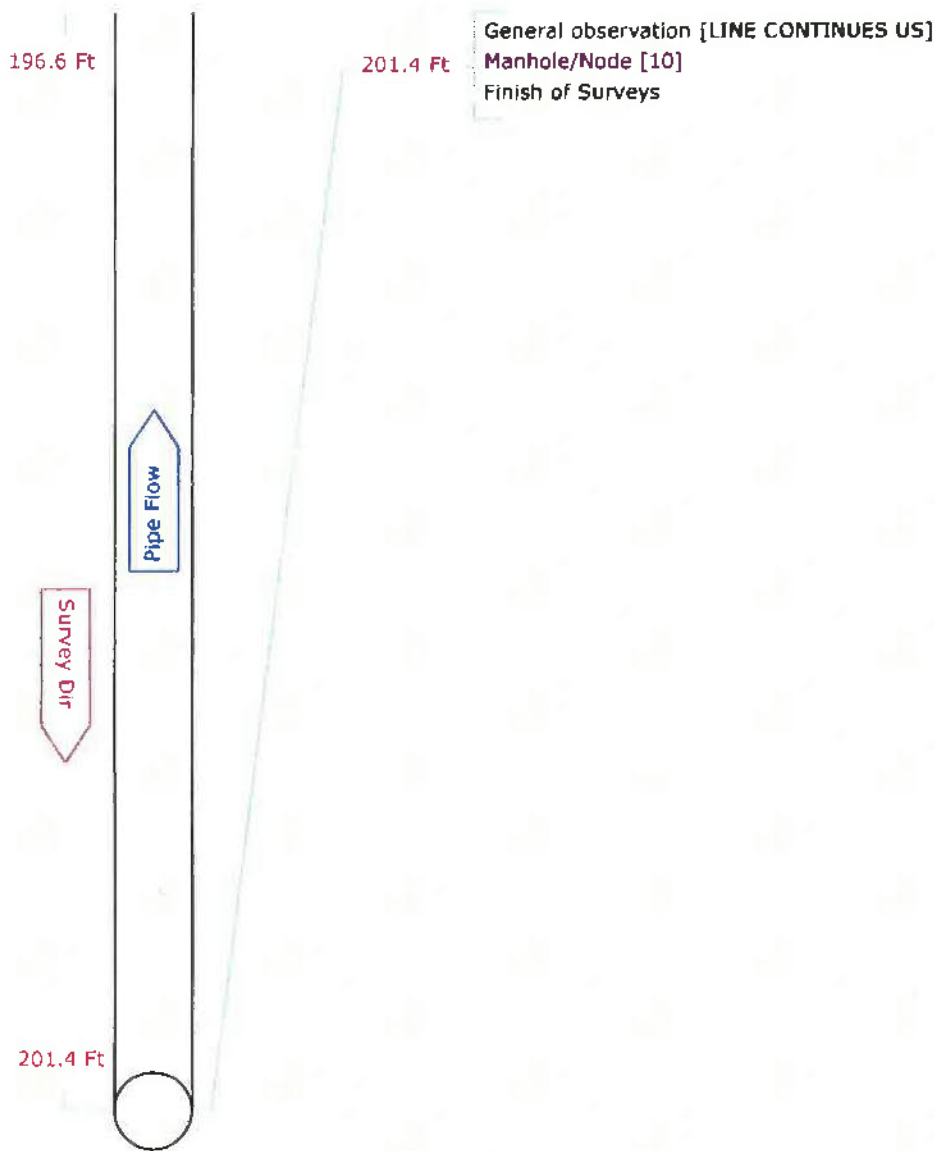
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Pipe Graphic Report of PLR 10

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 27
Facility	Operator NJP	Van Ref 10	Surveyed On 09/26/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use Sanitary	Schedule length Ft	From 09	Depth Ft
Shape Circular	Size 8 by ins	To 10	Depth Ft
Material Vitrified clay	Joint spacing Ft	Direction	Upstream
Lining	Year laid	Pre-clean N	Last cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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Work Order	Video	Surveyed On	Direction	Setup
Street Name Barbara Worth Rd	City Name Holtville	09/26/2012	Upstream	27
Location		From Manhole 09	To Manhole 10	
			Weather Dry	

Date: 09/26/2012

Distance: 5.0 Ft

Obs: Debris

Comments:



Date: 09/26/2012

Distance: 11.6 Ft

Obs: Service Connection

Comments:



Date: 09/26/2012

Distance: 20.1 Ft

Obs: Service Connection

Comments:



Date: 09/26/2012

Distance: 55.6 Ft

Obs: Debris (Grease)

Comments:



Date: 09/26/2012

Distance: 69.5 Ft

Obs: Roots around Lateral

Comments:

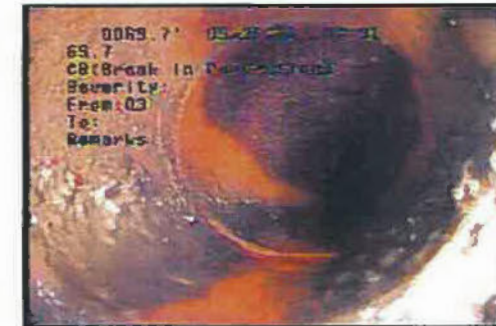


Date: 09/26/2012

Distance: 69.7 Ft

Obs: Break in Connection

Comments:



Work Order	Video	Surveyed On 09/26/2012	Direction Upstream	Setup 27
Street Name Barbara Worth Rd	City Name Holtville	Weather Dry		
Location	From Manhole 09		To Manhole 10	

Date: 09/26/2012
 Distance: 73.8 Ft
 Obs: Service Connection



Comments:

Date: 09/26/2012
 Distance: 84.4 Ft
 Obs: Break in Connection



Comments:

Date: 09/26/2012
 Distance: 87.0 Ft
 Obs: Service Connection



Comments:

Date: 09/26/2012
 Distance: 87.6 Ft
 Obs: Debris (Grease)



Comments:
 CONTINUING

Date: 09/26/2012
 Distance: 115.6 Ft
 Obs: Debris (Grease)



Comments:
 CONTINUING

Date: 09/26/2012
 Distance: 139.2 Ft
 Obs: Service Connection



Comments:

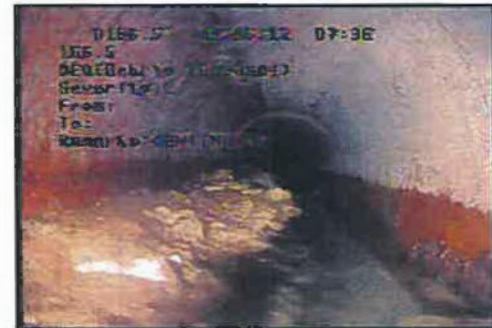
Work Order	Video	Surveyed On 09/26/2012	Direction Upstream	Setup 27
Street Name Barbara Worth Rd	City Name Holtville	Weather Dry		
Location	From Manhole 09	To Manhole 10		

Date: 09/26/2012
Distance: 152.4 Ft
Obs: Service Connection



Comments:

Date: 09/26/2012
Distance: 166.5 Ft
Obs: Debris (Grease)



Comments:
CONTINUING

Date: 09/26/2012
Distance: 196.6 Ft
Obs: Plugged Connection



Comments:

Tabular Report of PLR 11

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 30 Surveyed On 09/27/2012
Street Name Barbara Worth Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 11	Depth Ft
Shape Circular	Size 8 by ins	To 07	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note Created Survey. Could not attempt line.		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				11	
	0.0		WL Water level				0	
	0.0		GO General observation					US AND DS MH'S BURIED/NOT FOL...
	0.0		GO General observation					COULD NOT ATTEMPT LINE

0.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Tabular Report of PLR 12 X for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 16 Surveyed On 09/24/2012
Street Name Fairway Dr (Golf Course)		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 12	Depth Ft
Shape Circular	Size 8 by ins	To 11	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				12	
	0.0		WL Water level				5	
	1.0		DE Debris	L				
	1.9		GO General observation					BLOCKED BY DEBRIS
	1.9		GO General observation					DS MH IS BURIED/NOT FOUND
	1.9		SA Survey abandoned					

1.9 Ft Total Length Surveyed

Scores	Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
	Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 78.9



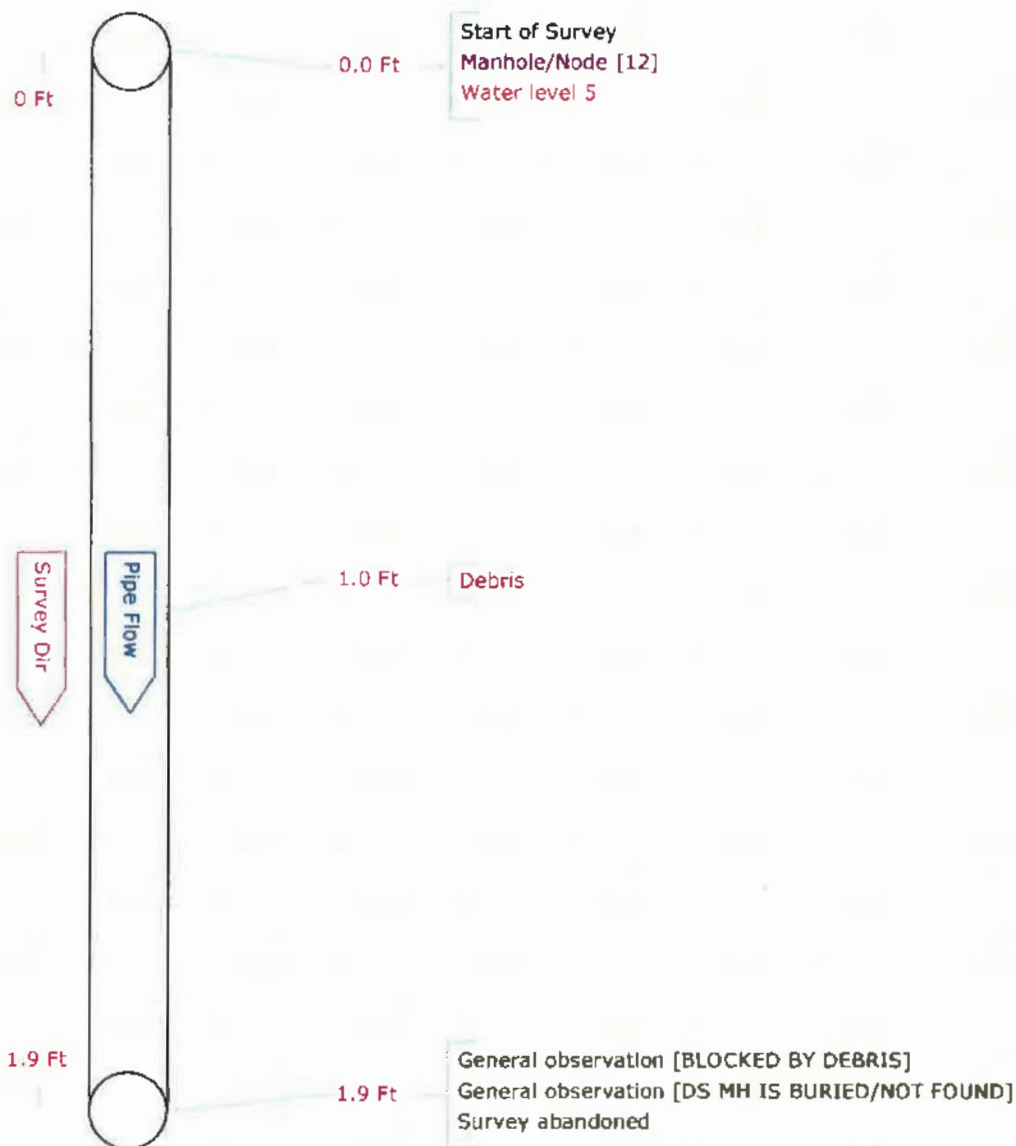
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Pipe Graphic Report of PLR 12

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 18
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Fairway Dr (Golf Course)	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things		Weather Dry
Pipe Use Sanitary	Schedule length	Ft	From 12 Depth Ft
Shape Circular	Size 8 by	ins	To 11 Depth Ft
Material Vitrified clay	Joint spacing	Ft	Direction Downstream
Lining	Year laid		Pre-clean N Last cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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CCTV pictures of 12

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 16
Street Name Fairway Dr (Golf Course)	City Name Holtville	Weather Dry		
Location	From Manhole 12	To Manhole 11		

Date: 09/24/2012

Distance: 1.0 Ft

Obs: Debris

Comments:



Tabular Report of PLR 13

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 14
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name Fairway Dr (Golf Course)		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length	Ft	From 13
Shape Circular	Size 8	by ine	To 12
Material Vitrified clay	Joint Spacing	Ft	Direction Down
Lining	Year laid		Pre-clean N Last Cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				13	
	0.0		WL Water level				10	
	1.1		DEG Debris (Grease)	L				
	1.1		GO General observation					BLOCKED BY DEBRIS
	1.1		SA Survey abandoned					

1.1 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 136.4



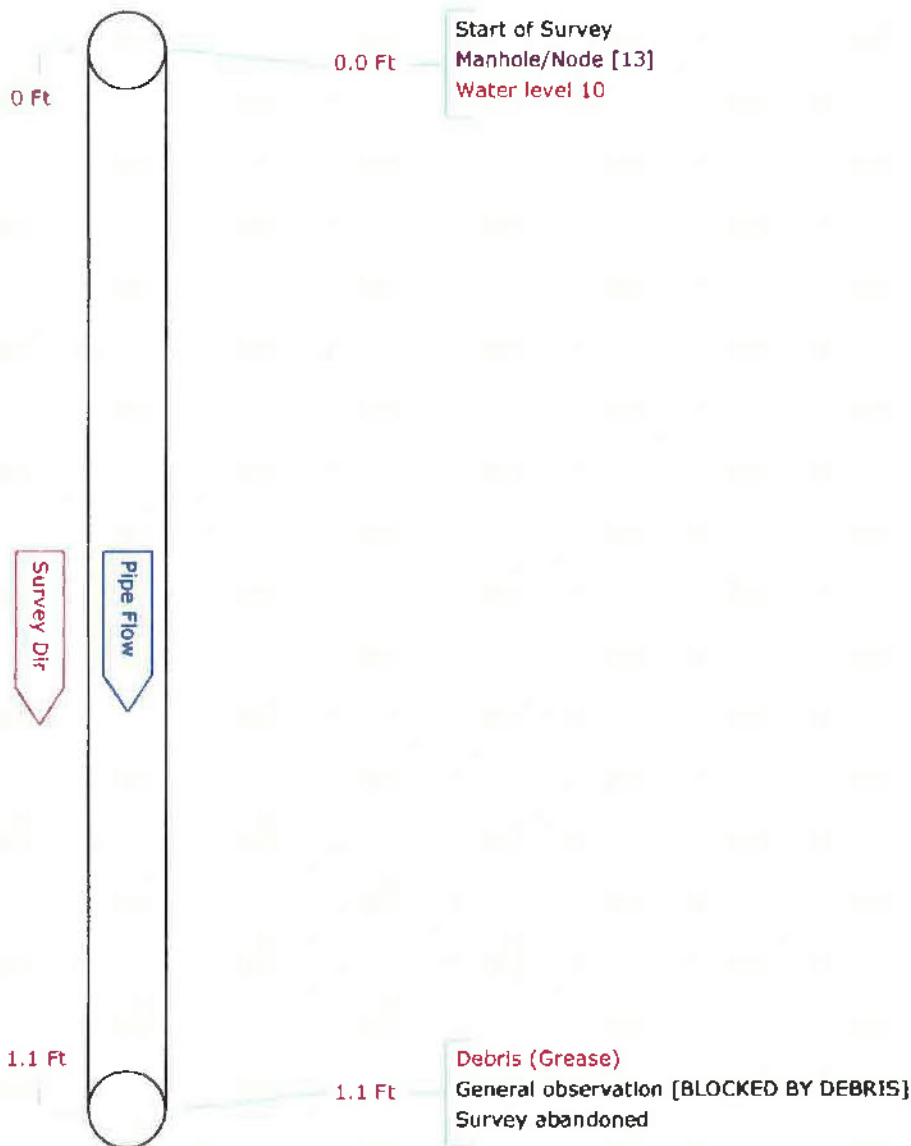
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 Fax: 760-406-6023

Pipe Graphic Report of PLR 13

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 14
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Fairway Dr (Golf Course)	City	Hotville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use Sanitary	Schedule length	From 13	Depth Ft
Shape Circular	Size 8 by ins	To 12	Depth Ft
Material Vitrified clay	Joint spacing Ft	Direction	Downstream
Lining	Year laid	Pre-clean N	Last cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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Tabular Report of PLR 13

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 15 Surveyed On 09/24/2012
Street Name Fairway Dr (Golf Course)		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary Shape Circular Material Vitrified clay Lining	Sched length Ft Size 8 by ins Joint Spacing Ft Year laid	From 12 To 13 Direction Up Pre-clean N	Depth Ft Depth Ft Last Cleaned
General note Location note		Structural Miscellaneous	Service Hydraulic
Constructional			

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH					Manhole/Node 12
	0.0		WL					Water level 5
	2.0		DE		L			Debris
	2.0		GO					General observation BLOCKED BY DEBRIS
	2.0		SA					Survey abandoned

2.0 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 75



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CCTV pictures of 13

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 14
Street Name Fairway Dr (Golf Course)	City Name Holtville	Weather Dry		
Location	From Manhole 13	To Manhole 12		

Date: 09/24/2012

Distance: 1.1 Ft

Obs: Debris (Grease)

Comments:



Tabular Report of PLR 14

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 13 Surveyed On 09/24/2012
Street Name Fairway Dr (Golf Course)		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length	Ft	From 13
Shape Circular	Size 8	by ins	To 14
Material Vitrified clay	Joint Spacing	Ft	Direction Up
Lining	Year laid		Pre-clean N Last Cleaned
General note			Structural Service Constructional
Location note			Miscellaneous Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					13
	0.0		WL Water level				5	
	1.1		DEG Debris (Grease)	L				IN MH
	4.9		GO General observation					BLOCKED IN MH BY DEBRIS
	4.9		SA Survey abandoned					

4.9 Ft Total Length Surveyed

Scores

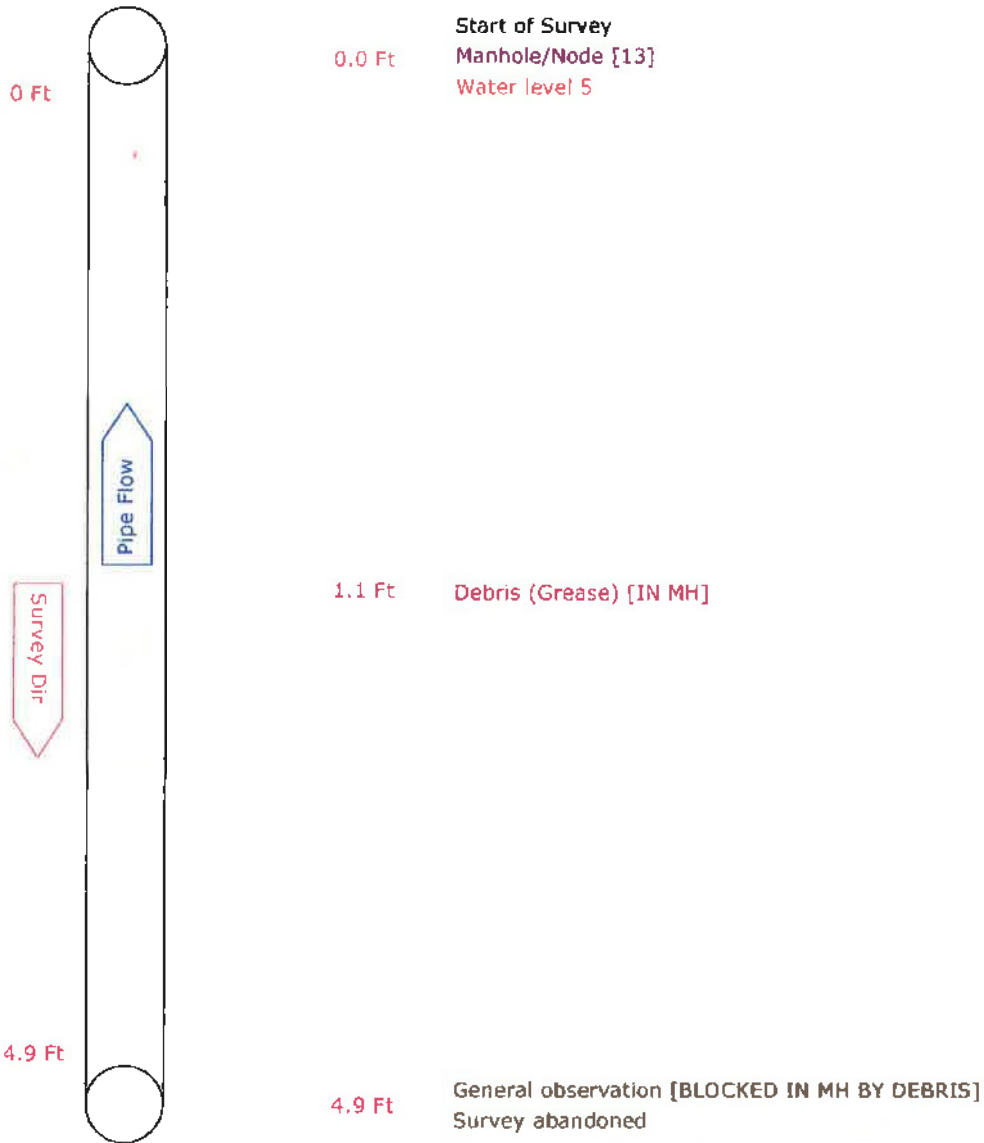
Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 30.6



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Pipe Graphic Report of PLR 14 X for Bureau Veritas NA

Work Order	Contract	Video	Setup 13
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Fairway Dr (Golf Course)	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by ins	From 13 Depth Ft
Material	Vitrified clay	Joint spacing	Ft To 14 Depth Ft
Lining		Year laid	Direction Upstream
General note		Pre-clean N	Last cleaned
Location note		Structural	Service
		Miscellaneous	Hydraulic
			Constructional



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Tabular Report of PLR 14

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 12 Surveyed On 09/24/2012
Street Name Fairway Dr (Golf Course)		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 14	Depth Ft
Shape Circular	Size 8 by ins	To 13	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				14	
	0.0		WL Water level				5	
	1.1		DE Debris	L				
	1.1		GO General observation					BLOCKED IN MH BY HEAVY DEBRIS
	1.1		SA Survey abandoned					

1.1 Ft Total Length Surveyed

Scores

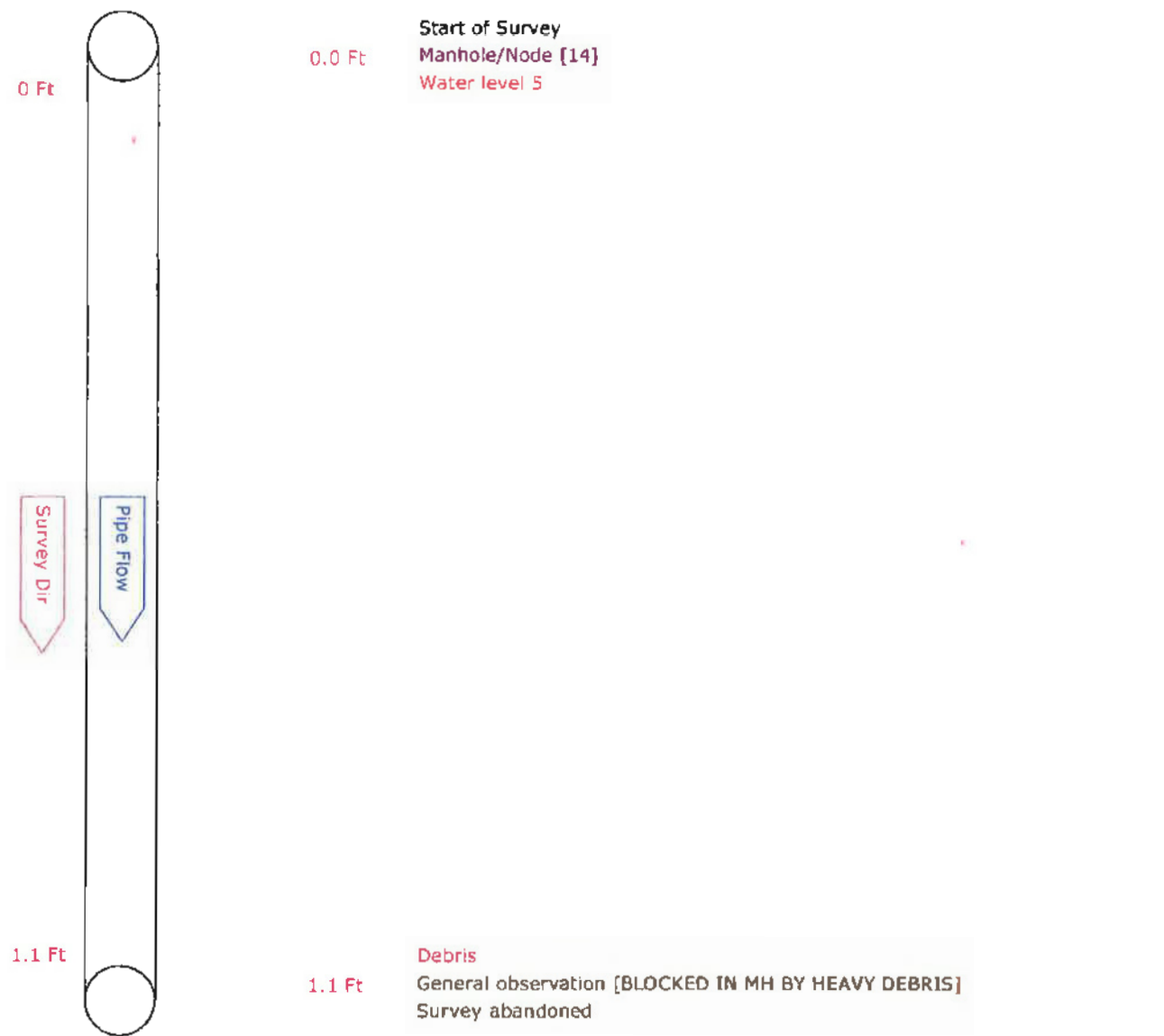
Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 136.4



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Pipe Graphic Report of PLR 14 X for Bureau Veritas NA

Work Order	Contract	Video	Setup 12
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Fairway Dr (Golf Course)	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	From 14	Depth Ft
Material	Vitrified clay	To 13	Depth Ft
Lining		Joint spacing	Ft
		Direction	Downstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
			Constructional



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CCTV pictures of 14

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 12
Street Name Fairway Dr (Golf Course)	City Name Holtville	Weather Dry		
Location	From Manhole 14	To Manhole 13		

Date: 09/24/2012

Distance: 1.1 Ft

Obs: Debris

Comments:



Tabular Report of PLR 15 X for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 11 Surveyed On 09/24/2012
Street Name Fairway Dr (Golf Course)		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 14	Depth Ft
Shape Circular	Size 8 by ins	To 15	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					14
	0.0		WL Water level				3	
	1.0		DE Debris	L				IN MH
	1.0		GO General observation					BLOCKED BY DEBRIS IN MH
	1.0		SA Survey abandoned					

1.0 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 150



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Tabular Report of PLR 15

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 10 Surveyed On 09/24/2012
Street Name Fairway Dr (Golf Course)		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 15	Depth Ft
Shape Circular	Size 8 by ins	To 14	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				15	
	0.0		WL Water level				5	
	2.0		DEG Debris (Grease)	L				
	4.0		DEG Debris (Grease)	L				50% OF PIPE FULL OF GREASE
	4.0		GO General observation					BLOCKED BY GREASE
	4.0		SA Survey abandoned					

4.0 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 300	Mean Defect 100	Peak 150	Mean Pipe 75



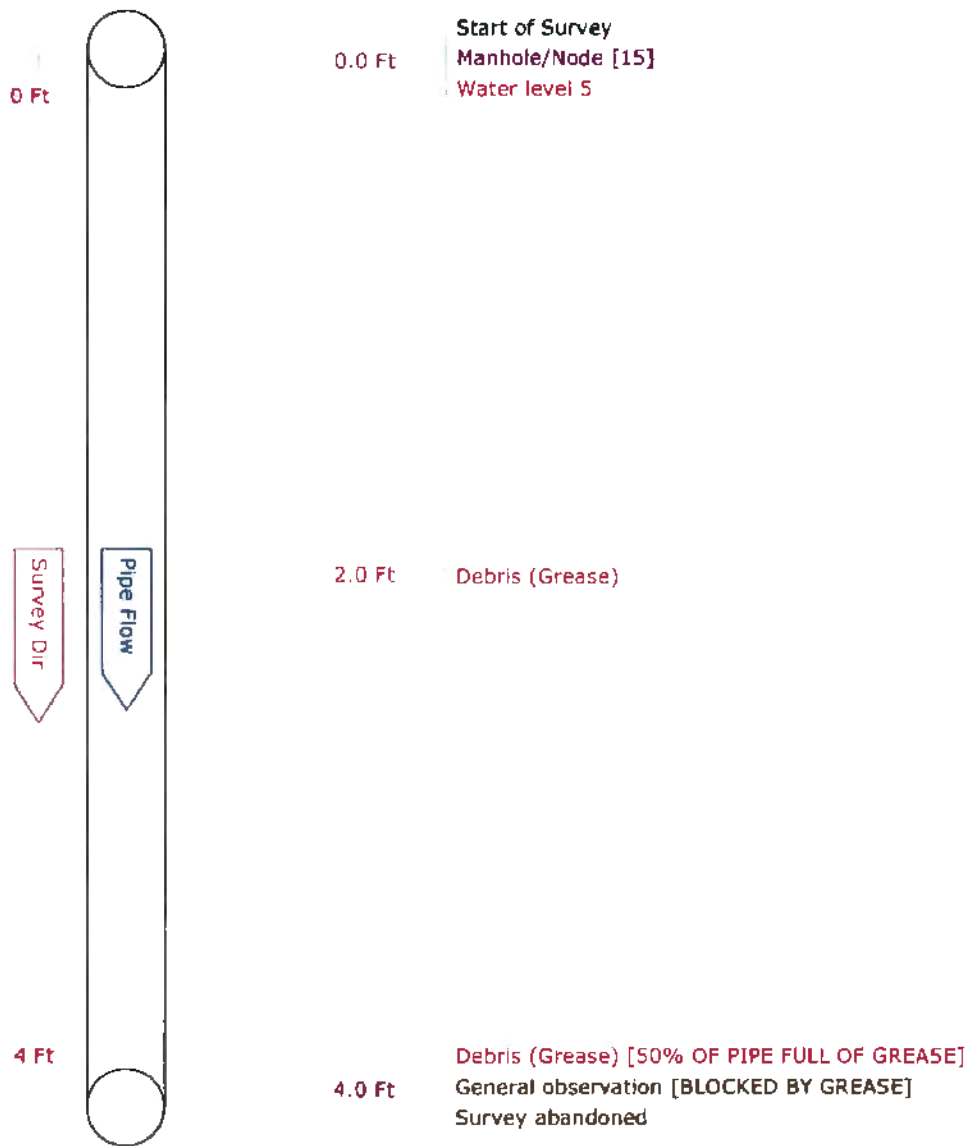
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Pipe Graphic Report of PLR 15

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 10
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Falway Dr (Golf Course)	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by ins	From 15 Depth Ft
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		Direction	Downstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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CCTV pictures of 15

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 10
Street Name Fairway Dr (Golf Course)	City Name Holtville	Weather Dry		
Location	From Manhole 15		To Manhole 14	

Date: 09/24/2012

Distance: 2.0 Ft

Obs: Debris (Grease)

Comments:



Date: 09/24/2012

Distance: 4.0 Ft

Obs: Debris (Grease)

Comments:

50% OF PIPE FULL OF GREASE



Date: 09/24/2012

Distance: 4.0 Ft

Obs: General observation

Comments:

BLOCKED BY GREASE



Tabular Report of PLR 16

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 9 Surveyed On 09/24/2012
Street Name Fairway Dr		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 15	Depth Ft
Shape Circular	Size 6 by Ins	To 16	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					15
	0.0		WL Water level				3	
	1.0		GO General observation					US MH IS SURCHARGED. NO ACCES
	1.1		DEG Debris (Grease)	L				AT ENTRANCE TO PIPE
	1.1		GO General observation					BLOCKED IN MH BY TIGHT BEND A...
	1.1		SA Survey abandoned					

1.1 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 136.4



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Tabular Report of PLR 17

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 8 Surveyed On 09/24/2012
Street Name Vista Verde Dr		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 17	Depth Ft
Shape Circular	Size 6 by in	To 18	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		MH Manhole/Node					17
	0.0		WL Water level				3	
	14.9		DEG Debris (Grease)	L				
	23.3		DEG Debris (Grease)	L				CONTINUING
	35.1		DEG Debris (Grease)	L				CONTINUING
	41.1		GO General observation					DS MH SURCHARGED. DID NOT ATT...
	41.2		GO General observation					BLOCKED BY GREASE
	41.2		SA Survey abandoned					

41.2 Ft Total Length Surveyed

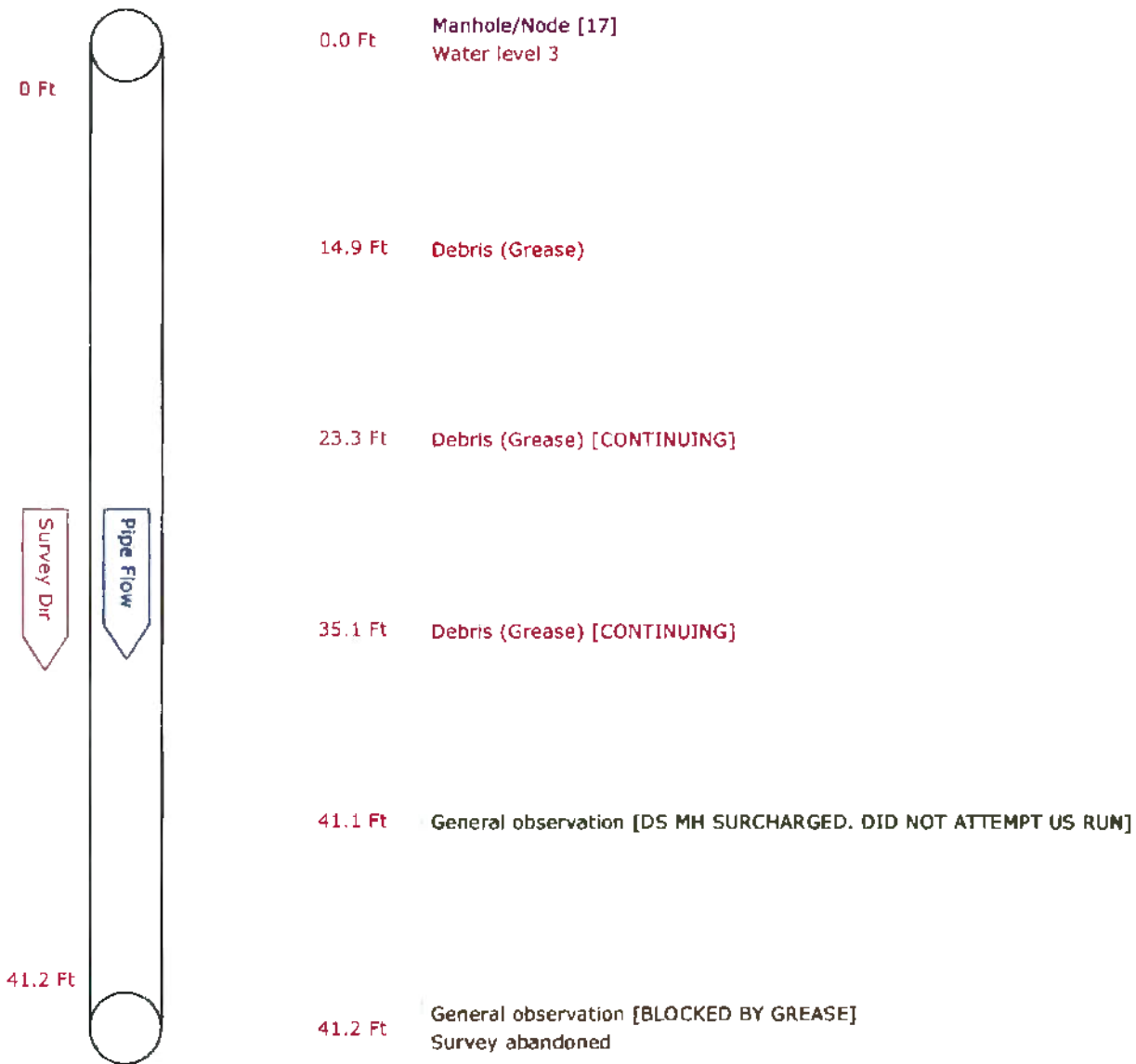
Scores	Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
	Service:	Total 450	Mean Defect 112.5	Peak 150	Mean Pipe 10.9



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Pipe Graphic Report of PLR 17 X for Bureau Veritas NA

Work Order	Contract	Video	Setup 8
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Vista Verde Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 6 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		From 17	Depth Ft
		To 16	Depth Ft
		Direction	Downstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
			Constructional



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CCTV pictures of 17

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 8
Street Name Vista Verde Dr	City Name Holtville	Weather Dry		
Location	From Manhole 17	To Manhole 16		

Date: 09/24/2012
 Distance: 14.9 Ft
 Obs: Debris (Grease)



Comments:

Date: 09/24/2012
 Distance: 23.3 Ft
 Obs: Debris (Grease)



Comments:
CONTINUING

Date: 09/24/2012
 Distance: 35.1 Ft
 Obs: Debris (Grease)



Comments:
CONTINUING

Tabular Report of PLR 18

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 7 Surveyed On 09/24/2012
Street Name Vista Verde Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 18	Depth Ft
Shape Circular	Size 6 by Ins	To 17	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					18
	0.0		WL Water level				3	
	2.0		CC Circular Crack	S	12	12		
	17.0		CN Service Connection				03	
	19.1		DEG Debris (Grease)	L				
	68.1		C Corrosion of Cf	M	01	06		
	77.5		CN Service Connection				03	
	79.4		CN Service Connection				09	
	140.8		DS Begin Pipe Sag					
	147.5		CN Service Connection				03	
	149.3		CN Service Connection				09	
	151.0		DF End pipe sag					
	197.7		DS Begin Pipe Sag					
	213.1		CN Service Connection				09	
	214.7		CN Service Connection				03	
	220.8		GO General observation					LARGE DEBRIS IN DS MH
	220.6		GO General observation					SAG CONTINUES THROUGH MH
	221.6		MH Manhole/Node					17
	221.8		FH Finish of Surveys					

221.6 Ft Total Length Surveyed

Scores	Structural:	Total 300	Mean Defect 60	Peak 200	Mean Pipe 1.4
	Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 0.7



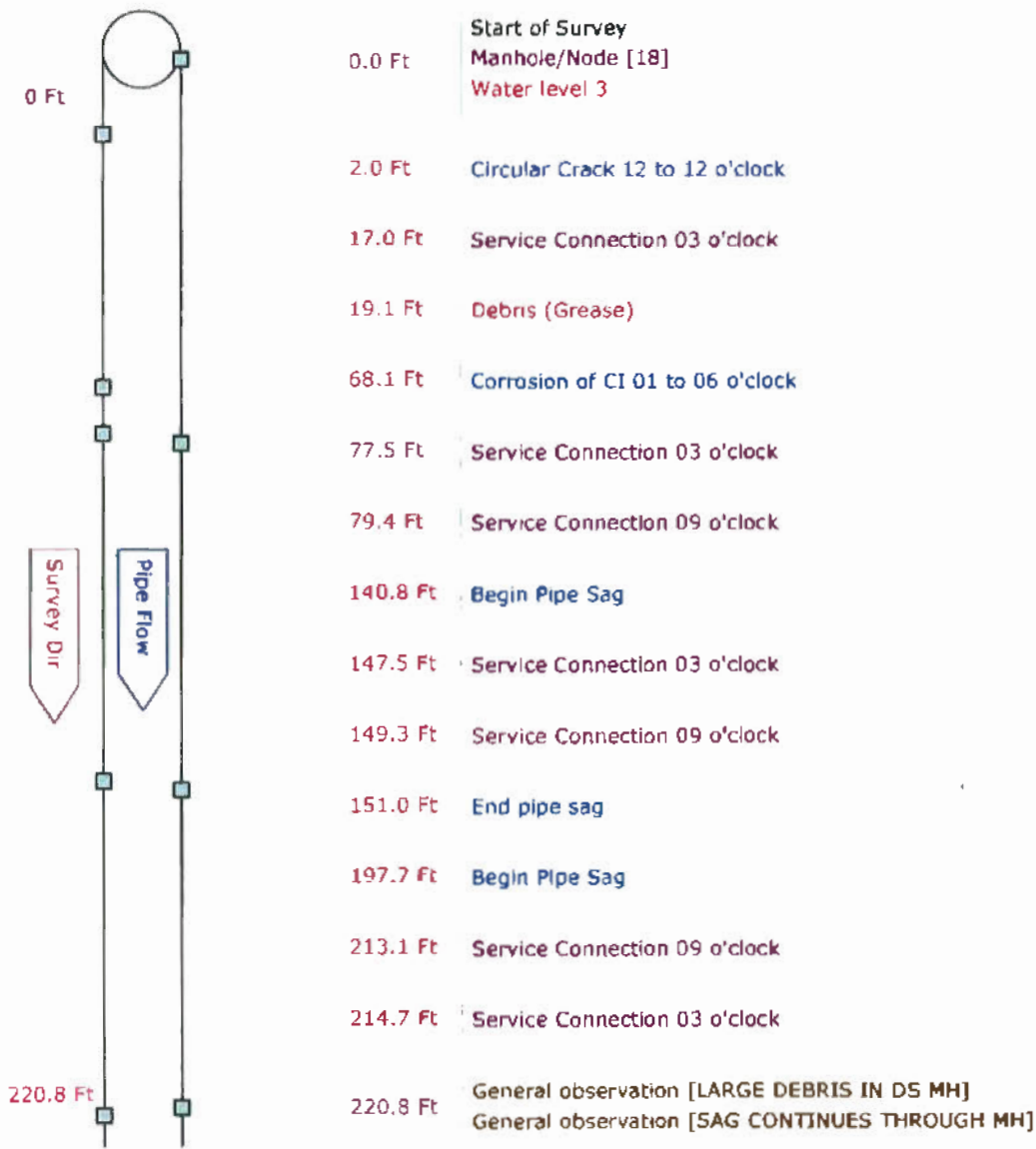
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Fax: 760-406-6023

Pipe Graphic Report of PLR 18

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup	7
Facility	Operator NJP	Van Ref 10	Surveyed On	09/24/2012
Street Name	Vista Verde Dr	City	Holtville	
Location type				
Surface				
Survey purpose	Random survey of pipes and things		Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft	From 18
Shape	Circular	Size 6 by	ins	To 17
Material	Vitrified clay	Joint spacing	Ft	Direction
Lining		Year laid		Downstream
General note			Structural	Service
Location note			Miscellaneous	Constructional
				Hydraulic



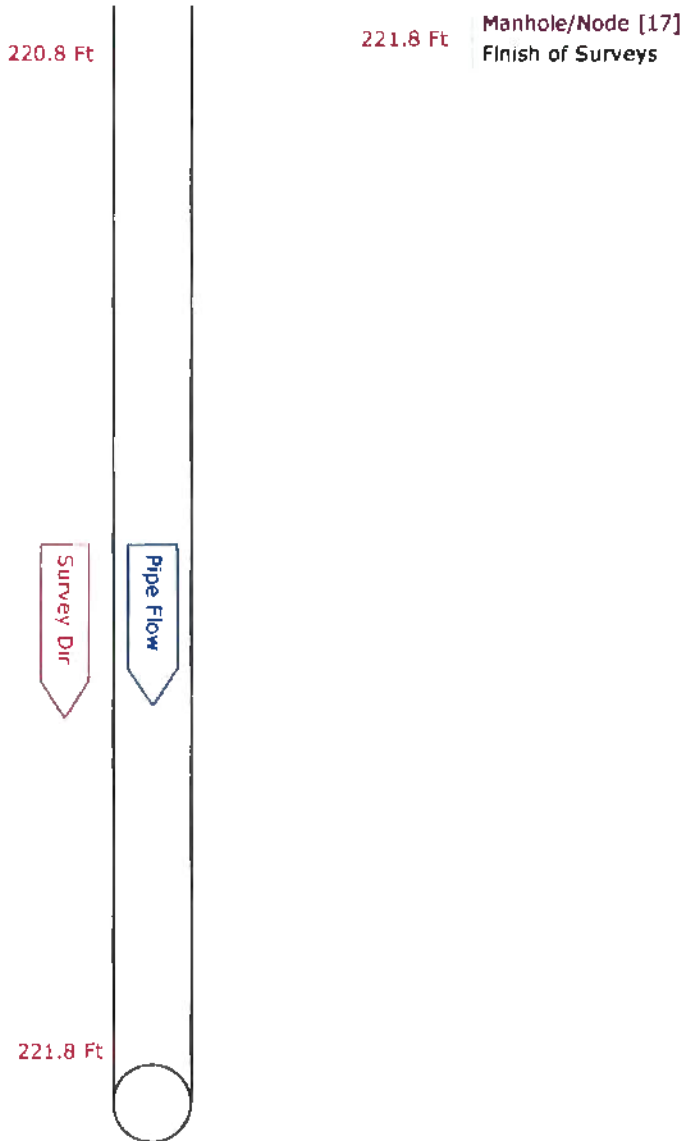
PipeLogix Inc.
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Pipe Graphic Report of PLR 18

X

for Bureau Veritas NA

Work Order		Contract		Video		Setup 7	
Facility		Operator NJP		Van Ref 10		Surveyed On 09/24/2012	
Street Name Vista Verde Dr		City		Holtville			
Location type							
Surface							
Survey purpose Random survey of pipes and things				Weather Dry			
Pipe Use Sanitary		Schedule length Ft		From 18		Depth Ft	
Shape Circular		Size 6 by ins		To 17		Depth Ft	
Material Vitrified clay		Joint spacing Ft		Direction Downstream			
Lining		Year laid		Pre-clean N		Last cleaned	
General note				Structural		Service	
Location note				Miscellaneous		Hydraulic	
				Constructional			



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Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 7
Street Name Vista Verde Dr	City Name Hotville	Weather Dry		
Location	From Manhole 18		To Manhole 17	

Date: 09/24/2012
 Distance: 2.0 Ft
 Obs: Circular Crack



Comments:

Date: 09/24/2012
 Distance: 17.0 Ft
 Obs: Service Connection



Comments:

Date: 09/24/2012
 Distance: 10.1 Ft
 Obs: Debris (Grease)



Comments:

Date: 09/24/2012
 Distance: 68.1 Ft
 Obs: Corrosion of CI



Comments:

Date: 09/24/2012
 Distance: 77.5 Ft
 Obs: Service Connection



Comments:

Date: 09/24/2012
 Distance: 79.4 Ft
 Obs: Service Connection



Comments:

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 7
Street Name Vista Verde Dr	City Name Holtville	Weather Dry		
Location	From Manhole 18	To Manhole 17		

Date: 09/24/2012
 Distance: 140.8 Ft
 Obs: Begin Pipe Sag



Comments:

Date: 09/24/2012
 Distance: 147.5 Ft
 Obs: Service Connection



Comments:

Date: 09/24/2012
 Distance: 149.3 Ft
 Obs: Service Connection



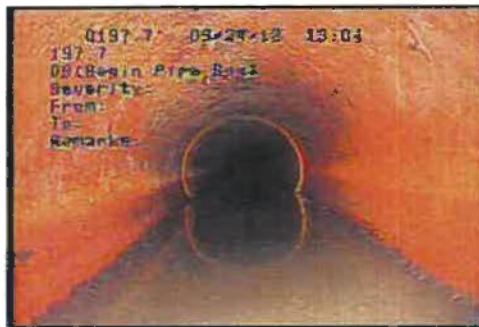
Comments:

Date: 09/24/2012
 Distance: 151.0 Ft
 Obs: End pipe sag



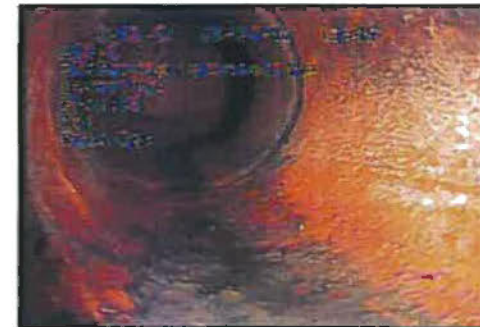
Comments:

Date: 09/24/2012
 Distance: 197.7 Ft
 Obs: Begin Pipe Sag



Comments:

Date: 09/24/2012
 Distance: 213.1 Ft
 Obs: Service Connection



Comments:

CCTV pictures of 18

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 7
Street Name Vista Verde Dr	City Name Holtville	Weather Dry		
Location	From Manhole 18	To Manhole 17		

Date: 09/24/2012

Distance: 214.7 Ft

Obs: Service Connection

Comments:



Date: 09/24/2012

Distance: 220.8 Ft

Obs: General observation

Comments:

LARGE DEBRIS IN DS MH



Tabular Report of PLR 19

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 5 Surveyed On 09/24/2012
Street Name Fairway Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 19	Depth Ft
Shape Circular	Size 8 by ins	To 16	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		MH Manhole/Node					19
	0.0		WL Water level					3
	2.0		DEG Debris (Grease)	L				
	28.9		DEG Debris (Grease)	L				CONTINUING
	69.6		DEG Debris (Grease)	L				CONTINUING
	78.9		CB Break in Connection		12			
	81.2		GO General observation					DS MH SURCHARGED DID NOT ATT..
	81.3		GO General observation					BLOCKED BY GREASE
	81.3		SA Survey abandoned					

81.3 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 450	Mean Defect 112.5	Peak 150	Mean Pipe 5.5



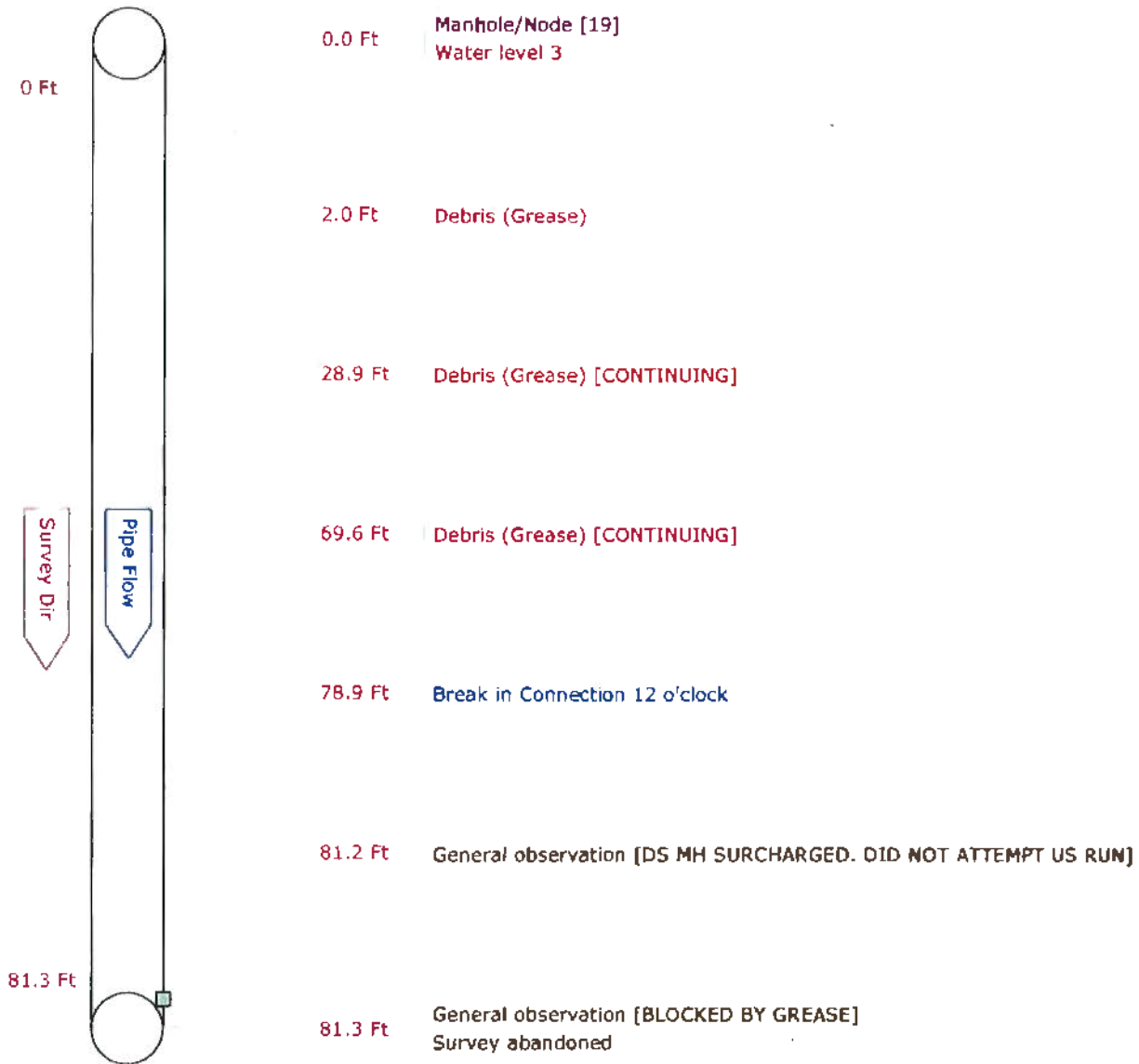
PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-6023

Pipe Graphic Report of PLR 19

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 5
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Fairway Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things		Weather Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by ins	From 19 Depth Ft
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	To 16 Depth Ft
			Direction Downstream
			Pre-clean N Last cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 5
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 19		To Manhole 16	

Date: 09/24/2012
 Distance: 2.0 Ft
 Obs: Debris (Grease)



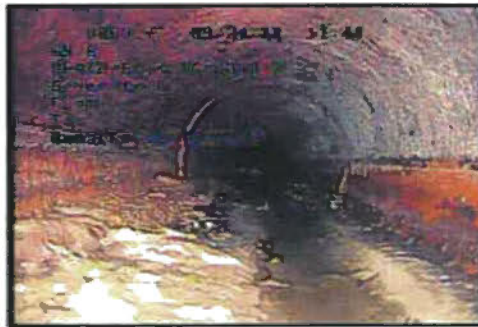
Comments:

Date: 09/24/2012
 Distance: 28.9 Ft
 Obs: Debris (Grease)



Comments:
CONTINUING

Date: 09/24/2012
 Distance: 69.6 Ft
 Obs: Debris (Grease)



Comments:
CONTINUING

Date: 09/24/2012
 Distance: 78.9 Ft
 Obs: Break in Connection



Comments:

Tabular Report of PLR 20

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup # Surveyed On 09/24/2012
Street Name Camino Verde Dr		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 20	Depth Ft
Shape Circular	Size 8 by ins	To 19	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH					Manhole/Node 20
	0.0		WL				3	Water level
	1.0		DE	L				PIPE 80% FULL OF DIRT
	1.1		GO					General observation DS MH BEND TOO TIGHT IN TRAUJ...
	1.1		GO					General observation BLOCKED BY DEBRIS
	1.1		SA					Survey abandoned

1.1 Ft Total Length Surveyed

Scores	Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
	Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 136.4



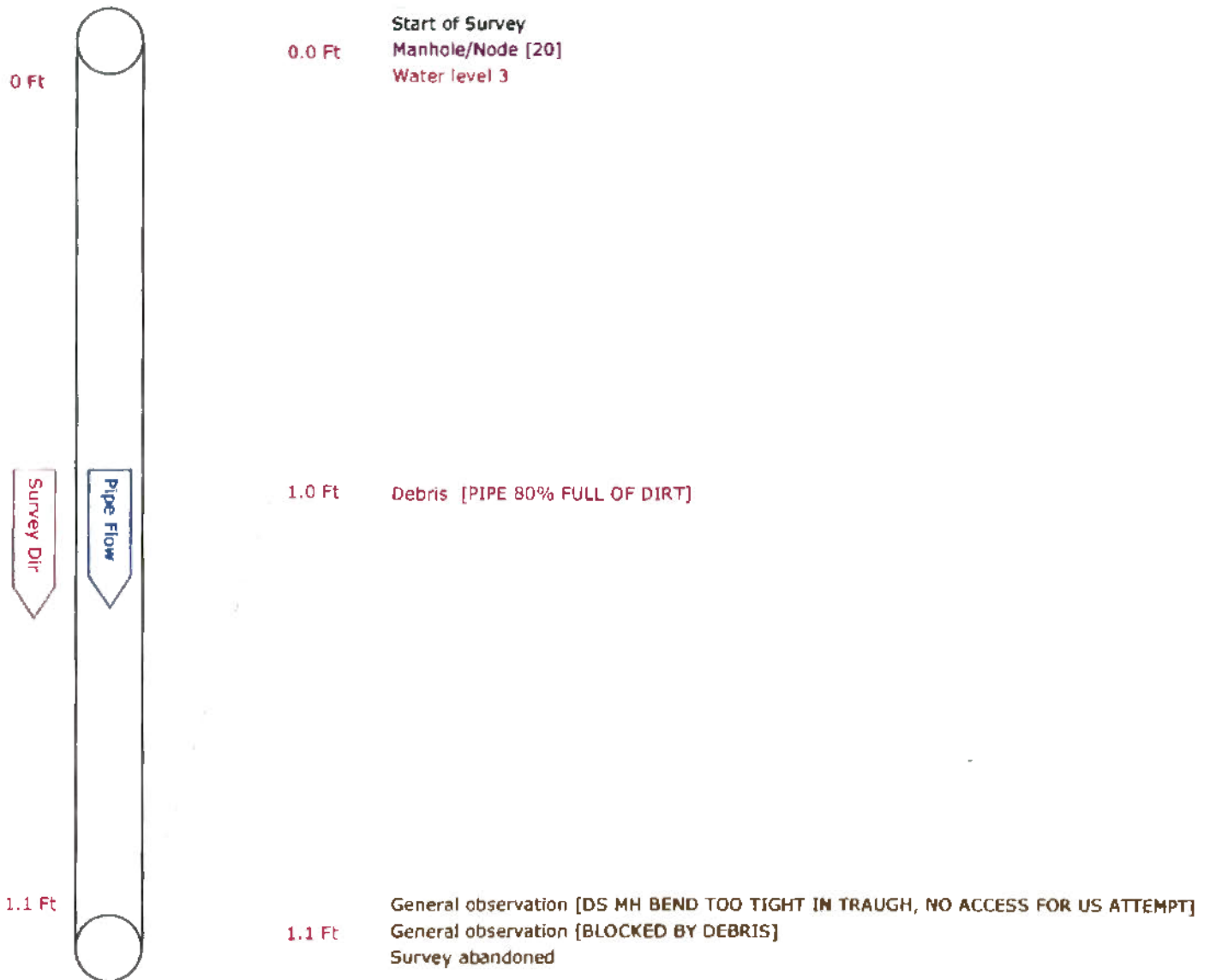
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 Fax: 760-406-6023

Pipe Graphic Report of PLR 20

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 6
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Camino Verde Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by ins	From 20 Depth Ft
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		Direction	Downstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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CCTV pictures of 20

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 6
Street Name Camino Verde Dr	City Name Holtville		Weather Dry	
Location		From Manhole 20		To Manhole 19

Date: 09/24/2012

Distance: 1.0 Ft

Obs: Debris

Comments:

PIPE 80% FULL OF DIRT



Tabular Report of PLR 21

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 3 Surveyed On 09/24/2012
Street Name Fairway Dr		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length	Ft	From 21
Shape Circular	Size 8	by ins	To 19
Material Vitrified clay	Joint Spacing	Ft	Direction Down
Lining	Year laid		Pre-clean N Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					21
	0.0		WL Water level					3
	8.1		DEG Debris (Grease)	L				
	30.2		CB Break in Connection		02			
	40.7		CN Service Connection		03			
	43.6		CN Service Connection		09			
	65.6		DEG Debris (Grease)	L				CONTINUING
	101.8		CRA Roots around Lateral	L	12			
	102.1		CB Break in Connection		12			
	112.4		CN Service Connection		03			
	115.3		CN Service Connection		09			
	117.2		DEG Debris (Grease)	L				CONTINUING
	134.2		GO General observation					BLOCKED BY HEAVY GREASE
	134.2		SA Survey abandoned					

134.2 Ft Total Length Surveyed

Scores	Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
	Service:	Total 525	Mean Defect 105	Peak 150	Mean Pipe 3.9



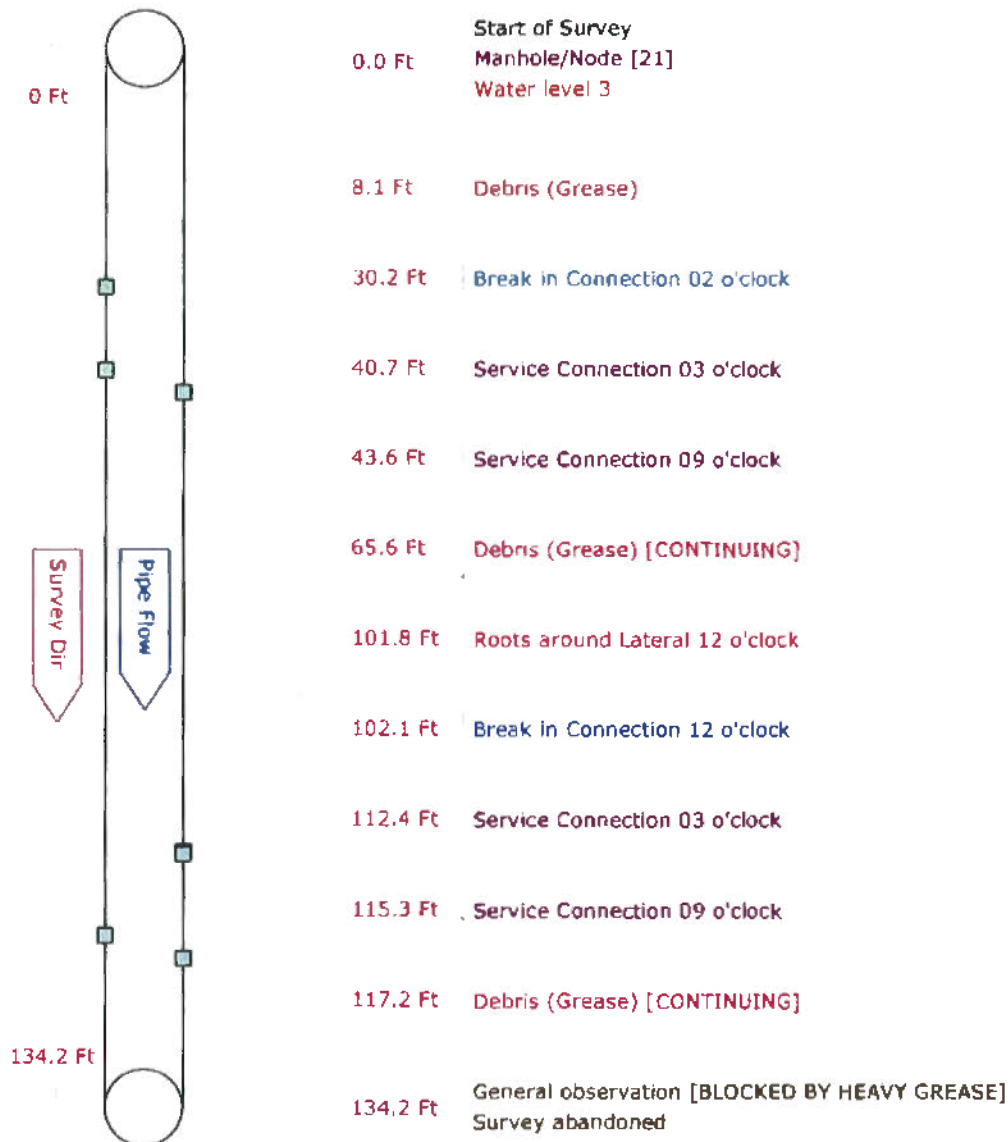
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Pipe Graphic Report of PLR 21

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 3
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Fairway Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by . ins	From 21 Depth Ft
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		To 19 Depth Ft	
		Direction	Downstream
		Pre-clean	N Last cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 3
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 21	To Manhole 19		

Date: 09/24/2012
 Distance: 8.1 Ft
 Obs: Debris (Grease)



Comments:

Date: 09/24/2012
 Distance: 30.2 Ft
 Obs: Break in Connection



Comments:

Date: 09/24/2012
 Distance: 40.7 Ft
 Obs: Service Connection



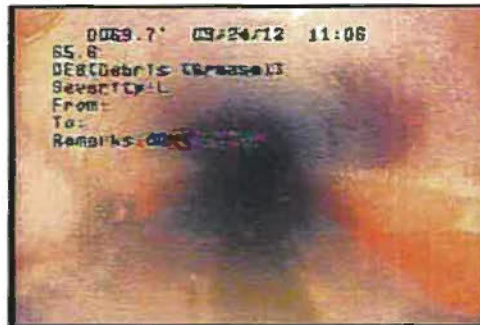
Comments:

Date: 09/24/2012
 Distance: 43.8 Ft
 Obs: Service Connection



Comments:

Date: 09/24/2012
 Distance: 85.6 Ft
 Obs: Debris (Grease)



Comments:
 CONTINUING

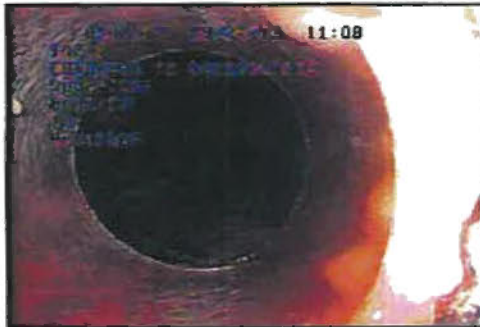
Date: 09/24/2012
 Distance: 101.8 Ft
 Obs: Roots around Lateral



Comments:

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 3
Street Name Fairway Dr	City Name Holville	Weather Dry		
Location	From Manhole 21		To Manhole 19	

Date: 09/24/2012
 Distance: 102.1 Ft
 Obs: Break in Connection



Comments:

Date: 09/24/2012
 Distance: 112.4 Ft
 Obs: Service Connection



Comments:

Date: 09/24/2012
 Distance: 115.3 Ft
 Obs: Service Connection



Comments:

Date: 09/24/2012
 Distance: 117.2 Ft
 Obs: Debris (Grease)



Comments:
 CONTINUING

Date: 09/24/2012
 Distance: 134.2 Ft
 Obs: General observation



Comments:
 BLOCKED BY HEAVY
 GREASE

Tabular Report of PLR 21

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 4 Surveyed On 09/24/2012
Street Name Fairway Dr		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 19	Depth Ft
Shape Circular	Size 8 by ine	To 21	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					19
	0.0		WL Water level					3
	6.1		CN Service Connection		03			
	8.0		DEG Debris (Grease)	L				
	33.8		DEG Debris (Grease)	L				
	33.8		GO General observation					BLOCKED BY GREASE
	33.8		SA Survey abandoned					

33.8 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 300	Mean Defect 100	Peak 150	Mean Pipe 8.9



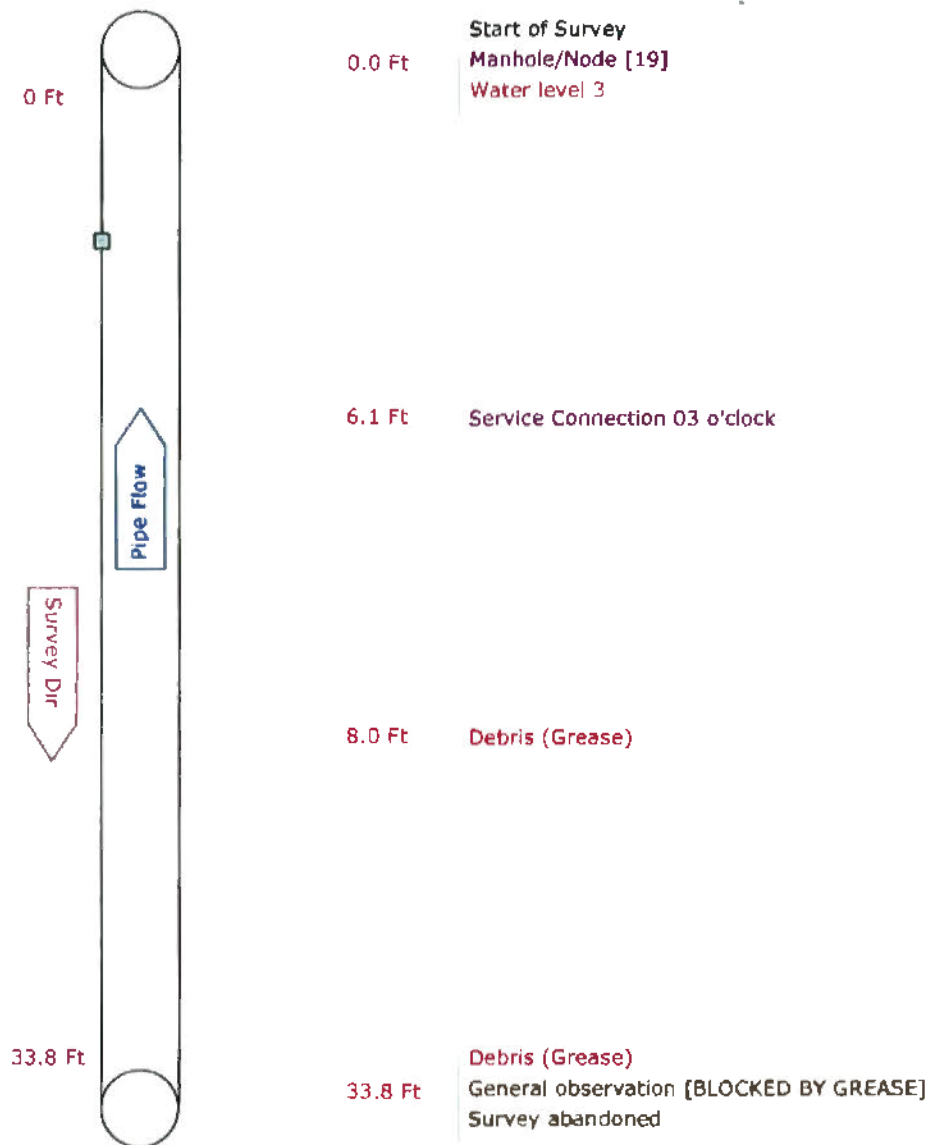
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Pipe Graphic Report of PLR 21

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 4
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name	Fairway Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		From 19	Depth Ft
		To 21	Depth Ft
		Direction	Upstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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Work Order	Video	Surveyed On 09/24/2012	Direction Upstream	Setup 4
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 19	To Manhole 21		

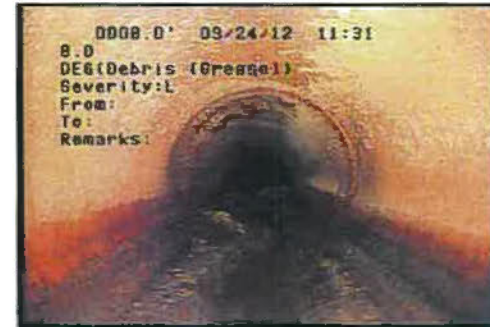
Date: 09/24/2012
Distance: 6.1 Ft
Obs: Service Connection

Comments:



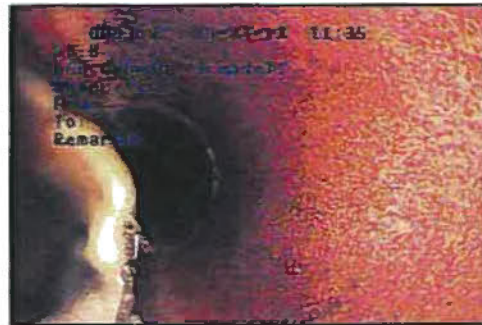
Date: 09/24/2012
Distance: 8.0 Ft
Obs: Debris (Grease)

Comments:



Date: 09/24/2012
Distance: 33.8 Ft
Obs: Debris (Grease)

Comments:



Date: 09/24/2012
Distance: 33.8 Ft
Obs: General observation

Comments:
 BLOCKED BY GREASE



Tabular Report of PLR 22

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 1 Surveyed On 09/24/2012
Street Name Fairway Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 22	Depth Ft
Shape Circular	Size 8 by Ins	To 21	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pra-clean N	Last Cleaned
General note US MH has no lid. MH as large amount of dirt		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				22	
	0.0		WL Water level				0	
	0.0		DE Debris	M				IN MH
	1.0		DE Debris	L				90% OF PIPE AT MH
	1.0		GO General observation					BLOCKED BY DEBRIS
	1.0		SA Survey abandoned					

1.0 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 225	Mean Defect 75	Peak 150	Mean Pipe 225



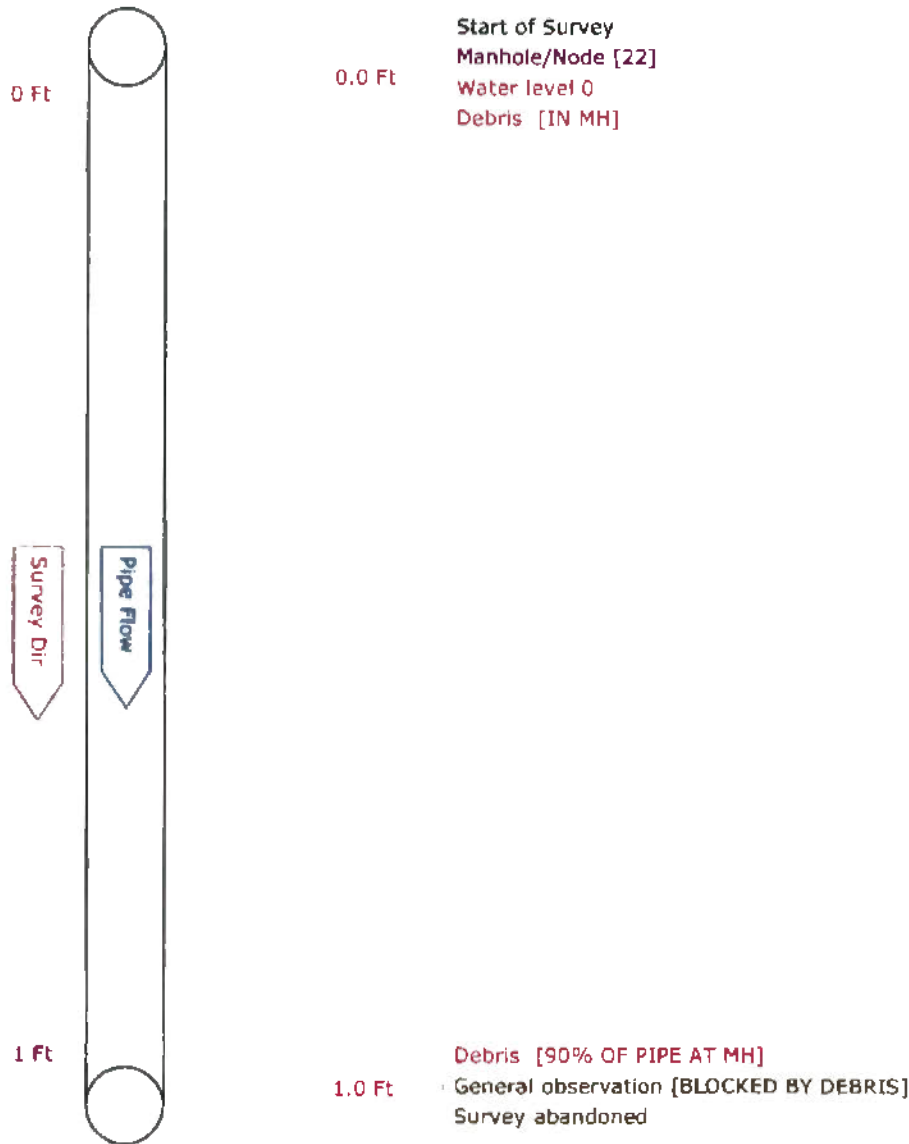
PipeLogix Inc.
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Fax: 760-406-6023

Pipe Graphic Report of PLR 22

X

for Bureau Veritas NA

Work Order		Contract		Video		Setup 1	
Facility		Operator NJP		Van Ref 10		Surveyed On 09/24/2012	
Street Name Fairway Dr		City		Holtville			
Location type							
Surface							
Survey purpose Random survey of pipes and things				Weather Dry			
Pipe Use Sanitary		Schedule length		From 22		Depth Ft	
Shape Circular		Size 8 by ins		To 21		Depth Ft	
Material Vitrified clay		Joint spacing		Direction Downstream			
Lining		Year laid		Pre-clean N		Last cleaned	
General note US MH has no lid. MH as large amount of dirt				Structural		Service	
Location note				Miscellaneous		Constructional	
						Hydraulic	



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CCTV pictures of 22 X for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Downstream	Setup 1
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 22	To Manhole 21		

Date: 09/24/2012

Distance: 1.0 Ft

Obs: Debris

Comments:

90% OF PIPE AT MH



Tabular Report of PLR 22

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 2
Facility	Operator NJP	Van Ref 10	Surveyed On 09/24/2012
Street Name Fairway Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length	Ft	From21
Shape Circular	Size 8	by	To 22
Material Vitrified clay	Joint Spacing	Ft	Direction Up
Lining	Year laid		Pre-clean N Last Cleaned
General note			Structural Service Constructional
Location note			Miscellaneous Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					21
	0.0		WL Water level					0
	5.0		DEG Debris (Grease)	M				
	9.4		CB Break in Connection		10			
	11.7		DEG Debris (Grease)	L				
	26.6		CN Service Connection		03			
	34.5		CN Service Connection		09			LARGE DEBRIS IN LATERAL
	45.0		CP Plugged Connection		09			
	47.8		CP Plugged Connection		03			
	53.1		DEG Debris (Grease)	L				CONTINUING
	74.3		CC Circular Crack	M	12	12		
	74.6		CL Crack longitudinal	M	10			
	75.3		CB Break in Connection		10			
	76.0		CL Crack longitudinal	S	12			
	97.9		DEG Debris (Grease)	L				CONTINUING
	103.2		CN Service Connection		03			
	111.1		CN Service Connection		09			
	113.4		CP Plugged Connection		02			
	179.3		CN Service Connection		09			
	197.1		CN Service Connection		09			
	197.1		DE Debris	L				PIPE 80% FULL OF DIRT
	197.1		GO General observation					BLOCKED BY DEBRIS
	197.1		SA Survey abandoned					

197.1 Ft Total Length Surveyed

Scores	Structural:	Total 400	Mean Defect 50	Peak 150	Mean Pipe 2
	Service:	Total 675	Mean Defect 112.5	Peak 150	Mean Pipe 3.4



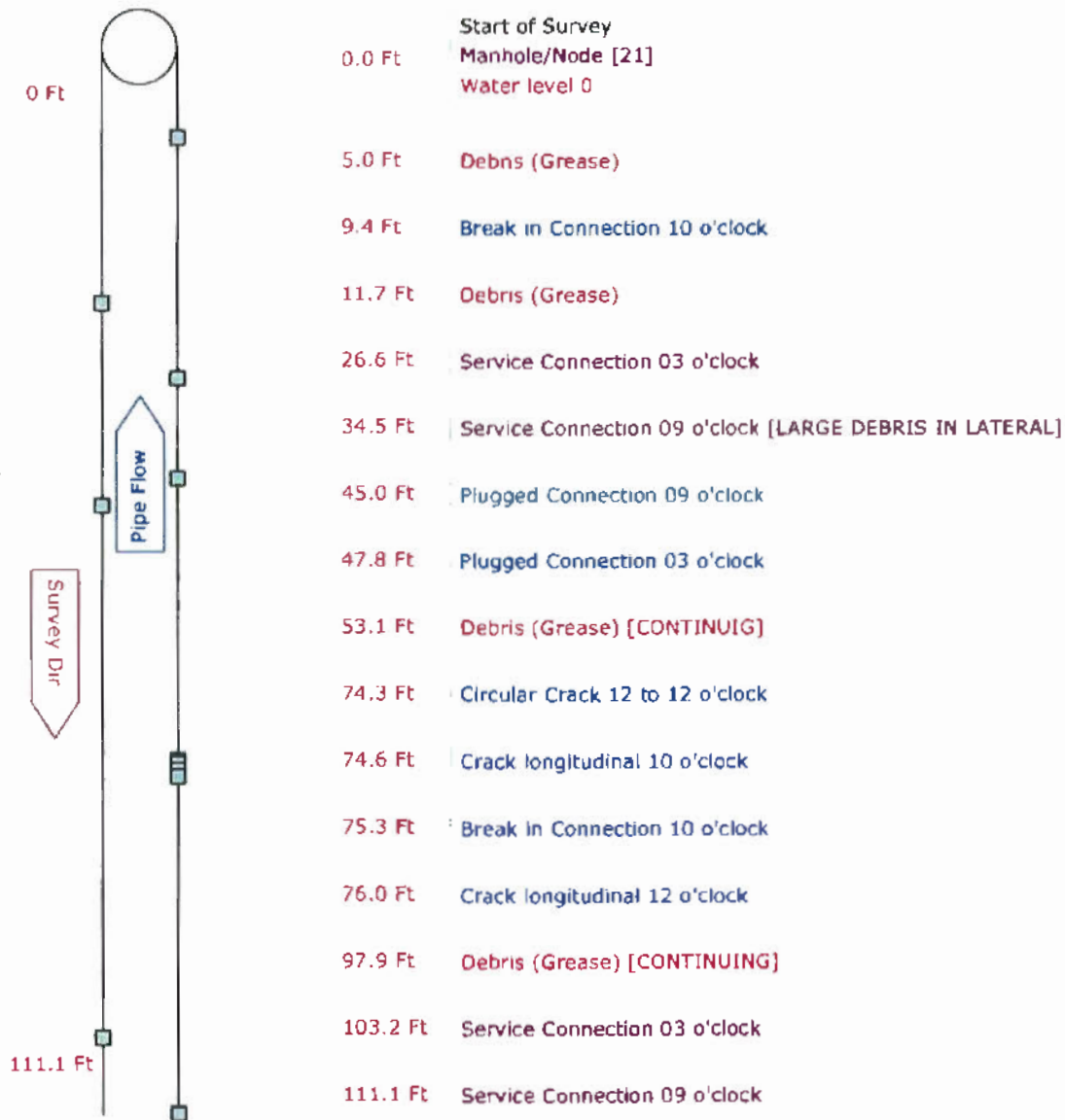
PipeLogix Inc.
 Phone: 866-299-3150
 Fax: 760-406-6023

Pipe Graphic Report of PLR 22

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 2
Facility	Operator NJP	Van Ref 10	Surveyed On 08/24/2012
Street Name	Fairway Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by ins	From 21 Depth Ft
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		Direction	Upstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



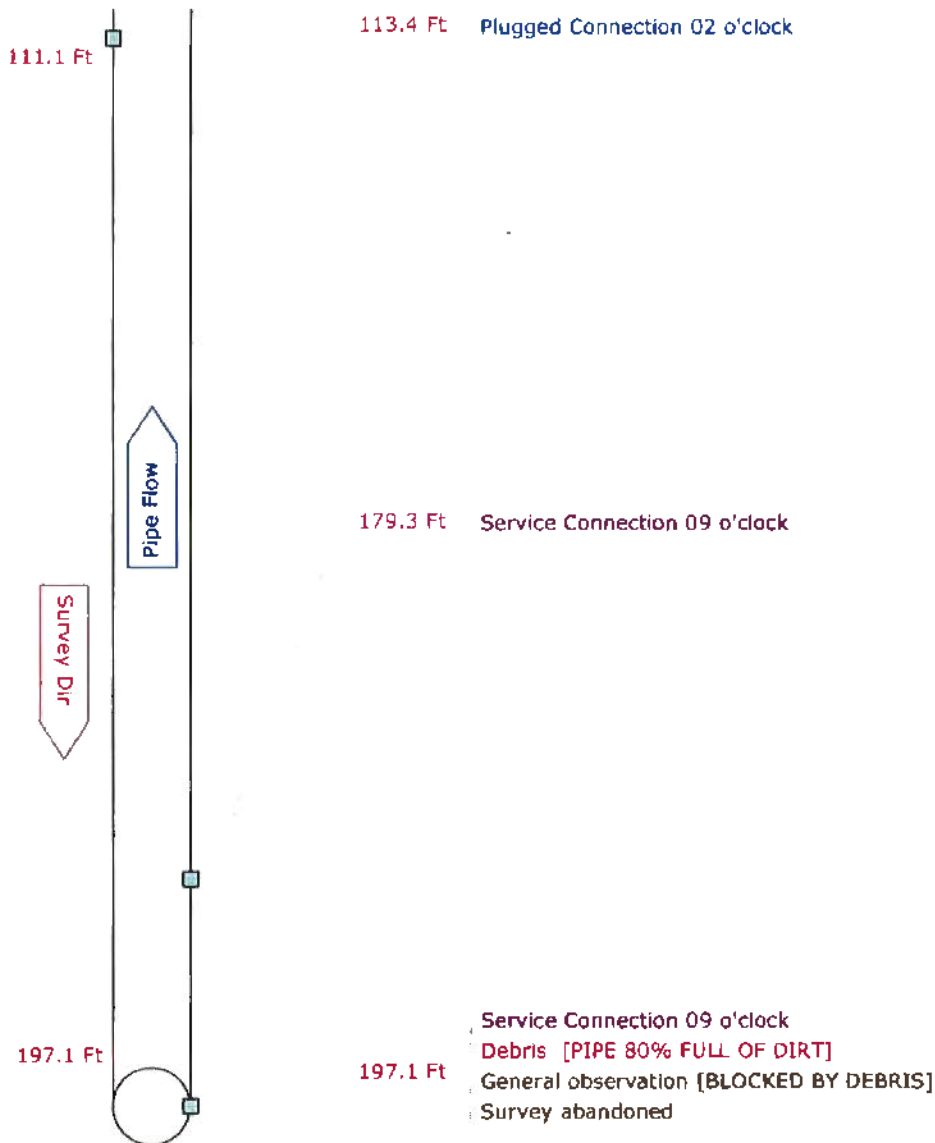
PipeLogix Inc.
 Phone: 866-299-3150
 Fax: 760-406-6023

Pipe Graphic Report of PLR 22

X

for Bureau Veritas NA

Work Order		Contract		Video		Setup 2	
Facility		Operator NJP		Van.Ref 10		Surveyed On 06/24/2012	
Street Name Fairway Dr		City		Holtville			
Location type							
Surface							
Survey purpose Random survey of pipes and things				Weather Dry			
Pipe Use Sanitary		Schedule length		From 21		Depth Ft	
Shape Circular		Size 8 by ins		To 22		Depth Ft	
Material Vitrified clay		Joint spacing Ft		Direction Upstream			
Lining		Year laid		Pre-clean N		Last cleaned	
General note				Structural		Service	
Location note				Miscellaneous		Hydraulic	
				Constructional			



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 Fax: 760-406-6023

Work Order	Video	Surveyed On 09/24/2012	Direction Upstream	Setup 2
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 21		To Manhole 22	

Date: 09/24/2012
 Distance: 5.0 Ft
 Obs: Debris (Grease)



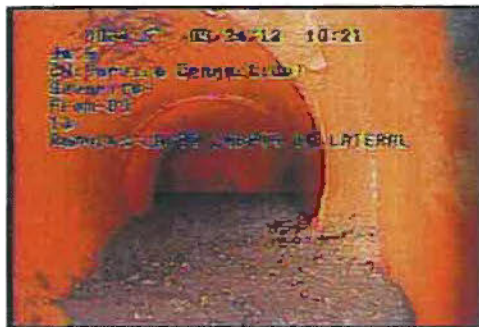
Comments:

Date: 09/24/2012
 Distance: 11.7 Ft
 Obs: Debris (Grease)



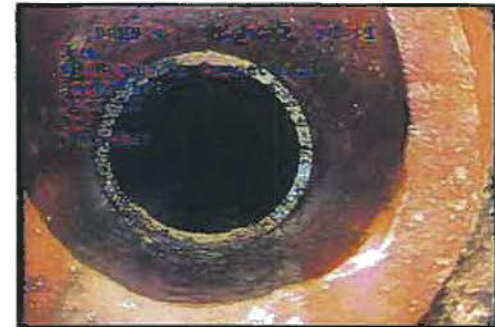
Comments:

Date: 09/24/2012
 Distance: 34.5 Ft
 Obs: Service Connection



Comments:
 LARGE DEBRIS IN
 LATERAL

Date: 09/24/2012
 Distance: 9.4 Ft
 Obs: Break in Connection



Comments:

Date: 09/24/2012
 Distance: 26.6 Ft
 Obs: Service Connection



Comments:

Date: 09/24/2012
 Distance: 45.0 Ft
 Obs: Plugged Connection



Comments:

CCTV pictures of 22 X for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Upstream	Setup 2
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 21	To Manhole 22		

Date: 09/24/2012
 Distance: 47.8 Ft
 Obs: Plugged Connection



Comments:

Date: 09/24/2012
 Distance: 74.3 Ft
 Obs: Circular Crack



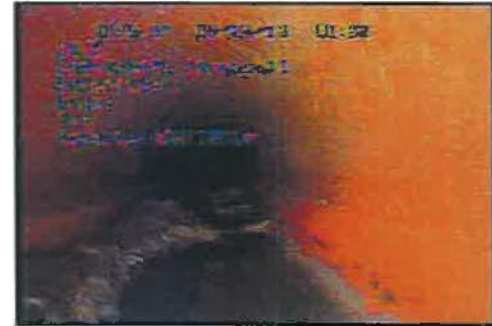
Comments:

Date: 09/24/2012
 Distance: 75.3 Ft
 Obs: Break in Connection



Comments:

Date: 09/24/2012
 Distance: 53.1 Ft
 Obs: Debris (Grease)



Comments:
 CONTINUIG

Date: 09/24/2012
 Distance: 74.6 Ft
 Obs: Crack longitudinal



Comments:

Date: 09/24/2012
 Distance: 76.0 Ft
 Obs: Crack longitudinal



Comments:

Work Order	Video	Surveyed On 09/24/2012	Direction Upstream	Setup 2
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 21		To Manhole 22	

Date: 09/24/2012
 Distance: 97.9 Ft
 Obs: Debris (Grease)



Comments:
 CONTINUING

Date: 09/24/2012
 Distance: 103.2 Ft
 Obs: Service Connection



Comments:

Date: 09/24/2012
 Distance: 111.1 Ft
 Obs: Service Connection



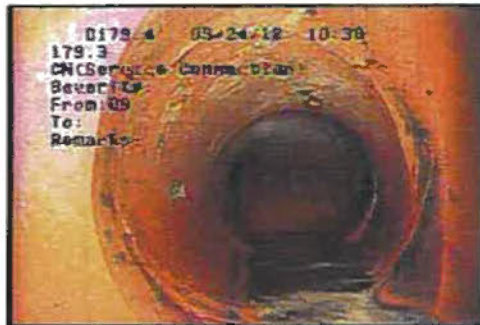
Comments:

Date: 09/24/2012
 Distance: 113.4 Ft
 Obs: Plugged Connection



Comments:

Date: 09/24/2012
 Distance: 179.3 Ft
 Obs: Service Connection



Comments:

Date: 09/24/2012
 Distance: 197.1 Ft
 Obs: Service Connection



Comments:

CCTV pictures of 22 X for Bureau Veritas NA

Work Order	Video	Surveyed On 09/24/2012	Direction Upstream	Setup 2
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 21	To Manhole 22		

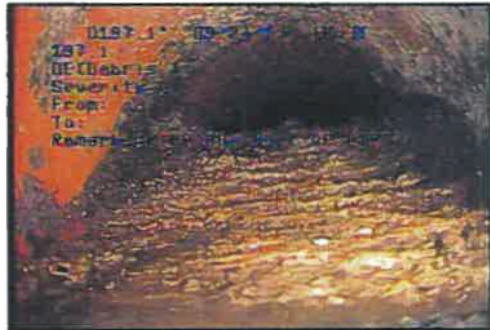
Date: 09/24/2012

Distance: 197.1 Ft

Obs: Debris

Comments:

PIPE 80% FULL OF DIRT



Tabular Report of PLR 23

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 17 Surveyed On 09/25/2012
Street Name Fairway Dr		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 23	Depth Ft
Shape Circular	Size 8 by In	To 15	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					23
	0.0		WL Water level				3	
	2.0		DEG Debris (Grease)	L				
	2.0		GO General observation					BLOCKED BY DEBRIS
	2.0		SA Survey abandoned					

2.0 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 150	Mean Defect 75	Peak 150	Mean Pipe 75



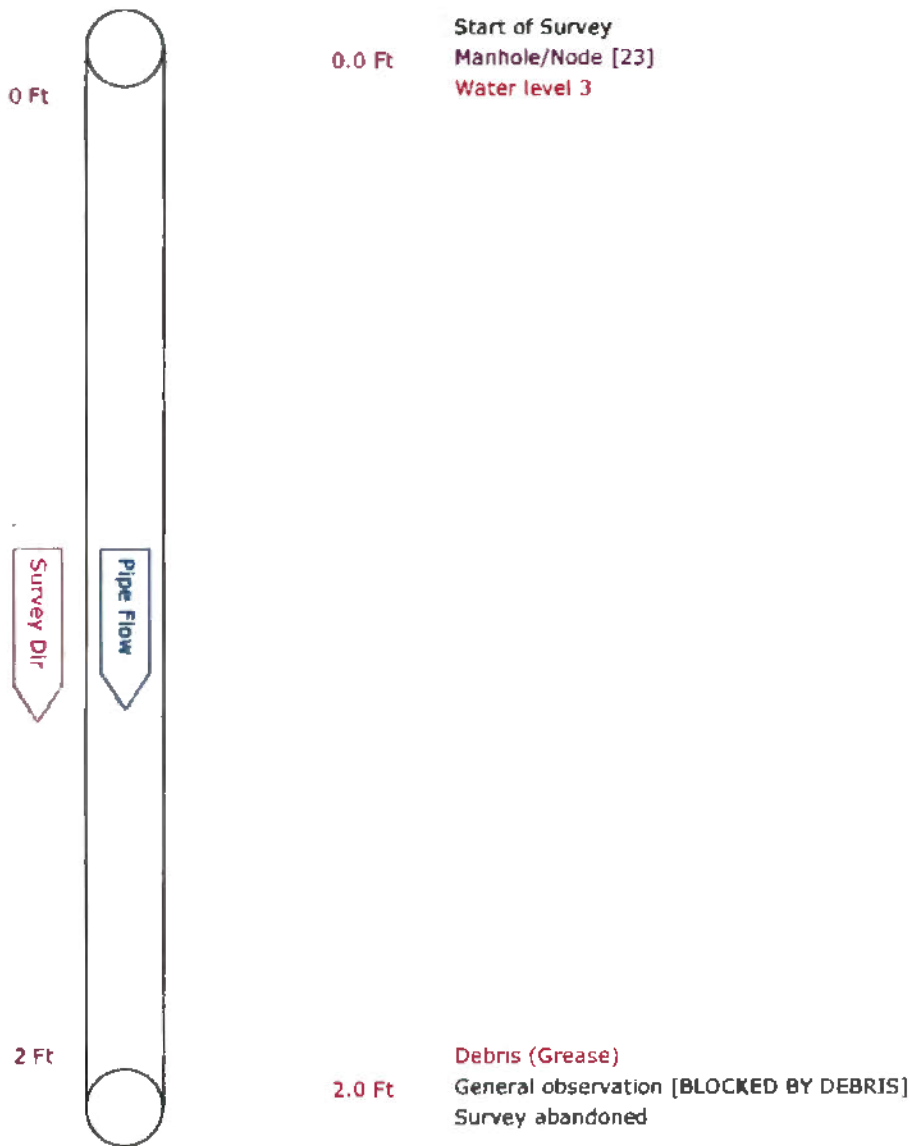
PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-6023

Pipe Graphic Report of PLR 23

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 17
Facility	Operator NJP	Van Ref 10	Surveyed On 08/25/2012
Street Name	Fairway Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by ins	From 23 Depth Ft
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		Direction	Downstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-6023

Tabular Report of PLR 24

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 18 Surveyed On 09/25/2012
Street Name Fairway Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 24	Depth Ft
Shape Circular	Size 8 by Ins	To 23	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH					Manhole/Node 24
	0.0		WL				5	Water level
	18.1		DEG		S			Debris (Grease)
	45.0		DE		L			Debris
	103.3		DE		M			Debris CONTINUING
	126.0		DE		L			Debris CONTINUING
	159.5		CUB					Camera Submerged Begin
	159.9		GO					General observation BLOCKED BY DEBRIS
	159.9		SA					Survey abandoned

159.9 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 425	Mean Defect 70.8	Peak 150	Mean Pipe 2.7



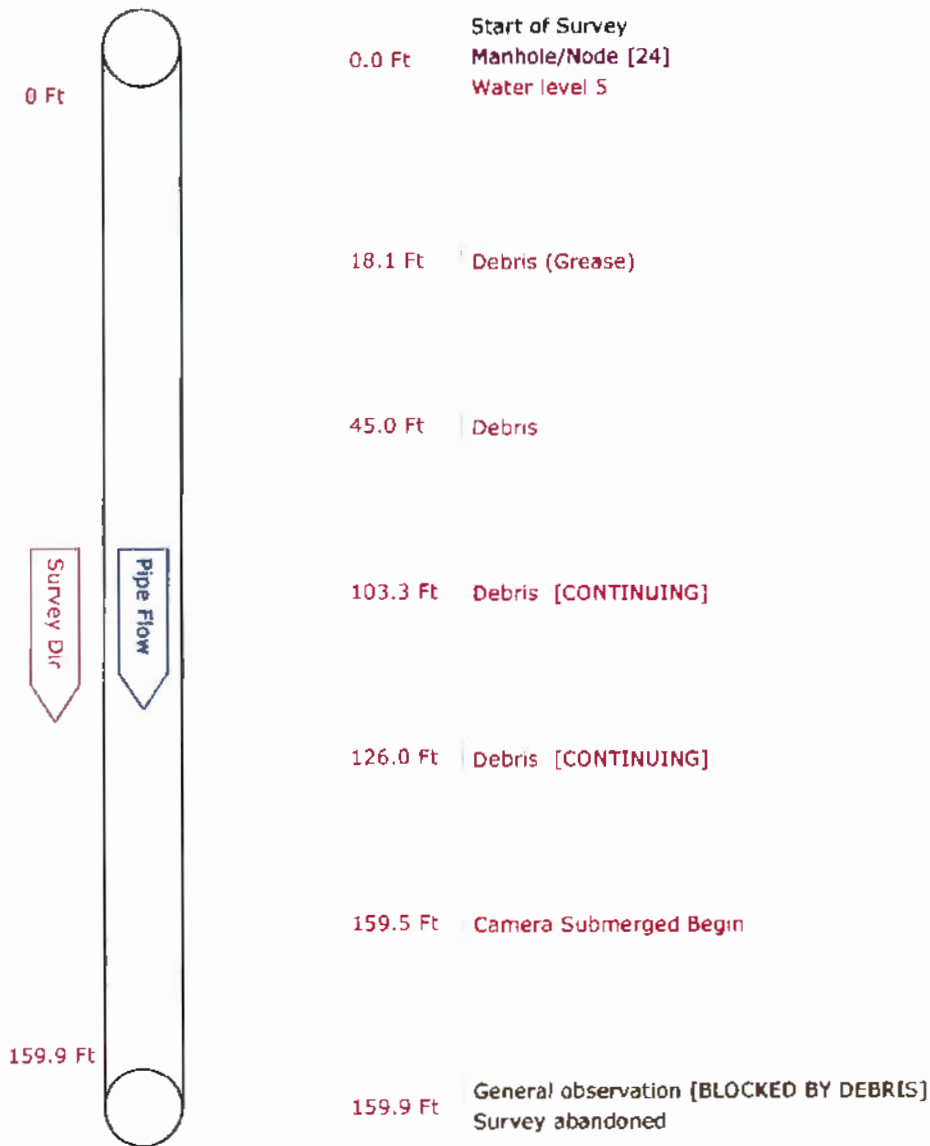
PipeLogix Inc.
 Phone: 866-299-3150
 Fax: 760-406-6023

Pipe Graphic Report of PLR 24

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup	18
Facility	Operator NJP	Van Ref 10	Surveyed On	09/25/2012
Street Name	Fairway Dr	City	Holtville	
Location type				
Surface				
Survey purpose	Random survey of pipes and things	Weather	Dry	
Pipe Use	Sanitary	Schedule length	Ft	
Shape	Circular	Size 8	by	ins
Material	Vitrified clay	Joint spacing	Ft	
Lining		Year laid		
From	24	Depth	Ft	
To	23	Depth	Ft	
Direction	Downstream			
Pre-clean	N	Last cleaned		
General note		Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



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 Fax: 760-406-6023

CCTV pictures of 24

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 18
Street Name Fairway Dr	City Name Hotville	Weather Dry		
Location	From Manhole 24		To Manhole 23	

Date: 09/25/2012
Distance: 18.1 Ft
Obs: Debris (Grease)

Comments:



Date: 09/25/2012
Distance: 45.0 Ft
Obs: Debris

Comments:



Date: 09/25/2012
Distance: 103.3 Ft
Obs: Debris

Comments:
CONTINUING



Date: 09/25/2012
Distance: 126.0 Ft
Obs: Debris

Comments:
CONTINUING



Tabular Report of PLR 25

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Ven Ref 10	Setup 19 Surveyed On 09/25/2012
Street Name Fairway Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length	From 24	Depth Ft
Shape Circular	Size 8 by ins	To 25	Depth Ft
Material Vitrified clay	Joint Spacing	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				24	
	0.0		WL Water level				5	
	31.1		DEG Debris (Grease)	M				
	41.1		CB Break in Connection		09			LATERAL HAS DEBRIS
	72.3		CB Break in Connection		12			
	104.5		CB Break in Connection		12			
	122.0		CXC Connection defective	L	09			LARGE DEBRIS FROM LATERAL
	122.0		CB Break in Connection		09			
	187.7		CNI Intruding Lateral	S	12	0010		
	187.8		CB Break in Connection		12			
	192.9		CP Plugged Connection		10			
	272.9		CP Plugged Connection		09			
	283.6		CL Crack longitudinal	S	12			
	283.8		CNI Intruding Lateral	S	12	0005		
	283.8		CB Break in Connection		12			
	348.6		RJ Roots at joint	L				TAP ROOTS
	350.1		CR Roots from lateral	L	12			LARGE TAP ROOTS
	350.1		CB Break in Connection		12			
	350.1		GO General observation					BLOCKED BY LARGE TAP ROOTS
	350.1		SA Survey abandoned					

350.1 Ft Total Length Surveyed

Scores

Structural:	Total 400	Mean Defect 30.8	Peak 150	Mean Pipe 1.1
Service:	Total 250	Mean Defect 62.5	Peak 100	Mean Pipe 0.7



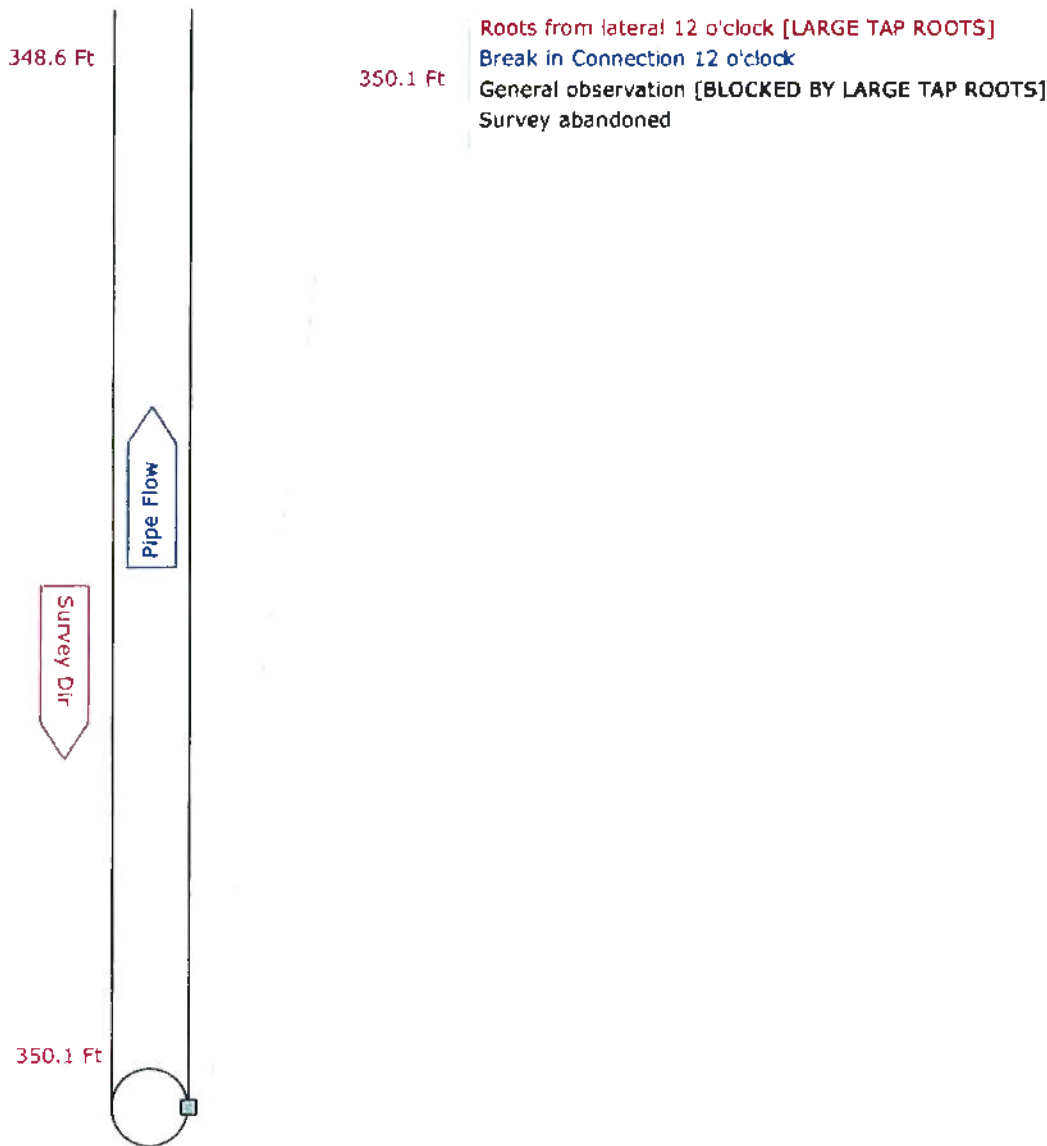
PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-6023

Pipe Graphic Report of PLR 25

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup	19
Facility	Operator NJP	Van Ref 10	Surveyed On	09/25/2012
Street Name	Fairway Dr	City	Holtsville	
Location type				
Surface				
Survey purpose	Random survey of pipes and things	Weather	Dry	
Pipe Use	Sanitary	Schedule length	Ft	
Shape	Circular	Size 8	by ins	
Material	Vitrified clay	Joint spacing	Ft	
Lining		Year laid		
General note		From 24	Depth	Ft
Location note		To 25	Depth	Ft
		Direction	Upstream	
		Pre-clean	N	Last cleaned
		Structural	Service	Constructional
		Miscellaneous	Hydraulic	



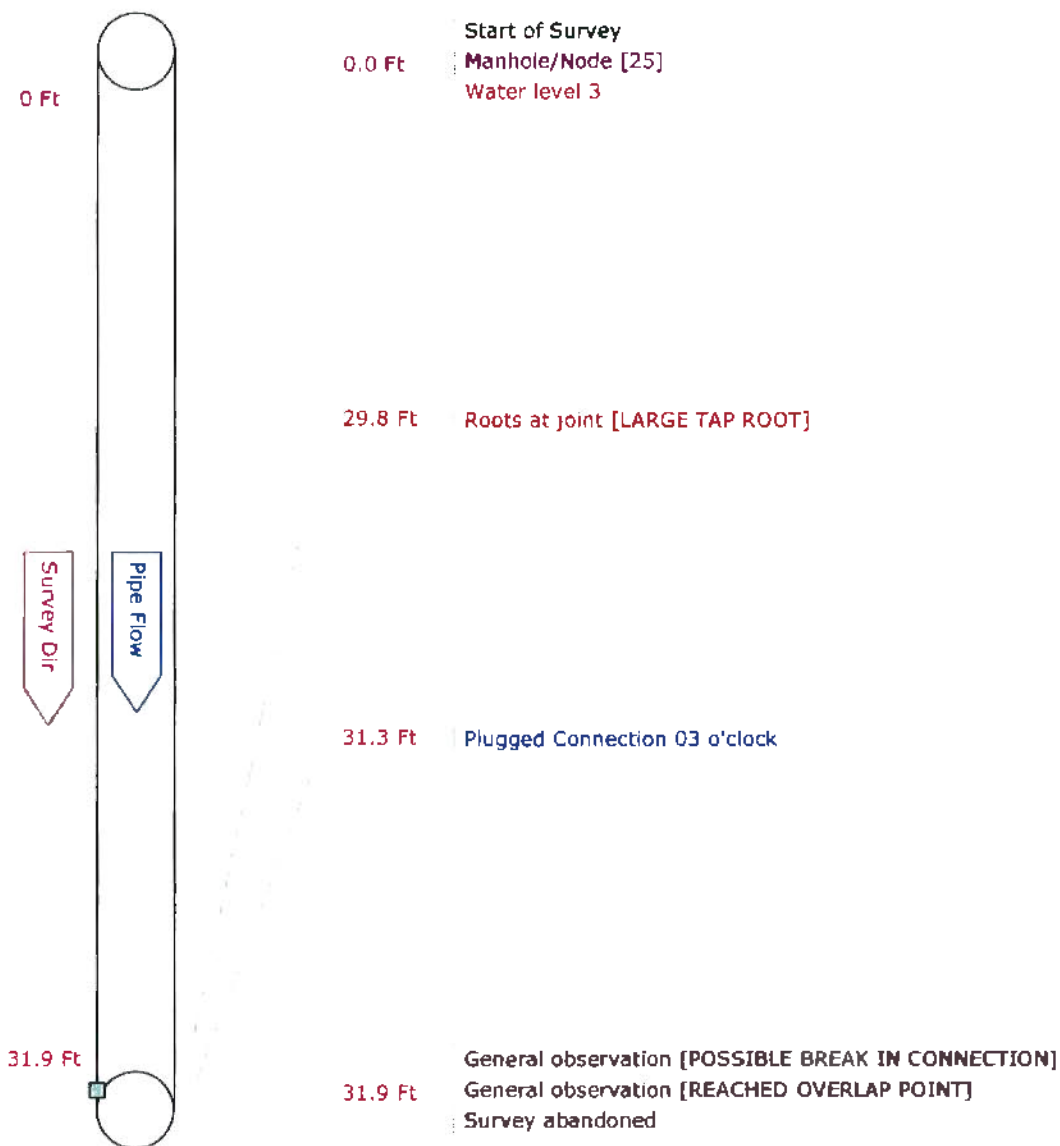
PipeLogix Inc.
 Phone: 866-299-3150
 Fax: 760-406-6023

Pipe Graphic Report of PLR 25

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 26
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name	Anderholt Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	From 25	Depth Ft
Material	Vitrified clay	To 24	Depth Ft
Lining		Joint spacing	Ft
		Direction	Downstream
		Year laid	
		Pre-clean	N
		Last cleaned	
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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Phone: 866-299-3150
Fax: 760-406-6023

CCTV pictures of 25 X for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Upstream	Setup 19
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 24	To Manhole 25		

Date: 09/25/2012
 Distance: 31.1 Ft
 Obs: Debris (Grease)



Comments:

Date: 09/25/2012
 Distance: 41.1 Ft
 Obs: Break in Connection



Comments:
 LATERAL HAS DEBRIS

Date: 09/25/2012
 Distance: 72.3 Ft
 Obs: Break in Connection



Comments:

Date: 09/25/2012
 Distance: 104.5 Ft
 Obs: Break in Connection



Comments:

Date: 09/25/2012
 Distance: 122.0 Ft
 Obs: Connection defective



Comments:
 LARGE DEBRIS FROM LATERAL

Date: 09/25/2012
 Distance: 122.0 Ft
 Obs: Break in Connection



Comments:

CCTV pictures of 25

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Upstream	Setup 19
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 24	To Manhole 25		

Date: 09/25/2012
 Distance: 187.7 Ft
 Obs: Intruding Lateral



Comments:

Date: 09/25/2012
 Distance: 187.8 Ft
 Obs: Break in Connection



Comments:

Date: 09/25/2012
 Distance: 192.9 Ft
 Obs: Plugged Connection



Comments:

Date: 09/25/2012
 Distance: 272.9 Ft
 Obs: Plugged Connection



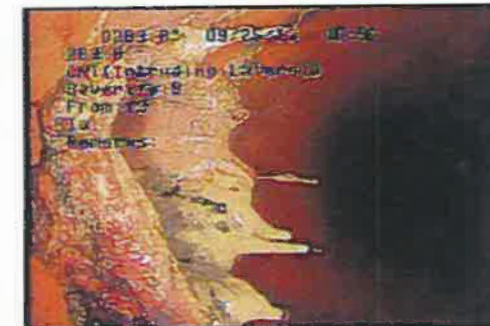
Comments:

Date: 09/25/2012
 Distance: 283.8 Ft
 Obs: Crack longitudinal



Comments:

Date: 09/25/2012
 Distance: 283.8 Ft
 Obs: Intruding Lateral



Comments:

CCTV pictures of 25

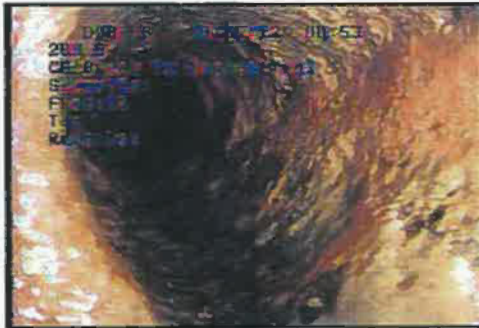
X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Upstream	Setup 19
Street Name Fairway Dr	City Name Holtville	Weather Dry		
Location	From Manhole 24		To Manhole 25	

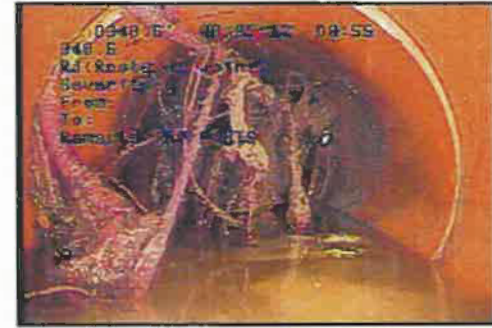
Date: 09/25/2012
Distance: 283.8 Ft
Obs: Break in Connection

Comments:



Date: 09/25/2012
Distance: 348.6 Ft
Obs: Roots at joint

Comments:
TAP ROOTS



Date: 09/25/2012
Distance: 350.1 Ft
Obs: Roots from lateral

Comments:
LARGE TAP ROOTS



Date: 09/25/2012
Distance: 350.1 Ft
Obs: Break in Connection

Comments:



Tabular Report of PLR 25 X for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 28 Surveyed On 09/25/2012
Street Name Anderholt Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 25	Depth Ft
Shape Circular	Size 8 by Ins	To 24	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH				25	Manhole/Node
	0.0		WL				3	Water level
	29.8		RJ	L				Roots at joint
	31.3		CP		03			Plugged Connection
	31.9		GO					General observation
	31.9		GO					General observation
	31.9		SA					Survey abandoned

31.9 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 100	Mean Defect 50	Peak 100	Mean Pipe 3.1



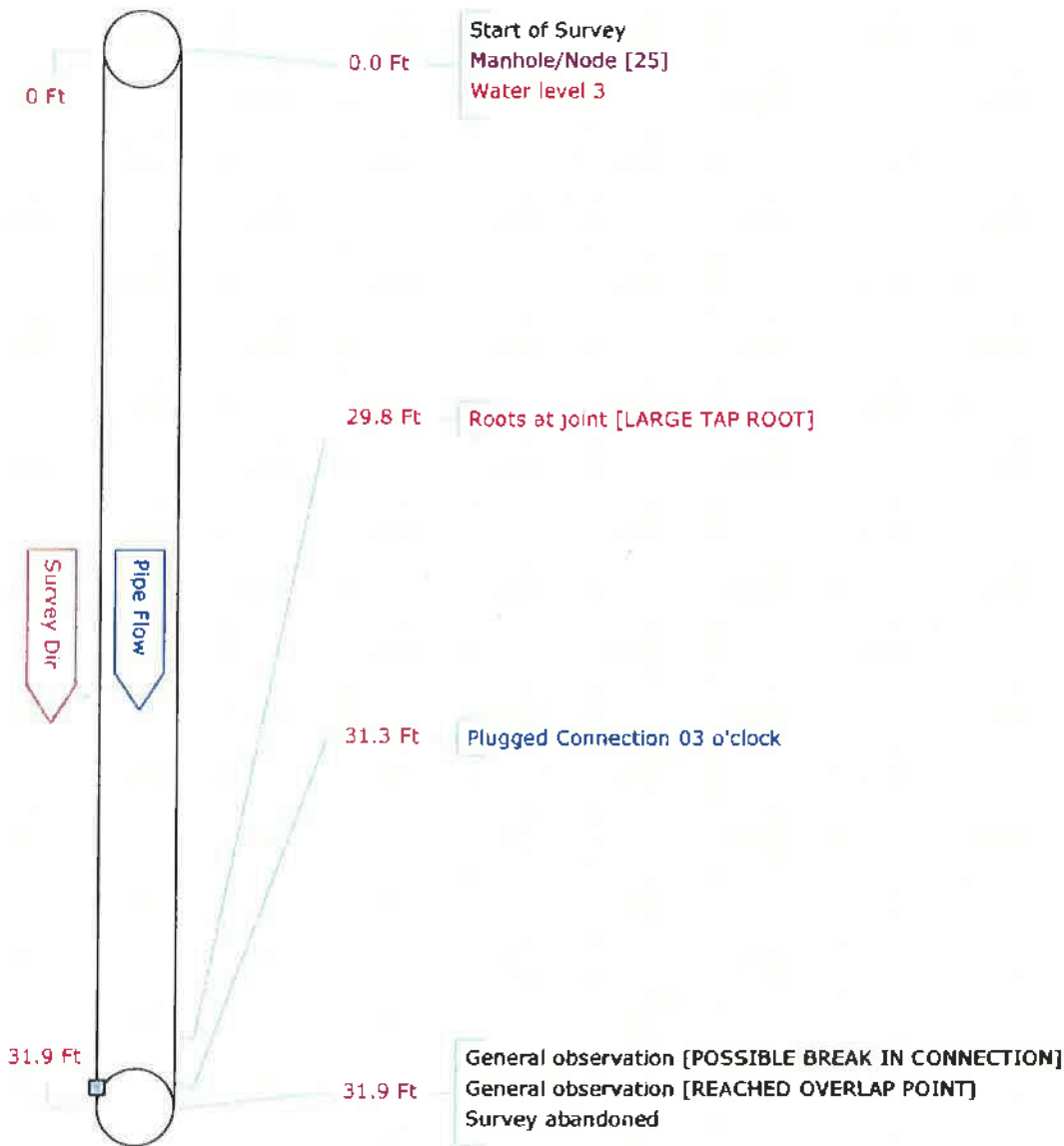
PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-8023

Pipe Graphic Report of PLR 25

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 26
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name	Anderhalt Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	From 25 Depth Ft
Shape	Circular	Size 8 by ins	To 24 Depth Ft
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		Direction	Downstream
		Pre-clean	N Last cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-6023

CCTV pictures of 25

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 26
Street Name Anderholt Rd	City Name Holtville	Weather Dry		
Location	From Manhole 25	To Manhole 24		

Date: 09/25/2012
Distance: 29.8 Ft
Obs: Roots at joint

Comments:
LARGE TAP ROOT



Date: 09/25/2012
Distance: 31.3 Ft
Obs: Plugged Connection

Comments:



Tabular Report of PLR 26

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 21 Surveyed On 09/25/2012
Street Name Anderholt Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 26	Depth Ft
Shape Circular	Size 8 by ins	To 25	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					28
	0.0		WL Water level				3	
	10.4		DEG Debris (Grease)	S				
	20.4		CP Plugged Connection			03		
	63.3		CB Break in Connection			03		
	92.7		CP Plugged Connection			03		
	111.0		CL Crack longitudinal		M	02		
	112.9		CB Break in Connection			02		
	146.5		DEG Debris (Grease)	S				CONTINUING
	158.9		RJ Roots at joint	S				
	166.3		CR Roots from lateral		M	03		
	166.3		CN Service Connection			03		
	217.5		CB Break in Connection			03		
	217.5		CRA Roots around Lateral		S	03		
	245.1		CP Plugged Connection			03		
	293.0		DEG Debris (Grease)	S				CONTINUING
	324.2		CP Plugged Connection			03		
	355.3		CB Break in Connection			02		
	355.3		CRA Roots around Lateral		M	03		
	355.3		RJ Roots at joint		L			TAP ROOTS
	361.5		MH Manhole/Node					25
	361.5		FH Finish of Surveys					

361.5 Ft Total Length Surveyed

Scores

Structural:	Total 150	Mean Defect 16.7	Peak 150	Mean Pipe 0.4
Service:	Total 395	Mean Defect 43.9	Peak 150	Mean Pipe 1.1



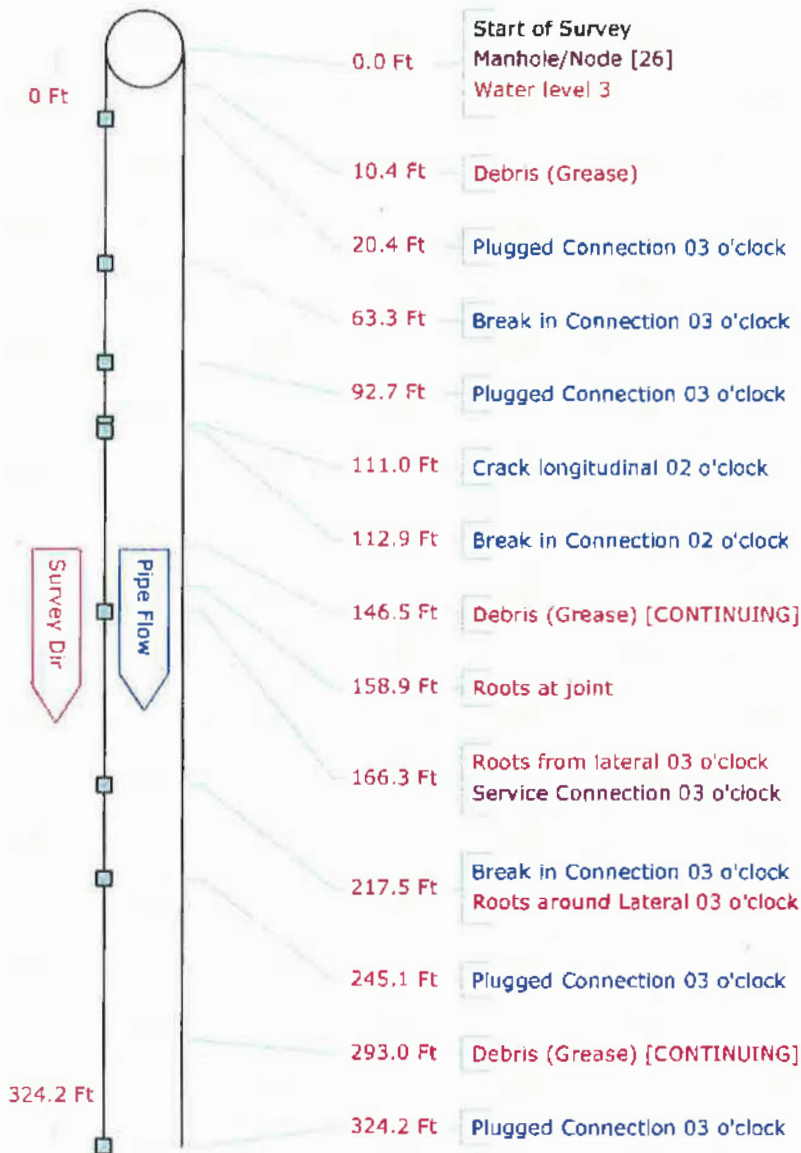
PipeLogix Inc.
 Phone: 866-299-3150
 Fax: 760-406-6023

Pipe Graphic Report of PLR 26

X

for Bureau Veritas NA

Work Order	Contract		Video	Setup 21
Facility	Operator NJP		Van Ref 10	Surveyed On 09/25/2012
Street Name	Anderholt Rd	City	Holtville	
Location type				
Surface				
Survey purpose	Random survey of pipes and things		Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft	From 26 Depth Ft
Shape	Circular	Size 8 by	ins	To 25 Depth Ft
Material	Vitrified clay	Joint spacing	Ft	Direction Downstream
Lining		Year laid		Pre-clean N Last cleaned
General note			Structural	Service Constructional
Location note			Miscellaneous	Hydraulic



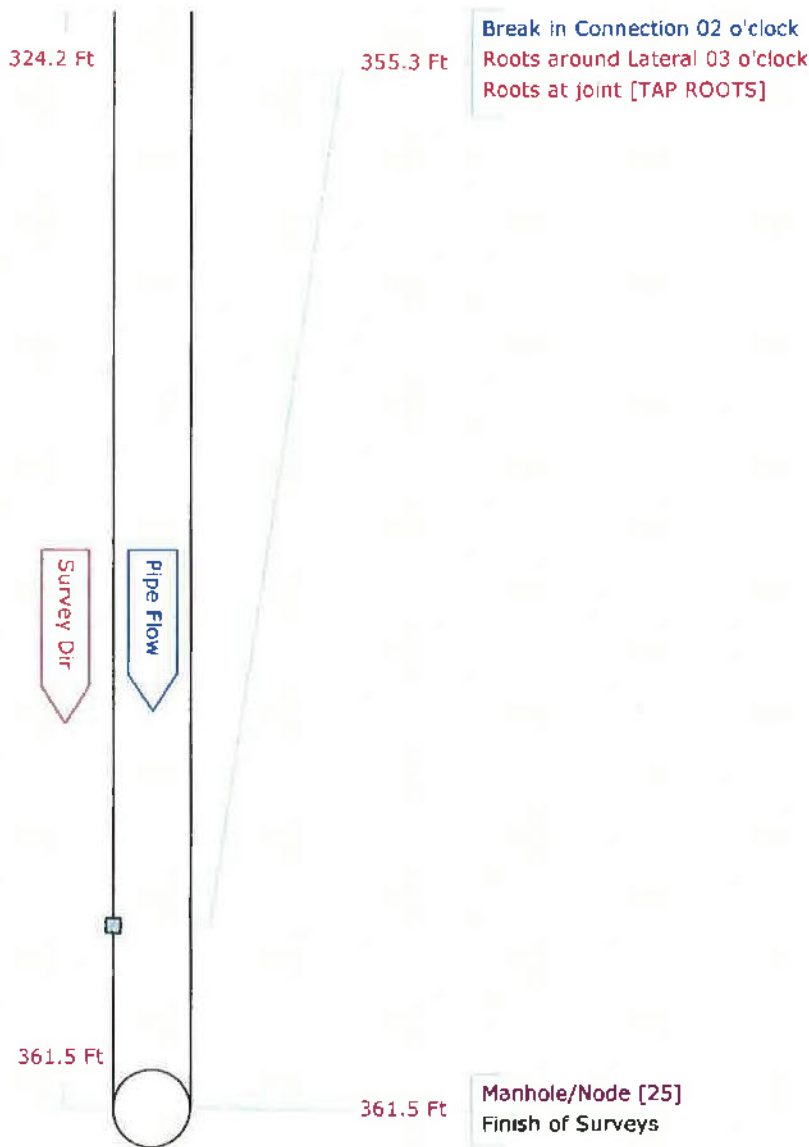
PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-6023

Pipe Graphic Report of PLR 26

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 21
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name	Anderholt Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	From 26 Depth Ft
Shape	Circular	Size 8 by ins	To 25 Depth Ft
Material	Vitrified clay	Joint spacing	Direction Downstream
Lining		Year laid	Pre-clean N Last cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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Phone: 866-299-3150
Fax: 760-406-6023

Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 21
Street Name Anderholt Rd	City Name Holtville	Weather Dry		
Location	From Manhole 26	To Manhole 25		

Date: 09/25/2012
 Distance: 10.4 Ft
 Obs: Debris (Grease)



Comments:

Date: 09/25/2012
 Distance: 20.4 Ft
 Obs: Plugged Connection



Comments:

Date: 09/25/2012
 Distance: 63.3 Ft
 Obs: Break in Connection



Comments:

Date: 09/25/2012
 Distance: 92.7 Ft
 Obs: Plugged Connection



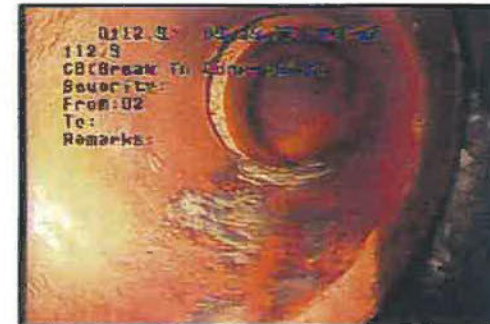
Comments:

Date: 09/25/2012
 Distance: 111.0 Ft
 Obs: Crack longitudinal



Comments:

Date: 09/25/2012
 Distance: 112.9 Ft
 Obs: Break in Connection



Comments:

Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 21
Street Name Anderholt Rd	City Name Holtville	Weather Dry		
Location	From Manhole 26		To Manhole 25	

Date: 09/25/2012
 Distance: 158.9 Ft
 Obs: Roots at joint



Comments:

Date: 09/25/2012
 Distance: 166.3 Ft
 Obs: Roots from lateral



Comments:

Date: 09/25/2012
 Distance: 166.3 Ft
 Obs: Service Connection



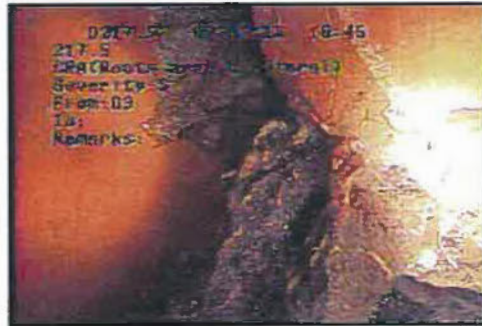
Comments:

Date: 09/25/2012
 Distance: 217.5 Ft
 Obs: Break in Connection



Comments:

Date: 09/25/2012
 Distance: 217.5 Ft
 Obs: Roots around Lateral



Comments:

Date: 09/25/2012
 Distance: 245.1 Ft
 Obs: Plugged Connection



Comments:

Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 21
Street Name Anderholt Rd	City Name Holtville	Weather Dry		
Location	From Manhole 26		To Manhole 25	

Date: 09/25/2012
 Distance: 293.0 Ft
 Obs: Debris (Grease)



Comments:
 CONTINUING

Date: 09/25/2012
 Distance: 324.2 Ft
 Obs: Plugged Connection



Comments:

Date: 09/25/2012
 Distance: 355.3 Ft
 Obs: Break in Connection



Comments:

Date: 09/25/2012
 Distance: 355.3 Ft
 Obs: Roots around Lateral



Comments:

Date: 09/25/2012
 Distance: 355.3 Ft
 Obs: Roots at joint



Comments:
 TAP ROOTS

Tabular Report of PLR 27

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 20
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name Anderholt Rd	City Holtville		
Location type	Surface		
Survey purpose Random survey of pipes and things	Weather Dry		
Pipe Use Sanitary	Sched length	Ft	From 26
Shape Circular	Size 8	by Ins	To 27
Material Vitrified clay	Joint Spacing	Ft	Direction Up
Lining	Year laid		Pre-clean N Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
			Constructional

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					26
	0.0		WL Water level					3
	14.7		DEG Debris (Grease)	S				
	17.8		CL Crack longitudinal	S	10			
	18.2		CB Break in Connection		10			
	54.5		CP Plugged Connection		10			
	61.3		DEG Debris (Grease)	S				CONTINUING
	105.6		CB Break in Connection		10			
	128.2		CB Break in Connection		10			
	184.2		CB Break in Connection		10			
	184.3		RJ Roots at joint	M				
	207.4		CP Plugged Connection		10			
	281.1		CP Plugged Connection		09			
	281.9		CL Crack longitudinal	S	10			
	282.4		CM Cracks multiple	S	12	12		
	282.8		CB Break in Connection		10			
	303.1		CL Crack longitudinal	S	10			
	303.5		CB Break in Connection		10			
	362.3		MH Manhole/Node					27
	362.3		FH Finish of Surveys					

362.3 Ft Total Length Surveyed

Scores	Structural:	Total 400	Mean Defect 30.8	Peak 100	Mean Pipe 1.1
	Service:	Total 175	Mean Defect 43.8	Peak 75	Mean Pipe 0.5



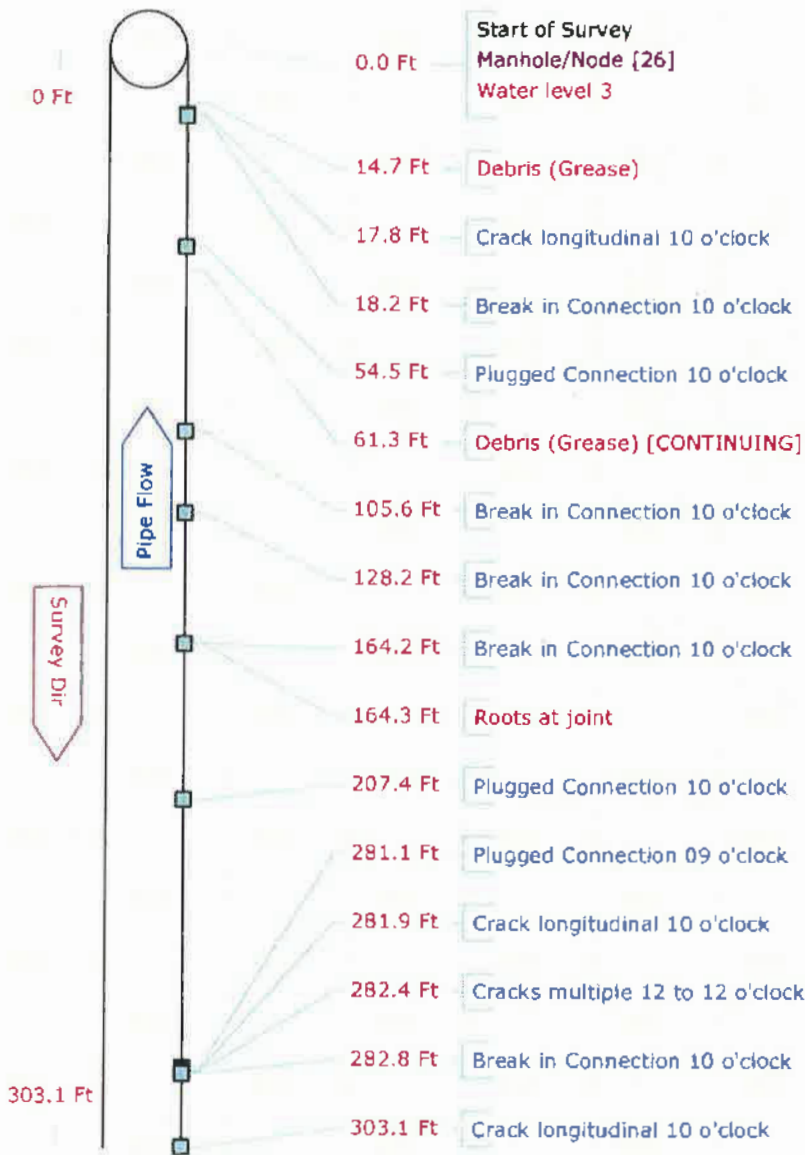
PipeLogix Inc.
 Phone: 866-299-3150
 Fax: 760-406-6023

Pipe Graphic Report of PLR 27

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 20
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name	Anderholt Rd	City	Holville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
From	26	Depth	Ft
To	27	Depth	Ft
Direction	Upstream		
Pre-clean	N	Last cleaned	
General note	Structural	Service	Constructional
Location note	Miscellaneous	Hydraulic	



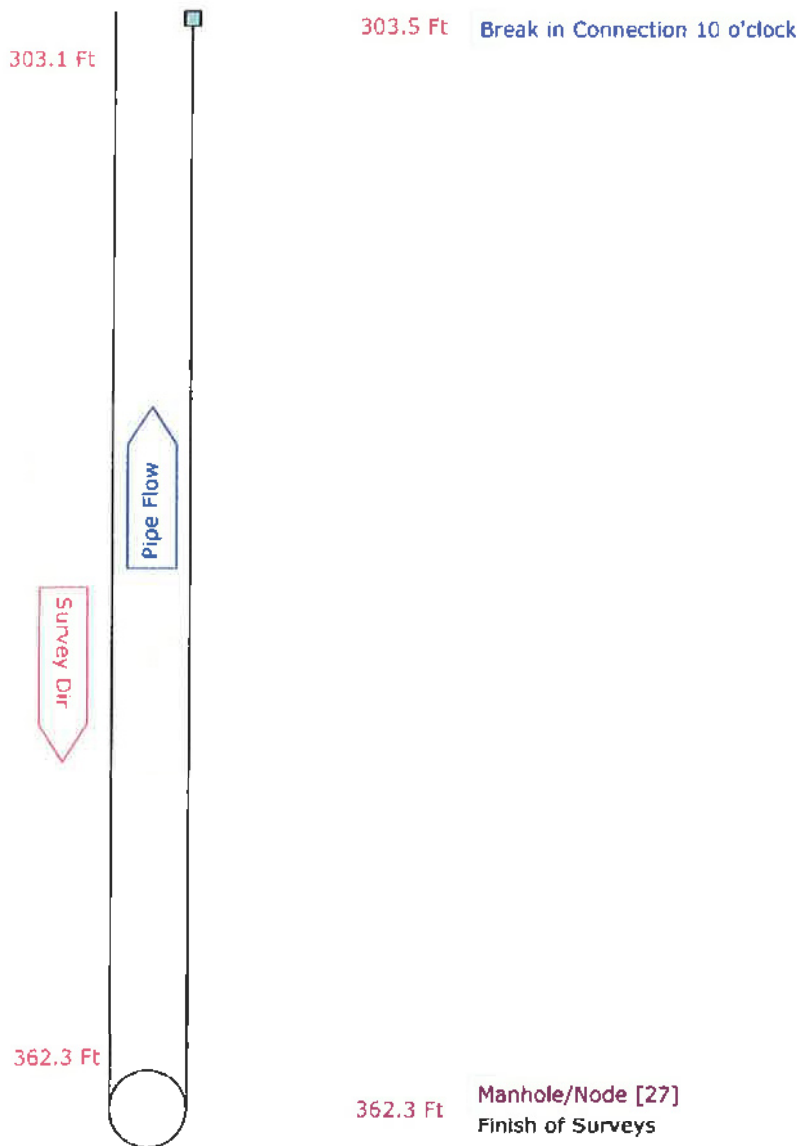
PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-6023

Pipe Graphic Report of PLR 27

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 20
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name	Anderholt Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by ins	From 26 Depth Ft
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		Direction	Upstream
		Pre-clean	N
		Last cleaned	
General note	Structural Service Constructional		
Location note	Miscellaneous Hydraulic		



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Work Order	Video	Surveyed On 09/25/2012	Direction Upstream	Setup 20
Street Name Anderholt Rd	City Name Holtville	Weather Dry		
Location	From Manhole 26	To Manhole 27		

Date: 09/25/2012
 Distance: 14.7 Ft
 Obs: Debris (Grease)



Comments:

Date: 09/25/2012
 Distance: 18.2 Ft
 Obs: Break in Connection



Comments:

Date: 09/25/2012
 Distance: 61.3 Ft
 Obs: Debris (Grease)



Comments:
 CONTINUING

Date: 09/25/2012
 Distance: 17.8 Ft
 Obs: Crack longitudinal



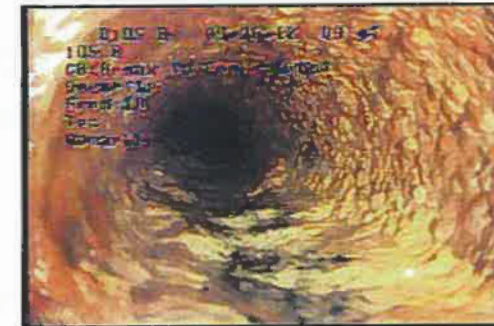
Comments:

Date: 09/25/2012
 Distance: 54.5 Ft
 Obs: Plugged Connection



Comments:

Date: 09/25/2012
 Distance: 105.6 Ft
 Obs: Break in Connection



Comments:

Work Order	Video	Surveyed On 09/25/2012	Direction Upstream	Setup 20
Street Name Anderholt Rd	City Name Holtville	Weather Dry		
Location	From Manhole 26		To Manhole 27	

Date: 09/25/2012
 Distance: 128.2 Ft
 Obs: Break in Connection



Comments:

Date: 09/25/2012
 Distance: 164.3 Ft
 Obs: Roots at joint



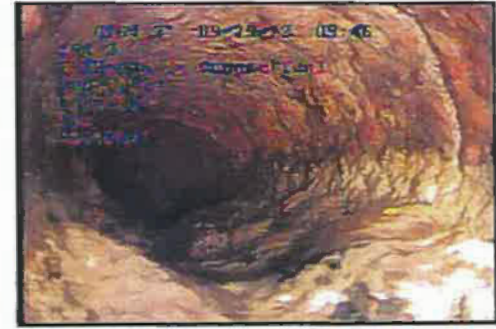
Comments:

Date: 09/25/2012
 Distance: 281.1 Ft
 Obs: Plugged Connection



Comments:

Date: 09/25/2012
 Distance: 164.2 Ft
 Obs: Break in Connection



Comments:

Date: 09/25/2012
 Distance: 207.4 Ft
 Obs: Plugged Connection



Comments:

Date: 09/25/2012
 Distance: 281.9 Ft
 Obs: Crack longitudinal



Comments:

Work Order	Video	Surveyed On 09/25/2012	Direction Upstream	Setup 20
Street Name Anderholt Rd	City Name Holtville	Weather Dry		
Location	From Manhole 26	To Manhole 27		

Date: 09/25/2012
Distance: 282.4 Ft
Obs: Cracks multiple

Comments:



Date: 09/25/2012
Distance: 303.1 Ft
Obs: Crack longitudinal

Comments:



Date: 09/25/2012
Distance: 282.8 Ft
Obs: Break in Connection

Comments:



Date: 09/25/2012
Distance: 303.5 Ft
Obs: Break in Connection

Comments:



Tabular Report of PLR 28

A

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 35 Surveyed On 09/27/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 28	Depth Ft
Shape Circular	Size 8 by ins	To 05	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note Created survey. Could not attempt line.		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH					Manhole/Node 28
	0.0		WL				0	Water level
	0.0		GO					General observation US AND DS MH'S SURCHARGED CO...
	0.0		GO					General observation LINES POSSIBLY SURCHARGED DUE...

0.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Tabular Report of PLR 29

A

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 37 Surveyed On 09/27/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 29	Depth Ft
Shape Circular	Size 8 by ins	To 28	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note Created survey. Could not attempt line.		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				29	
	0.0		WL Water level				0	
	0.0		GO General observation					US MH NOT FOUND
	0.0		GO General observation					DS MH SURCHARGED. COULD NOT A...
	0.0		GO General observation					DS MH POSSIBLY SURCHARGED DUE...

0.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Tabular Report of PLR 30

A

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 38 Surveyed On 09/27/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 30	Depth Ft
Shape Circular	Size 8 by ins	To 29	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note Created survey. Could not attempt line.		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic

Video	Count	CD	Code	Sav	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				30	
	0.0		WL Water level				0	
	0.0		GO General observation					US MH IN PRIVATE PROPERTY. NO...
	0.0		GO General observation					DS MH NOT FOUND. COULD NOT AT...

0.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Tabular Report of PLR 31 A for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 39 Surveyed On 09/27/2012	
Street Name Barbara Worth Rd		City Holtville		
Location type Surface		Weather Dry		
Survey purpose Random survey of pipes and things				
Pipe Use Sanitary	Sched length Ft	From 31	Depth Ft	
Shape Circular	Size 8 by Ins	To 30	Depth Ft	
Material Vitrified clay	Joint Spacing Ft	Direction Down		
Lining	Year laid	Pre-clean N	Last Cleaned	
General note Created survey. Could not attempt line.		Structural	Service Constructional	
Location note		Miscellaneous	Hydraulic	
Video	Count	CD	Code	
	0.0		ST Start of Survey	
	0.0		MH Manhole/Node	
	0.0		WL Water level	
	0.0		GO General observation	
	0.0		GO General observation	
			Sev Fr To Value Remarks	
				31
				0
				US MH NOT FOUND
				DS MH IN PRIVATE PROPERTY, NO...

0.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Tabular Report of PLR 32

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 29 Surveyed On 09/26/2012
Street Name Country Club Dr		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 32	Depth Ft
Shape Circular	Size 8 by ins	To 31	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		MH Manhole/Node				32	
	0.0		WL Water level				5	
	2.1		RJ Roots at joint	L				
	50.1		RJ Roots at joint	S				
	50.1		CN Service Connection			12		
	99.7		RJ Roots at joint	S				
	105.9		RJ Roots at joint	S				
	118.1		RJ Roots at joint	S				
	124.2		RJ Roots at joint	S				CONTINUING
	144.2		CN Service Connection			01		
	170.8		DEG Debris (Grease)	S				
	231.3		CN Service Connection			12		
	297.2		DS Begin Pipe Sag					
	307.0		DF End pipe sag					
	328.9		CN Service Connection			12		
	329.9		LL Bend in pipe left					
	330.4		GO General observation					BEND TOO TIGHT FOR TRACTOR
	330.5		GO General observation					DS MH NOT FOUND. NO ACCESS FO...
	330.6		SA Survey abandoned					

330.6 Ft Total Length Surveyed

Scores	Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
	Service:	Total 275	Mean Defect 34.4	Peak 100	Mean Pipe 0.8



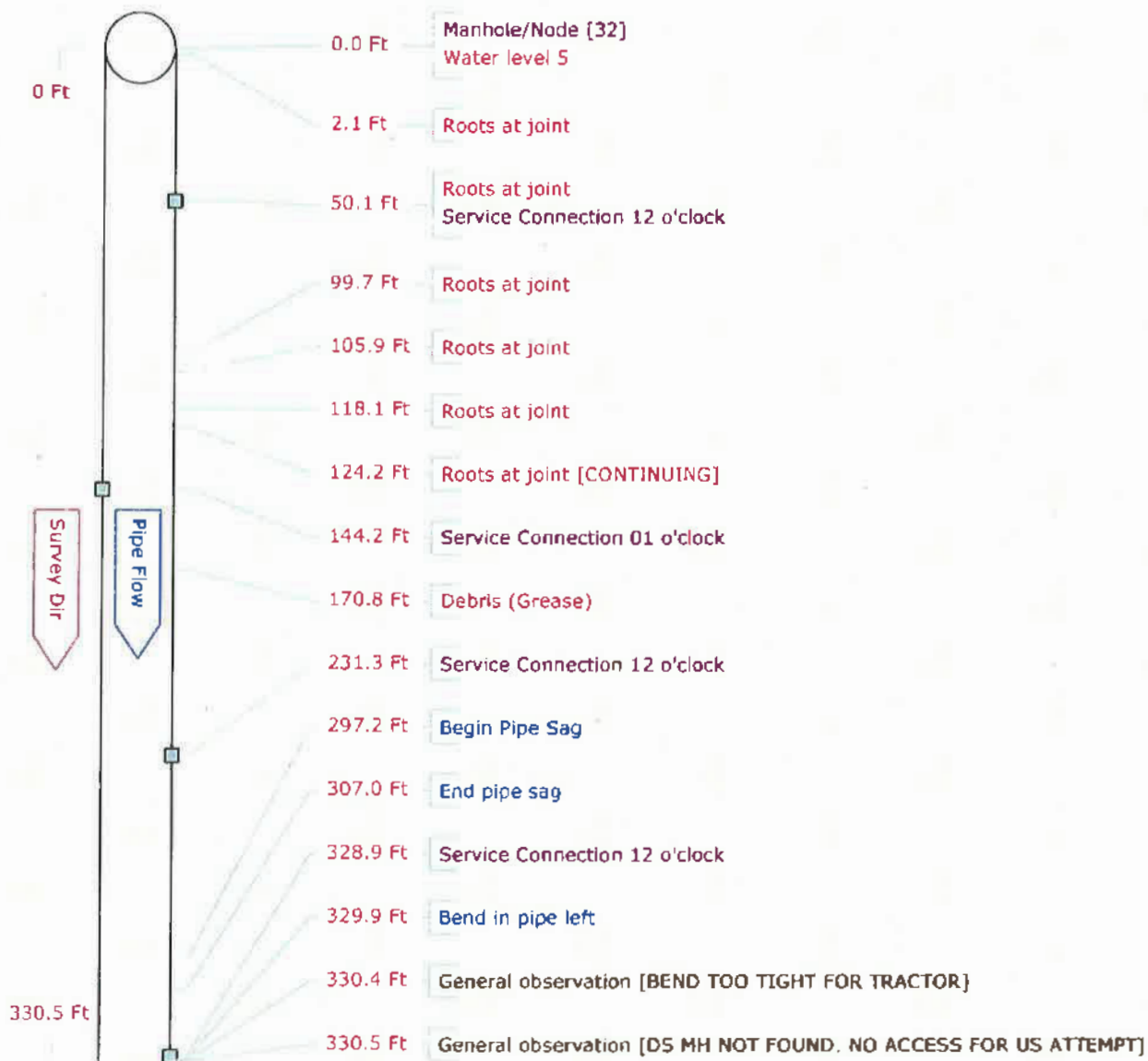
PipeLogix Inc.
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Fax: 760-406-6023

Pipe Graphic Report of PLR 32

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 29
Facility	Operator NJP	Van Ref 10	Surveyed On 09/28/2012
Street Name	Country Club Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 6 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		From 32	Depth Ft
		To 31	Depth Ft
		Direction	Downstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
			Constructional



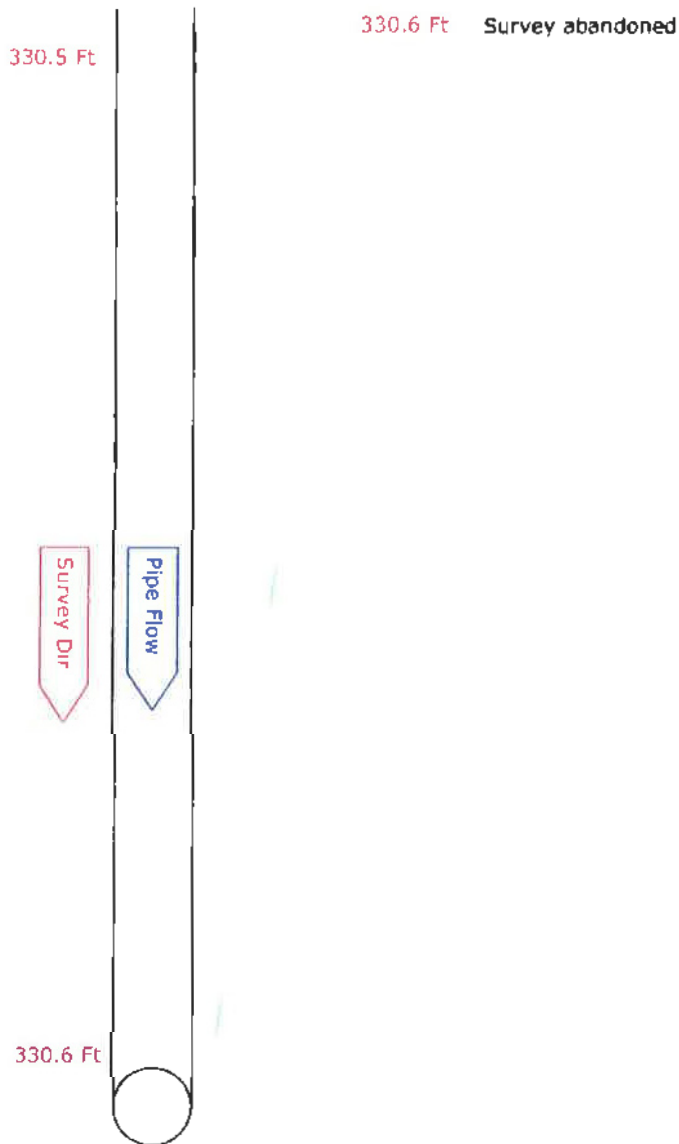
PipeLogix Inc.
Phone: 866-299-3150
Fax: 760-406-6023

Pipe Graphic Report of PLR 32

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 20
Facility	Operator NJP	Van Ref 10	Surveyed On 09/26/2012
Street Name	Country Club Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things		Weather Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 6 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
From	32	Depth	Ft
To	31	Depth	Ft
Direction	Downstream		
Pre-clean	N	Last cleaned	
General note	Structural	Service	Constructional
Location note	Miscellaneous	Hydraulic	



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CCTV pictures of 32

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/26/2012	Direction Downstream	Setup 29
Street Name Country Club Dr	City Name Holtville	Weather Dry		
Location	From Manhole 32	To Manhole 31		

Date: 09/26/2012
Distance: 2.1 Ft
Obs: Roots at joint

Comments:



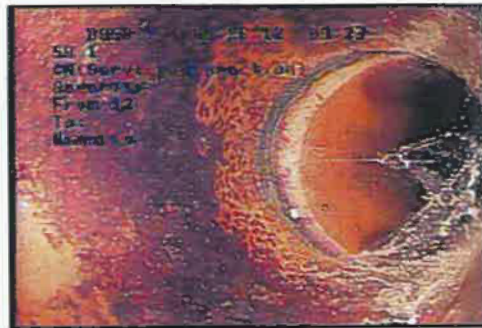
Date: 09/26/2012
Distance: 50.1 Ft
Obs: Roots at joint

Comments:



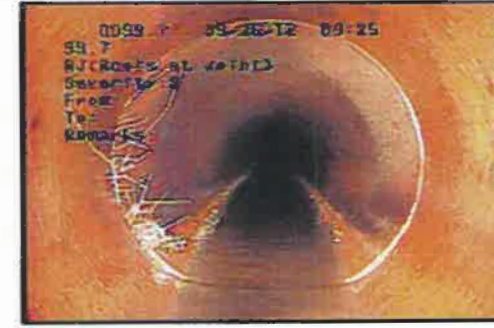
Date: 09/26/2012
Distance: 50.1 Ft
Obs: Service Connection

Comments:



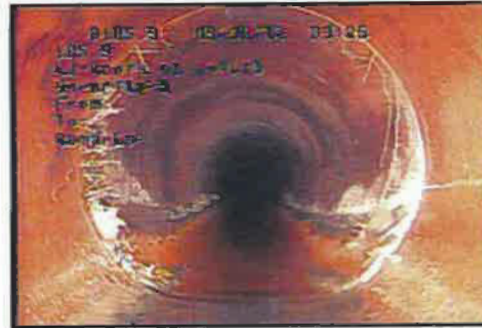
Date: 09/26/2012
Distance: 99.7 Ft
Obs: Roots at joint

Comments:



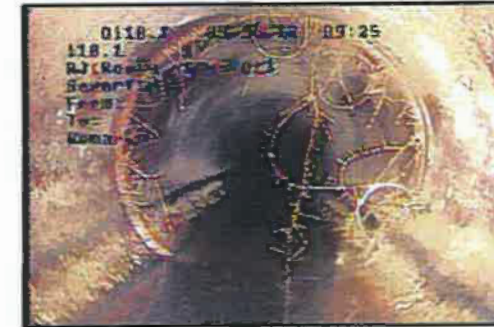
Date: 09/26/2012
Distance: 105.9 Ft
Obs: Roots at joint

Comments:



Date: 09/26/2012
Distance: 118.1 Ft
Obs: Roots at joint

Comments:



Work Order	Video	Surveyed On 09/26/2012	Direction Downstream	Setup 29
Street Name Country Club Dr	City Name Holtville	Weather Dry		
Location	From Manhole 32	To Manhole 31		

Date: 09/26/2012
 Distance: 124.2 Ft
 Obs: Roots at joint

Comments:
 CONTINUING



Date: 09/26/2012
 Distance: 144.2 Ft
 Obs: Service Connection

Comments:



Date: 09/26/2012
 Distance: 170.8 Ft
 Obs: Debris (Grease)

Comments:



Date: 09/26/2012
 Distance: 231.3 Ft
 Obs: Service Connection

Comments:



Date: 09/26/2012
 Distance: 297.2 Ft
 Obs: Begin Pipe Sag

Comments:



Date: 09/26/2012
 Distance: 328.9 Ft
 Obs: Service Connection

Comments:



CCTV pictures of 32

X

for Bureau Veritas NA

Work Order	Video	Surveyed On 09/26/2012	Direction Downstream	Setup 29
Street Name Country Club Dr	City Name Holtville	Weather Dry		
Location	From Manhole 32	To Manhole 31		

Date: 09/26/2012

Distance: 329.9 Ft

Obs: Bend in pipe left

Comments:



Tabular Report of PLR 33

A

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 36 Surveyed On 09/27/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 33	Depth Ft
Shape Circular	Size 8 by ins	To 28	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note Created survey. Could not attempt line.		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				33	
	0.0		WL Water level				0	
	0.0		GO General observation					US MH NOT FOUND, DS MH SURCHA...
	0.0		GO General observation					LINE POSSIBLY SURCHARGED DUE ...

0.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



PipeLogix Inc.
 Phone: 866-299-3150
 Fax: 760-406-6023

Tabular Report of PLR 06

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 42 Surveyed On 10/25/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From 04	Depth Ft
Shape Circular	Size 10 by ins	To 06	Depth Ft
Material Polyvinyl chloride	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		MH Manhole/Node					04
	0.0		WL Water level				5	
	0.0		DS Begin Pipe Sag					
	0.0		CUB Camera Submerged Begin					
	1.7		ST Start of Survey					
	5.1		DE Debris	L				
	20.0		CUB Camera Submerged Begin					
	56.6		DF End pipe sag					
	91.2		LR Bend in pipe right					
	91.5		GO General observation					BLOCKED BY TIGHT BEND
	91.5		SA Survey abandoned					

91.5 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



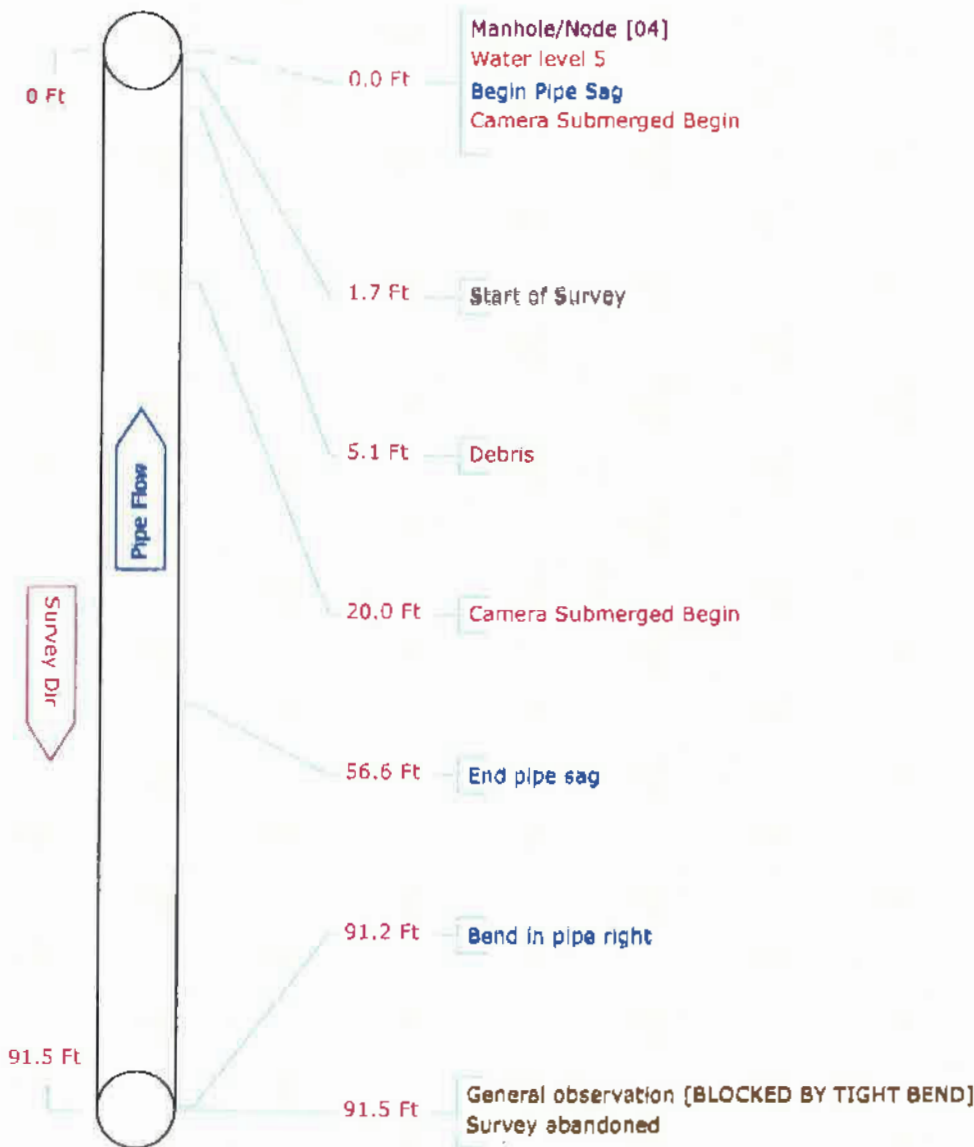
PipeLogix Inc.
 Phone: 866-299-3150
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Pipe Graphic Report of PLR 06

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 42
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 10 by	ins
Material	Polyvinyl chloride	Joint spacing	Ft
Lining		Year laid	
From	04	Depth	Ft
To	06	Depth	Ft
Direction	Upstream		
Pre-clean	N	Last cleaned	
General note	Structural	Service	Constructional
Location note	Miscellaneous	Hydraulic	



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Tabular Report of PLR 07

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 43 Surveyed On 10/25/2012
Street Name Country Club Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 06	Depth Ft
Shape Circular	Size 10 by Ins	To 07	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
		Hydraulic	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH					Manhole/Node 06
	0.0		WL				5	Water level
	75.7		DS					Begin Pipe Sag
	105.3		CUB					Camera Submerged Begin
	174.9		CUE					Camera Submerged End
	197.4		DF					End pipe sag 6-8" Depth Change
	268.4		MH					Manhole/Node 07
	268.4		FH					Finish of Surveys

268.4 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



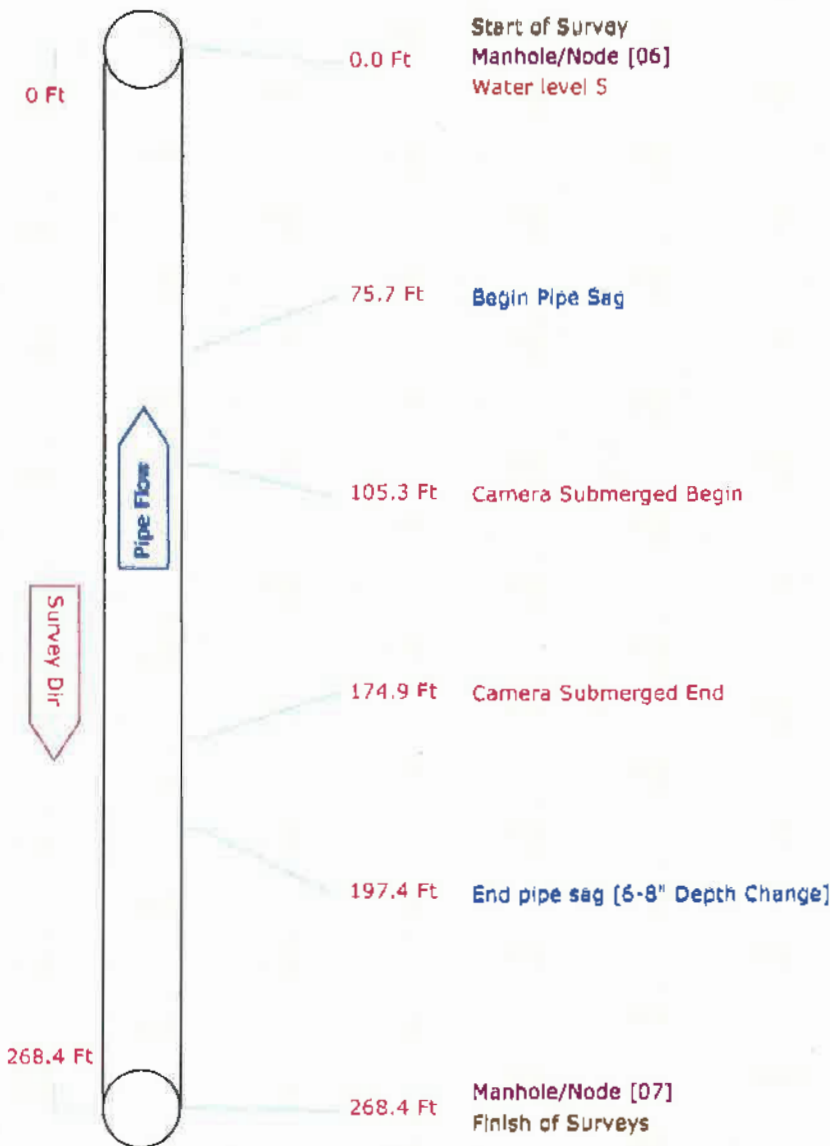
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Pipe Graphic Report of PLR 07

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 43
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name	Country Club Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 10 by ins	From 06 Depth Ft
Material	Vitrified clay	Joint spacing	Ft To 07 Depth Ft
Lining		Year laid	Direction Upstream
General note		Pre-clean N	Last cleaned
Location note		Structural	Service Constructional
		Miscellaneous	Hydraulic



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Tabular Report of PLR 07

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 44 Surveyed On 10/25/2012
Street Name Country Club Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 07	Depth Ft
Shape Circular	Size 10 by ins	To 06	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				07	
	0.0		WL Water level				5	
	18.1		DEG Debris (Grease)	S	12			
	66.6		DS Begin Pipe Sag					
	88.6		GC General observation					Camera going submerged, end p
	88.6		BA Survey abandoned					

88.6 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



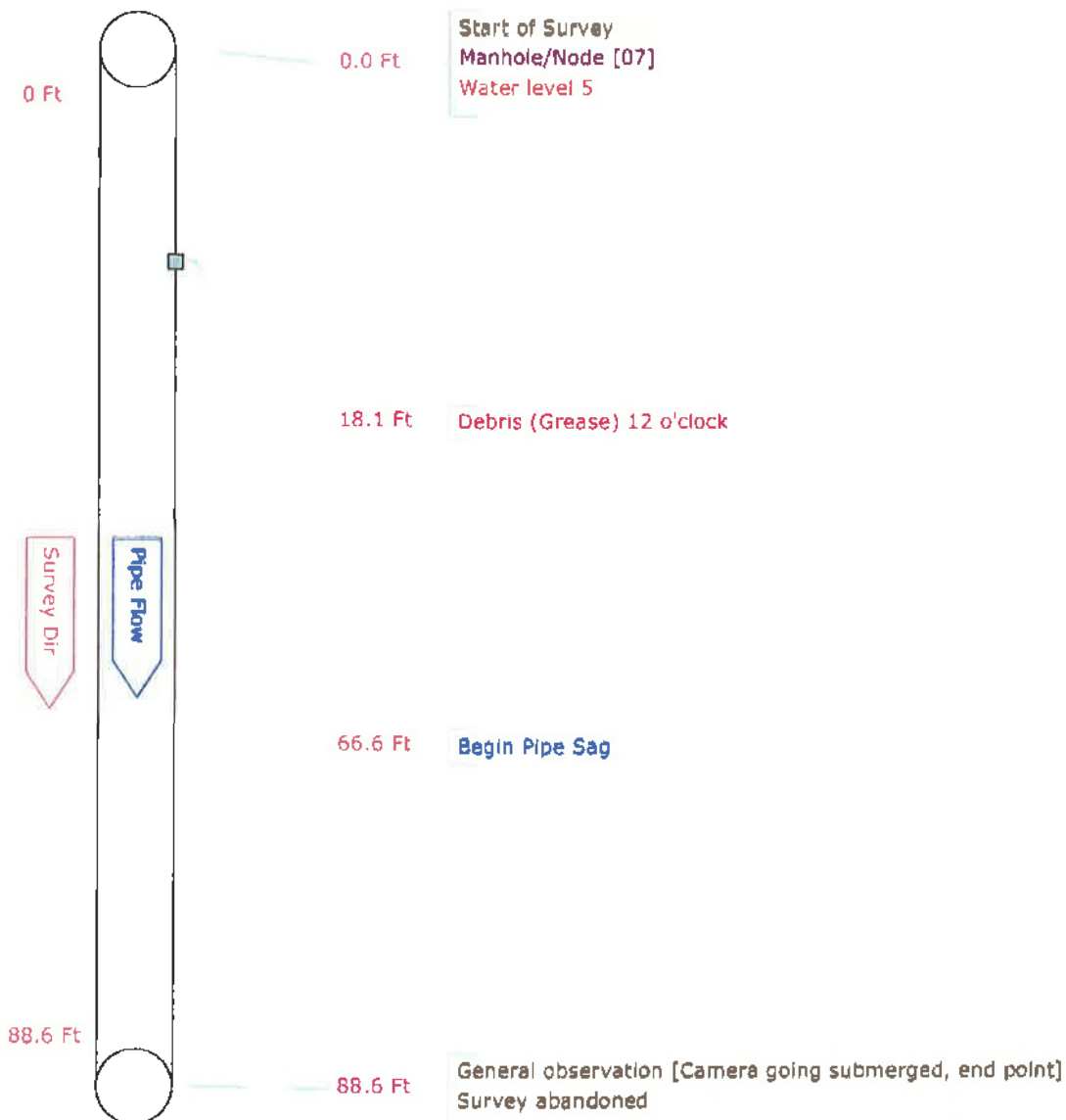
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Pipe Graphic Report of PLR 07

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 44
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name	Country Club Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 10 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		From 07	Depth Ft
		To 08	Depth Ft
		Direction	Downstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	



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Tabular Report of PLR 11

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 45 Surveyed On 10/25/2012
Street Name Barbara Worth Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 07	Depth Ft
Shape Circular	Size 8 by ins	To 11	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					07
	0.0		WL Water level				5	
	7.0		JD Joint Displaced		M			
	103.4		DE Debris		L			1/2 Pipe full of grease
	103.4		DEG Debris (Grease)		L			
	103.4		GO General observation					Blocked by grease
	103.4		SA Survey abandoned					

103.4 Ft Total Length Surveyed

Scores

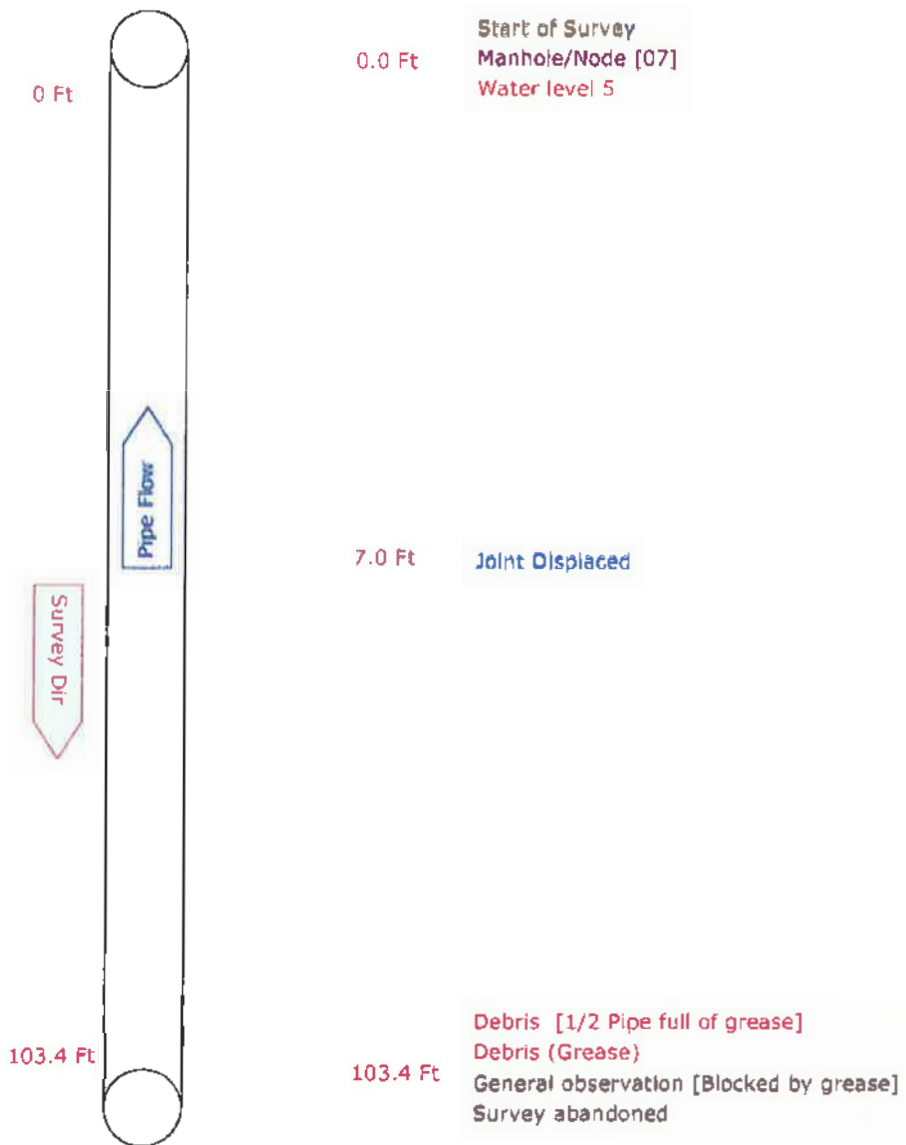
Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Pipe Graphic Report of PLR 11 X for Bureau Veritas NA

Work Order	Contract	Video	Setup 45
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name	Barbara Worth Dr	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		From 07	Depth Ft
		To 11	Depth Ft
		Direction	Upstream
		Pre-clean	N
		Last cleaned	
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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Tabular Report of PLR 11

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 46 Surveyed On 10/25/2012
Street Name Barbara Worth Dr		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length	From 07	Depth
Shape Circular	Size 8 by ins	To 11	Depth
Material Vitrified clay	Joint Spacing	Direction Up	Ft
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		WL Water level				5	
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				07	
	7.0		JD Joint Displaced		M			
	64.2		CC Circular Crack		S	12	12	
	64.7		H Hole in sewer		S	02		
	148.3		GO General observation					LARGE DEBRIS/GREASE IN US MH
	148.3		MH Manhole/Node				11	
	148.3		FH Finish of Surveys					

148.3 Ft Total Length Surveyed

Scores

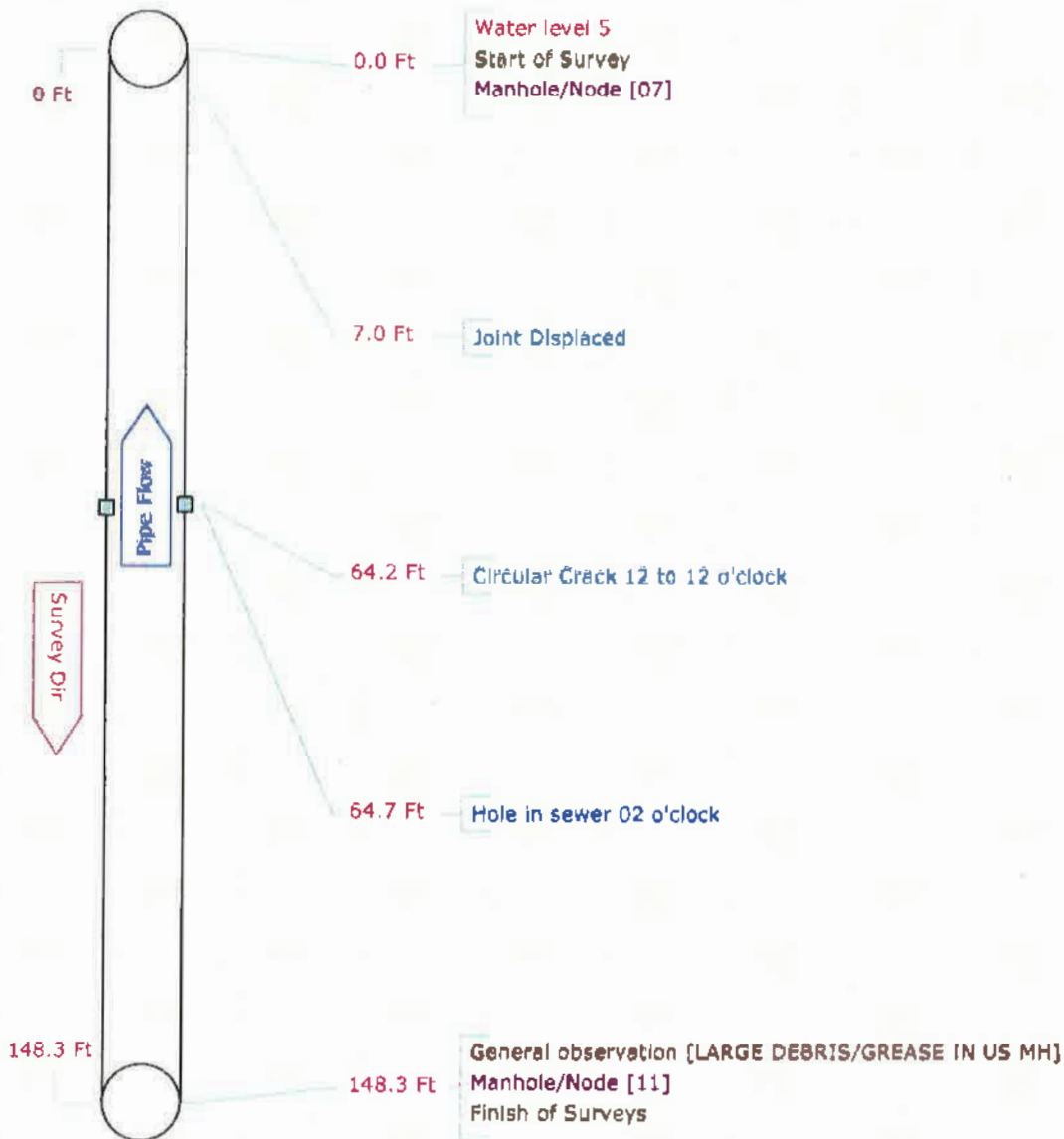
Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



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Pipe Graphic Report of PLR 11 X for Bureau Veritas NA

Work Order	Contract	Video	Setup	48
Facility	Operator NJP	Van Ref 10	Surveyed On	10/25/2012
Street Name	Barbera Worth Dr	City	Holville	
Location type				
Surface				
Survey purpose	Random survey of pipes and things	Weather	Dry	
Pipe Use	Sanitary	Schedule length	Ft	
Shape	Circular	Size 8 by	ins	
Material	Vitrified clay	Joint spacing	Ft	
Lining		Year laid		
From	07	Depth	Ft	
To	11	Depth	Ft	
Direction	Upstream			
Pre-clean	N	Last cleaned		
General note	Structural	Service	Constructional	
Location note	Miscellaneous	Hydraulic		



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Tabular Report of PLR 08

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 47 Surveyed On 10/25/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 07	Depth Ft
Shape Circular	Size 8 by ins	To 08	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				07	
	0.0		WL Water level				5	
	1.0		DEG Debris (Grease)	L				
	4.0		DE Debris	L				CONTINUES
	4.0		GO General observation					BLOCKED BY DEBRIS
	4.0		SA Survey abandoned					

4.0 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



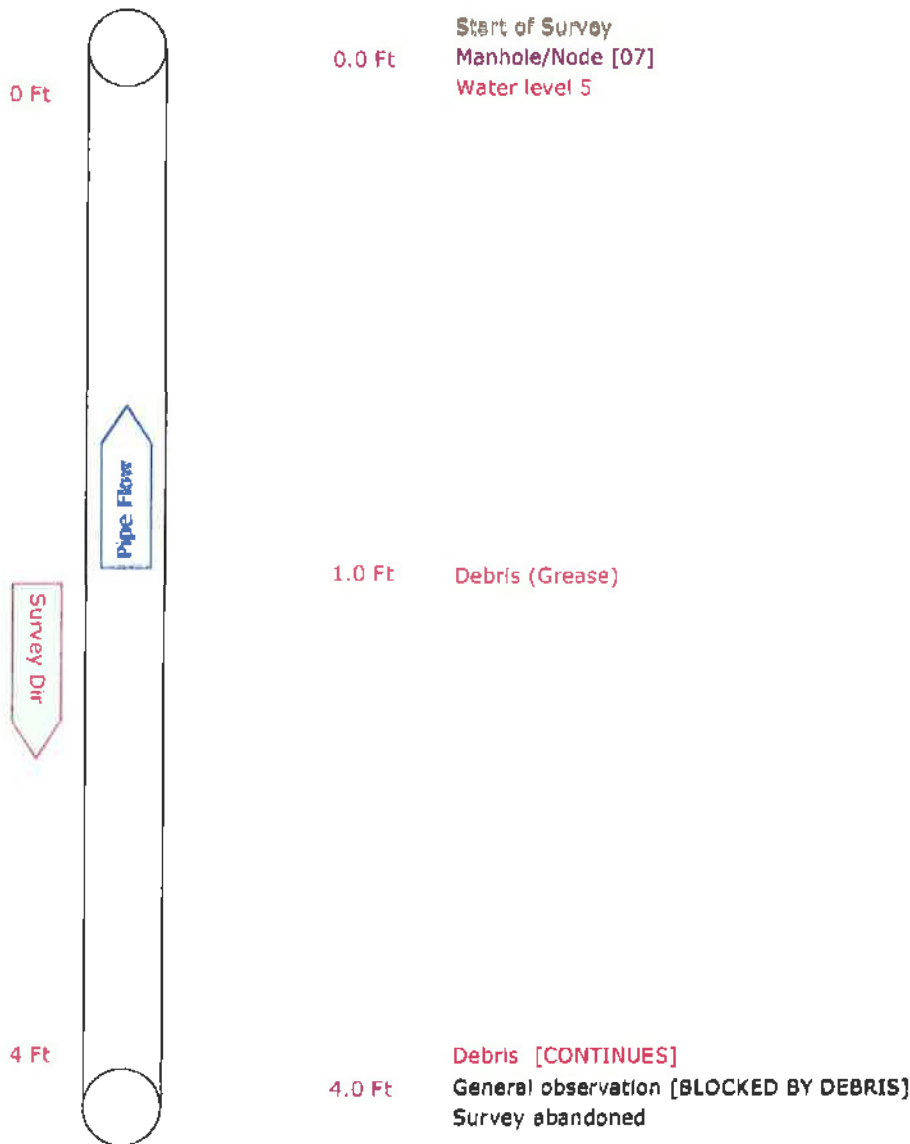
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Pipe Graphic Report of PLR 08

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 47
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
From	07	Depth	Ft
To	08	Depth	Ft
Direction	Upstream		
Pre-clean	N	Last cleaned	
General note	Structural	Service	Constructional
Location note	Miscellaneous	Hydraulic	



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Tabular Report of PLR 08

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 48 Surveyed On 10/25/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length	Ft	From 07
Shape Circular	Size 8	by ins	To 08
Material Vitrified clay	Joint Spacing	Ft	Direction Up
Lining	Year laid		Pre-clean N Last Cleaned
General note			Structural Service Constructional
Location note			Miscellaneous Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					07
	0.0		WL Water level					3
	8.0		DS Begin Pipe Sag					
	13.7		DF End pipe sag					
	114.1		CN Service Connection			02		
	146.1		CC Circular Crack	M	12	12		
	146.7		CB Break in Connection			12		
	146.7		CL Crack longitudinal	M	01			
	147.3		B Broken Pipe	L	12	12		
	151.3		MH Manhole/Node					08
	151.3		FM Finish of Surveys					

151.3 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



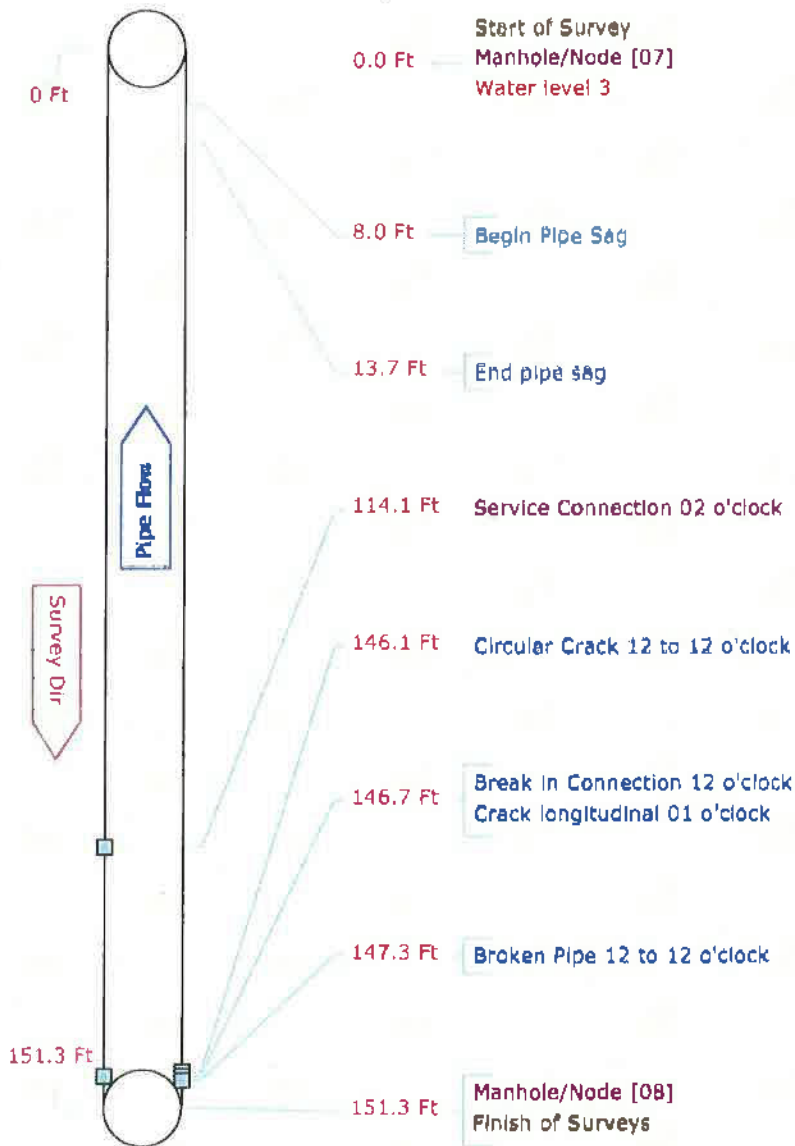
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Pipe Graphic Report of PLR 08

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 48
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 8 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
From	07	Depth	Ft
To	08	Depth	Ft
Direction	Upstream		
Pre-clean	N	Last cleaned	
General note	Structural	Service	Constructional
Location note	Miscellaneous	Hydraulic	



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Tabular Report of PLR 29

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 49 Surveyed On 10/25/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length	Ft	From 28
Shape Circular	Size 8	by ins	To 29
Material Vitrified clay	Joint Spacing	Ft	Direction Up
Lining	Year laid		Pre-clean N Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Constructional
			Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				28	
	0.0		WL Water level				3	
	105.6		CP Plugged Connection		03			
	192.6		CP Plugged Connection		03			
	202.4		CB Break In Connection		02			
	247.3		CC Circular Crack	M	12	12		
	248.1		CB Break In Connection		12			
	248.1		CL Crack longitudinal	M	01			
	253.5		JD Joint Displaced	M				
	286.0		CP Plugged Connection		03			
	318.6		DE Debris	L				
	325.9		CB Break In Connection		02			
	339.6		CP Plugged Connection		03			
	366.8		MH Manhole/Node				29	
	366.8		FH Finish of Surveys					

386.8 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



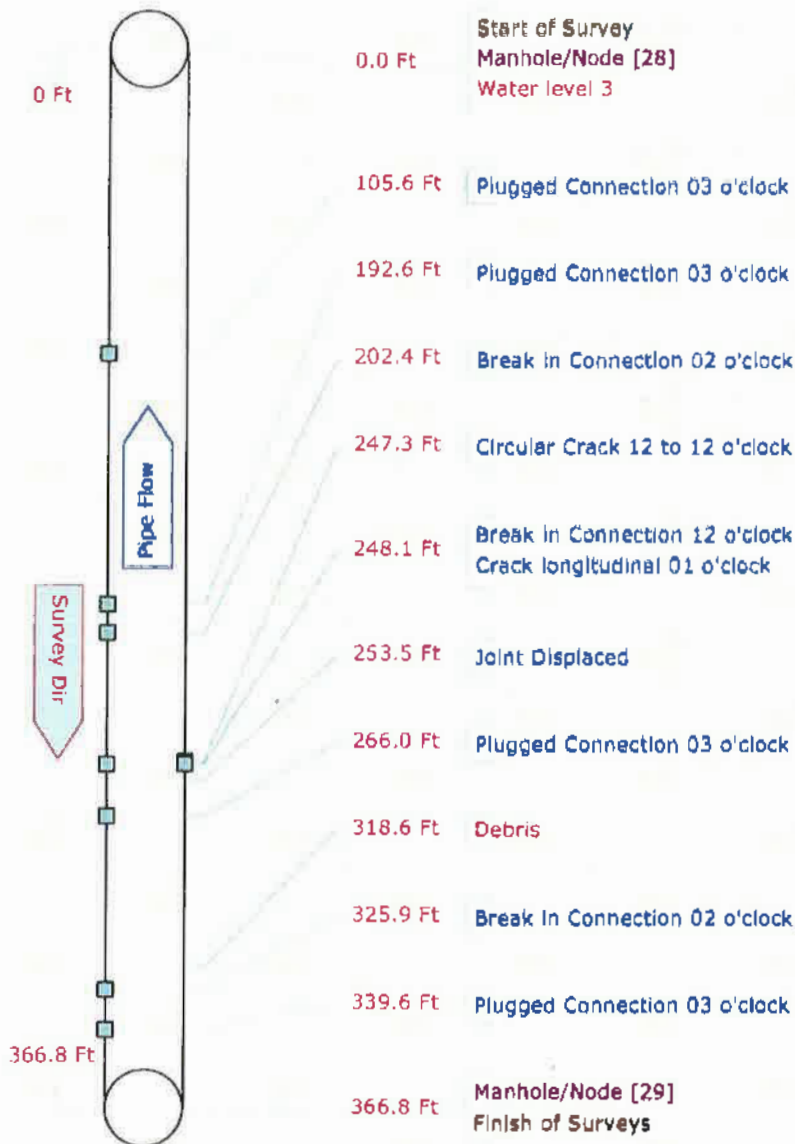
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Pipe Graphic Report of PLR 29

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup	49
Facility	Operator NJP	Van Ref 10	Surveyed On	10/25/2012
Street Name	Barbara Worth Rd	City	Holtville	
Location type				
Surface				
Survey purpose	Random survey of pipes and things	Weather	Dry	
Pipe Use	Sanitary	Schedule length	Ft	
Shape	Circular	Size 8	by	ins
Material	Vitrified clay	Joint spacing	Ft	
Lining		Year laid		
From	28	Depth	Ft	
To	29	Depth	Ft	
Direction	Upstream			
Pre-clean	N	Last cleaned		
General note		Structural	Service	Constructional
Location note		Miscellaneous	Hydraulic	



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Tabular Report of PLR 30

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 50
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From 29	Depth Ft
Shape Circular	Size 8 by ins	To 30	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural	Service
Location note		Miscellaneous	Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH				29	Manhole/Node
	0.0		WL				5	Water level
	35.8		CB		02			Break in Connection
	50.2		CP		03			Plugged Connection
	81.4		CB		03			Break in Connection
	124.1		CP		02			Plugged Connection
	157.0		CB		03			Break in Connection
	197.6		CP		03			Plugged Connection
	270.7		CB		02			Break in Connection
	276.7		CP		03			Plugged Connection
	327.8		CN		02			Service Connection
	339.7		CN		02			Service Connection
	359.3		MH				30	Manhole/Node
	359.3		FH					Finish of Surveys

359.3 Ft Total Length Surveyed

Scores

Structural:	Total	Mean Defect	Peak	Mean Pipe
Service:	Total	Mean Defect	Peak	Mean Pipe



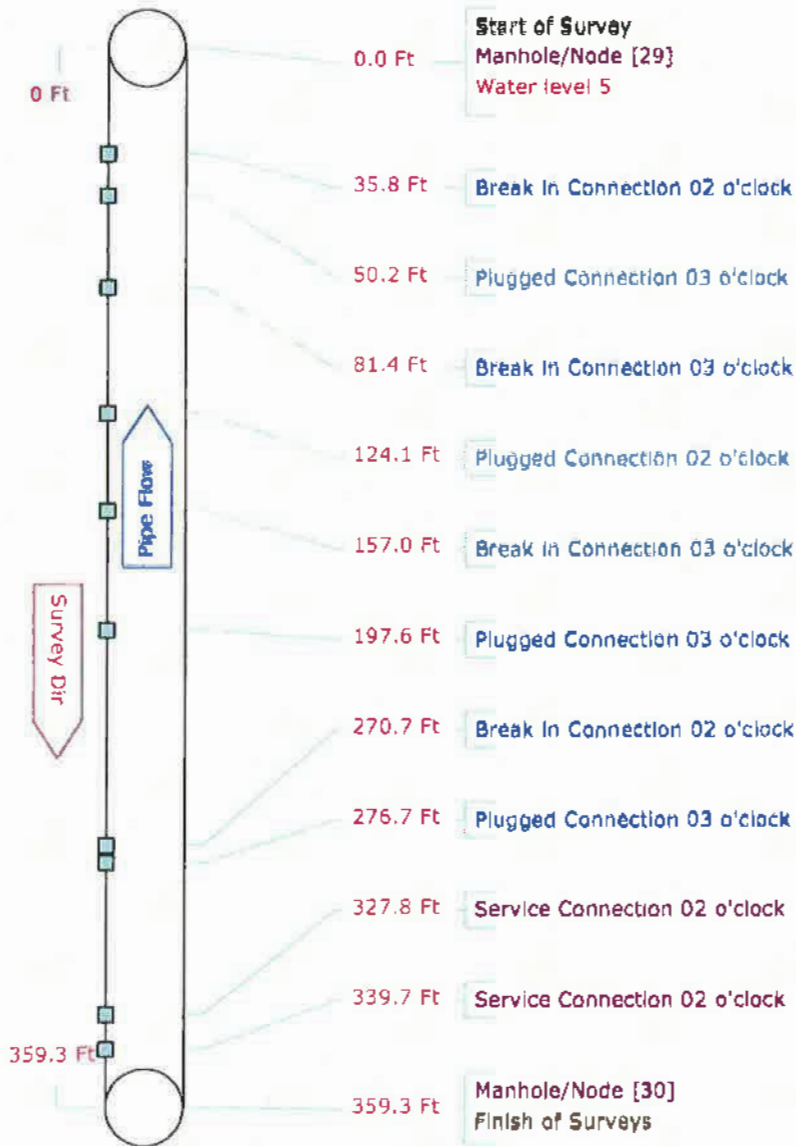
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Pipe Graphic Report of PLR 30

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 50
Facility	Operator NJP	Van Ref 10	Surveyed On 10/25/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 6 by ins	
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
General note		From 29	Depth Ft
Location note		To 30	Depth Ft
		Direction	Upstream
		Pre-clean	N
		Last cleaned	
		Structural	Service
		Miscellaneous	Hydraulic
		Constructional	



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Tabular Report of PLR 33

X

for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 51 Surveyed On 10/29/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length	From 28	Depth Ft
Shape Circular	Size 4 by ins	To 33	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note RAN WITH PUSH CAMERA		Structural	Service Constructional
Location note		Miscellaneous	Hydraulic

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node				28	
	0.0		WL Water level				5	
	59.0		CN Service Connection		10			
	178.0		DE Debris	M				DEBRIS AND GREASE
	180.0		GO General observation					CAMERA STOPPED PUSHING
	180.0		GO General observation					PULL CAMERA BACK TO START
	180.0		SA Survey abandoned					END AT 0 FOOT

180.0 Ft Total Length Surveyed

Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 75	Mean Defect 37.5	Peak 75	Mean Pipe 0.4



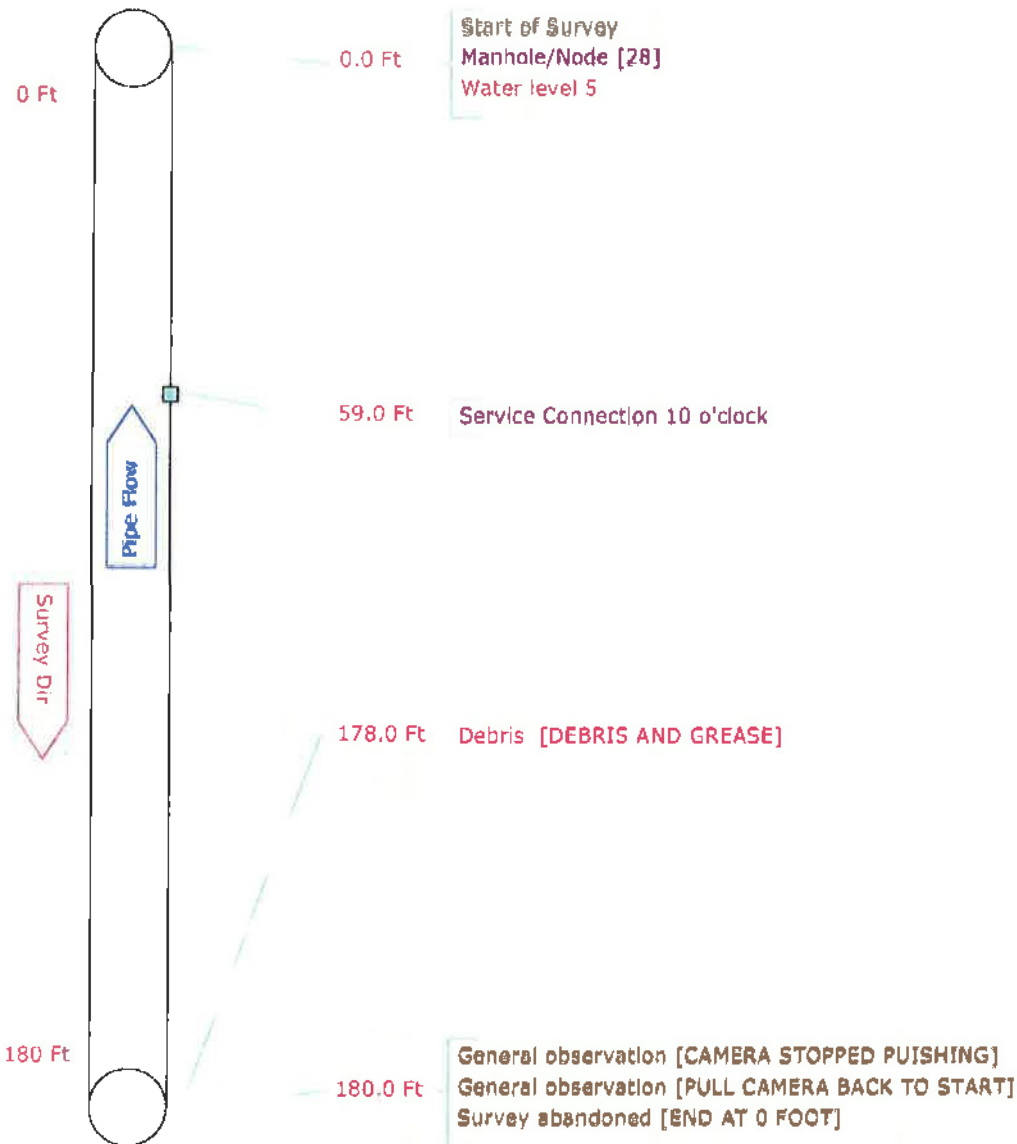
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Pipe Graphic Report of PLR 33

X

for Bureau Veritas NA

Work Order	Contract	Video	Setup 51
Facility	Operator NJP	Van Ref 10	Surveyed On 10/29/2012
Street Name	Barbara Worth Rd	City	Haitville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 4 by ins	From 28 Depth Ft
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
		Direction	Upstream
		Pre-clean	N Last cleaned
General note	RAN WITH PUSH CAMERA	Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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FORCE MAIN

Tabular Report of PLR PUMP STATION 01 A for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 40 Surveyed On 09/27/2012
Street Name Evan Hewes Hwy		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length	Ft	From PUMP STATION 01
Shape Circular	Size 4	by in	To NORTH
Material Polyvinyl chloride	Joint Spacing	Ft	Depth Ft
Lining	Year laid		Direction Down
General note Valve removed for camera access			Pre-clean N
Location note Line is a force main			Last Cleaned
		Structural	Service
		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					PUMP STATION 01
	0.0		WL Water level				0	
	2.0		LD Bend in pipe down					90 degrees bend above surface
	8.0		CUB Camera Submerged Begin					At Second 90 degree bend
	43.0		CUE Camera Submerged End					
	68.0		CUB Camera Submerged Begin					
	95.0		CUE Camera Submerged End					
	95.0		GO General observation					Losing push on camera due to
	100.0		GO General observation					Lost push on camera
	100.0		SA Survey abandoned					

100.0 Ft Total Length Surveyed

Scores

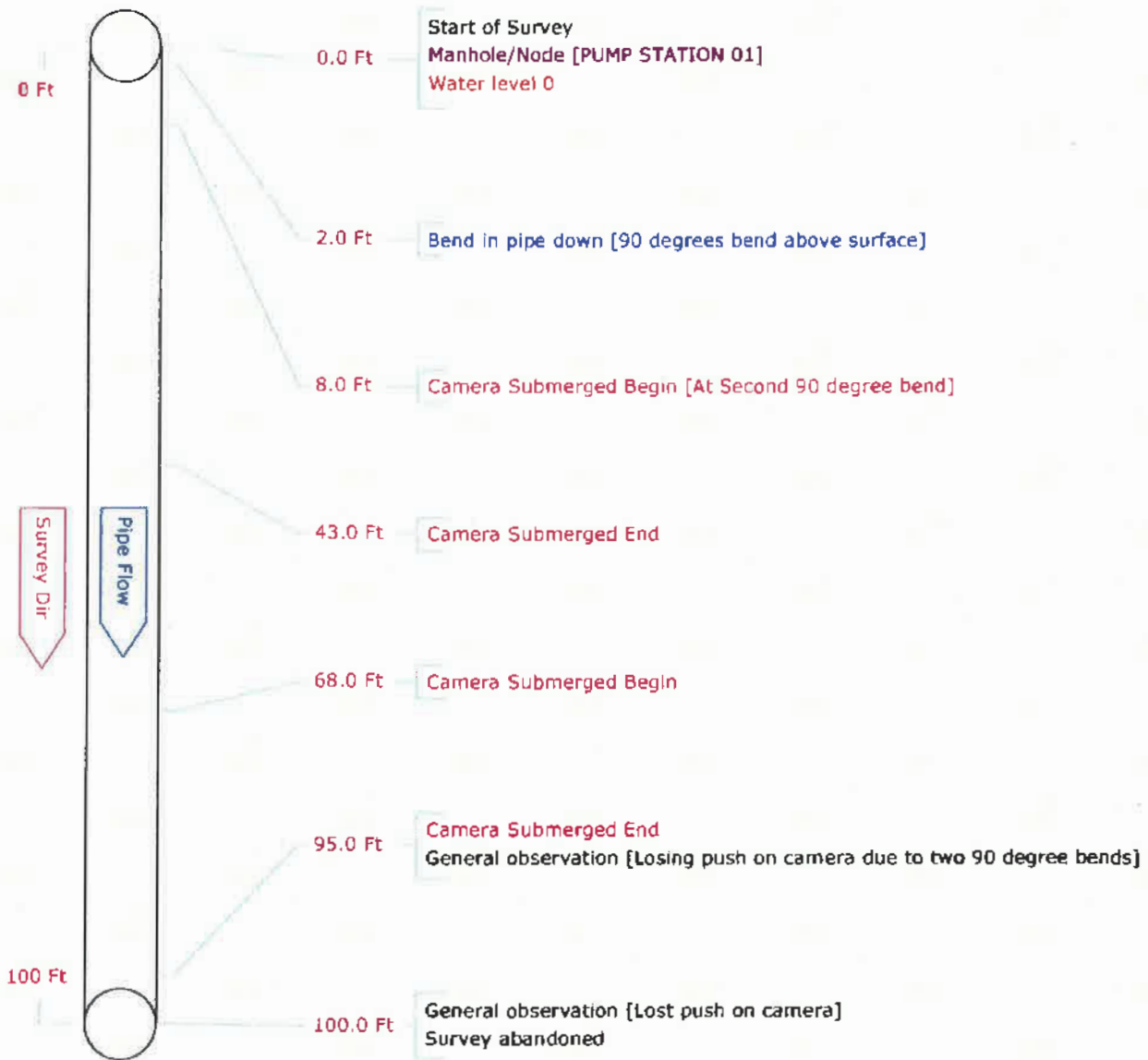
Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0



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Pipe Graphic Report of PLR PUMP STATION 01 A for Bureau Veritas NA

Work Order	Contract	Video	Setup 40
Facility	Operator NJP	Van Ref 10	Surveyed On 09/27/2012
Street Name	Evan Hewes Hwy	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 4 by	ins
Material	Polyvinyl chloride	Joint spacing	Ft
Lining		Year laid	
From	PUMP STATION 01	Depth	Ft
To	NORTH	Depth	Ft
Direction	Downstream		
Pre-clean	N	Last cleaned	
General note	Valve removed for camera access	Structural	Service Constructional
Location note	Line is a force main	Miscellaneous	Hydraulic



Tabular Report of PLR PUMP STATION 01 Y for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 41 Surveyed On 09/27/2012
Street Name Evan Hewes Hwy		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From NORTH	Depth Ft
Shape Circular	Size 4 by in	To PUMP STATION 01	Depth Ft
Material Polyvinyl chloride	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean Y	Last Cleaned 8/25/2012
General note Reverse setup attempted for maximum length of		Structural	Service
Location note inspection		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					NORTH
	0.0		WL Water level				50	
	21.0		CUB Camera Submerged Begin					
	33.0		CUE Camera Submerged End					
	99.0		CUB Camera Submerged Begin					
	132.0		CUE Camera Submerged End					
	315.0		GO General observation					Started video at 315ft
	315.0		SA Survey abandoned					Completed video at 0ft at DS ...

315.0 Ft Total Length Surveyed

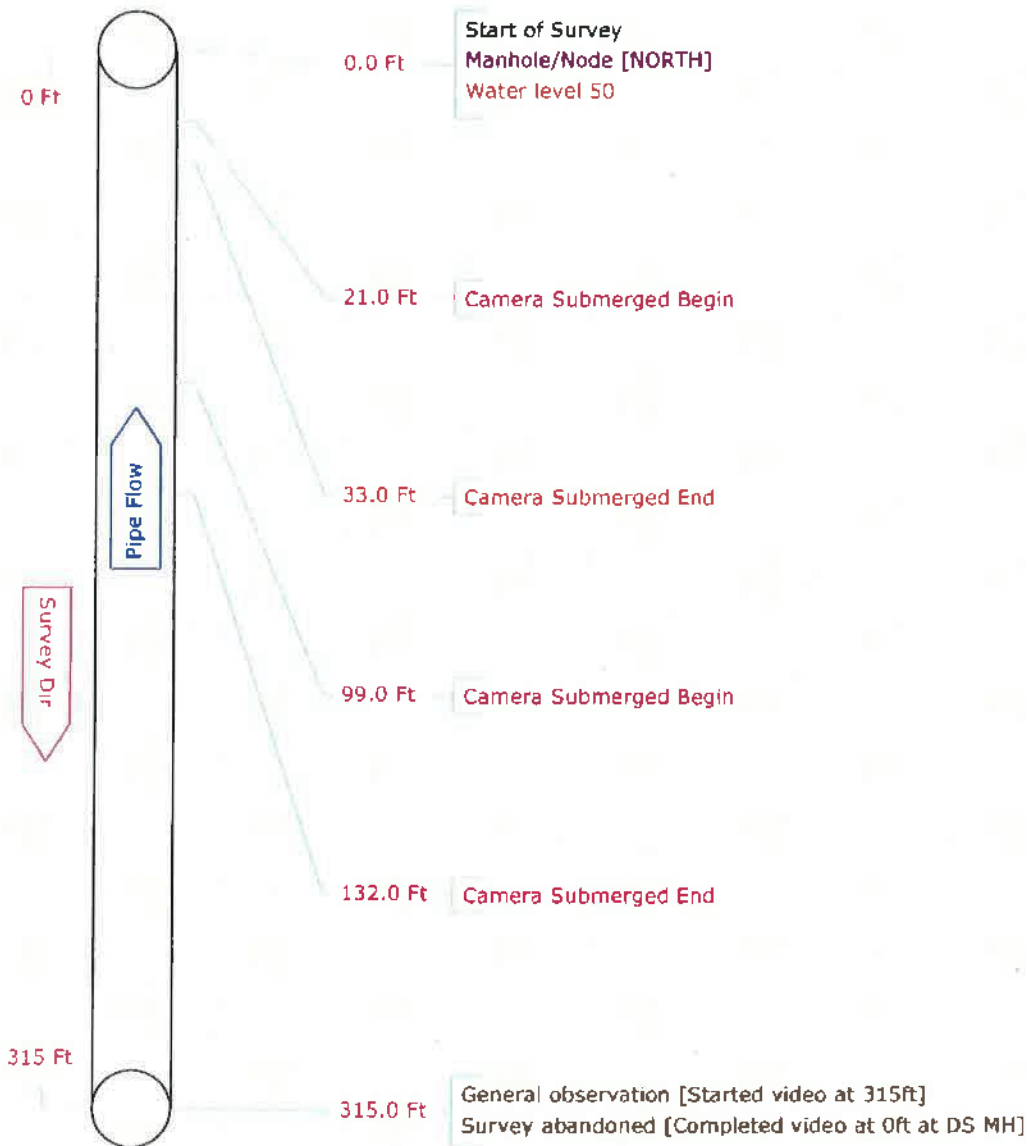
Scores

Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0



Pipe Graphic Report of PLR PUMP STATION 01 Y for Bureau Veritas NA

Work Order	Contract	Video	Setup 41
Facility	Operator NJP	Van Ref 10	Surveyed On 09/27/2012
Street Name	Evan Hewes Hwy	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 4 by	ins
Material	Polyvinyl chloride	Joint spacing	Ft
Lining		Year laid	
From	NORTH	Depth	Ft
To	PUMP STATION 01	Depth	Ft
Direction	Upstream		
Pre-clean	Y	Last cleaned	9/25/2012
General note	Reverse setup attempted for maximum length of	Structural	Service
Location note	inspection	Miscellaneous	Hydraulic
		Constructional	



FORCE MAIN

Tabular Report of PLR OPEN PIT X for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 52 Surveyed On 10/29/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface			
Survey purpose Random survey of pipes and things		Weather Dry	
Pipe Use Sanitary	Sched length Ft	From OPEN PIT	Depth Ft
Shape Circular	Size 4 by ins	To TO NORTH	Depth Ft
Material Mastic clay PVC	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note RAN WITH PUSH CAMERA		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST Start of Survey					
	0.0		MH Manhole/Node					OPEN PIT
	0.0		WL Water level				0	
	0.0		GO General observation					END IN PIT
	64.0		CUE Camera Submerged End					
	165.0		CUE Camera Submerged End					
	196.0		CUE Camera Submerged End					
	196.0		DE Debris		M			DEBRIS AND GREASE
	218.0		DE Debris		M			UNDER FLOW
	298.0		LL Bend in pipe left					
	298.0		CUB Camera Submerged Begin					
	308.0		GO General observation					END OF CABLE
	308.0		GO General observation					START OF RUN
	308.0		SA Survey abandoned					

308.0 Ft Total Length Surveyed

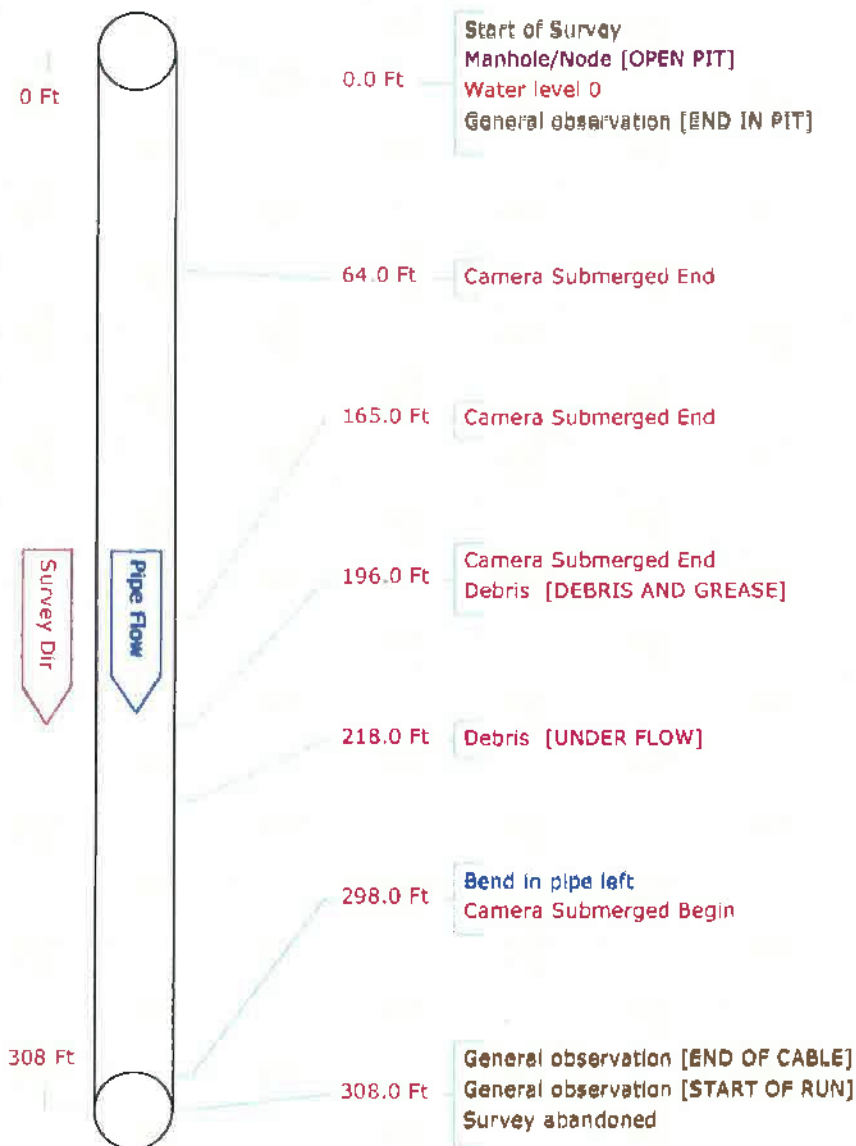
Scores	Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
	Service:	Total 150	Mean Defect 21.4	Peak 75	Mean Pipe 0.5



PipeLogix Inc.
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Pipe Graphic Report of PLR OPEN PIT X for Bureau Veritas NA

Work Order	Contract	Video	Setup 52
Facility	Operator NJP	Van Ref 10	Surveyed On 10/29/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 4 by	ins
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
From	OPEN PIT	Depth	Ft
To	TO NORTH	Depth	Ft
Direction	Downstream		
Pre-clean	N	Last cleaned	
General note	RAN WITH PUSH CAMERA	Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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FORCE MAIN

Tabular Report of PLR TO PUMP STATION X for Bureau Veritas NA

Work Order Facility	Contract Operator NJP	Video Van Ref 10	Setup 53 Surveyed On 10/29/2012
Street Name Barbara Worth Rd		City Holtville	
Location type Surface		Weather Dry	
Survey purpose Random survey of pipes and things			
Pipe Use Sanitary	Sched length Ft	From OPEN PIT	Depth Ft
Shape Circular	Size 4 by ins	To TO PUMP STATION	Depth Ft
Material Unfilled Clay PVC	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned
General note RAN WITH PUSH CAMERA		Structural	Service
Location note		Miscellaneous	Hydraulic
		Constructional	

Video	Count	CD	Code	Sev	Fr	To	Value	Remarks
	0.0		ST					Start of Survey
	0.0		MH					OPEN PIT
	0.0		WL				0	Water level
	24.0		CUE					Camera Submerged End
	58.0		CUB					Camera Submerged Begin
	72.0		CUE					Camera Submerged End
	178.0		GO					General observation
	178.0		CUB					Camera Submerged Begin
	178.0		GO					General observation
	178.0		SA					Survey abandoned

178.0 Ft Total Length Surveyed

Scores

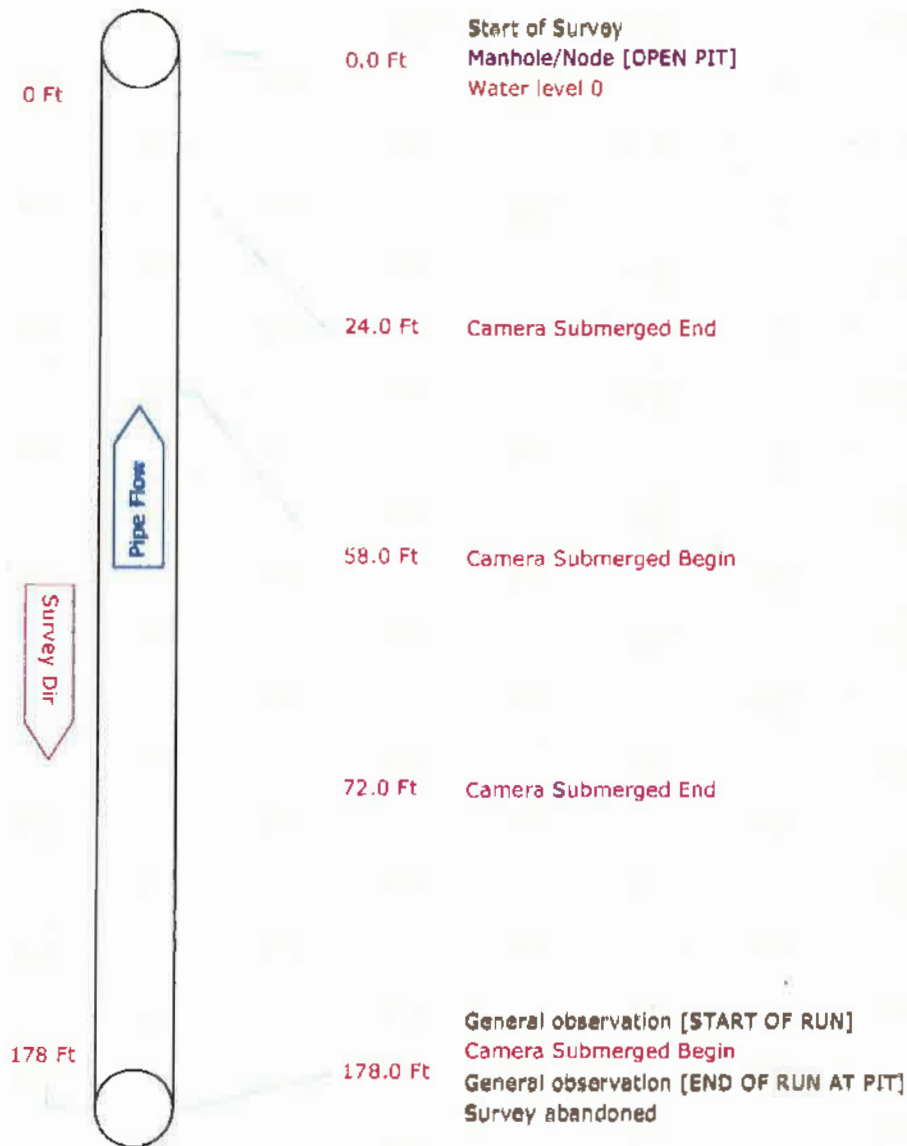
Structural:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0
Service:	Total 0	Mean Defect 0	Peak 0	Mean Pipe 0



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Pipe Graphic Report of PLR TO PUMP STATION X for Bureau Veritas NA

Work Order	Contract	Video	Setup 53
Facility	Operator NJP	Van Ref 10	Surveyed On 10/29/2012
Street Name	Barbara Worth Rd	City	Holtville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	Weather	Dry
Pipe Use	Sanitary	Schedule length	Ft
Shape	Circular	Size 4 by ins	
Material	Vitrified clay	Joint spacing	Ft
Lining		Year laid	
From	OPEN PIT	Depth	Ft
To	TO PUMP STATION	Depth	Ft
Direction	Upstream		
Pre-clean	N	Last cleaned	
General note	RAN WITH PUSH CAMERA	Structural	Service Constructional
Location note		Miscellaneous	Hydraulic



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