Imperial County Planning & Development Services
Planning / Building

Jim Minnick
DIRECTOR

November 6, 2023

Subject: Request for Proposal (RFP) for an Initial Study for the Installation of a New Force Main Pipeline, Repairing Pump Station to include Telemetry Equipment.

Project Applicant: ICDPW
Project Name: Initial Study for Country Club Sewer Maintenance District (CCSMD).

- IS #23-0028

Dear Consultant:

The Imperial County Planning & Development Services Department is soliciting proposals for the preparation of Initial Study # 23-0028 for the attached project. **The Imperial County Planning & Development Services Department** will act as the "Lead Agency" for the preparation of the Initial Study pursuant to the California Environmental Quality Act (CEQA) for the project. The successful consultant will work directly for the Imperial County Planning & Development Services Director in the preparation of this CEQA document.

The COUNTRY CLUB SEWER MAINTENANCE DISTRICT (CCSMD) project includes:

1. **Initial Study #23-0028**

   - Installation of a New Force Main Pipeline.
   - Repairing Pump Station to include Telemetry Equipment.
   - Eliminate the force main pipeline breaks and subsequent sewer spills.
   - Installation within existing IID easement, offset and parallel to existing force main which begins at the sewer pump station.
   - APN: 045-100-069-001
   - Current zone S-1-U (Open Space/Recreational, Urban Overlay)

Please review attached project description.

I. The County hereby requests the following information: for each item (as appropriate) the hourly rate and estimated total hours for the specific task must be documented.

a. Project scope to be utilized in the preparation of a legally adequate CEQA document.

b. Identified milestones representing specific tangible work products (tasks) to which payments by the County would be linked and become part of the legal contract. (Please note that all subsequent bills/invoices will be required to include both the identified milestones and percent completed).

c. All potential subcontractor(s) that will be utilized along with their estimated staff time and cost breakdown.

801 Main St. El Centro, CA. 92243 (442) 265-1736 Fax (442) 265-1735 planninginfo@co.imperial.ca.us www.icpds.com

d. An estimated "not to exceed cost" to prepare the Initial Study documents.

e. A digital (CD) version of all documents prepared by the prime CEQA consultant and potential subcontractor(s).

f. Also, proposals must incorporate the cost estimate for the printing of the Final environmental documents.

The proposal must provide that prior to any cost overruns, the consultant shall discuss this first and then seek written approval from the County Planning and Development Services Director, Jim Minnick before such costs are incurred. Failure to get prior written approval may result in such costs being disallowed.

We request that you provide within your cost estimate for the proposed Initial Study-including costs for the preparation of the following studies\analysis.

- Aesthetics
- Agriculture and Forest Resources
- Air Quality / Greenhouse Gas emissions
- Hydrology and Water Quality
- Biological Resources
- Cultural Resources/Historical/Archaeology
- Geology and soils
- Hazards and Hazardous Materials
- Land Use Planning
- Noise
- Public Services (Police, Fire, Schools)
- Transportation
- Tribal Cultural Resources
- Utilities and Service System
- Energy
- Wildfire
- Mineral Resources
- Population and Housing
- Recreation
- AB-52 Tribal Cultural Resources
- CEQA Findings for Project
- Mitigation, Monitoring & Reporting Program (MM&RP)

II. The following format should be used in preparing the proposal, additional information/items may be used to further bolster your proposal:

One page cover letter introducing your firm.

1. **Project Understanding**

2. **Project Team**

   - Identify all company and consultant team personnel who will work on the project and short description of their education and work experience.
   - Resumes of the prime and technical consultants should be included and can be attached to the proposal as an appendix.
   - Organization Charts-Elaborate organization charts are not necessary.

3. **Scope of Work**

- Describe the proposed tasks to accomplish the scope of work.
- Include deliverables, when applicable, for each task.
- Include all applicable site visits, scoping meetings, staff meetings and public hearings.
- Be specific regarding your approach to completing the CEQA notice requirements.

4. **The tasks should be presented as follows:**

a) Project Initiation
Include research, site visit, data collection, CEQA notices, scoping meetings, etc.

b. Administrative Draft Initial Study
Include mandatory CEQA sections, required and optional technical studies, number of revisions, meetings, and coordination with County Staff.

c. Public Review Draft Initial Study (EEC Hearing)
Include document preparation, CEQA notice, Scoping meeting, and coordination with County Staff.

d. Final Initial Study
Include document preparation, Response to Comments, CEQA notice, meetings, coordination with County Staff and attendance at Planning Commission and Board of Supervisors hearing.

e. Mitigation, Monitoring and Reporting Program
Include the preparation per CEQA identification of all mitigation measures, identification of all responsible parties, timing and enforcement.

f. CEQA Findings and Notice of Determination
Include the preparation per CEQA requirements.

g. Assumptions
Please provide a specific section for assumptions. Include your assumptions regarding travel time, mileage, public noticing, or anything else that needs clarification.

h. Meetings
The number of meetings and hearings that are included in your proposal should be detailed under each task.

5. **Proposed Schedule**

Provide the number of weeks for each task in tabular form from project initiation to public hearings; there is expected to be two (2) public hearings (Environmental Evaluation Committee, and Planning Commission).

6. **Cost Estimate/Milestones**

- Provide a discussion of the proposed cost and any optional costs.
- Include a spread sheet that details your personnel, any subcontractors to be used, their estimated hours, and associated costs per task (can be attached as an appendix).
- A table of project milestones should be included in the Cost Estimate discussion.

7. **Consultant Selection Criteria**

a) **Understanding of the project:** the proposer should demonstrate an understanding of key elements of the project and, accordingly, provide the names of personnel and their expertise.

b) **Approach to the project:** The selection process will evaluate the extent to which the proposer has recognized and identified special circumstances on the project and whether the proposer has provided logical approach to tasks and issues of the project.

c) **Professional qualifications necessary for satisfactory performance:** The project manager and key team members should be qualified to perform the work categories on the project; and the proposer's knowledge of standards and procedures will be examined.

d) **Specialized experience and technical competence in the type of work required:** The proposal should provide information about comparable projects they have been involved with and/or successfully accomplished; past performance on contracts with government agencies and private industry will be considered together with past performance evaluations; and the capacity to accomplish the work in the required time will also be evaluated.

III. **It is requested that you disclose any conflict** or potential conflict that you may have if you are submitting a proposal. The conflict by the County envisions, at the very minimum, current/ongoing or previous contracts (within the past year) with the applicant(s); this also includes current technical studies that either are or have been prepared for the applicant(s) within the last year.

IV. **Not providing the extent of information (including hourly rate and total estimated hours per task) may negatively impact the evaluation of your proposal.**

If you are interested in submitting a proposal, please submit it to the Director at Imperial County Planning & Development Services Department, 801 Main Street, El Centro, CA, 92243, **no later than November 20, 2023, at 5:00 PM.** This must be post-marked or sent via facsimile on or before this date and time.

Please note that it is **not necessary to present us with voluminous references or individualized background data** on persons or personnel within your organization. We may require this at a later date. We look forward to receiving your RFP submittal.

Please submit a total of 2 hard copies and a CD.

If you do have any questions, please contact the assigned Planner for this project, Evelia Jimenez, Planner II at ejimenez@co.imperial.ca.us or at ext. 1747.

Sincerely,

By:_____
Evelia Jimenez, Planner II

Jim Minnick, Director
Planning & Development Services Department

Attachments: Project Applications

CC:

Jim Minnick, Director of Planning and Development Services
Michael Abraham, AICP, Assistant Director of Planning & Development Services
Diana Robinson, Planning Division Manager
Project File: IS23-0028
APN 045-100-069-000
Files:10.102; 10.101; 10.104; 10.105
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BARBARA WORTH COUNTRY CLUB SEWER MAINTENANCE DISTRICT

CCSMD

PRELIMINARY ENGINEERING REPORT (PER)

FOR FORCE MAIN REPLACEMENT AND PUMP STATION UPGRADES

Final

OCTOBER 2021

Prepared for:

John Gay, Public Works Director – County of Imperial

Country Club Sewer Maintenance District

Prepared By:

David Dale, PE

daviddalepe@gmail.com

CCSMD Service Area

Contents

Introduction/Executive Summary

The purpose of the Preliminary Engineering Report (PER) is to examine the Barbara Worth Country Club Sewer Maintenance District (CCSMD) force main and pump station, to respond to the Notice of Violation (NOV) dated October 5, 2021 from the Colorado River Basin Regional Water Quality Control Board (RWQCB), and to determine the most favorable method to eliminate future sanitary sewer overflows (SSO) in the future.

Another reason for this report is to recommend the diameter size of the replacement force main. As a part of this report, the existing documentation was reviewed and analyzed. There have been multiple reports over the years - starting in 1998 – recommending replacement of the existing 4-inch diameter pipe with different force main diameter sizes (6”, 8” and 10”). Currently there is a proposed new RV Park development in the CCSMD service area. Therefore, the diameter size will be determined based on existing flows and proposed flows with the RV Park. In addition, the pump station was inspected and upgrades are recommended as a part of this report.

This PER does not address the gravity sewer collection system.

History of the CCSMD

On June 16, 1970, the Board of Supervisors determined that a Sewer Maintenance District should be formed. The Country Club Sewer Maintenance District (CCSMD) was created to perform the functions authorized under Chapter 4, Part 3, Division 5, of the Health and Safety Code of 1970 to protect public health. Although the County of Imperial oversees it, this Special District is a separate agency. It was created at the request of the property owners to maintain the sewer system for the homes located at the Barbara Worth Country Club. On July 21, 1970 (minute order #7) the Imperial County Board of Supervisors authorized the Department of Public Works to perform the administration of the Country Club Sewer Maintenance District (CCSMD) and to negotiate with the City of Holtville for performance of routine maintenance and operation of the plant.

The City of Holtville assumed the responsibility for the operation and maintenance of the district's sewer system on March 31, 1976, under an agreement between the District and the City of Holtville dated December 19, 1972. This agreement gave the City of Holtville the option to opt out of providing maintenance services by giving six months written notice. The City elected this option by giving written notice in December, 2001. Effective July 1, 2002 the CCSMD was responsible for all maintenance costs associated with the sewer lines and the pump station.

This document includes information from several public sources (see references), including the "Country Club Sewer Maintenance District Informational Report", prepared by the County of Imperial, Department of Public Works in June of 2006. This information was placed here for convenience of the reader. The following 11 pages are an excerpt from this report.

On April 16, 1971 David E. Pierson, Director of Imperial County Public Works Department made the first attempt to negotiate with the City of Holtville for maintenance of the sewer system for the CCSMD. At this point the City of Holtville declined the invitation to take over maintenance of the system.

On December 19, 1972 the CCSMD and the City of Holtville entered into an agreement which stipulated that the City of Holtville would operate and maintain the District's sewer system and would establish and collect service charges and maintenance fees to operate the district. This agreement provides the ability for either party to terminate the contract effective at the end of any fiscal year provided that six (6) months prior written notice of such intention is first given. In the event of any such termination, CCSMD shall pay the city a reasonable charge for the right to continue its tie-on with city's sewerage system. If such amount cannot be mutually agreed upon, the charges shall be set through the arbitration process as outlined in paragraph 8 in the 1972 agreement.

On February 15, 1977 the City of Holtville's representatives expressed concern about the 1972 agreement between the city and the CCSMD. The representatives' concern was that the contract could be misconstrued and impose certain duties and obligations on the District to operate and maintain, on the basis or terms set forth therein, sewerage improvements installed on lands which are annexed into the CCSMD in the future; and thereby overburden facilities owned in the city.

The CCSMD was willing to amend the contract as follows:

The city's obligation, under the contract, is to operate and maintain CCSMD's sewage system and to ensure the proper functioning thereof and shall pertain only to the sewage system and works constructed within the district's current legal description. City shall not, by reason of the contract, be responsible for the operation and maintenance of sewage facilities constructed in any area which might be annexed to the legal description stipulated in October 3, 1975 agreement. On December 26, 2001 the Holtville City Council took action to officially notify the County of Imperial and the CCSMD that the City of Holtville was invoking Paragraph 10 of the 1972 agreement between the County, the CCSMD, and the city. Paragraph 10 states the following:

"10. City's agreement to operate and maintain District's sewerage system and to establish and collect service charges and fees may be terminated by either party effective at the end of any fiscal year provided that six (6) months prior written notice of such intention is first given. In the event of any such termination, District shall pay City a reasonable charge for the right to continue the tie-on with City's sewerage system. If the amount of charges cannot be mutually agreed upon, the charges shall be set through the arbitration process as outlined in paragraph 8 above".

In their letter, the Council, City Staff and the City Manager (John A. Jordan), stated their interest in bringing the project to a mutually agreeable resolution. This letter notified the County of Imperial to assume full responsibility for the operation and the maintenance of CCSMD's facilities which included the pump station and sewer force main line no later than June 30, 2002.

On December 26, 2001, the Holtville City Council took action to officially notify the County of Imperial (CCSMD) that the City of Holtville is invoking Paragraph 10 of the agreement between the County CCSMD and the city.

In his letter the City Manager (John A. Jordan) informed the county that the city is only obligated to "maintain the sewer line," it is the county's responsibility to provide funds for the replacement, and to accept any liability should the line fail in any way. The City Manager also states that the council and city staff is interested in bringing the project to a mutually agreeable

resolution. This letter notified the County of Imperial to assume full responsibility for the operation and the maintenance of the pump station and sewer line no later than June 30, 2002.

Description of the CCSMD

Sewer service is provided approximately 1.5 miles outside of the city limits to the Barbara Worth Country Club and surrounding residential community. This development is located south of the Alamo River. Wastewater is conveyed from this development to the city's wastewater treatment plant through a dedicated sewer pump station and force main system. The Barbara Worth Pump Station, located off Holton Road, conveys wastewater from the Barbara Worth Country Club and surrounding community. The Barbara Worth Pump Station is a small package type pump station. Wastewater flows from residential sewers to a PVC gravity sewer interceptor that flows underneath State Route 115 and the Holton Interurban Railroad to a sub grade manhole type wet well. Duplex end-suction pumps with automatic controls discharge to a 4-inch PVC force main. The force main parallels the Barbara Worth Canal, crosses under the Rositas Canal and the Alamo River and ultimately connects to the city's sewer outfall main located in Kamm Road near the city's wastewater treatment plant. The total length of the 4-inch force main is approximately 10,400 feet.

Description of the CCSMD Problems

The CCSMD sewer collection system is considerably old, and has experienced operational problems prior to 1998. In addition to maintenance related problems, the system has had difficulty handling high peak flows. This results in high head losses in the small 4-inch diameter, long length of force main pipe. In 1998, the pump station was considered to be at capacity under current service loads. The lift station does not have a permanent back-up power supply; however, the city's trailer-mounted generator is available to operate the lift station during extended power outages.

The 10,200 lineal foot wastewater force main extending downstream of the Barbara Worth Pump Station has been a source of pipeline ruptures, pipeline clogs, and pump maintenance problems for over three 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 AWWA C-900, Class 150 PVC wastewater force main as soon as possible.

On February 8, 2006, The Holt Group, Inc. prepared a report for the County of Imperial named "Barbara Worth Wastewater Forcemain Installation and Sanitary Sewer Pump Station Replacement 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. The electrical panels and pumping units are aged, outdated, inefficient and in a deteriorated condition. The replacement of the existing 4-inch diameter force main with a larger 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.

On December 9 2012, Bureau Veritas (BV) presented the "Country Club Maintenance District Final Facilities Assessment Report". This report is very detailed regarding the condition of the collection system and pump station as of approximately nine years ago. In it, the flow from the pumps through the 4-inch main is 75 gpm at 34 psi (approximately 35% efficient) even though the design point is approximately 400 gpm at 26 psi (50% efficient). The BV report will not be repeated word for word in this report.

A meeting at the site occurred on 10/15/21 with the system operator. The condition of the pump station and 4-inch diameter force main was discussed. In the meeting it was determined that:

1. The most pressing need for the system at this time is to replace the first section of force main pipeline, from the pump station to Zenos Road. This section has presented numerous problems over the years with pipeline ruptures. It has ruptured at least once per year, sometimes twice a year – causing sanitary sewer overflows (SSO). There is approximately 5,814 feet of the wastewater force main to be replaced, extending from the Barbara Worth Pump Station to a point immediately south of the Rosita Lateral and Alamo River. Two recent ruptures caused Sanitary Sewer Overflow (SSO) of approximately 66,000 gallons of sewage, which resulted in a Notice of Violation dated October 5, 2021 from the Colorado River Basin Regional Water Quality Control Board.

2. There are no alarms on the pump station. At minimum there should be an alarm to notify operators of high sanitary sewer levels (i.e., pumps are inoperable or there is a clog in the system). The alarm would be based on cellular coverage, since there is no telephone service at this location. Additional alarms would be loss of power, low level and possibly temperature of the pumps (i.e., loss of prime).

3. The control panels and electrical and gauges should be all be replaced. The control panel is located inside the weather cover of the pump station (presumably for shade), causing exposure to hydrogen sulfide gas. It is also more difficult to access.

4. There should be a flow meter on the pump station. There is an hour meter. The pumps run about 10 hours per day.

5. There should be a surplus pump and motor onsite in case there is a problem with the pumps or motors.

6. There is no backup generator onsite; operators bring a portable generator when needed.

7. The pumps were replaced in 2015 and are in good condition. The pumps were replaced with the same pumps that were there as described in detail in the BV report.

Proposed System Improvements

It has been clearly shown in the above-named reports, notice of violation and site inspections that the 4-inch force main pipe is past its useful life, is structurally unsound, and is insufficiently sized for the pumps installed and the flow required from the development. The question then is what size the force main should be. Bigger is not necessarily better in this case; a pipe sized too big would result in lower than required scour velocities (need greater than 2 feet per second inside the pipe) to keep the pipe from clogs. Additionally, a long sewer force main pipe sized too big will result in the formation of hydrogen sulfide gas inside the pipe due to septic biologic processes. Therefore, the pipe should be sized appropriately, not too big and not too small.

The Bureau Veritas report (Exhibit A) did an in-depth analysis on the appropriate pipe size for the existing community. According to the report, a 6-inch diameter pipe (class 150 or higher) would adequately convey 260 gpm at 60 feet total dynamic head (TDH) or 26 psi. This would result in a pipeline velocity of 2.8 feet per second (fps), greater than the needed 2.0 fps for scour velocity.

Since there is no flowmeter, to calculate the actual flow from the pump station:

The operator states that the pump station runs approximately 10 hours per day. The BV report indicates that the pump station in its current condition runs at about 75 gallons per minute:

10 hours per day x 60 min./hour x 75 gallons/min = <u>45,000 gallons per day of sewer flow generated per day</u>.

The *average* flow would then be 45,000 gal / 24 hour / 60min./hr = 31 gal per min.

Actual Peak flow based on these calculations is: 31 gpm x 4.0 = <u>124 gpm</u>.

45,000 gal per day / 215 EDU = **209 gal. per EDU** per day generated on average.

The *theoretical average peak flow* from the development is 215 gpm per the BV Report or 0.31024 million gallons per day (MGD). Peak flow was estimated using a 4.0 multiplier against the calculated average daily flow.

Consideration is now needed for the potential development for the RV Park at the Barbara Worth Country Club. Again, this report is not taking into consideration the existing gravity flow collection system, only the pump station and force main.

There are 215 EDUs connected to the CCSMD collection system. Theoretical Peak flow is 215 gpm as stated above. Therefore, there is 1 gpm average peak flow per EDU. The RV Park is proposing to have 116 RV spaces. Typically, an RV Space is allocated to 0.25 EDU for calculating water demand and sewer flows. Therefore, the RV park would increase the peak sewer flows by 0.25 EDU/Space * 1gpm/EDU * 116 spaces = **29 gpm**. If 0.50 EDU is used, the theoretical peak flow would be 58 gpm; using 1.0 EDU it would be 116 gpm.

The total theoretical average peak flow is therefore 215 + 29 = 244 gpm. The pumps would be able to keep up with the peak flow at 260 gpm as stated in the BV report, even with the RV Park added to the system. This is backed up by calculations based on hourly pumping of 124 gpm peak flow of existing connections (shown above).

Therefore, even with the proposed RV Park (116 spaces), a 6-inch diameter force main pipeline class 150 pipe is recommended. An 8-inch diameter pipe would be sized for 400 gpm; however, the theoretical peak flow is not more than the 260 gpm at 60 feet total head as described in the BV Report. Installing a pipe with a larger-than-needed diameter would result in undesirable conditions: (1) a scour velocity less than 2.0 ft/sec, (2) the retention time in the 2-mile-long force main pipe would be increased causing hydrogen sulfide gasses to form, and (3) higher project costs. One benefit of installing the 8-inch force main would be that it would beneficial for future development resulting in a system capable of serving more than 800 EDU at the current flow of 209 gallons per day per EDU.

Barbara Worth Country Club		
Existing Residential EDU	111	
Existing Hotel EDU	104	
Total Existing EDU	215	
1 EDU capacity	**209**	Average Gallons per Day (as measured based on 10 hours pump station operation and 75gpm per BV Report)
Pumping Capacity **(with 4-inch diameter force main)**	75	Gallons per Minute (Per BV Report)
Pumping Capacity **(with 6-inch diameter force main)**	260	Gallons per Minute (Per BV Report)
Existing Sanitary Sewer Flow	45,000	Gallons per Day
Pumping Capacity **(with 4-inch diameter force main)**	54,000	Gallons per **Day** (50% Operation time)
Pumping Capacity **(with 6-inch diameter force main)**	187,200	Gallon per **Day** (50% operation time)
Pumping Capacity **(with 8-inch diameter force main)**	288,000	Gallon per **Day** (50% operation time)
Total EDU Capacity of pump station **(with 4-inch diameter force main)**	258	EDU (Existing 215 EDU)
Total EDU Capacity of pump station **(with 6-inch diameter force main)**	895	EDU
Total EDU Capacity of pump station **(with 8-inch diameter force main)**	1378	EDU

CCSMD EDU Capacity

PROPOSED IMPROVEMENTS:

Recommended Force Main Improvements:

1. Replace the existing 4-inch diameter force main pipeline with a **6-inch diameter pipeline** in phases as described in the next section. Use long sweep elbows in lieu of 90-degree bends, as stated in the BV report.

Recommended Pump Station Improvements:

2. Install alarms. At minimum there should be an alarm to notify operators of high sanitary sewer levels (i.e., pumps are inoperable or there is a clog in the system). The alarm would be based on cellular coverage since there is no telephone available. Additional alarms could include temperature of the pumps and low level conditions.

3. Replace the electrical, control panels and distribution switchboard which will include the Installation of new electrical service per I.I.D requirement. The new control panel should be located outside the weather cover of the pump station. A small shade structure will be necessary.

4. Install a flow meter on the pump station.

5. Clean the wet well. Repair the bottom surface of the wet well and coat all interior surfaces with a protective coating.

6. There should be a surplus pump and motor onsite in case there is a problem with the pumps or motors.

7. Sandblast and coat piping of the pump station.
8. Remove and replace the pump station above grade P.C.C. slab.
9. Install emergency power generator set for the Barbara Worth Pump Station

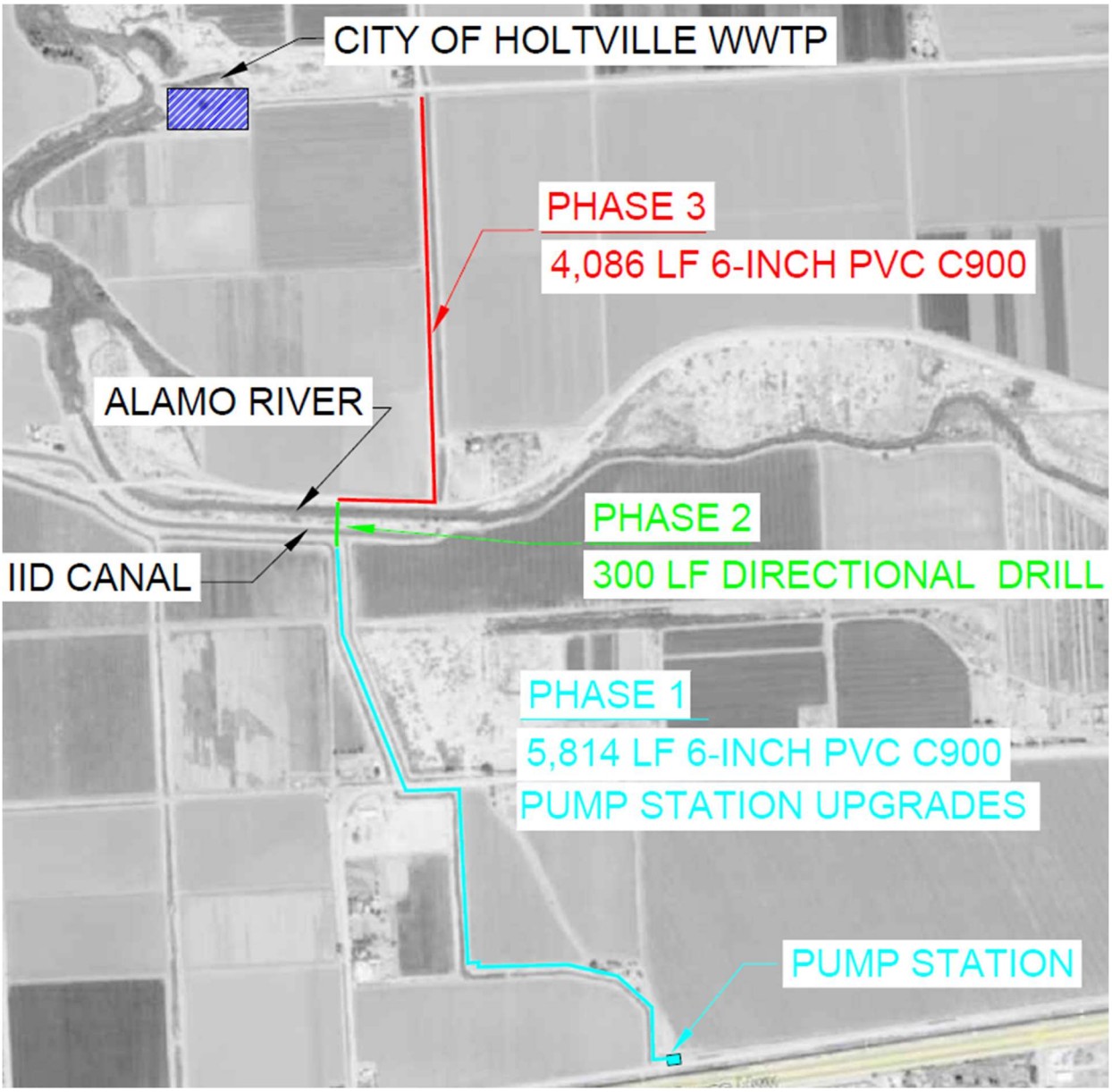
Phasing Recommendations and Engineer's Cost Estimate

A detailed Engineer's Opinion of Probable Cost was prepared regarding the replacement of the existing 4-inch diameter force main with a 6-inch diameter line. The phased installation of the force main would allow for the inclusion of the costs relative to a given phase to be placed in an agency's budget for a given fiscal year. The phased improvements would also increase local contractors' participation with regard to the bidding of the project. The installation of segments of the force main would eliminate the pipeline ruptures along the length of the wastewater force main which was replaced and decrease the pressure exerted by the Barbara Worth Lift Station pumps.

Phase 1 Improvements include 5,814 feet of the wastewater force main extending between the Barbara Worth Pump Station and a point immediately south of the Rosita Lateral and Alamo River. Ruptures and blockages of the wastewater force main have been noted to be most prevalent along this section of the pipeline in the past five years. There have been at least one to two ruptures per year along this section. It has been repaired numerous times over the past 20 plus years.

Phase 2 would entail the replacement of the approximately 300 feet of pipeline section which presently passes beneath the Alamo River and Rosita Lateral. This is considered higher priority than Phase 3 because of the proximity to the river. The pipe would be directional drilled beneath said river and lateral, to be installed inside a larger 12" dia. protective casing pipe.

Phase 3 improvements recommend that an approximate 4,086 – foot section of the wastewater force main be replaced between a point immediately north of the Alamo River and the termination point of the wastewater force main at the manhole located along the gravity outfall sewer pipeline at the intersection of Gowling Road and Kamm Road immediately upstream of the Holtville Wastewater Treatment Plant. The installation of the majority of the wastewater force main per Phases I and II would drastically reduce the frictional loss along the length of the pipeline and consequently reduce the maintenance associated with the Barbara Worth Pump Station.



PROPOSED PHASING MAP

Phase 1 – Engineer's Opinion of Probable Project Quantities and Costs

ITEM	QUA	UNIT	ITEM	UNIT COST	AMOUNT
1	1	LS	Mobilization of equipment and material, Bonds, Insurances, project signs, and fees, Restroom Facilities, Business license, and Similar expenses and other costs.	$ 32,000.00	$ 32,000.00
2	1	LS	Preparation and Implementation of Dust Control Plan Per Imperial County Air Pollution Control District	$ 1,500.00	$ 1,500.00
3	1	LS	Preparation of Traffic Control Plan, Implementation of Traffic Control and Construction Area Signs	$ 5,500.00	$ 5,500.00
4	1	LS	Potholing of the Existing Underground Utilities and Pipelines as indicated on Improvement Plans.	$ 4,000.00	$ 4,000.00
5	5,814	LF	Furnish and Install New 6-inch Dia. AWWA C-900 DR 18 - Pressure Class 150 PVC Force Main Pipeline, Including all Fittings, magnetic tape, Backfill and Compaction.	$ 50.00	$ 290,700.00
6	12	EA	Install force main cleanouts	$ 3,500.00	$ 42,000.00
7	180	CYD	Furnish and install Import sand material for backfilling the forcemain pipe.	$ 100.00	$ 18,000.00
8	40	LF	Sawcut AC Pavement at Pipeline Trench Crossing Zeons Road	$ 50.00	$ 2,000.00
9	0.5	CYD	Remove and Dispose of AC Pavement	$ 2,700.00	$ 1,350.00
10	50	SF	Install 4-inches of AC over 10 inches Class 2 Base Zenos Road	$ 100.00	$ 5,000.00
11	1	LS	Contractor to Complete Hydrostatic Pressure Testing per Specifications.	$ 5,000.00	$ 5,000.00
12	1	LS	Imperial County Encroachment Permit Fee Allowance.	$ 5,000.00	$ 5,000.00
13	1	LS	Repair Wet Well Floor, Clean and Line Wet Well with Epoxy Coating	$ 20,000.00	$ 20,000.00
14	1	LS	Replace Electrical, Control Panels and Gauges.	$ 27,000.00	$ 27,000.00
15	1	LS	Install Screen on Wet Well Opening	$ 3,500.00	$ 3,500.00
16	1	LS	Install 6-inch flowmeter	$ 5,000.00	$ 5,000.00
17	1	EA	Furnish (1) surplus pump and (1) surplus motor	$ 10,000.00	$ 10,000.00
18	1	LS	Install and Program Alarms	$ 4,500.00	$ 4,500.00
				Total Bid Items:	$ 482,050.00
			Contingencies @10%		$ 48,205.00
			Total Construction Phase I		**$ 530,255**
SOFT COSTS					
			Research right of ways and easements along pipeline route, topographic survey, engineering design, preparation of plans, meetings @ 7%		$ 37,118
			Bidding of Project		$ 4,000.00
			Construction Administration and Management @ 7%		$ 37,118
			Total Soft Costs		**$ 78,236**
			Total Project Costs Phase 1		**$ 608,491**

Phase 2 – Engineer's Opinion of Probable Project Quantiles and Costs

ITEM	QUA	UNIT	ITEM	UNIT COST	AMOUNT
1	1	LS	Mobilization of equipment and material, Bonds, Insurances, project signs, and fees, Restroom Facilities, Business license, and Similar expenses and other costs.	$ 10,000.00	$ 10,000.00
2	300	LF	Directional Drill a 12-Inch Diameter C900 Fusible Casing Beneath the Alamo River and the IID Lateral. Install a 6-Inch Diameter AWWA C-900, Class 150 PVC Pipeline within the Casing. Utilize Skids to Place the Pipe.	$ 400.00	$ 120,000.00
				Total Bid Items:	$ 120,000.00
			Contingencies @10%		$ 12,000.00
			Total Construction Phase 2		**$ 132,000.00**
SOFT COSTS					
			Research right of ways and easements along pipeline route, topographic survey, engineering design, preparation of plans, meetings @ 7%		$ 9,240
			Bidding of Project		$ 4,000.00
			Construction Administration and Management @ 7%		$ 9,240
			Total Soft Costs		**$ 22,480**
			Total Project Costs Phase 2		**$ 154,480**

Phase 3 – Engineer's Opinion of Probable Project Quantities and Costs

ITEM	QUA	UNIT	ITEM	UNIT COST	AMOUNT
1	1	LS	Mobilization of equipment and material, Bonds, Insurances, project signs, and fees, Restroom Facilities, Business license, and Similar expenses and other costs.	$ 21,000.00	$ 21,000.00
2	1	LS	Preparation and Implementation of Dust Control Plan Per Imperial County Air Pollution Control District	$ 1,500.00	$ 1,500.00
3	1	LS	Preparation of Traffic Control Plan, Implementation of Traffic Control and Construction Area Signs	$ 5,500.00	$ 5,500.00
4	1	LS	Potholing of the Existing Underground Utilities and Pipelines as indicated on Improvement Plans.	$ 4,000.00	$ 4,000.00
5	4,086	LF	Furnish and Install New 6-inch Dia. AWWA C-900 DR 18 - Pressure Class 150 PVC Force Main Pipeline, Including all Fittings, magnetic tape, Backfill and Compaction.	$ 50.00	$ 204,300.00
6	8	EA	Install force main cleanouts	$ 3,500.00	$ 28,000.00
7	120	CYD	Furnish and install Import sand material for backfilling the forcemain pipe.	$ 100.00	$ 12,000.00
8	1	LS	Connect to existing manhole along Kamm Road.	$ 3,500.00	$ 3,500.00
9	1	LS	Contractor to Complete Hydrostatic Pressure Testing per Specifications.	$ 5,000.00	$ 5,000.00
10	1	LS	Imperial County Encroachment Permit Fee Allowance.	$ 5,000.00	$ 5,000.00
11	1	LS	Furnish and Install Backup Generator for Pump Station	$ 100,000.00	$ 100,000.00
				Total Bid Items:	$ 389,800.00
			Contingencies @10%		$ 38,980.00
			Total Construction Phase 3		**$ 428,780**
SOFT COSTS					
			Research right of ways and easements along pipeline route, topographic survey, engineering design, preparation of plans, meetings @ 7%		$ 30,015
			Bidding of Project		$ 4,000.00
			Construction Administration and Management @ 7%		$ 30,015
			Total Soft Costs		**$ 64,029**
			Total Project Costs Phase 3		**$ 492,809**

Engineer's Opinion of Probable Total Project Costs

As of 10/19/21:

Construction		Soft Costs			**Subtotal**
Phase 1	$ 530,255	Phase 1	$ 78,236		**$ 608,491**
Phase 2	$ 132,000	Phase 2	$ 22,480		**$ 154,480**
Phase 3	$ 428,780	Phase 3	$ 64,029		**$ 492,809**
Totals	$ 1,091,035		$ 164,745		**$ 1,255,780**

Discussion of Engineer's Opinion of Probable Project Costs

Project costs have risen drastically in the past 12 months. The costs for pipe have increased 300% since March 2020. Costs for fittings, parts and equipment have increased. The pre-pandemic cost estimate for this project, based on bids received for similar projects, was approximately **$826,024**. The cost estimates for this project are based on conversations with local contractors who do this type of work and are familiar with current pricing. The engineer's estimate of probable project cost is now **$1,255,780.**

This represents a 52% increase from March 2020.

** Prices are very unstable at this time. Prices may come back down, or may continue to increase. For this reason, it is important that the cost estimate should be updated at the time of budgeting and project funding.

References

County of Imperial, Department of Public Works Country Club Sewer Maintenance District Informational Report, June 2006

County of Imperial, Clerk of the Board of Supervisors office, "1972 Agreement between the City of Holtville and CCSMD", December 1972

The Holt Group, Inc., "Barbara Worth Forcemain Installation and Sanitary Sewer Pump Station Replacement Report", February 2006

The Holt Group, Inc., "Barbara Worth Wastewater Forcemain Installation", June 16, 1998

Bureau Veritas, "Country Club Sewer Maintenance District Final Facilities Assessment Report", December 19, 2012

Exhibit A – Bureau Veritas "Country Club Sewer Maintenance District Final Facilities Assessment Report", December 19, 2012

Country Club Sewer Maintenance District
Final Facilities Assessment Report

December 19, 2012

Prepared For:

Imperial County Department of Public Works
155 South 11th Street
El Centro, CA 92243
William S. Brunet PE, Director

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Move Forward with Confidence

BVNA JN 18020.06

Table of Contents

Prepared Under the Supervision of:

Phil Kern, PE RCE 40831 Registration Expires 3/29/13

Change of Project Manager since January 2013:

Carlos Larios, PE RCE 68543 Registration Expires 3/30/13

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

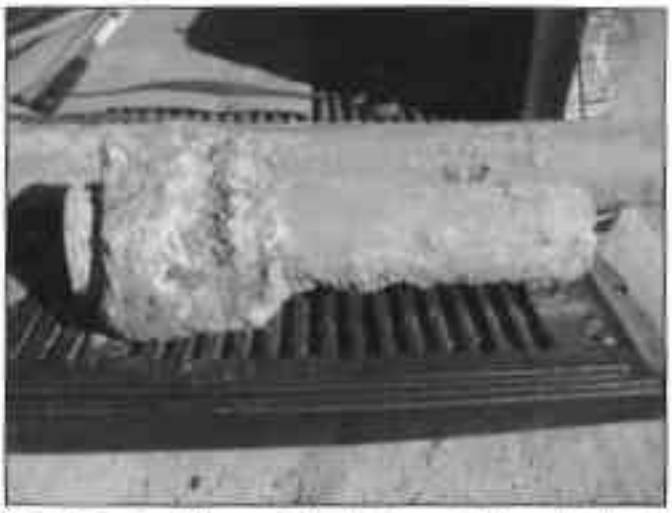
Vactor truck cleaning operations.

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.

Manhole 5 showing corrosion.

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.

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.



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

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.

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.

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 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).

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.

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

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.

Manhole Inspections

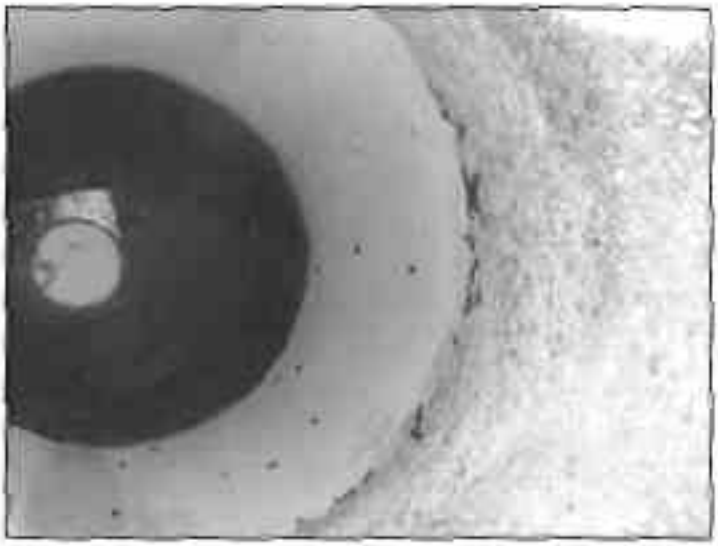
The worker is holding the probe at the center of MH 29, which is in a private backyard underneath the decorative wall on the left and the wrought iron fence on the right.

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 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.



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.

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. 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

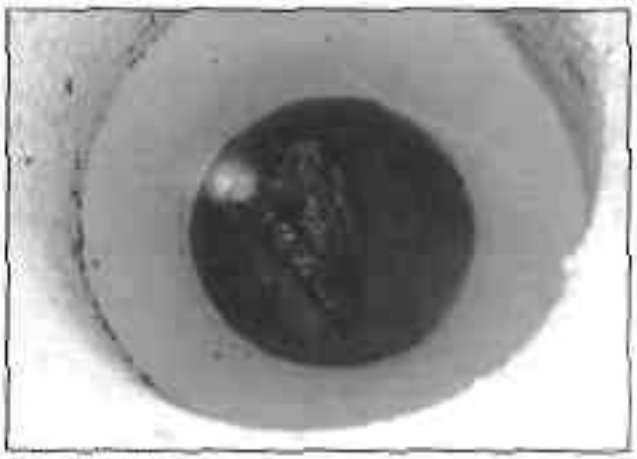
frames should also be repaired.

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

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 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.

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.

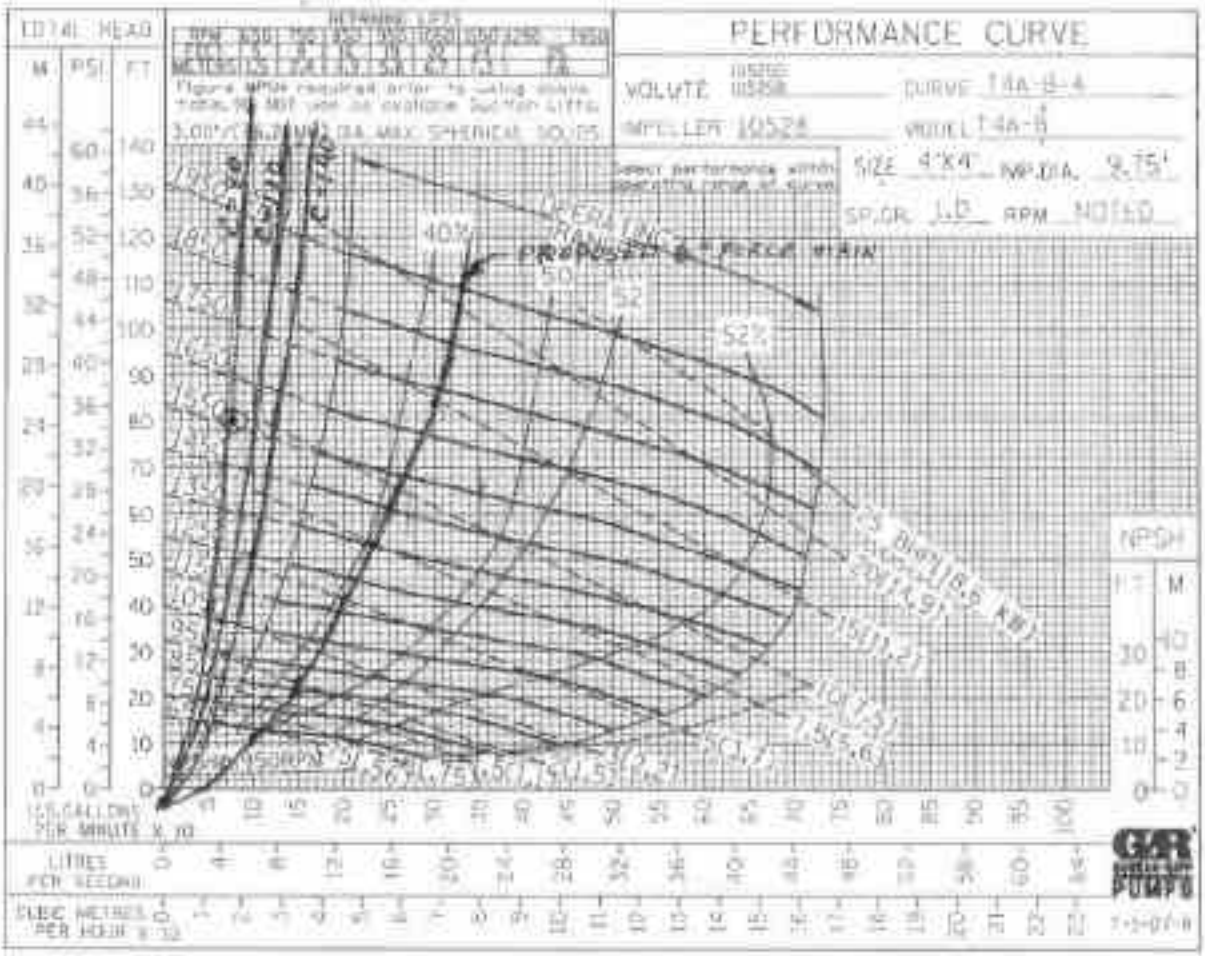


Figure 1: Gorman-Rupp T4A-B-4 Pump Performance Curve. *Note the circled point on left side, which represents the operating point for the existing pumps and is outside the manufacturer's preferred operating range. Replacement of the force main with a six-inch pipeline would bring the curve back into the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

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.

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 RPM x (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

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 gpm + 13.3 gpm = 74.9 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:

TDH = 62 feet + 3 feet + 14 feet = 79 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.

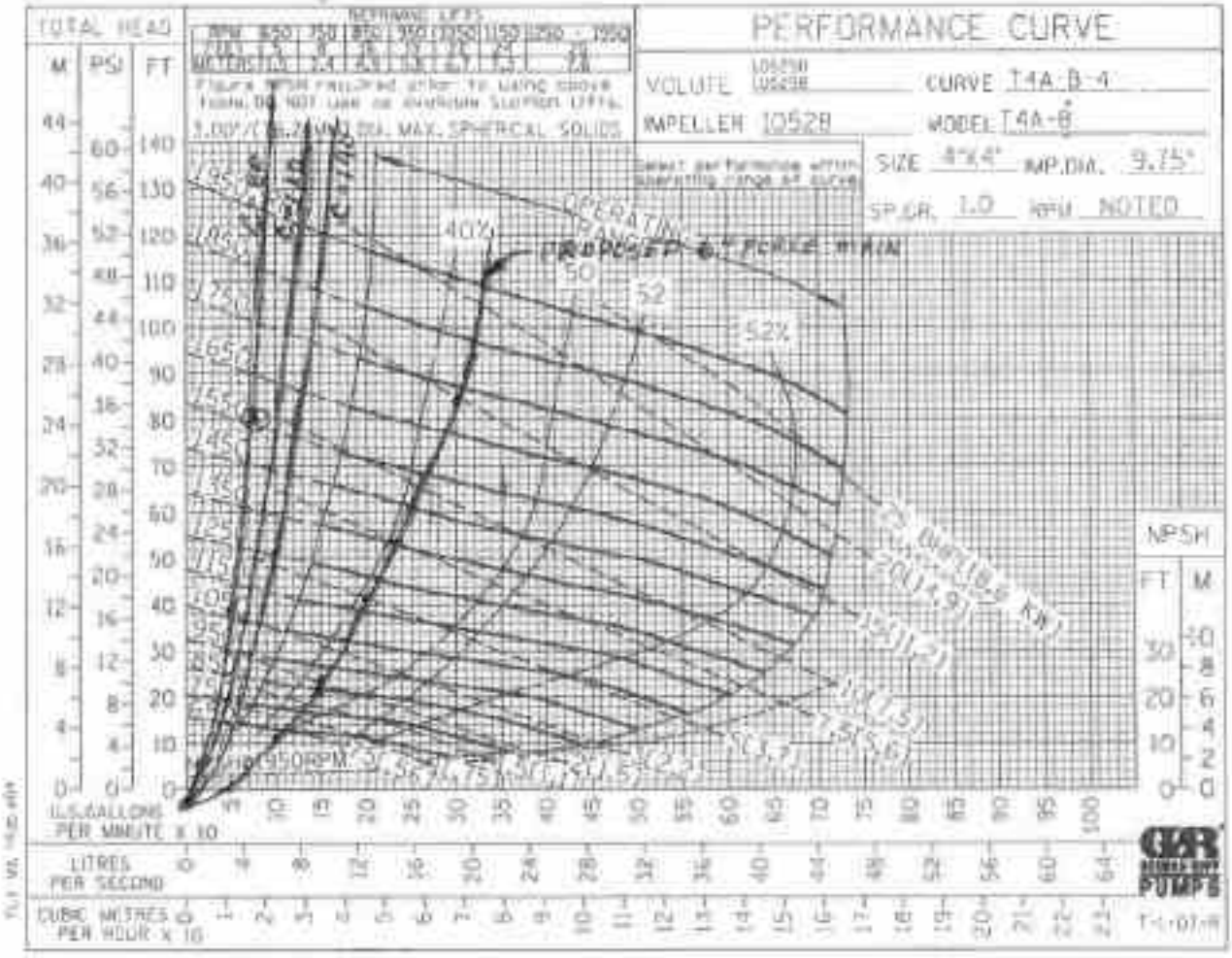
Calculation of Flow and TDH for Proposed 6-Inch Force Main

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.


PERFORMANCE CURVE
TOTAL HEAD
M
PSI
FT
VOLUTE
CURVE T4A-B-4
IMPELLER 10528
MODEL T4A-B
SIZE 4"X4"
IMP.DIA. 9.75"
SP.GR. 1.0
RPM NOTED
OPERATING RANGE
40%
50
52
52%
NPSH
FT
M
U.S.GALLONS PER MINUTE X 10
LITRES PER SECOND
CUBIC METRES PER HOUR X 10
GORMAN-RUPP PUMPS

Appendix B

CCSMD Sewer Study

Project: [illegible] | By: [illegible]

Country Club Sewer Maintenance District
Sewer Study

Sheet: 1 Of 1
Date: 3-Oct-12

Line	From	To	Popd. 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 17	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 33	MH 5	3.0	27	81	81	80	0.00648	4.0	0.02592	8	0.25	1.40	17%	1.01
7	MH 5	MH 1	3.0	0	0	294	80	0.02352	4.0	0.09408	8	0.25	2.72	34%	1.43

Notes:

1. Assume 50% duplexes on [illegible] 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

Appendix C

CCSMD System Map


FORCE MAIN
PUMP STATION
EVAN HEWES HWY
COUNTRY CLUB DR
VOYAGERS LN
CAMINO REAL
ANGERHOLT RD
LEGEND
SITE MAP
COUNTRY CLUB
SEWER SYSTEM EVALUATION
HORZ: 1"=400'
DATE:08/28/2012
SHEET 1 OF 1

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

DATE: 9-25-12

MANHOLE #: 1 STREET: Barbara Worth Drive

WEATHER: Sunny Hot 95.5° INSPECTOR(S): [illegible]

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 Corroded

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 INCHES

STEPS

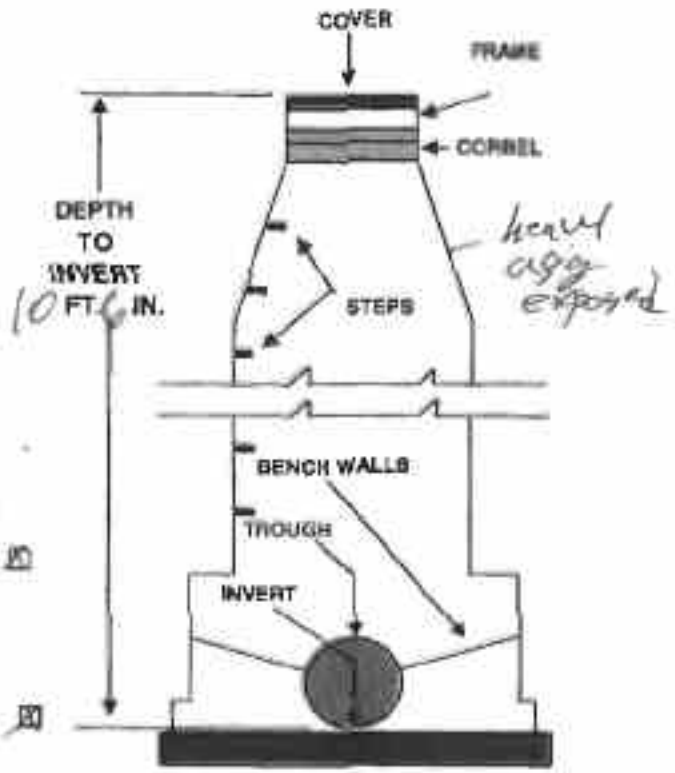
CONDITION: GOOD ☐ DETERIORATING ☒

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: 1.5 INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 2 GPM

LOCATION/DESCRIPTION OF INFILTRATION:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 2 DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

manhole cover old size

MANHOLE INSPECTION REPORT

DATE: 9-24-12

MANHOLE #: 2 STREET: Barbara Worth Drive

WEATHER: Hot Sunny INSPECTOR(S): Ana

MANHOLE COVER

DIAMETER: 32 INCHES

NO. OF HOLES IN COVER: 1 Nov

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

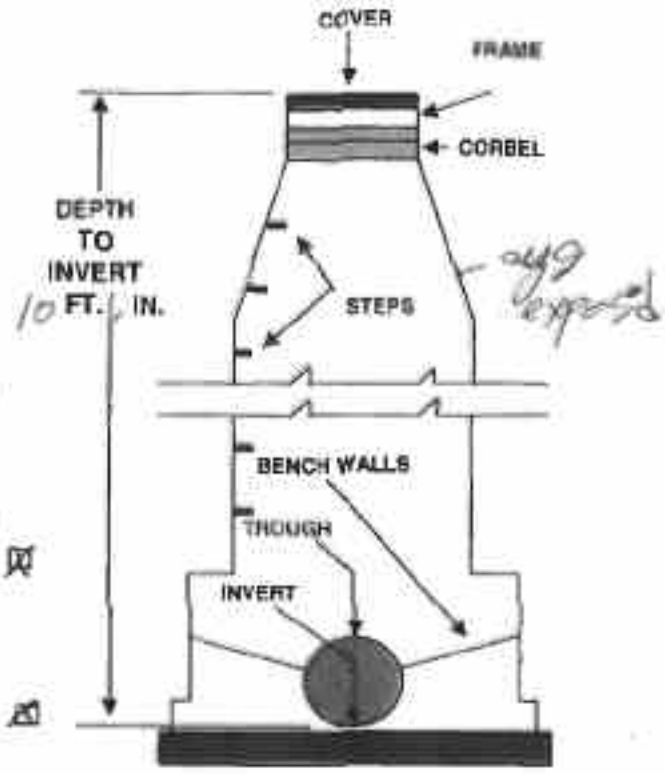
CONDITION: GOOD ☐ DETERIORATING ☒

EVIDENCE OF DEBRIS ON STEPS: YES ☐ NO ☒

TROUGH

CONDITION: GOOD ☐ DETERIORATING ☒

EVIDENCE OF LEAKAGE: YES ☐ NO ☒



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: 2 GPM

LOCATION/DESCRIPTION OF INFILTRATION:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 3	FROM MH #	FROM MH #	TO MH #
	DROP LINE ☐	DROP LINE ☐	DROP LINE ☐	
	DISTANCE FT	DISTANCE FT	DISTANCE FT	DISTANCE FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

MANHOLE #: 3 STREET: Barton Worth Drive DATE: 7-24-12
WEATHER: sunny Hot INSPECTOR(S): DLC

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

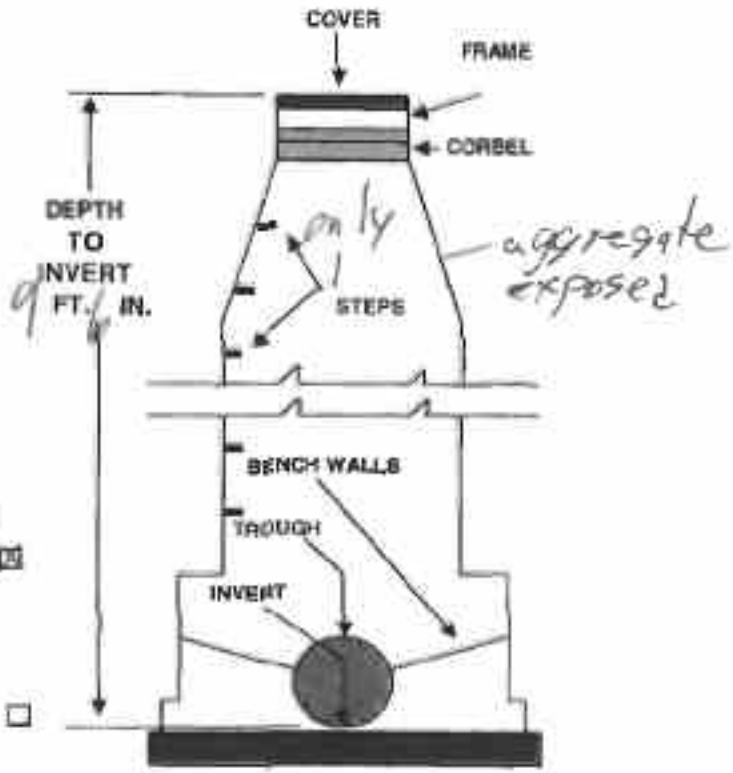
MANHOLE FRAME
CONDITION: SOUND ☒ BROKEN ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

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 ☒



TYPICAL MANHOLE

INFLOW AND INFILTRATION
EVIDENCE OF INFLOW: YES ☐ NO ☐ EVIDENCE OF SURCHARGING: YES ☒ NO ☐
INCHES ABOVE INVERT: 3 INCHES
EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 2 GPM
LOCATION/DESCRIPTION OF INFILTRATION:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 4 DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

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

25.5°

MANHOLE COVER
DIAMETER: 24 INCHES
NO. OF HOLES IN COVER: 1 Frame not backed up with rings
CONDITION OF FIT: LOOSE ☒ TIGHT ☐
SEALED ☐ BOLTED ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

MANHOLE FRAME
CONDITION: SOUND ☐ BROKEN ☒
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

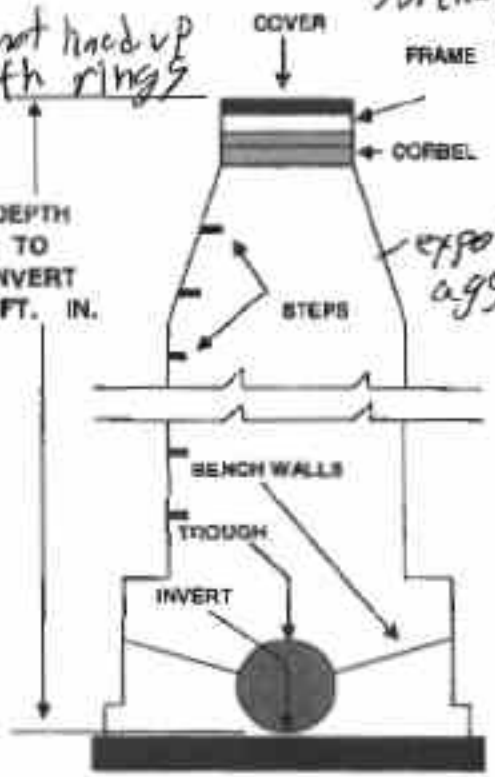
CORBEL AND WALLS
CONSTRUCTION: PRECAST ☒ BRICK ☐
CONDITION: GOOD ☐ DETERIORATING ☒
EVIDENCE OF LEAKAGE: YES ☐ NO ☐

BENCH WALLS
CONDITION: GOOD ☐ DETERIORATING ☒
DEPOSITS: MUD ☒ DEBRIS ☒ SLUDGE ☒
DEPTH OF DEPOSITS: 6" INCHES

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

TROUGH
CONDITION: GOOD ☐ DETERIORATING ☒
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

Surcharged 6:00 pm 24th



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 # 5 DROP LINE ☐ DISTANCE ___ FT	FROM MH # ___ DROP LINE ☐ DISTANCE ___ FT	FROM MH # ___ DROP LINE ☐ DISTANCE ___ FT	TO MH # ___ DISTANCE ___ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS: 10" pvc in & out

MANHOLE INSPECTION REPORT

DATE: 9-29

MANHOLE #: 11 STREET: Golf Course

WEATHER: Sunny Hot INSPECTOR(S): AB

MH Found + Buried

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

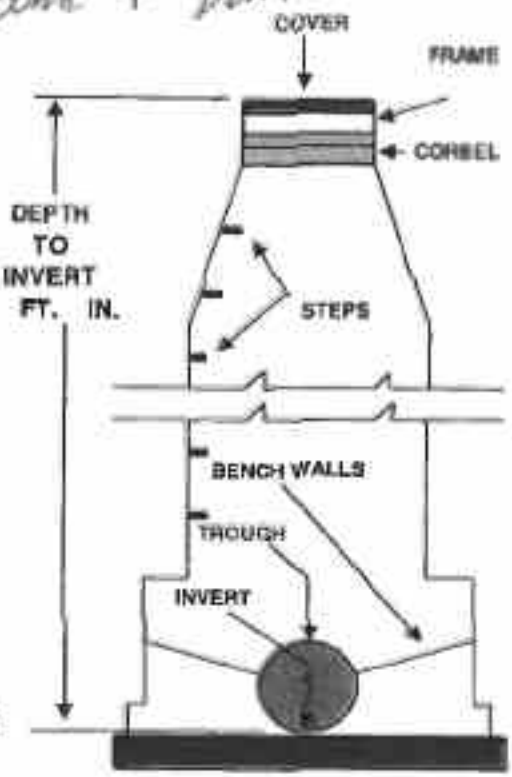
CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF DEBRIS ON STEPS : YES ☐NO ☐

TROUGH

CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF LEAKAGE: YES ☐ NO ☐



TYPICAL MANHOLE

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: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

MANHOLE #: 12 WWTP STREET: Golf Course DATE: 9-25
WEATHER: Hot Sunny INSPECTOR(S):

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

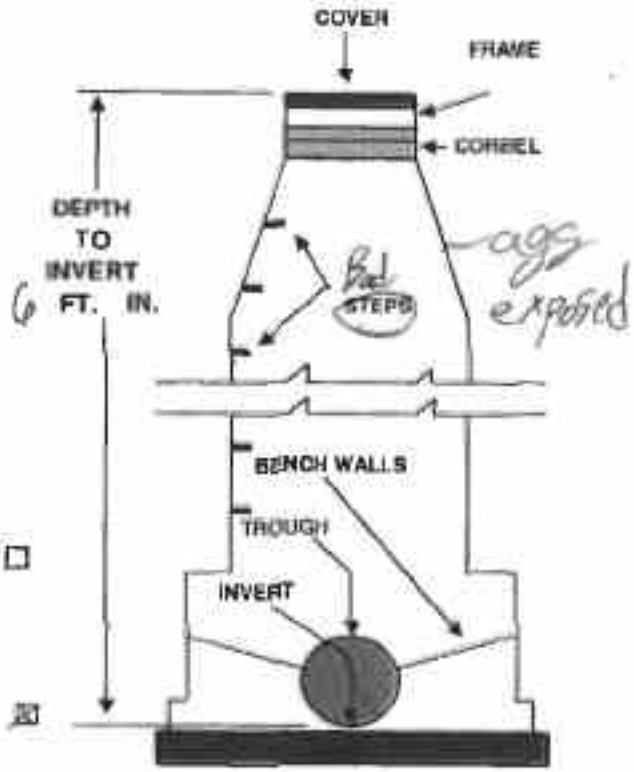
MANHOLE FRAME
CONDITION: SOUND ☒ BROKEN ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☐

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: 2" 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: 2" INCHES
EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 1 GPM
LOCATION/DESCRIPTION OF INFILTRATION:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS: To MH 11

South

2nd

MANHOLE INSPECTION REPORT

MANHOLE #: 12 STREET: Golf Course DATE: 9-25-12

WEATHER: Hot Sunny INSPECTOR(S): BCS

MANHOLE COVER

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: .5" INCHES

STEPS

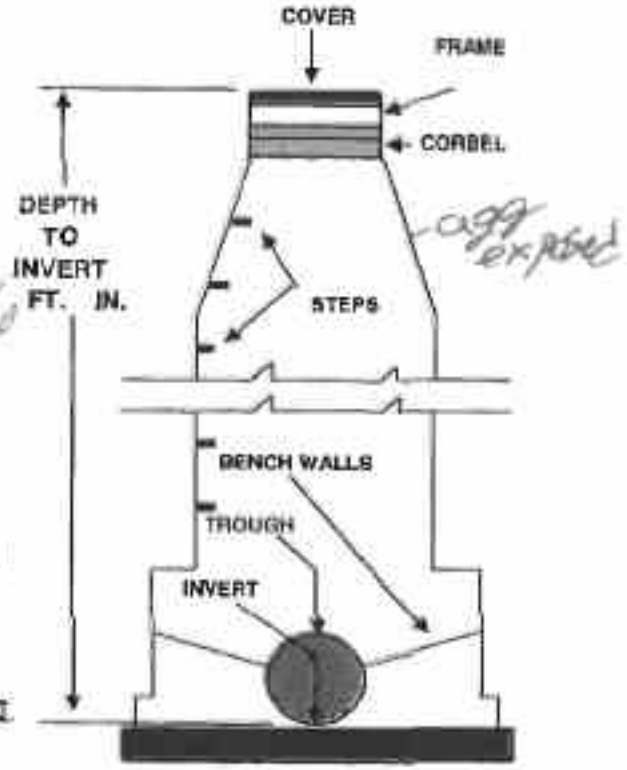
CONDITION: GOOD ☐ DETERIORATING ☒

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: 2" INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 1 GPM

LOCATION/DESCRIPTION OF INFILTRATION:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 13 DROP LINE ☐ DISTANCE ____ FT	FROM MH # 12 South DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS: 2nd #12 found in Field appears to match map for 12

MANHOLE INSPECTION REPORT

DATE: 1-25

MANHOLE #: 13 STREET: Golf Course

WEATHER: sunny INSPECTOR(S): D/S

MANHOLE COVER

DIAMETER: 24 INCHES

NO. OF HOLES IN COVER: 1

CONDITION OF FIT: LOOSE ☐ TIGHT ☒

SEALED ☐ BOLTED ☐

EVIDENCE OF LEAKAGE: YES ☐ NO ☒

MANHOLE FRAME Detached From Corbell

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: 1" INCHES

STEPS

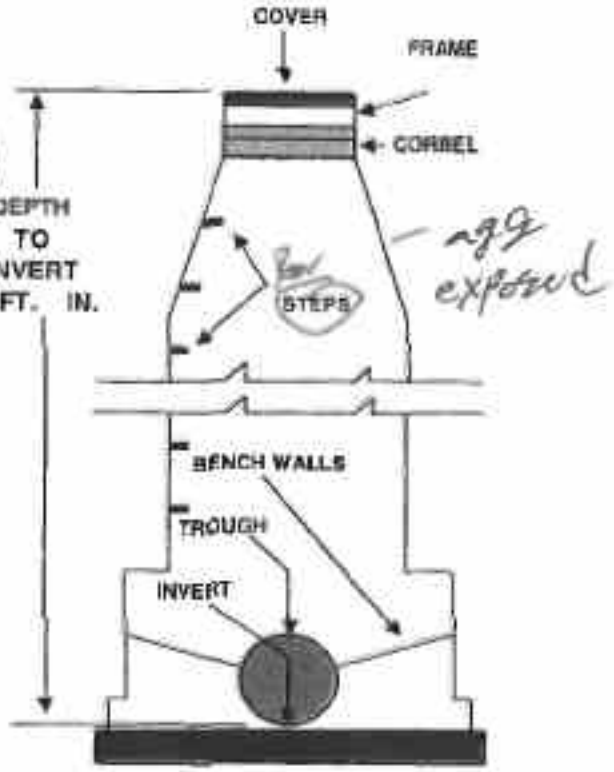
CONDITION: GOOD ☐ DETERIORATING ☒

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: 2 INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 1 GPM

LOCATION/DESCRIPTION OF INFILTRATION:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 14 DROP LINE ☐ DISTANCE FT	FROM MH # DROP LINE ☐ DISTANCE FT	FROM MH # DROP LINE ☐ DISTANCE FT	TO MH # DISTANCE FT
TYPE				
DIAMETER				
FLOW				

COMMENTS: To 12 South

MANHOLE INSPECTION REPORT

DATE: 9-25

MANHOLE #: 14 STREET: Golf Course

WEATHER: Hot Sunny INSPECTOR(S): JHS

MANHOLE COVER

DIAMETER: 24 INCHES

NO. OF HOLES IN COVER: 1

CONDITION OF FIT: LOOSE ☐ TIGHT ☒

SEALED ☐ BOLTED ☐

EVIDENCE OF LEAKAGE: YES ☐ NO ☒

MANHOLE FRAME Corroded

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: 1" INCHES

STEPS

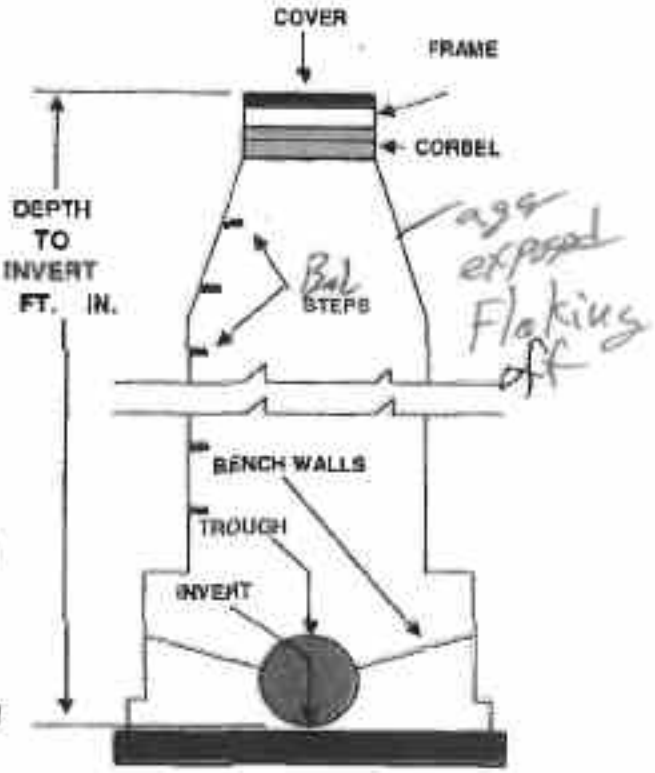
CONDITION: GOOD ☐ DETERIORATING ☒

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: 2" INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 2 GPM

LOCATION/DESCRIPTION OF INFILTRATION: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 15 DROP LINE ☐ DISTANCE ____ FT	FROM MH # 13 DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 9-24-12

MANHOLE #: 15 STREET: Fairway

WEATHER: evening INSPECTOR(S): [illegible]

MANHOLE COVER

DIAMETER: 24 INCHES

NO. OF HOLES IN COVER: 1

CONDITION OF FIT: LOOSE ☐ TIGHT ☒

SEALED ☐ BOLTED ☐

EVIDENCE OF LEAKAGE: YES ☐ NO ☒

MANHOLE FRAME corroded

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: 2" INCHES

STEPS

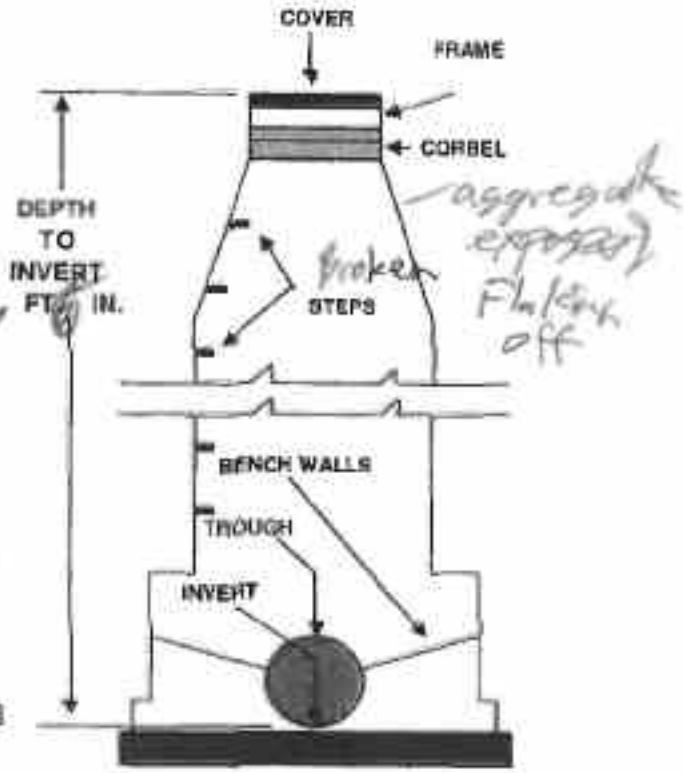
CONDITION: GOOD ☐ DETERIORATING ☒

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: _____ GPM

LOCATION/DESCRIPTION OF INFILTRATION: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 16 DROP LINE ☐ DISTANCE ____ FT	FROM MH # 29 DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 9-29

MANHOLE #: 16 STREET: Fairway

WEATHER: Sunny INSPECTOR(S): [illegible]

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 INCHES

STEPS No steps

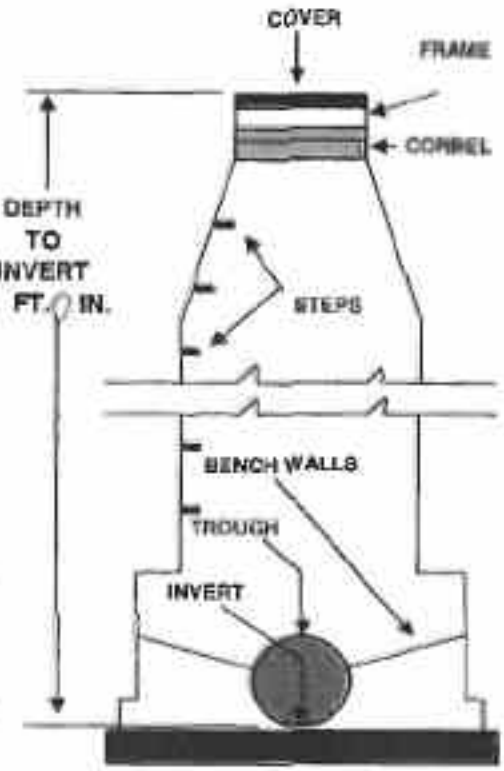
CONDITION: GOOD ☐ DETERIORATING ☐

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 ☐ currently charging

INCHES ABOVE INVERT: 6 INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 1 GPM

LOCATION/DESCRIPTION OF INFILTRATION:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 17 DROP LINE ☐ DISTANCE ____ FT	FROM MH # 19 DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

MANHOLE #: 17 STREET: Vista Verde DATE: 9-24-12
WEATHER: evening INSPECTOR(S): BK

MANHOLE COVER
DIAMETER: 27 INCHES
NO. OF HOLES IN COVER: 4
CONDITION OF FIT: LOOSE ☐ TIGHT ☒
SEALED ☐ BOLTED ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

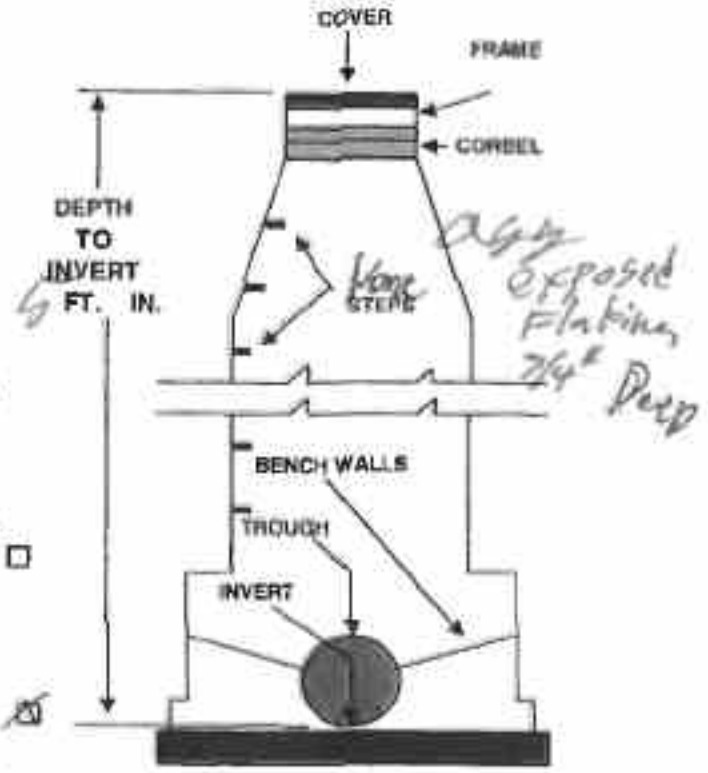
MANHOLE FRAME
CONDITION: SOUND ☒ BROKEN ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

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: 2 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: 2 INCHES
EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: ____ GPM
LOCATION/DESCRIPTION OF INFILTRATION: ____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 16	FROM MH # ____	FROM MH # ____	TO MH # ____
	DROP LINE ☐	DROP LINE ☐	DROP LINE ☐	
	DISTANCE ____ FT	DISTANCE FT	DISTANCE FT	DISTANCE FT
TYPE	Clay			
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 9-24-12

MANHOLE #: 14 STREET: vista verde
WEATHER: evening INSPECTOR(S): [illegible]

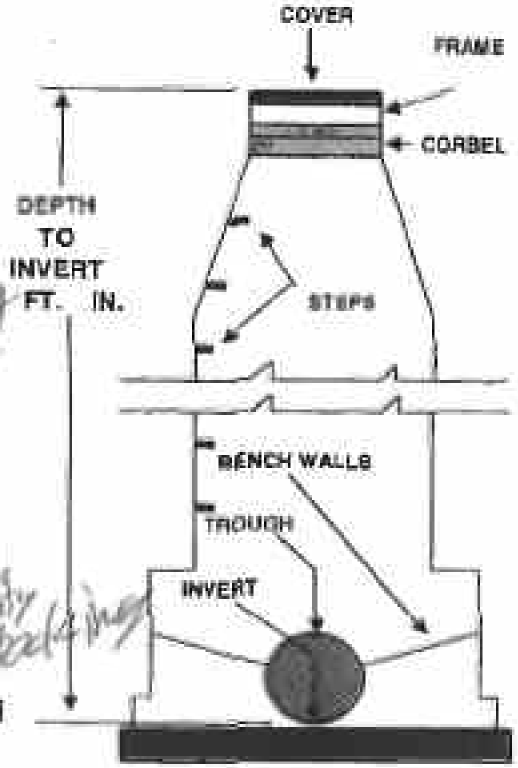
MANHOLE COVER
DIAMETER: 27 INCHES
NO. OF HOLES IN COVER: 1
CONDITION OF FIT: LOOSE ☐ TIGHT ☒
SEALED ☐ BOLTED ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

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" INCHES
Heavy deposits Blocking

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



TYPICAL MANHOLE

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:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # DROP LINE ☐ DISTANCE FT	FROM MH # DROP LINE ☐ DISTANCE FT	FROM MH # DROP LINE ☐ DISTANCE FT	TO MH # DISTANCE FT
TYPE				
DIAMETER		To MH 17	clay pipe	
FLOW				

COMMENTS: Blocking lateral to 1366 vista verde

MANHOLE INSPECTION REPORT

DATE: 9-25-12

MANHOLE #: 19 STREET: Fairway

WEATHER: Sunny INSPECTOR(S): BJS

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 INCHES

STEPS None

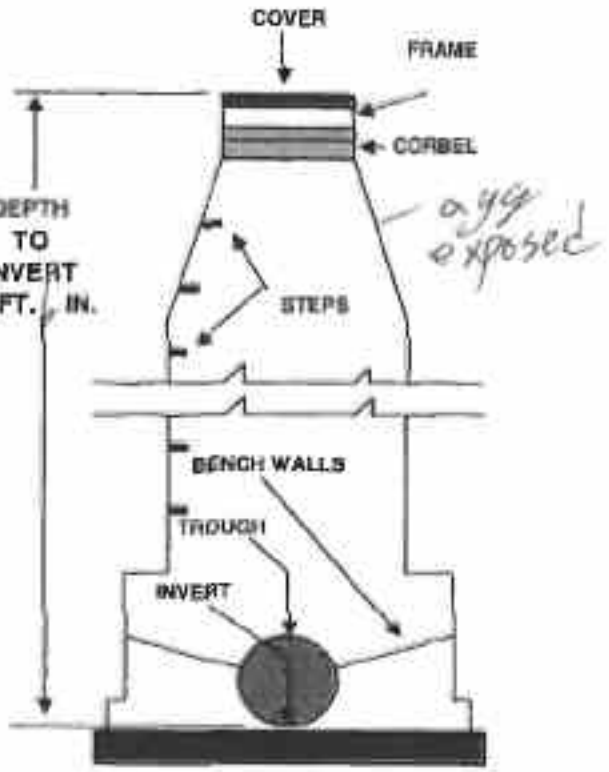
CONDITION: GOOD ☐ DETERIORATING ☐

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: 2 INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 2 GPM

LOCATION/DESCRIPTION OF INFILTRATION:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 21 DROP LINE ☐ DISTANCE ____ FT	FROM MH # 20 DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

Yes 2" 2030 Fairway lateral Blocked

MANHOLE INSPECTION REPORT

DATE: 9-25

MANHOLE #: 20 STREET: Camino Verde

WEATHER: Hot Sunny INSPECTOR(S): AJD

MANHOLE COVER

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 Broken Ring

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 None

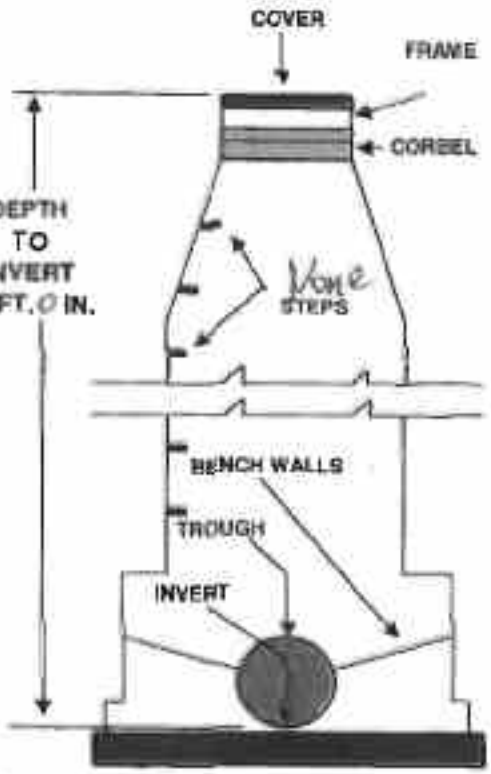
CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF DEBRIS ON STEPS: YES ☐ NO ☒

TROUGH

CONDITION: GOOD ☐ DETERIORATING ☒

EVIDENCE OF LEAKAGE: YES ☐ NO ☒



TYPICAL MANHOLE

No evidence of

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: 0 GPM

LOCATION/DESCRIPTION OF INFILTRATION: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 9-25

MANHOLE #: 21 STREET: Fairway

WEATHER: Hot sunny INSPECTOR(S): MS

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: 1 INCHES

STEPS

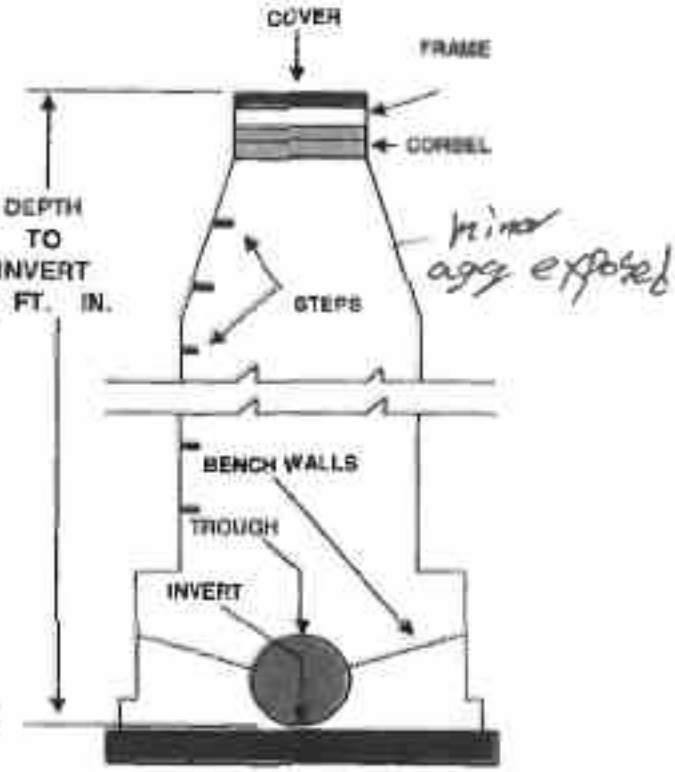
CONDITION: GOOD ☒ DETERIORATING ☐

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: 3 INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 1 GPM

LOCATION/DESCRIPTION OF INFILTRATION: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 22 DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 9-25

MANHOLE #: 22 STREET: Fairway

WEATHER: Sunny hot INSPECTOR(S): DB

MANHOLE COVER 25.5" odd size

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: 6" INCHES Large Rocks in Bottom

STEPS None

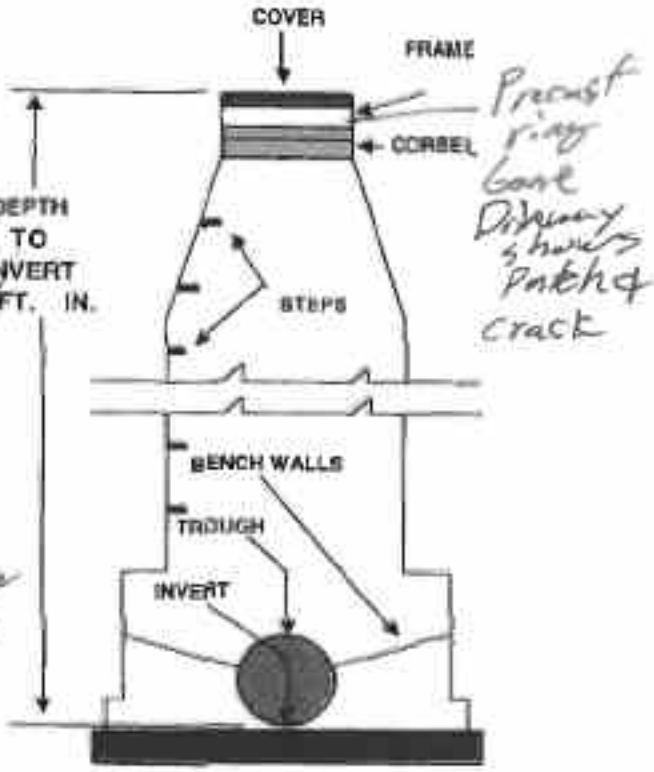
CONDITION: GOOD ☐ DETERIORATING ☐

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: _____ INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: _____ GPM

LOCATION/DESCRIPTION OF INFILTRATION: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 1-24-12

MANHOLE #: 23 STREET: Fairway
WEATHER: Evening Windy INSPECTOR(S): [illegible]

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

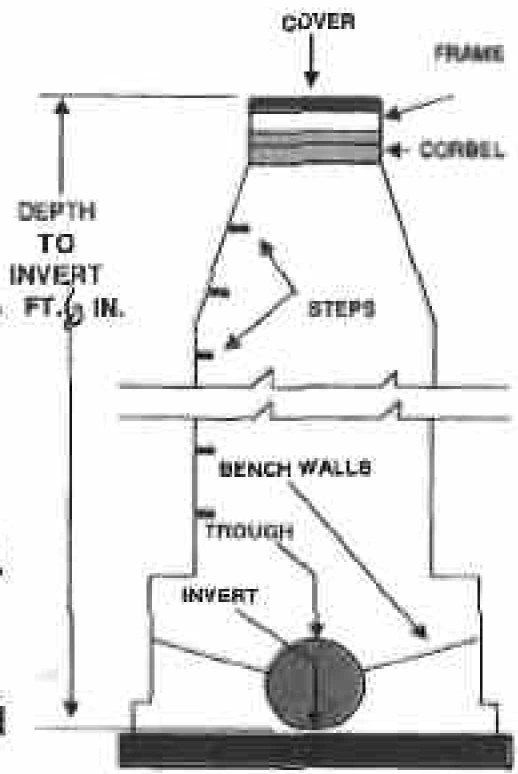
MANHOLE FRAME
CONDITION: SOUND ☑ BROKEN ☐
EVIDENCE OF LEAKAGE: YES ☒ NO ☐

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: .5" 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: 1 INCHES
EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 2 GPM
LOCATION/DESCRIPTION OF INFILTRATION: ______

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 25 DROP LINE ☐ DISTANCE ___ FT	FROM MH # 24 DROP LINE ☐ DISTANCE ___ FT	FROM MH # ___ DROP LINE ☐ DISTANCE ___ FT	TO MH # ___ DISTANCE ___ FT
TYPE				
DIAMETER				
FLOW				

To 15

COMMENTS:

MANHOLE INSPECTION REPORT

MANHOLE #: 24 STREET: Andean Footway DATE: 9-24-12
WEATHER: Sunny INSPECTOR(S): BVB

photo taken irrigation line over cover

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

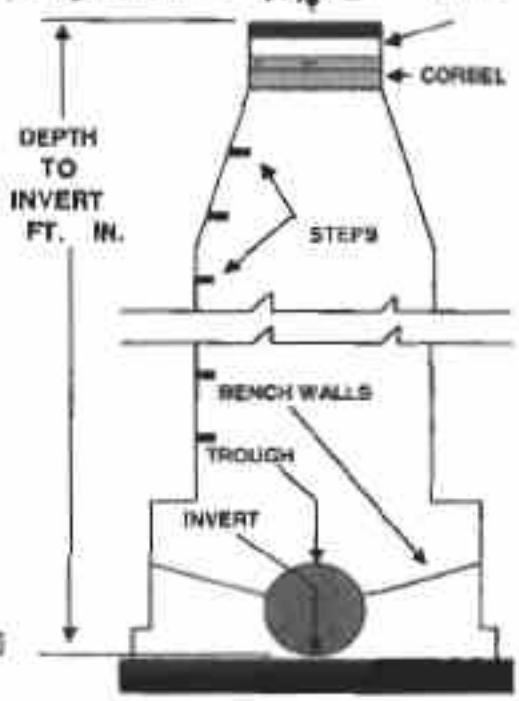
MANHOLE FRAME
CONDITION: SOUND ☐ BROKEN ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☐

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: _____ 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: _____ INCHES
EVIDENCE OF INFILTRATION: YES ☐ NO ☐ ESTIMATED FLOW RATE: _____ GPM
LOCATION/DESCRIPTION OF INFILTRATION: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 9-24

MANHOLE #: 24 STREET: Fairview

WEATHER: Sunny INSPECTOR(S): AZH

MANHOLE COVER

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: 2 INCHES

STEPS

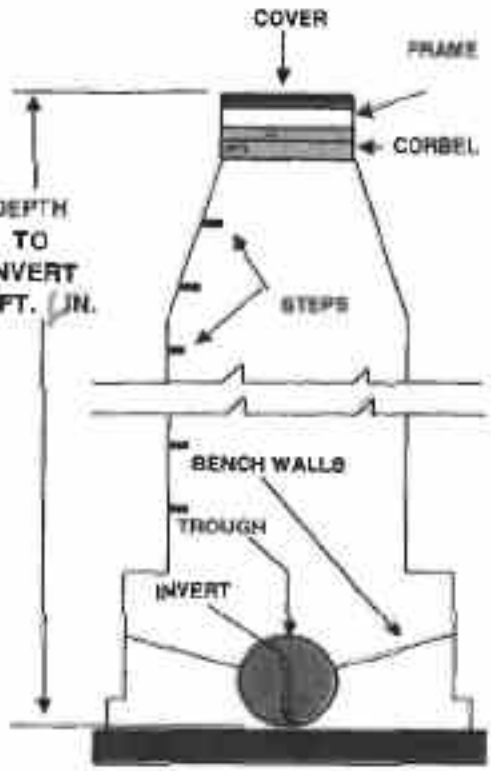
CONDITION: GOOD ☒ DETERIORATING ☐

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: 1 INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 1 GPM

LOCATION/DESCRIPTION OF INFILTRATION:

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 25 DROP LINE ☐ DISTANCE ___ FT	FROM MH # ___ DROP LINE ☐ DISTANCE ___ FT	FROM MH # ___ DROP LINE ☐ DISTANCE ___ FT	TO MH # ___ DISTANCE ___ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 9-24-12

MANHOLE #: 25 STREET: Golf Course

WEATHER: Sunny INSPECTOR(S): AB

Manhole not found

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

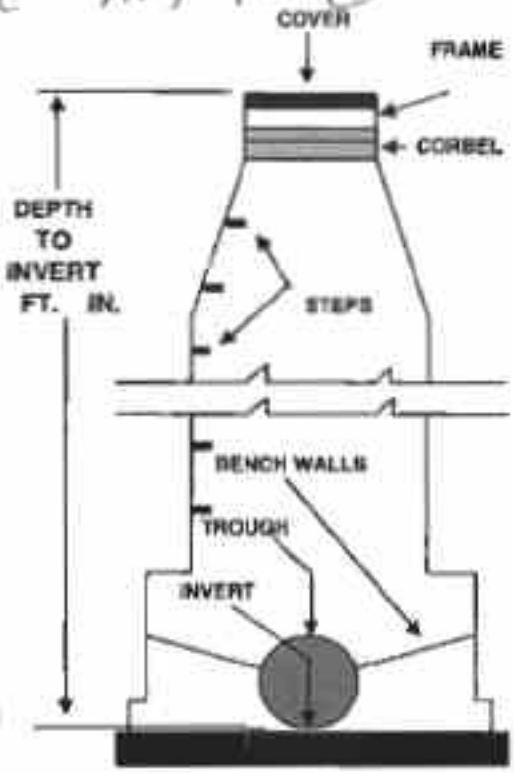
CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF DEBRIS ON STEPS: YES ☐ NO ☐

TROUGH

CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF LEAKAGE: YES ☐ NO ☐



TYPICAL MANHOLE

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: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 9-24-12

MANHOLE #: 26 STREET: Fairway

WEATHER: Sunny INSPECTOR(S):

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

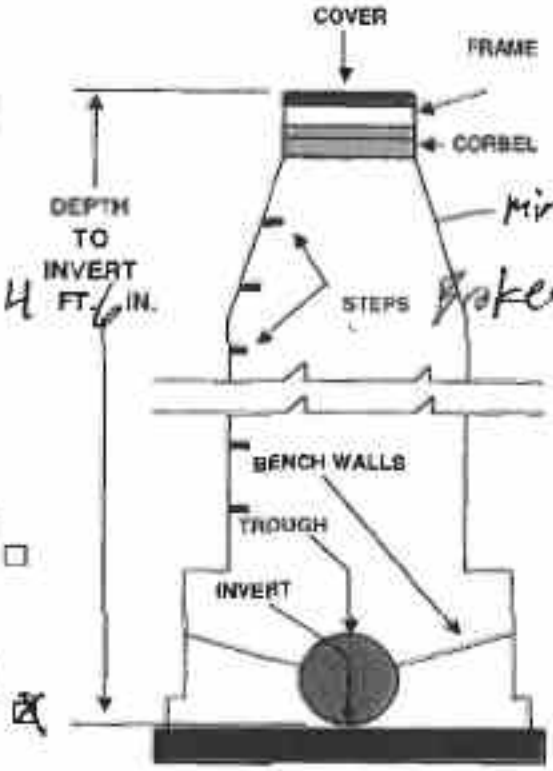
MANHOLE FRAME
CONDITION: SOUND ☒ BROKEN ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

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
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: _____ INCHES
EVIDENCE OF INFILTRATION: YES ☐ NO ☐ ESTIMATED FLOW RATE: Trickle GPM
LOCATION/DESCRIPTION OF INFILTRATION: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # 27	FROM MH #	FROM MH #	TO MH #
	DROP LINE ☐	DROP LINE ☐	DROP LINE ☐	
	DISTANCE ____ FT	DISTANCE FT	DISTANCE FT	DISTANCE FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

To 25 not found yet

Good condition overall
Could raise Frame at cover 3" to 6"

MANHOLE INSPECTION REPORT

DATE: 9-24

MANHOLE #: 27 STREET: Golf Course

WEATHER: Sunny INSPECTOR(S): AVB

Manhole in Back Yard not inspected as directed

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

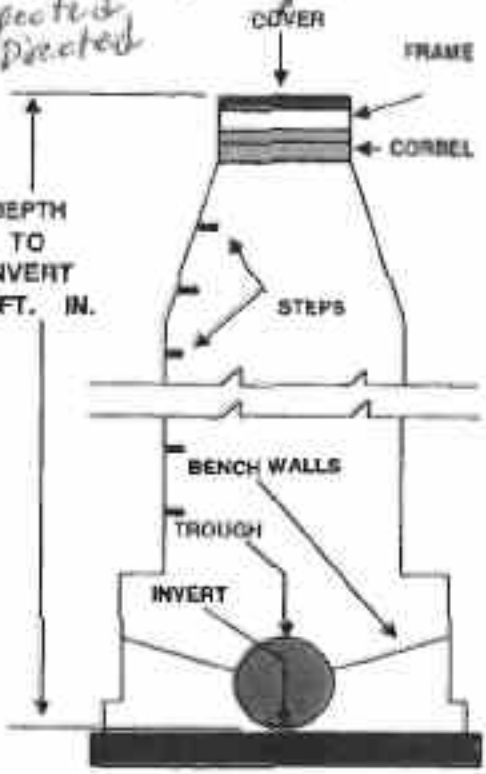
CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF DEBRIS ON STEPS : YES ☐NO ☐

TROUGH

CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF LEAKAGE: YES ☐ NO ☐



TYPICAL MANHOLE

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: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

DATE: 9-24-12

MANHOLE #: 28 STREET: Barbra Worth Drive

WEATHER: Hot Sunny INSPECTOR(S): A/S

Surcharged 6:00 pm 24th

MANHOLE COVER

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: 1" INCHES

STEPS None

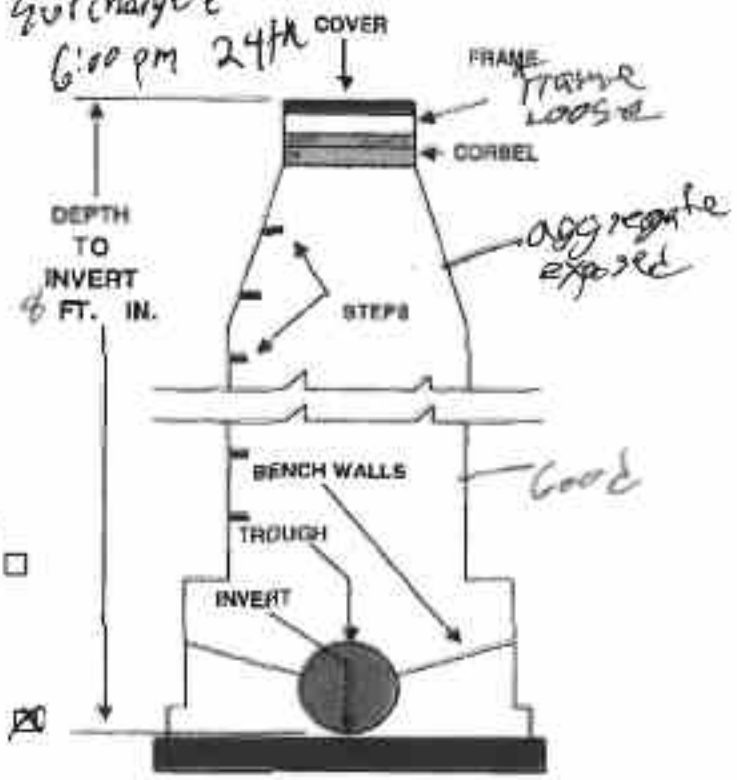
CONDITION: GOOD ☐ DETERIORATING ☐

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: 1" INCHES

EVIDENCE OF INFILTRATION: YES ☐ NO ☒ ESTIMATED FLOW RATE: 1 GPM

LOCATION/DESCRIPTION OF INFILTRATION: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	TO MH # ____ DISTANCE ____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS: TO MH # 5

Good Flow rate

MANHOLE INSPECTION REPORT

DATE: 9-25

MANHOLE #: 29 STREET: Golf Course

WEATHER: Hot Sunny INSPECTOR(S): AB

MH not Found

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

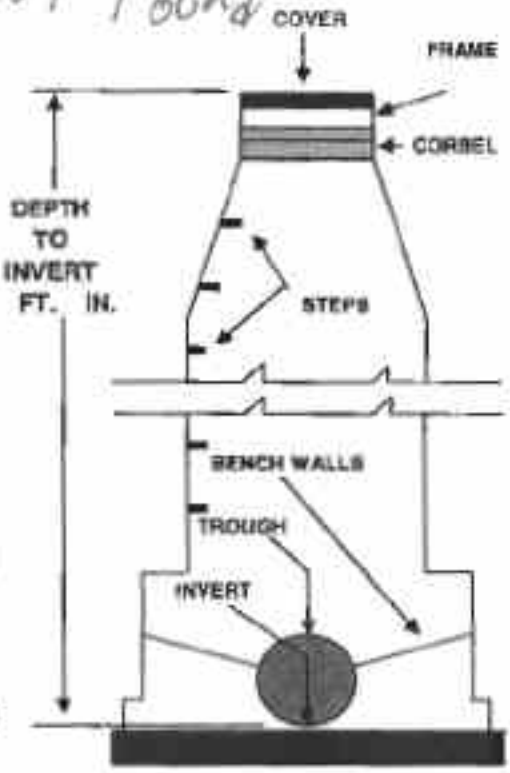
CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF DEBRIS ON STEPS: YES ☐NO ☐

TROUGH

CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF LEAKAGE: YES ☐ NO ☐



TYPICAL MANHOLE

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: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

MANHOLE #: 7P STREET: Golf Course Private Citizens Yard DATE: 9-25
WEATHER: Sunny INSPECTOR(S): [illegible]

MH found in Back yard behind fence Directed Not to Inspect in private property

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

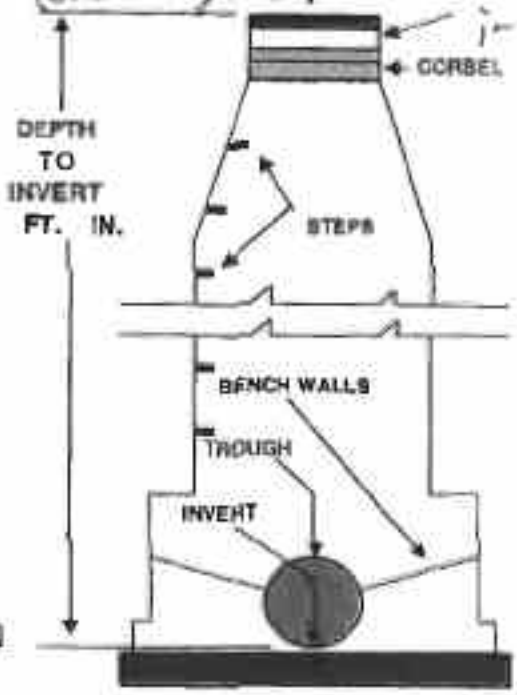
MANHOLE FRAME
CONDITION: SOUND ☐ BROKEN ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☐

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 ☐



TYPICAL MANHOLE

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: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	TO MH # _____ DISTANCE _____ FT
TYPE				
DIAMETER				
FLOW				

COMMENTS:

MANHOLE INSPECTION REPORT

MANHOLE #: 31 STREET: Golf Course DATE: 9-25

WEATHER: Sunny INSPECTOR(S): [illegible]

MH not Found

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

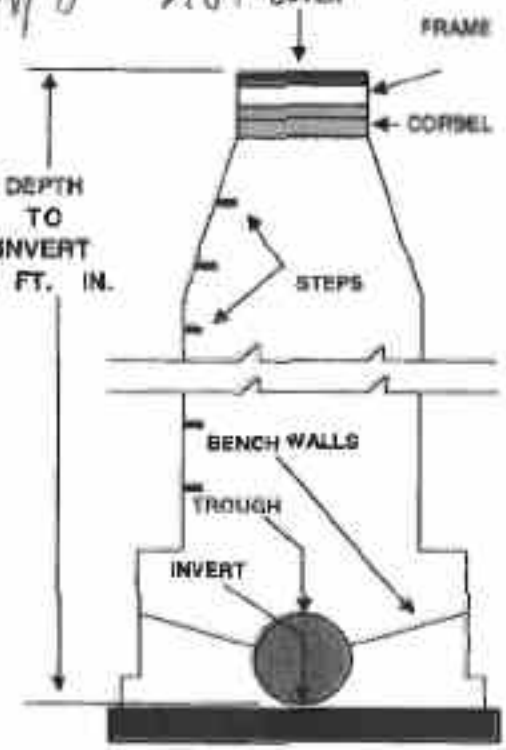
CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF DEBRIS ON STEPS : YES ☐NO ☐

TROUGH

CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF LEAKAGE: YES ☐ NO ☐



TYPICAL MANHOLE

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: _____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # _____ DROP LINE ☐ DISTANCE _____ FT	FROM MH # _____ DROP LINE ☐ DISTANCE FT	FROM MH # _____ DROP LINE ☐ 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): AVZ

MANHOLE COVER 24
DIAMETER: 4 INCHES 24
NO. OF HOLES IN COVER: 1
CONDITION OF FIT: LOOSE ☐ TIGHT ☒
SEALED ☐ BOLTED ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

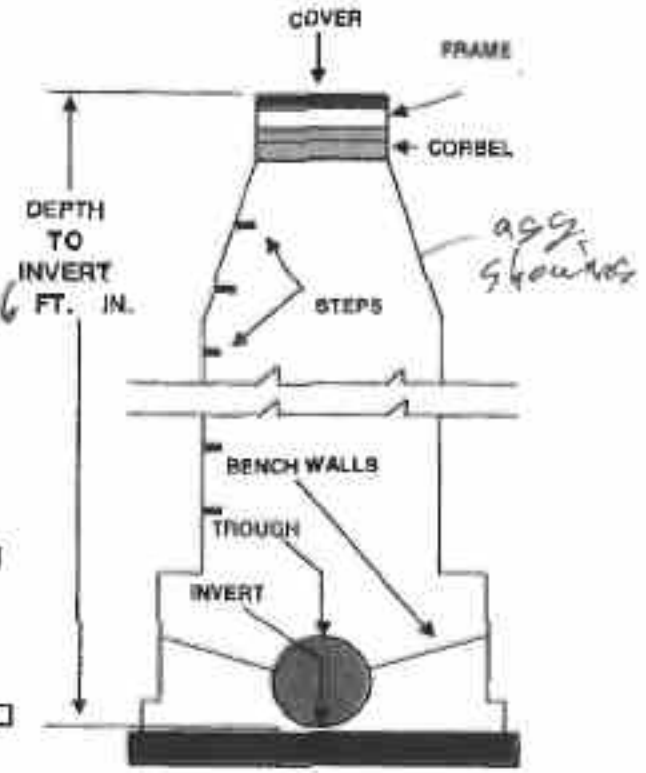
MANHOLE FRAME
CONDITION: SOUND ☒ BROKEN ☐
EVIDENCE OF LEAKAGE: YES ☐ NO ☒

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 ☒



TYPICAL MANHOLE

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: ____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ 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

DATE: 9-24-12

MANHOLE #: 33 STREET: Barbra Worth Drive

WEATHER: Hot sunny INSPECTOR(S): [illegible]

Manhole not found

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

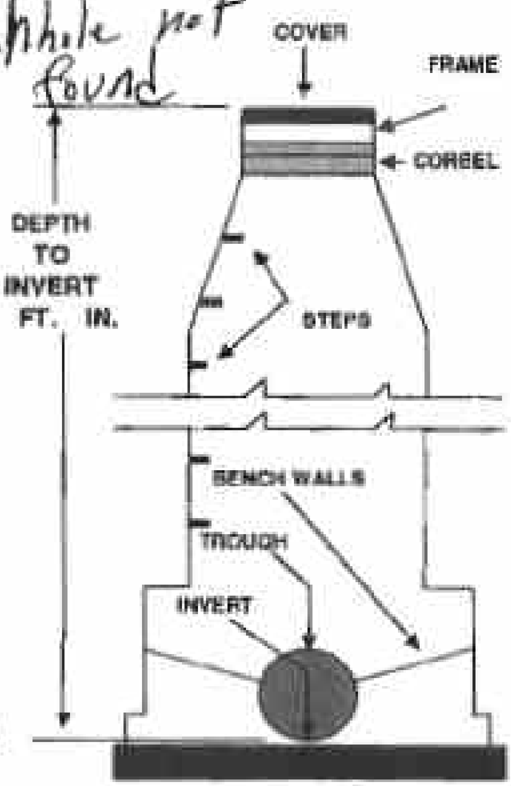
CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF DEBRIS ON STEPS: YES ☐ NO ☐

TROUGH

CONDITION: GOOD ☐ DETERIORATING ☐

EVIDENCE OF LEAKAGE: YES ☐ NO ☐



TYPICAL MANHOLE

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: ____

PIPE ENTRANCE DATA	INCOMING LINES			OUTGOING LINE
	FROM MH # ____ DROP LINE ☐ DISTANCE ____ FT	FROM MH # ____ DROP LINE ☐ DISTANCE FT	FROM MH # ____ DROP LINE ☐ 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	**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	**Sched length** Ft	**From** 01 **Depth** Ft
Shape Circular	**Size** 10 **by** ins	**To** PUMP STATION **Depth** Ft
Material Polyvinly chloride	**Joint Spacing** Ft	**Direction** Down
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note Line leads across Evan Howes Hwy
Location note

Structural Service Construction
Miscellaneous Hydraulic

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				1/2 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

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	**From** 01	**Depth** Ft
Shape	Circular	**Size** 10 **by**	ins	**To** PUMP STATION	**Depth** Ft
Material	Polyvinly chloride	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**
General note	Line leans across Evan Hewes Hwy			Structural Service	Constructional
Location note				Miscellaneous Hydraulic	

0.0 Ft Start of Survey
Manhole/Node [01]
Water level 10

2.0 Ft Debris (Grease) [1/3 to 1/2 PIPE]
General observation [BLOCKED BY LARGE DEBRIS IN MH AND PIPE]
Survey abandoned

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

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 Hollister		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	Contract	Video	Setup 23
Facility	Operator NJP	Van Ref 10	Surveyed On 09/25/2012
Street Name Barbara Worth Rd		City Hatfield	
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 Polyvinly chloride	Joint Spacing Ft	Direction Down	
Lining	Year laid	Pre-clean N	Last Cleaned
General note		Structural Service Construcional	
Location note		Miscellaneous Hydraulic	

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				
	24.8		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		EA	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

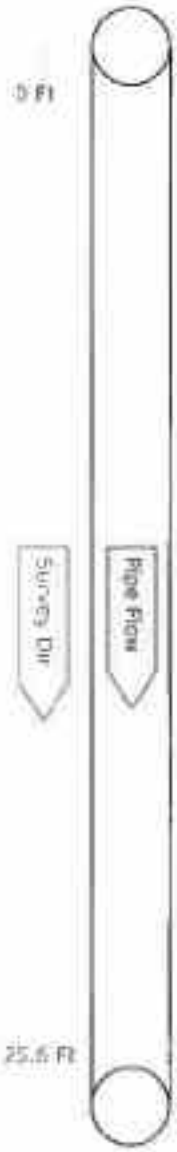
Work Order	**Contract**	**Video**	**Setup** 23
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/25/2012
Street Name Barbara Worth Rd	**City** Holmes		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use	Sanitary	**Schedule length**	Ft	**From** 02	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 01	**Depth** Ft
Material	Polyvinyl chloride	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic



0.0 Ft	Start of Survey Manhole/Node [02] Water level 10
8.0 Ft	Debris
12.9 Ft	Debris
24.9 Ft	Debris (CONTINUING)
25.3 Ft	General observation [BLOCKED BY DEBRIS] General observation [DEBRIS TOO HEAVY FOR US ATTEMPT]
25.6 Ft	Survey abandoned

PipeLogix Inc.
Phone: 866-299-3150
Fax: 780-406-6023

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: 6.0 Ft
Obs: Debris

Comments:

Date: 09/25/2012
Distance: 12.0 Ft
Obs: Debris

Comments:

Date: 09/25/2012
Distance: 24.0 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 **Depth** Ft
Shape Circular	**Size** # **by** ins	**To** 02 **Depth** Ft
Material Polyvinyl chloride	**Joint Spacing** Ft	**Direction** Down
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note CREATED SURVEY. HEAVY GREASE IN MH
Location note

Structural Service Constructional
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

Tabular Report of PLR 04 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 22
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	**Sched length** Ft	**From** 04 **Depth** Ft
Shape Circular	**Size** 8 **by** ins	**To** 03 **Depth** Ft
Material Polyvinly chloride	**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		MH	Manhole/Node					04
	0.0		WL	Water level				1	
	0.0		DE	Debris	1				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

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** Hollville		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use Sanitary	**Schedule length** Ft	**From** 04 **Depth** Ft
Shape Circular	**Size** 8 **by** Ins	**To** 03 **Depth** Ft
Material Polyvinly chloride	**Joint spacing** Ft	**Direction** Downstream
Lining	**Year laid**	**Pre-clean** N **Last cleaned**

General note
Location note

Structural Service Constructional
Miscellaneous Hydraulic

0.0 Ft Manhole/Node [04]
Water level 5
Debris [LARGE DEBRIS IN MH]

1.0 Ft General observation [DS MH SURCHARGED, FULL OF DEBRIS, NO ACCESS FOR US ATTEMP]

1.2 Ft General observation [BLOCKED BY DEBRIS]
Survey abandoned

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

CCTV pictures of 04 X for Bureau Veritas NA

Work Order		Video	Surveyed On 09/05/2012	Direction Downstream	Setup 22
Street Name Barbara Worth Rd	City Name Holtville		Weather Dry		
Location		From Manhole 04		To Manhole 03	

Date: 09/05/2012
Distance: 0.0 Ft
Obs: Debris

Comments:
LARGE DEBRIS IN MH

Tabular Report of PLR 05 A for Bureau Veritas NA

Work Order	Contract	Video	Setup 34
Facility	Operator NJP	Van Ref 10	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 05	Depth Ft
Shape Circular	Size 8 by Ins	To 06	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	Ft	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

Tabular Report of PLR 06 A for Bureau Veritas NA

Work Order	**Contract**	**Video**	**Setup** 33
Facility	**Operator** NJP	**Van Ref** 10	**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** 06 **Depth** Ft
Shape Circular	**Size** 8 **by** Ins	**To** 04 **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.
Location note

Structural Service Construcitonal
Miscellaneous 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	Water level				0	
	0.0		GO	General observation					BOTH US AND DS MH'S SURCHARGE
	0.0		GO	General observation					NO ACCESS OR VISIBILITY
	0.0		GO	General observation					LINES POSSIBLY SURCHARGED DUE
	0.0		GO	General observation					MAPS INCORRECT. MH 06 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	**Contract**	**Video**	**Setup** 32
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/27/2012

Street Name Barbara Worth Rd **City** Hollvile
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** Down
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note Created survey. Could not attempt line.
Location note

Structural Service Constructional
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				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 observation					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**

Tabular Report of PLR 08 A for Bureau Veritas NA

Work Order	**Contract**	**Video**	**Setup** 31
Facility	**Operator** NJP	**Van Ref** 10	**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	**Schad length** Ft	**From** 08 **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.
Location note

Structural Service Constructional
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
	0.0		ST	Start of Survey					
	0.0		MH	Manhole/Node					08
	0.0		WL	Water level				0	
	0.0		GO	General observation					US MH BEND TOO TIGHT IN TRAUG.
	0.0		GO	General observation					DS MH NOT FOUND
	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**

Tabular 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	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

Location note

Structural Service Constructional
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	
	6.0		CB	Break in Connection		09			
	8.0		DE	Debris	M				
	41.8		CN	Service Connection		09			
	51.9		DE	Debris	L				CONTINUING
	84.8		CN	Service Connection		10			
	128.1		CN	Service Connection		09			
	146.3		MH	Manhole/Node					08
	146.3		FH	Finish of Survey					

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

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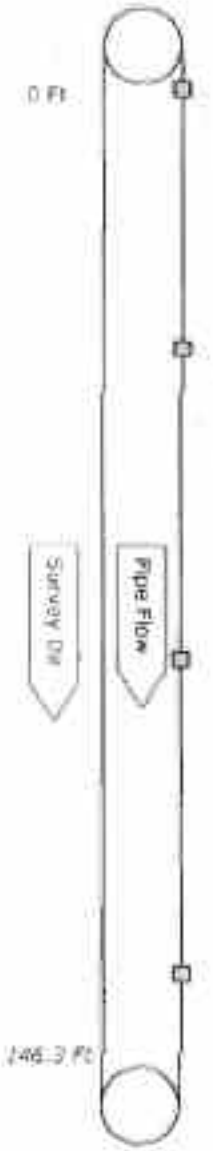
Pipe Graphic Report of PLR 09 X for Bureau Veritas NA

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	**From** 09	**Depth** Ft
Shape	Circular	**Size** 8 **by**	Ins	**To** 08	**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	



0.0 Ft	Start of Survey Manhole/Node [09] Water level 3
6.0 Ft	Break in Connection 09 o'clock
8.0 Ft	Debris
41.8 Ft	Service Connection 09 o'clock
51.5 Ft	Debris [CONTINUING]
84.9 Ft	Service Connection 10 o'clock
128.1 Ft	Service Connection 09 o'clock
146.3 Ft	Manhole/Node [08] Finish of Surveys

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CCTV pictures of 09 X for Bureau Veritas NA

Work Order	Video	Surveyed On 09/26/2012	Direction Downstream	Setup 29
Street Name Barbara Worth Rd	City Name Hollister		Weather Dry	
Location		From Manhole 09	To Manhole 08	

Date: 09/26/2012
Distance: 8.0 Ft
Obs: Break in Connection
Comments:

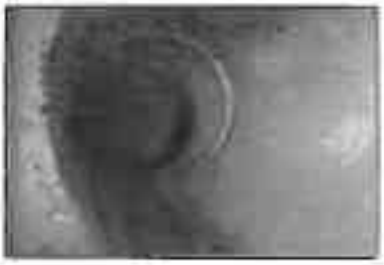
Date: 09/26/2012
Distance: 8.0 Ft
Obs: Debris
Comments:

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: 130.1 Ft
Obs: Service Connection
Comments:



Tabular 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	**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
Location note

Structural Service Constructional
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				
	11.5		CN	Service Connection		10			
	20.1		CN	Service Connection		02			
	56.8		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 Survey					

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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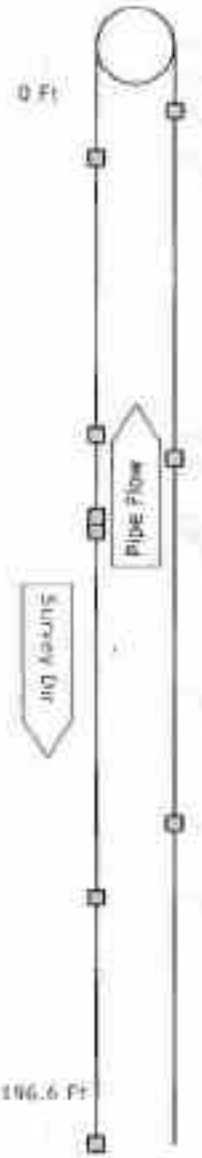
Pipe Graphic Report of PLR 10 X **for** Bureau Veritas NA

Work Order		**Contract**		**Video**	**Setup** 27
Facility		**Operator** NJP		**Van Ref** 13	**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	



0.0 Ft	Start of Survey Manhole/Node [09] Water level 3
5.0 Ft	Debris
11.6 Ft	Service Connection 10 o'clock
20.1 Ft	Service Connection 02 o'clock
55.6 Ft	Debris (Grease)
69.5 Ft	Roots around Lateral 03 o'clock
69.7 Ft	Break in Connection 03 o'clock
73.8 Ft	Service Connection 10 o'clock
84.4 Ft	Break in Connection 02 o'clock
87.0 Ft	Service Connection 02 o'clock
87.6 Ft	Debris (Grease) [CONTINUING]
115.6 Ft	Debris (Grease) [CONTINUING]
139.2 Ft	Service Connection 10 o'clock
152.4 Ft	Service Connection 02 o'clock
166.5 Ft	Debris (Grease) [CONTINUING]
196.6 Ft	Plugged Connection 03 o'clock

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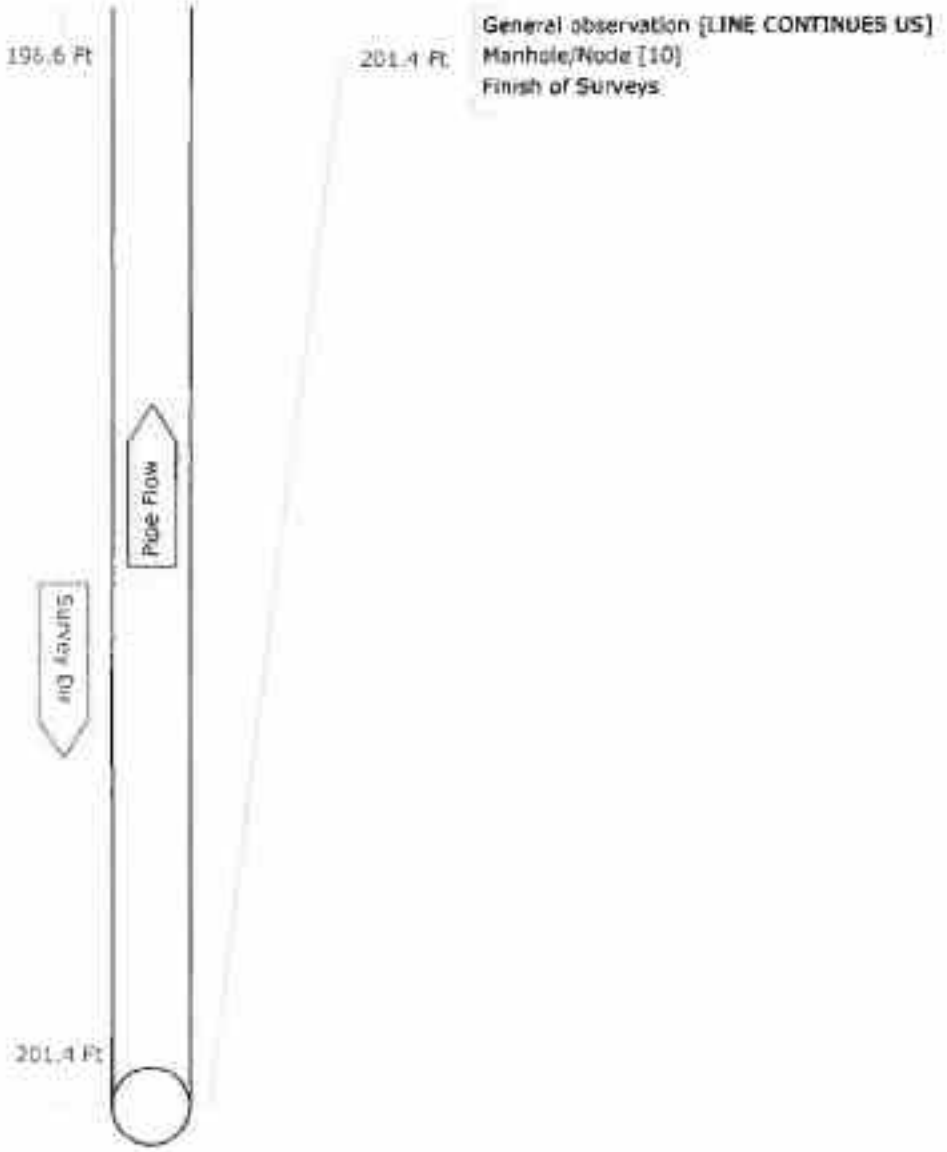
Pipe Graphic Report of PLR 10 X **for** Bureau Veritas NA

Work Order	**Contract**	**Video**	**Setup** 27
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/20/2012
Street Name Barbara Worth Rd	**City** Healdsburg		
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	



General observation [LINE CONTINUES US]
Manhole/Node [10]
Finish of Surveys

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CCTV pictures of 10 X for Bureau Veritas NA

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 99	To Manhole 10	

Date: 09/26/2012
Distance: 5.0 Ft
Obs: Debris
Comments:

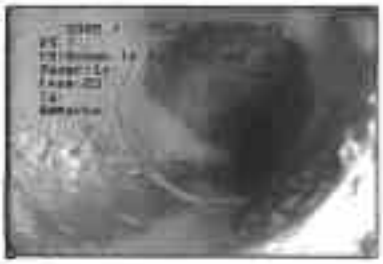
Date: 09/26/2012
Distance: 11.6 Ft
Obs: Service Connection
Comments:

Date: 09/26/2012
Distance: 20.1 Ft
Obs: Service Connection
Comments:

Date: 09/26/2012
Distance: 56.6 Ft
Obs: Debris (Cracked)
Comments:

Date: 09/26/2012
Distance: 68.5 Ft
Obs: Roots around Lateral
Comments:

Date: 09/26/2012
Distance: 99.7 Ft
Obs: Break in Connection?
Comments:

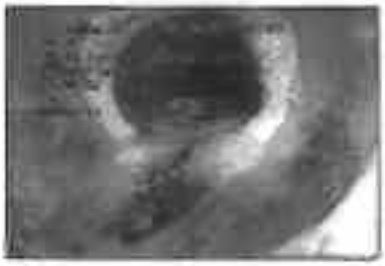


CCTV pictures of 10 X for Bureau Veritas NA

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

Date: [redacted]
Distance: 15.8 Ft
Obs: Service Connection
Comments:

Date: [redacted]
Distance: 84.4 Ft
Obs: Break In Connection
Comments:

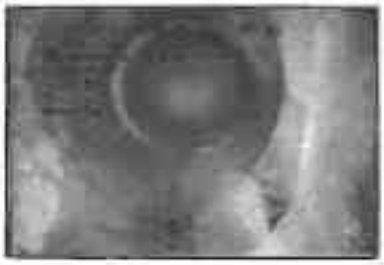


Date: 09/25/2012
Distance: 87.0 Ft
Obs: Service Connection
Comments:

Date: 09/25/2012
Distance: 87.6 Ft
Obs: Debris (Grease)
Comments:
CONTINUING

Date: 09/25/2012
Distance: 116.8 Ft
Obs: Debris (Grease)
Comments:
CONTINUING

Date: [redacted]
Distance: 139.7 Ft
Obs: Service Connection
Comments:



CCTV pictures of 10 X for Bureau Veritas NA

Work Order	Video	Surveyed On [illegible]	Direction Upstream	Setup 27
Street Name Barbara Worth Rd	City Name Hobvile		Weather Dry	
Location		From Manhole 09	To Manhole 10	

Date: [illegible]
Distance: 152.4 Ft
Obs: Service Connection

Comments:

Date: [illegible]
Distance: 196.6 Ft
Obs: Plugged Connection

Comments:

Date: [illegible]
Distance: 166.5 Ft
Obs: Debris (Grease)

Comments:
CONTINUING

Tabular Report of PLR 11 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 30
Facility	**Operator** NJP	**Van Ref** 10	**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	**Schad 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
Location note

Structural Service Constructional
Miscellaneous 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 FOU...
	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**

Tabular Report of PLR 12 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 16
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	**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
Location note

Structural Service Constructional
Miscellaneous 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	5				
	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** 70.0

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** 06/24/2012
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	

0.0 Ft	Start of Survey Manhole/Node [12] Water level 5
1.0 Ft	Debris
1.9 Ft	General observation [BLOCKED BY DEBRIS]
1.9 Ft	General observation [DS MH IS BURIED/NOT FOUND] Survey abandoned

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CCTV pictures of 12 X for Bureau Veritas NA

Work Order		Video	Surveyed On 09/24/2012	Direction Downstream	Setup 15
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** NJF	**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	**Sched length** Ft	**From** 13 **Depth** Ft
Shape Circular	**Size** 8 **by** ins	**To** 12 **Depth** Ft
Material Vitrified clay	**Joint Spacing** Ft	**Direction** Down
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note
Location note

Structural Service Constructional
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 138.4

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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**	Holville		
Location type					
Surface					
Survey purpose	Random survey of pipes and things			**Weather** Dry	
Pipe Use	Sanitary	**Schedule length**	Ft	**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

0.0 Ft
Start of Survey
Manhole/Node [13]
Water level 10

1.1 Ft
Debris (Grease)
General observation [BLOCKED BY DEBRIS]
Survey abandoned

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Tabular Report of PLR 13 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 15
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/24/2012

Street Name Fairway Dr (Golf Course) **City** Hollville
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** 13	**Depth** Ft
Material Vitrified clay	**Joint Spacing** Ft	**Direction** Up	
Lining	**Year laid**	**Pre-clean** N	**Last Cleaned**

General note
Location note

Structural Service Constructional
Miscellaneous 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	
	2.0		DE	Debris	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

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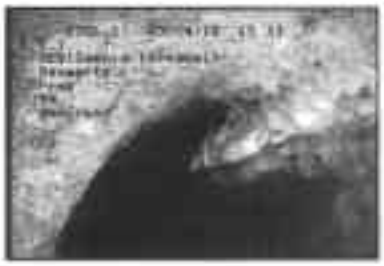
CCTV pictures of 13 X for Bureau Veritas NA

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

Date: 09/24/2012
Distance: 1.11
Obs: Debris (Grease)

Comments:



Tabular Report of PLR 14 X **for** Bureau Veritas NA

Work Order	**Contract**	**Video**	**Setup** 13
Facility	**Operator** NJP	**Van Rel** 16	**Surveyed On** 09/24/2012

Street Name Fairway Dr (Golf Course) **City** Holhille
Location type
Surface
Survey purpose Random survey of pipes and things **Weather** Dry

Pipe Use Sanitary	**Sched length** Ft	**From** 13 **Depth** Ft
Shape Circular	**Size** 8 **by** Ins	**To** 14 **Depth** Ft
Material Vitrified clay	**Joint Spacing** Ft	**Direction** Up
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note
Location note

Structural Service Constructional
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		GRG	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	**From** 13	**Depth** Ft
Shape Circular	**Size** 8 **by** Ins	**To** 14	**Depth** Ft
Material Vitrified clay	**Joint spacing** Ft	**Direction** Upstream	
Lining	**Year laid**	**Pre-clean** N	**Last cleaned**
General note		Structural Service Construction	
Location note		Miscellaneous Hydraulic	

0.0 Ft	Start of Survey Manhole/Node [13] Water level 5
1.1 Ft	Debris (Grease) [IN MH]
4.9 Ft	General observation [BLOCKED IN MH BY DEBRIS] Survey abandoned

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Tabular Report of PLR 14 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 12
Facility	**Operator** NJP	**Van Rel** 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	**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
Location note

Structural Service Constructional
Miscellaneous 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** Holmes		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use	Sanitary	**Schedule length**	Ft	**From** 14	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 13	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic

0.0 Ft Start of Survey
Manhole/Node (14)
Water level 0

1.1 Ft Debris
General observation [BLOCKED IN MH BY HEAVY DEBRIS]
Survey abandoned

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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: 1.19 ft
Obs: Debris

Comments:

Tabular Report of PLR 15 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 11
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	**Sched length** Ft	**From** 14 **Depth** Ft
Shape Circular	**Size** # **by** ins	**To** 15 **Depth** Ft
Material Vitrified clay	**Joint Spacing** Ft	**Direction** Up
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note
Location note

Structural Service Constructional
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Ft	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	**Contract**	**Video**	**Setup** 10
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 06/24/2012

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** 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
Location note

Structural Service Construction
Miscellaneous Hydraulic

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	
	2.0		DEG	Debris (Grease)	L				
	4.0		DEG	Debris (Grease)	L				30% 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** 08/24/2012
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** 15 **Depth** Ft
Shape Circular	**Size** 8 **by** ins	**To** 14 **Depth** Ft
Material Vitrified clay	**Joint spacing** Ft	**Direction** Downstream
Lining	**Year laid**	**Pre-clean** N **Last cleaned**

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic

0 Ft	0.0 Ft	Start of Survey Manhole/Node [15] Water level S
	2.0 Ft	Debris (Grease)
4 Ft	4.9 Ft	Debris (Grease) [50% OF PIPE FULL OF GREASE] General observation [BLOCKED BY GREASE] Survey abandoned

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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	**Contract**	**Video**	**Setup** 9
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/24/2012

Street Name Fairway Dr **City** Hoboke
Location type
Surface
Survey purpose Random survey of pipes and things **Weather** Dry

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
Location note

Structural Service Constructional
Miscellaneous Hydraulic

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	**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	**Sched length** Ft	**From** 17 **Depth** Ft
Shape Circular	**Size** 6 **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 Constructional
Location note	Miscellaneous Hydraulic

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	**From** 17 **Depth** Ft
Shape Circular	**Size** 6 **by** ins	**To** 16 **Depth** Ft
Material Vitrified clay	**Joint spacing** Ft	**Direction** Downstream
Lining	**Year laid**	**Pre-clean** N **Last cleaned**

General note

Location note

Structural Service Construction
Miscellaneous Hydraulic

0.0 Ft	Manhole/Node [17] Water level 3
14.9 Ft	Debris (Grease)
23.3 Ft	Debris (Grease) [CONTINUING]
29.1 Ft	Debris (Grease) [CONTINUING]
41.1 Ft	General observation [DS MH SURCHARGED, DID NOT ATTEMPT US RUN]
41.2 Ft	General observation [BLOCKED BY GREASE] Survey abandoned

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CCTV pictures of 17 X for Bureau Veritas NA

Work Order		Video	Surveyed On 09/24/2012	Direction Downstream	Setup 5
Street Name Vista Verde Dr	City Name Holtville			Weather Dry	
Location			From Manhole 17	To Manhole 16	

Date: 09/24/2012
Distance: 14.8 Ft
Obs: Debris (Grease)

Comments:

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

Comments:
CONTINUING

Date: 09/24/2012
Distance: 28.1 Ft
Obs: Debris (Grease)

Comments:
CONTINUING

Tabular 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	**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
Location note

Structural Service Constructional
Miscellaneous Hydraulic

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 Cl	M	01	06		
	77.5		CN	Service Connection		03			
	79.4		CN	Service Connection		09			
	140.8		DS	Begin Pipe Seg					
	147.5		CN	Service Connection		03			
	149.3		CN	Service Connection		09			
	151.0		DF	End pipe seg					
	197.7		DS	Begin Pipe Seg					
	213.1		CN	Service Connection		09			
	214.7		CN	Service Connection		03			
	220.8		GO	General observation					LARGE DEBRIS IN DS MH
	220.8		GO	General observation					SAG CONTINUES THROUGH MH
	221.6		MH	Manhole/Node					17
	221.8		FH	Finish of Survey					

221.8 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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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** 16	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 17	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** N **Last cleaned**	

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic

0.0 Ft	Start of Survey Manhole/Node [16] Water level 3
2.0 Ft	Circular Crack 12 to 12 o'clock
17.0 Ft	Service Connection 03 o'clock
19.1 Ft	Debris (Grease)
68.1 Ft	Corrosion of Cl 01 to 06 o'clock
77.5 Ft	Service Connection 03 o'clock
79.4 Ft	Service Connection 09 o'clock
140.8 Ft	Begin Pipe Sag
147.5 Ft	Service Connection 03 o'clock
149.3 Ft	Service Connection 09 o'clock
151.0 Ft	End pipe sag
197.7 Ft	Begin Pipe Sag
213.1 Ft	Service Connection 09 o'clock
214.7 Ft	Service Connection 03 o'clock
220.8 Ft	General observation [LARGE DEBRIS IN DS MH] General observation [SAG CONTINUES THROUGH MH]

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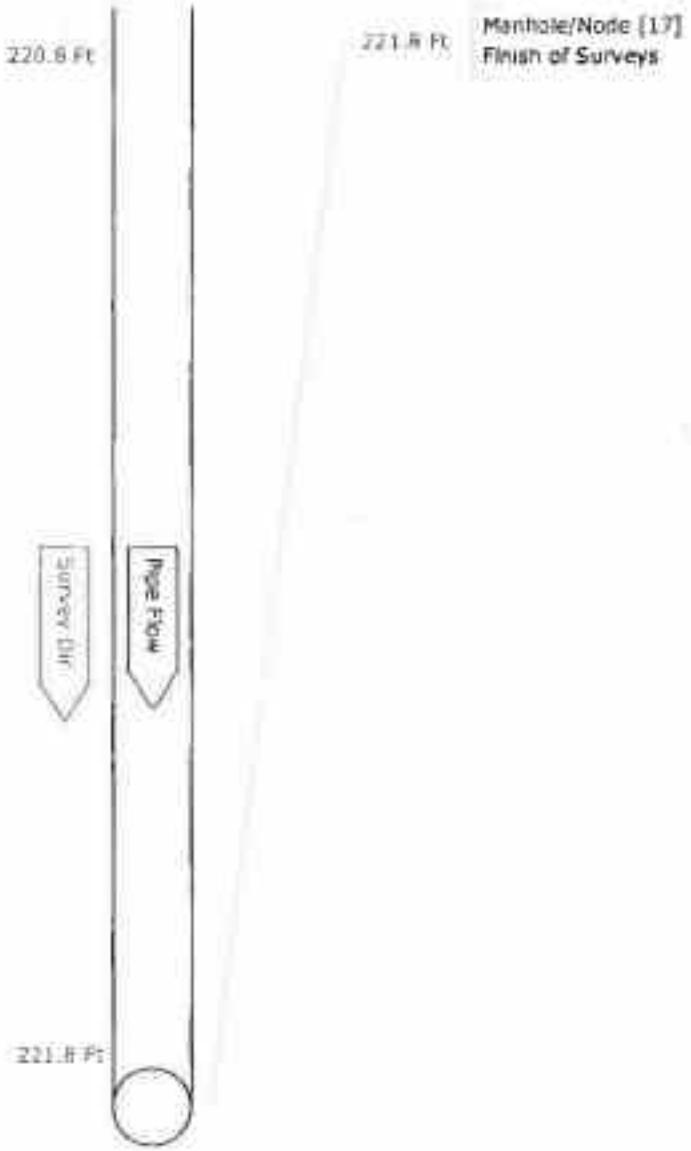
Pipe Graphic Report of PLR 16 X **for** Bureau Veritas NA

Work Order		**Contract**		**Video**	**Setup** 7
Facility		**Operator** NJ*		**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** 16		**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	Constructional
Location note		Miscellaneous	Hydraulic	



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CCTV picturse 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: 2.0 Ft
Obs: Circular Crack

Comments:

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

Comments:

Date: 09/24/2012
Distance: 18.1 Ft
Obs: Debris (Grease)

Comments:

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

Comments:

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

Comments:

Date: 09/24/2012
Distance: 78.4 Ft
Obs: Service Connection

Comments:

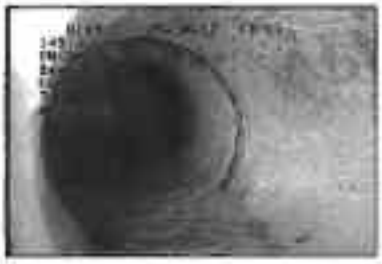
CCTV pictures of 18 X for Bureau Veritas NA

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: 140.6 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: 151.6 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 08/24/2012	Direction Downstream	Setup 7
Street Name Vista Verde Dr	City Name Holtville		Weather Dry		
Location			From Manhole 16	To Manhole 17	

Date: 08/24/2012
Distance: 214.7 Ft
Obs: Service Connection

Comments:

Date: 08/24/2012
Distance: 220.8 Ft
Obs#: General observation

Comments:
LARGE DEBRIS IN 05 MH

Tabular 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	**Sched length** Ft	**From** 19	**Depth** Ft
Shape Circular	**Size** 8 **by** in	**To** 16	**Depth** Ft
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		MH	Manhole/Node					19
	0.0		WL	Water level				3	
	2.0		DEG	Debris (Grease)	L				
	28.9		DEG	Debris (Grease)	L				CONTINUING
	68.6		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

Pipe Graphic Report of PLR 19 X **for** Bureau Veritas NA

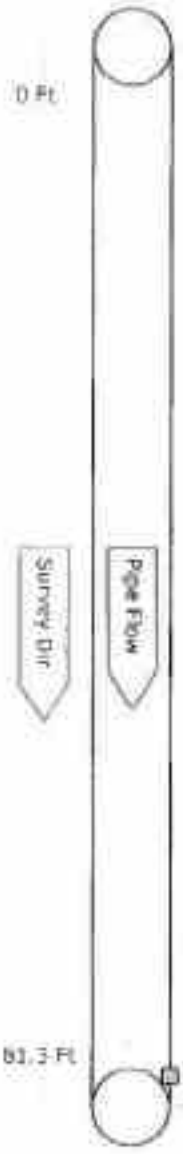
Work Order	**Contract**	**Video**	**Setup** S
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/24/2012
Street Name Fairway Dr	**City** Holtville		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use	Sanitary	**Schedule length**	Ft	**From** 19	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 18	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic



0.0 Ft	Manhole/Node [19] Water level 3
3.0 Ft	Debris (Grease)
28.9 Ft	Debris (Grease) [CONTINUING]
59.0 Ft	Debris (Grease) [CONTINUING]
76.9 Ft	Break in Connection 12 o'clock
81.2 Ft	General observation [DS MH SURCHARGED. DID NOT ATTEMPT US RUN]
81.3 Ft	General observation [BLOCKED BY GREASE] Survey abandoned

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CCTV pictures of 19 X for Bureau Veritas NA

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 18	

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

Comments:

Date: 09/24/2012
Distance: 55.5 Ft
Obs: Debris (Grease)

Comments:
CONTINUING

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

Comments:
CONTINUING

Date: 09/24/2012
Distance: 70.0 Ft
Obs: Break in Connection

Comments:

Tabular 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	**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
Location note

Structural Service Constructional
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
	0.0		ST	Start of Survey					
	0.0		MH	Manhole/Node					20
	0.0		WL	Water level				3	
	1.0		DE	Debris	1				PIPE 80% FULL OF DIRT
	1.1		GO	General observation					08 MH BEND TOO TIGHT to TRAVEL...
	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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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** 09/26/2012
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	**From** 20	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 19	**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	

0.0 Ft Start of Survey
Manhole/Node [20]
Water level 3

1.0 Ft Debris [PIPE 50% FULL OF DIRT]

1.1 Ft General observation [DS MH BEND TOO TIGHT IN TRAUGH, NO ACCESS FOR US ATTEMPT]
General observation [BLOCKED BY DEBRIS]
Survey abandoned

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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	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	Sched length Ft	From 21	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 Constructiona	
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				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		OD	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	From 21	Depth Ft
Shape Circular	Size 8 by ins	To 19	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	

0.0 Ft	Start of Survey Manhole/Node [21] Water level 3
8.1 Ft	Debris (Grease)
30.2 Ft	Break in Connection 02 o'clock
40.7 Ft	Service Connection 03 o'clock
43.6 Ft	Service Connection 09 o'clock
65.6 Ft	Debris (Grease) [CONTINUING]
101.8 Ft	Roots around Lateral 12 o'clock
102.1 Ft	Break in Connection 12 o'clock
112.4 Ft	Service Connection 03 o'clock
115.3 Ft	Service Connection 09 o'clock
117.2 Ft	Debris (Grease) [CONTINUING]
134.2 Ft	General observation [BLOCKED BY HEAVY GREASE] Survey abandoned

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CCTV pictures of 21 X for Bureau Veritas NA

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: 9.1 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: 85.8 Ft
Obs: Debris (Grease)
Comments:
CONTINUING

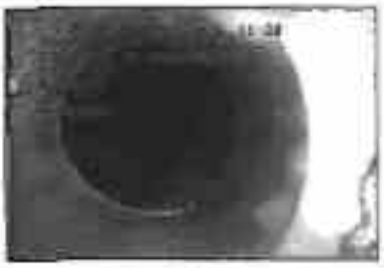
Date: 09/24/2012
Distance: 101.0 Ft
Obs: Visible wound. Lateral
Comments:

CCTV pictures of 21 x for Bureau Veritas NA

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: 132.1 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	**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	**Sched length** Ft	**From** 19	**Depth** Ft
Shape Circular	**Size** 8 **by** Ins	**To** 21	**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					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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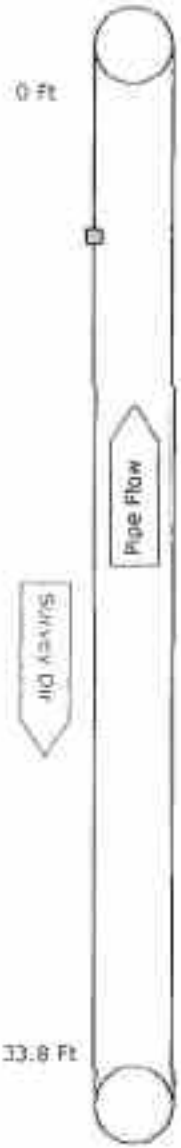
Pipe Graphic Report of PLR 21 X **for** Bureau Veritas NA

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	**From** 19	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 21	**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



0.0 Ft	Start of Survey Manhole/Node [19] Water level 3
6.1 Ft	Service Connection 03 o'clock
8.0 Ft	Debris (Grease)
33.8 Ft	Debris (Grease) General observation [BLOCKED BY GREASE] Survey abandoned

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CCTV pictures of 21 X for Bureau Veritas NA

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: 8.6 Ft
Obs: Debris (Grease)
Comments:

Date: 09/24/2012
Distance: 33.6 Ft
Obs: Debris (Grease)
Comments:

Date: 09/24/2012
Distance: 33.6 Ft
Obs: General observation
Comments:
BLOCKED BY GREASE

Tabular 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	**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**	**Pre-clean** N **Last Cleaned**

General note US MH has no lid. MH as large amount of dirt	Structural Service Construction
Location note	Miscellaneous 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

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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**	Ft	**From** 22	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 21	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note US MH has no lid. MH as large amount of dirt
Location note

Structural Service Constructional
Miscellaneous Hydraulic

0.0 Ft Start of Survey
Manhole/Node [22]
Water level 0
Debris [IN MH]

1.0 Ft Debris [90% OF PIPE AT MH]
General observation [BLOCKED BY DEBRIS]
Survey abandoned

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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:
30% 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	**From** 21 **Depth** Ft
Shape Circular	**Size** 8 **by** ins	**To** 22 **Depth** Ft
Material Vitrified clay	**Joint Spacing** Ft	**Direction** Up
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note	Structural Service Construction
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

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Pipe Graphic Report of PLR 22 X **for** Bureau Veritas NA

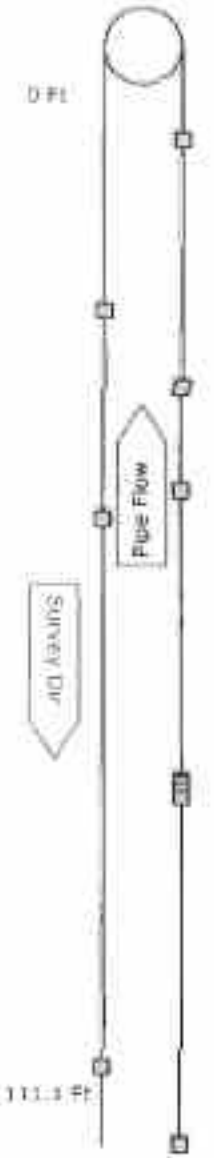
Work Order	**Contract**	**Video**	**Setup** 2
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 08/24/2012
Street Name Fairway Dr	**City** Holtville		
Location type			
Surface			
Survey purpose *Random survey of pipes and things*		**Weather** *Dry*	

Pipe Use	Sanitary	**Schedule length**	Ft	**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

Location note

Structural Service Constructional
Miscellaneous Hydraulic



0.0 Ft	Start of Survey Manhole/Node [21] Water level 0
5.0 Ft	Debris (Grease)
9.4 Ft	Break in Connection 10 o'clock
11.7 Ft	Debris (Grease)
26.6 Ft	Service Connection 03 o'clock
34.5 Ft	Service Connection 09 o'clock [LARGE DEBRIS IN LATERAL]
45.0 Ft	Plugged Connection 09 o'clock
47.8 Ft	Plugged Connection 03 o'clock
53.1 Ft	Debris (Grease) [CONTINUIG]
74.2 Ft	Circular Crack 12 to 12 o'clock
74.6 Ft	Crack longitudinal 10 o'clock
75.3 Ft	Break in Connection 10 o'clock
76.0 Ft	Crack longitudinal 12 o'clock
97.9 Ft	Debris (Grease) [CONTINUING]
103.2 Ft	Service Connection 03 o'Clock
111.1 Ft	Service Connection 09 o'clock

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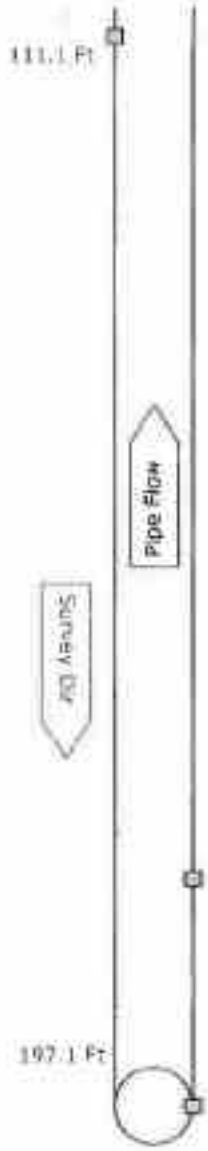
Pipe Graphic Report of PLR 22 X **for** Bureau Veritas NA

Work Order		**Contract**		**Video**	**Setup** 2
Facility		**Operator** NJP		**Van Ref** 10	**Surveyed On** 09/24/2012
Street Name	Fairway Dr	**City**	Hollville		
Location type					
Surface					
Survey purpose	Random survey of pipes and things			**Weather** Dry	
Pipe Use	Sanitary	**Schedule length**	Ft	**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 Constructional
Location note				Miscellaneous	Hydraulic



113.4 Ft Plugged Connection 02 o'clock

179.3 Ft Service Connection 09 o'clock

197.1 Ft Service Connection 09 o'clock
Debris [PIPE 80% FULL OF DIRT]
General observation [BLOCKED BY DEBRIS]
Survey abandoned

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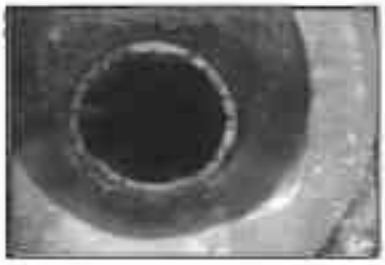
CCTV pictures of 22 X for Bureau Veritas NA

Work Order	Video	Surveyed On [illegible]	Direction Upstream	Setup 2
Street Name Fairway Dr	City Name Holtville		Weather Dry	
Location		From Manhole 21	To Manhole 22	

Date: [illegible]
Distance: 5.0 Ft
Obs: Debris (Grease)
Comments:

Date: [illegible]
Distance: 9.4 Ft
Obs: Snail In Connection
Comments:



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

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

Date: 09/24/2012
Distance: 34.8 Ft
Obs: Service Connection
Comments:
LARGE DEBRIS IN LATERAL

Date: [illegible]
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: 53.1 Ft
Obs: Debris (Grease)
Comments:
CONTINUE

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

Date: 09/24/2012
Distance: 74.8 Ft
Obs: Crack longitudinal
Comments:

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

Date: 09/24/2012
Distance: 76.0 Ft
Obs: Crack longitudinal
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: 87.9 Ft
Obs: Debris (Grease)

Comments:
CONTINUING

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

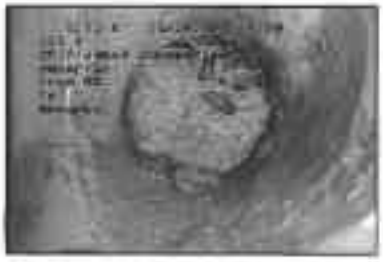
Comments:

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: 187.1 Ft
Obs: Service Connection

Comments:

CCTV pictures of 22 X for Bureau Veritas NA

Work Order		Video	Surveyed On 06/24/2012	Direction Upstream	Setup 2
Street Name Fairway Dr	City Name Holtville		Weather Dry		
Location		From Manhole 21		To Manhole 22	

Date: 06/24/2012
Distance: 197.1 Ft
Dist: Debris

Comments:
PIPE 80% FULL OF DIRT

Tabular Report of PLR 23 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 17
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	**Sched length** Ft	**From** 23	**Depth** Ft
Shape Circular	**Size** 8 **by** **Ins**	**To** 15	**Depth** Ft
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					23
	0.0		WL	Water level				3	
	2.0		DEG	Debris (Deposit)	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

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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** 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	**From** 23	**Depth** Ft
Shape	Circular	**Size** 6	**by** Ins	**To** 15	**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

0.0 Ft Start of Survey
Manhole/Node [23]
Water level 3

2.0 Ft Debris (Grease)
General observation [BLOCKED BY DEBRIS]
Survey abandoned

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Tabular Report of PLR 24 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 16
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	**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 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					24
	0.0		WL	Water level				5	
	18.1		DEG	Debris (Grease)	S				
	46.0		DE	Debris	L				
	103.3		DE	Debris	M				CONTINUING
	126.0		DE	Debris	L				CONTINUING
	158.5		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

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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	**From** 24	**Depth** Ft
Shape	Circular	**Size** 8	**by** Ins	**To** 23	**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

0.0 Ft	Start of Survey Manhole/Node [24] Water level 5
18.1 Ft	Debris (Grease)
45.0 Ft	Debris
103.3 Ft	Debris [CONTINUING]
126.0 Ft	Debris [CONTINUING]
159.5 Ft	Camera Submerged Begin
159.9 Ft	General observation [BLOCKED BY DEBRIS] Survey abandoned

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CCTV pictures of 24 X for Bureau Veritas NA

Work Order	Video	Surveyed On 09/05/2012	Direction Downstream	Setup 18
Street Name Fairway Dr	City Name Holtville		Weather Dry	
Location		From Manhole 24	To Manhole 23	

Date: 09/05/2012
Distance: 18.1 Ft
Obs: Debris (Gravel)

Comments:

Date: 09/05/2012
Distance: 45.0 Ft
Obs: Debris

Comments:

Date: 09/05/2012
Distance: 103.3 Ft
Obs: Debris

Comments:
CONTINUING

Date: 09/05/2012
Distance: 129.0 Ft
Obs: Debris

Comments:
CONTINUING

Tabular Report of PLR 25 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 19
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/26/2012
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** 25 **Depth** **Ft**
Material Vitrified clay	**Joint Spacing** **Ft**	**Direction** Up
Lining	**Year Info**	**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					24
	0.0		WL	Water level				5	
	31.1		DEC	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			
	167.7		CNI	Intruding Lateral	S	12		0010	
	167.8		CB	Break in Connection		12			
	192.8		CP	Plugged Connection		10			
	272.8		CP	Plugged Connection		09			
	283.6		CL	Crack longitudinal	S	12			
	283.6		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		OD	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

PIPE LOGIX

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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** Holtville		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use Sanitary	**Schedule length** Ft	**From** 24 **Depth** Ft
Shape Circular	**Size** 8 **by** ins	**To** 25 **Depth** Ft
Material Vitrified clay	**Joint spacing** Ft	**Direction** Upstream
Lining	**Year laid**	**Pre-clean** N **Last cleaned**

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic

350.1 Ft
Roots from lateral 12 o'clock [LARGE TAP ROOTS]
Break in Connection 12 o'clock
General observation [BLOCKED BY LARGE TAP ROOTS]
Survey abandoned

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Pipe Graphic Report of PLR 25 X for Bureau Veritas NA

Work Order		**Contract**		**Video**	**Setup** 28
Facility		**Operator** NJP		**Van Ref** 10	**Surveyed On** 09/25/2012
Street Name	Anderhoit Rd	**City**	Hotville		
Location type					
Surface					
Survey purpose	Random survey of pipes and things			**Weather** Dry	
Pipe Use	Sanitary	**Schedule length**	Ft	**From** 25	**Depth** Ft
Shape	Circular	**Size** 8 **by**	Ins	**To** 24	**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	

0.0 Ft Start of Survey
Manhole/Node [25]
Water level 3

29.8 Ft Roots at joint [LARGE TAP ROOT]

31.3 Ft Plugged Connection 03 o'clock

31.9 Ft General observation [POSSIBLE BREAK IN CONNECTION]
General observation [REACHED OVERLAP POINT]
Survey abandoned

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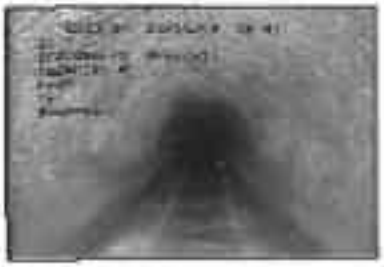
CCTV pictures of 25 X for Bureau Veritas NA

Work Order		Video	Surveyed On 09/25/2012	Direction Upstream	Setup 10
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: 41.3 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: 104.8 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 10
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: 182.8 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: 283.6 Ft
Obs: Crack longitudinal
Comments:

Date: 09/25/2012
Distance: 283.6 Ft
Obs: Intruding Lateral
Comments:

CCTV pictures of 25 X for Bureau Veritas NA

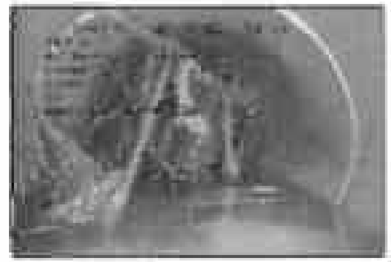
Work Order	Video	Surveyed On 09/25/2012	Direction Upstream	Setup 19
Street Name Fairway Dr	City Name [illegible]		Weather Dry	
Location		From Manhole 24	To Manhole 25	

Date: 09/25/2012
Distance: 353.8 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 50% 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	**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	**Sched length** Ft	**From** 25 **Depth** Ft
Shape Circular	**Size** 6 **by** **ins**	**To** 24 **Depth** Ft
Material Vitrified clay	**Joint Spacing** Ft	**Direction** Down
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note
Location note

Structural Service Constructional
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
	0.0		ST	Start of Survey					
	0.0		MH	Manhole/Node					25
	0.0		WL	Water level				3	
	28.6		RJ	Roots at joint	L				LARGE TAP ROOT
	31.3		CP	Plugged Connection		03			
	31.9		GO	General observation					POSSIBLE BREAK IN CONNECTION
	31.9		GO	General observation					REACHED OVERLAP POINT
	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

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Pipe Graphic Report of PLR 25 X for Bureau Veritas NA

Work Order		**Contract**		**Video**	**Setup** 25
Facility		**Operator** NJP		**Van Ref** 10	**Surveyed On** 08/25/2012
Street Name	Anderholt Rd		**City**	Holmlic	
Location type					
Surface					
Survey purpose	Random survey of pipes and things			**Weather**	Dry
Pipe Use	Sanitary	**Schedule length**	Ft	**From** 25	**Depth** Ft
Shape	Circular	**Size** 8 **by**	Ins	**To** 24	**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

0.0 Ft — Start of Survey
Manhole/Node [25]
Water level 3

29.8 Ft — Roots at joint [LARGE TAP ROOT]

31.3 Ft — Plugged Connection 03 o'clock

31.9 Ft — General observation [POSSIBLE BREAK IN CONNECTION]
31.9 Ft — General observation [REACHED OVERLAP POINT]
Survey abandoned

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CCTV pictures of 25 X for Bureau Veritas NA

Work Order		Video	Surveyed On 08/25/2013	Direction Downstream	Setup 39
Street Name Andanhott Rd	City Name Holtville			Weather Dry	
Location			From Manhole 25	To Manhole 24	

Date: 08/25/2013
Distance: 29.8 Ft
Obs: Roots at joint

Comments:
LARGE TAP ROOT

Date: 08/25/2013
Distance: 31.3 Ft
Obs: Plugged Connection

Comments:

Tabular 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	**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 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					26
	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		03			
	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			
	358.3		CB	Break In Connection		02			
	355.3		CRA	Roots around Lateral	M	03			
	355.3		RJ	Roots at joint	S				TAP ROOTS
	361.5		MH	Manhole/Node					25
	361.5		FH	Finish of Survey					

361.5 Ft **Total Length Surveyed**

Scores

Structural:	**Total** 150	**Mean Defect** 16.7	**Peak** 150	**Mean Pipe** 0.4
Service:	**Total** 366	**Mean Defect** 43.9	**Peak** 150	**Mean Pipe** 1.1

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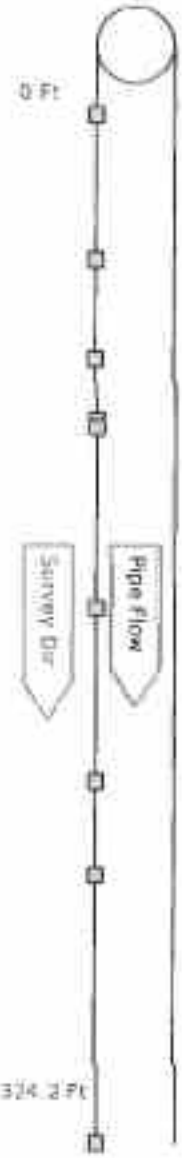
Pipe Graphic Report of PLR 26 X for Bureau Veritas NA

Work Order		**Contract**		**Video**	**Setup** 21
Facility		**Operator** NJP		**Van Ref** 10	**Surveyed On** 09/25/2012
Street Name	Anderholt Rd	**City**	Hahnle		
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	



0.0 Ft	Start of Survey Manhole/Node [26] Water level 3
10.4 Ft	Debris (Grease)
20.4 Ft	Plugged Connection 03 o'clock
63.3 Ft	Break in Connection 03 o'clock
92.7 Ft	Plugged Connection 03 o'clock
111.0 Ft	Crack longitudinal 02 o'clock
112.9 Ft	Break in Connection 02 o'clock
146.5 Ft	Debris (Grease) [CONTINUING]
158.9 Ft	Roots at joint
166.3 Ft	Roots from lateral 03 o'clock Service Connection 03 o'clock
217.5 Ft	Break in Connection 03 o'clock Roots around Lateral 03 o'clock
245.1 Ft	Plugged Connection 03 o'clock
293.0 Ft	Debris (Grease) [CONTINUING]
324.2 Ft	Plugged Connection 03 o'clock

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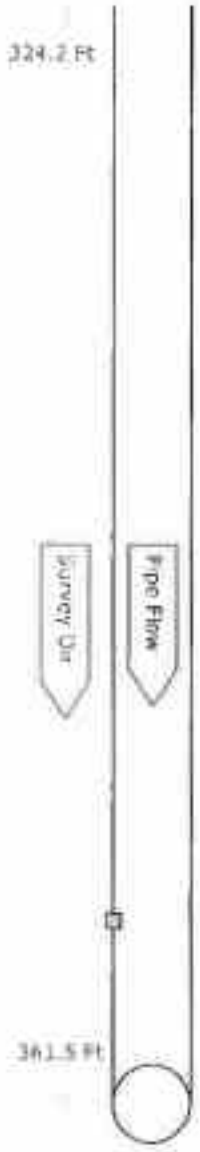
Pipe Graphic Report of PLR 26 X for Bureau Veritas NA

Work Order	**Contract**	**Video**	**Setup** 21
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/25/2012
Street Name Anderholt Rd	**City** Holiville		
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	



324.2 Ft — Break in Connection 02 o'clock
Roots around Lateral 03 o'clock
355.3 Ft — Roots at joint [TAP ROOTS]

361.5 Ft — Manhole/Node [25]
361.5 Ft — Finish of Surveys

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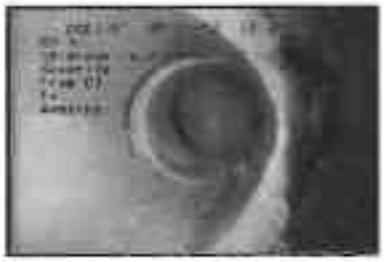
CCTV pictures of 26 X for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 21
Street Name Anderhutt 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:

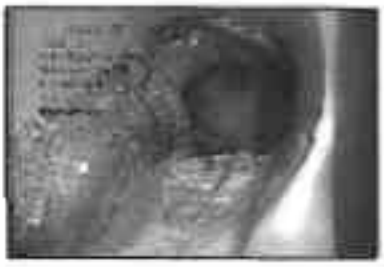
Date: 09/25/2012
Distance: 112.9 Ft
Obs: Break in Connection
Comments:

CCTV pictures of 26 X for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Downstream	Setup 21
Street Name Anderhutt Rd	City Name Hallville		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: 188.3 Ft
Obs: Roots from lateral
Comments:



Date: 09/25/2012
Distance: 196.3 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:

CCTV pictures of 26 X for Bureau Veritas NA

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

Date: 09/25/2012
Distance: 263.0 Ft
Obs: Debris (Grease)

Comments:
CONTINUING

Date: 09/25/2012
Distance: 824.2 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** 18	**Surveyed On** 09/20/2012
Street Name Anderholt Rd		**City** Hollville	
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** 27	**Depth** Ft
Material Vitrified clay	**Joint Spacing** Ft	**Direction** Up	
Lining	**Year laid**	**Pre-clean** N	**Last Cleaned**

General notes

Location notes

Structural Service Construction
Miscellaneous Hydraulic

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
	105.8		CB	Break in Connection		10			
	128.2		CB	Break in Connection		10			
	164.2		CB	Break in Connection		10			
	164.3		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 Survey					

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** 79	**Mean Pipe** 0.5

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Pipe Graphic Report of PLR 27 X for Bureau Veritas NA

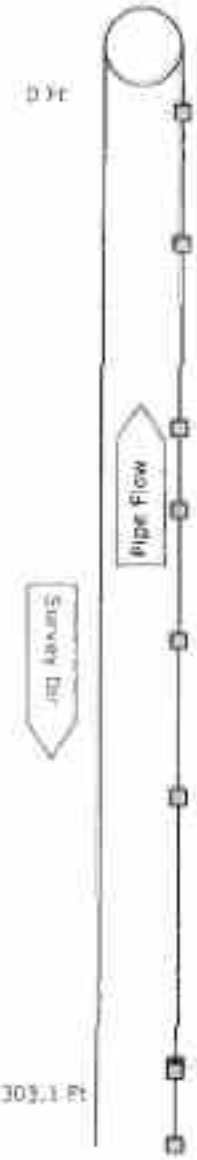
Work Order	**Contract**	**Video**	**Setup** 20
Facility	**Operator** N.P	**Van Ref** 10	**Surveyed On** 09/26/2012

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** 27	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction**	Upstream
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note
Location note

Structural Service Constructional
Miscellaneous Hydraulic



0.0 Ft	Start of Survey Manhole/Node (26) Water level 3
14.7 Ft	Debris (Grease)
17.8 Ft	Crack longitudinal 10 o'clock
18.2 Ft	Break in Connection 10 o'clock
54.5 Ft	Plugged Connection 10 o'clock
61.3 Ft	Debris (Grease) [CONTINUING]
105.6 Ft	Break in Connection 10 o'clock
128.2 Ft	Break in Connection 10 o'clock
164.2 Ft	Break in Connection 10 o'clock
164.3 Ft	Roots at joint
207.4 Ft	Plugged Connection 10 o'clock
261.1 Ft	Plugged Connection 09 o'clock
281.9 Ft	Crack longitudinal 10 o'clock
282.4 Ft	Cracks multiple 12 to 12 o'clock
282.8 Ft	Break in Connection 10 o'clock
303.1 Ft	Crack longitudinal 10 o'clock

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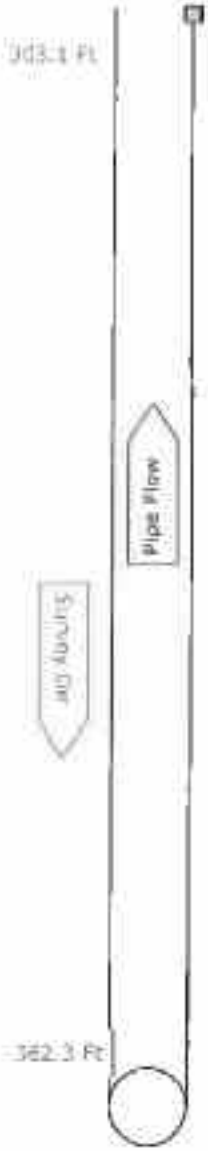
Pipe Graphic Report of PLR 27 X for Bureau Veritas NA

Work Order	**Contract**	**Video**	**Setup** 20
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/26/2012
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** 25	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 27	**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	



303.1 Ft

303.5 Ft Break in Connection 10 o'clock

362.3 Ft

362.3 Ft Manhole/Node [27]
Finish of Surveys

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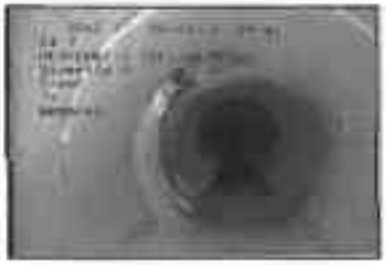
CCTV pictures of 27 X for Bureau Veritas NA

Work Order	Video	Surveyed On 09/25/2012	Direction Upstream	Setup 20
Street Name Andorhoft 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: 17.8 Ft
Obs: Crack longitudinal

Comments:

Date: 09/25/2012
Distance: 16.2 Ft
Obs: Break in Connection

Comments:

Date: 09/25/2012
Distance: 54.6 Ft
Obs: Plugged Connection

Comments:

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

Comments:
CONTINUING

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

Comments:

CCTV pictures of 27 X for Bureau Veritas NA

Work Order		Video	Surveyed On [redacted]	Direction Upstream	Setup 20
Street Name Andershot Rd	City Name Holtville			Weather Dry	
Location		From Manhole 26		To Manhole 27	

Date: 09/25/2012
Distance: 126.2 Ft
Obs: Break In Connection
Comments:

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

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

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

Date: 09/25/2012
Distance: 261.1 Ft
Obs: Plugged Connection
Comments:

Date: 09/25/2012
Distance: 281.6 Ft
Obs: Crack longitudinal
Comments:

CCTV pictures of 27 X for Bureau Veritas NA

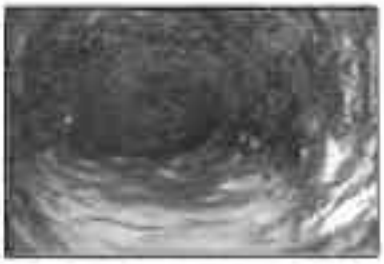
Work Order		Video	Surveyed On [illegible]	Direction Upstream	Setup 20
Street Name Anderholt Rd	City Name Holtville		Weather Dry	
Location		From Manhole 26	To Manhole 27	

Date: [illegible]
Distance: 282.4 Ft
Obs: Cracks multiple

Comments:

Date: [illegible]
Distance: 282.6 Ft
Obs: Break in Connection

Comments:



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

Comments:

Date: 09/25/2012
Distance: 303.6 Ft
Obs: Break in Connection

Comments:

Tabular Report of PLR 28 A for Bureau Veritas NA

Work Order	**Contract**	**Video**	**Setup** 35
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 09/27/2012
Street Name Barbara Worth Rd		**City** Hohville	
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 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				0	
	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	**Contract**	**Video**	**Setup** 37
Facility	**Operator** NJP	**Van Ref** 10	**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
Location note

Structural Service Constructional
Miscellaneous Hydraulic

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	**Contract**	**Video**	**Setup** 38
Facility	**Operator** NJP	**Ven Ref** 10	**Surveyed On** 09/27/2012

Street Name Barbara Worth Rd **City** Hotville
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.
Location note

Structural Service Constructions
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	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**

Tabular Report of PLR 31 A **for** Bureau Veritas NA

Work Order	**Contract**	**Video**	**Setup** 38
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 06/27/2012

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** 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 Crested survey. Could not attempt line.
Location note

Structural Service Constructional
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
	0.0		ST	Start of Survey					
	0.0		MH	Manhole/Node					31
	0.0		WL	Water level				0	
	0.0		GO	General observation					US MH NOT FOUND
	0.0		GO	General observation					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**

Tabular Report of PLR 32 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 29
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	**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 Constructional
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			
	98.7		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

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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** 09/26/2012
Street Name Country Club Dr	**City** Hollville		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

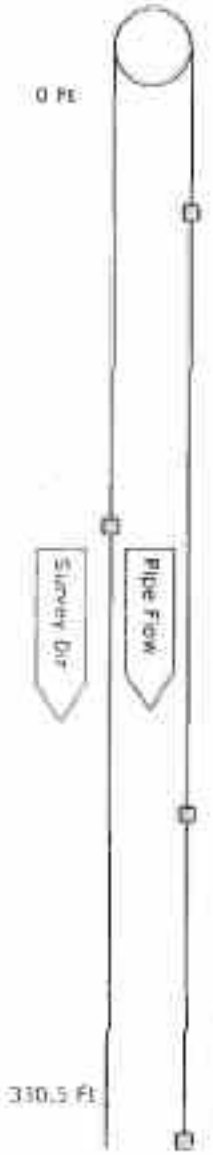
Pipe Use	Sanitary	**Schedule length** Ft	**From** 32	**Depth**	Ft
Shape	Circular	**Size** 6 **by** ins	**To** 31	**Depth**	Ft
Material	Vitrified clay	**Joint spacing** Ft	**Direction** Downstream		
Lining		**Year laid**	**Pre-clean** N	**Last cleaned**	

General note

Location note

Structural Service Constructional

Miscellaneous Hydraulic



0.0 Ft	Manhole/Node [32] Water level 5
2.1 Ft	Roots at joint
50.1 Ft	Roots at joint Service Connection 12 o'clock
89.7 Ft	Roots at joint
105.9 Ft	Roots at joint
118.1 Ft	Roots at joint
124.2 Ft	Roots at joint [CONTINUING]
148.2 Ft	Service Connection 01 o'clock
170.8 Ft	Debris (Grease)
231.3 Ft	Service Connection 12 o'clock
297.2 Ft	Begin Pipe Sag
307.0 Ft	End pipe sag
328.9 Ft	Service Connection 12 o'clock
329.9 Ft	Bend in pipe left
330.4 Ft	General observation [BEND TOO TIGHT FOR TRACTOR]
330.5 Ft	General observation [DS MH NOT FOUND. NO ACCESS FOR US ATTEMPT]

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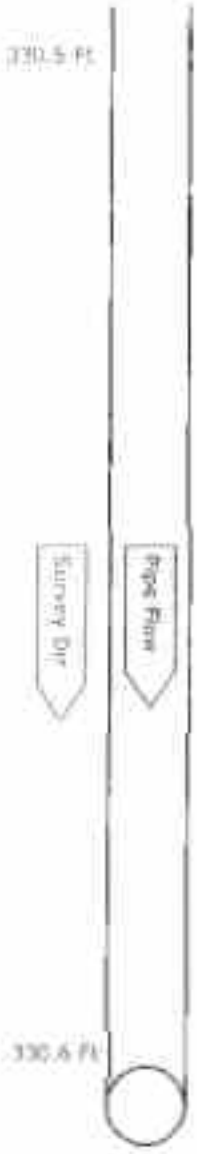
Pipe Graphic Report of PLR 32 X for Bureau Veritas NA

Work Order	Contract	Video	Setup 29
Facility	Operator NJP	Van Ref 10	Surveyed On 08/28/2012
Street Name Country Club Dr	City Hobbs		
Location type			
Surface			
Survey purpose Random survey of pipes and things		Weather Dry	

Pipe Use Sanitary	Schedule length Ft	From 32 Depth Ft
Shape Circular	Size 8 by Ins	To 23 Depth Ft
Material Vitrified clay	Joint spacing Ft	Direction Downstream
Lining	Year laid	Pre-clean N Last cleaned

General note	Structural Service Construction
Location note	Miscellaneous Hydraulic



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CCTV pictures of 32 X for Bureau Veritas NA

Work Order		Video	Surveyed On 09/25/2012	Direction Downstream	Setup 29
Street Name Country Club Dr	City Name Holtville		Weather Dry		
Location		From Manhole 32		To Manhole 31	

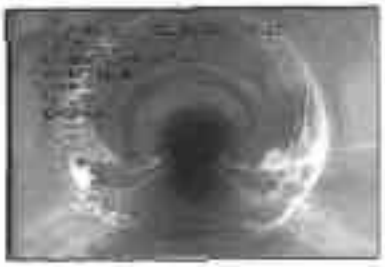
Date: 09/25/2012
Distance: 2.1 Ft
Obs: Roots at joint
Comments:

Date: 09/25/2012
Distance: 50.1 Ft
Obs: Roots at joint
Comments:

Date: 09/25/2012
Distance: 93.1 Ft
Obs: Service Connection
Comments:

Date: 09/25/2012
Distance: 99.7 Ft
Obs: Roots at joint
Comments:

Date: 09/25/2012
Distance: 106.9 Ft
Obs: Roots at joint
Comments:



Date: 09/25/2012
Distance: 116.1 Ft
Obs: Roots at joint
Comments:

CCTV pictures of 32 X for Bureau Veritas NA

Work Order		Video	Surveyed On [redacted]	Direction Downstream	Setup 29
Street Name Country Club Dr	City Name Holtsville		Weather Dry		
Location			From Manhole 32	To Manhole 31	

Date: [redacted]
Distance: 124.2 Ft
Obs: Roots at joint

Comments:
CONTINUING

Date: [redacted]
Distance: 144.2 Ft
Obs: Service Connection

Comments:

Date: [redacted]
Distance: 170.6 Ft
Obs: Debris (Grease)

Comments:

Date: [redacted]
Distance: 221.3 Ft
Obs: Service Connection

Comments:

Date: [redacted]
Distance: 297.2 Ft
Obs: Begin Pipe Sag

Comments:

Date: [redacted]
Distance: 328.0 Ft
Obs: Service Connection

Comments:

CCTV pictures of 32 X for Bureau Veritas NA

Work Order		Video	Surveyed On 09/28/2012	Direction Downstream	Setup 20
Street Name Country Club Dr	City Name Holtville			Weather Dry	
Location			From Manhole 32	To Manhole 31	

Date: 09/28/2012
Distance: 329.9 Ft
Obs: Bend in pipe left

Comments:

Tabular Report of PLR 33 A **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 36
Facility	**Operator** NJP	**Van Ref** 10	**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	**Schad length** Ft	**From** 33 **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 Inc.
Location note

Structural Service Constructional
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**

Tabular Report of PLR 06 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 42
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 10/26/2012
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**04 **Depth** Ft
Shape Circular	**Size** 10 **by** Ina	**To** 06 **Depth** Ft
Material Polyvinly chloride	**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		MH	Manhole/Node					04
	0.0		WL	Water level				5	
	0.0		DS	Begin Pipe Seg					
	0.0		CUB	Camera Submerged Begin					
	1.7		ST	Start of Survey					
	5.1		DE	Debris	L				
	20.0		CUE	Camera Submerged Begin					
	56.6		DF	End pipe seg					
	91.2		LR	Bend in pipe right					
	91.5		OD	General observation					BLOCKED BY TIGHT BEND
	91.5		BA	Survey abandoned					

91.5 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 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** Hollrille		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	
Pipe Use Sanitary	**Schedule length** Ft	**From** 04	**Depth** Ft
Shape Circular	**Size** 10 **by** ins	**To** 06	**Depth** Ft
Material Polyvinly chloride	**Joint spacing** Ft	**Direction** Upstream	
Lining	**Year laid**	**Pre-clean** N **Last cleaned**	
General note		Structural Service Constructional	
Location note		Miscellaneous Hydraulic	

0.0 Ft	Manhole/Node [04] Water level 5 Begin Pipe Sag Camera Submerged Begin
1.7 Ft	Start of Survey
5.1 Ft	Debris
20.0 Ft	Camera Submerged begin
56.6 Ft	End pipe sag
91.2 Ft	Bend in pipe right
91.5 Ft	General observation [BLOCKED BY TIGHT BEND] Survey abandoned

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Tabular 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	**Sched length** Ft	**From** D6 **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
Location note

Structural Service Construction
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
	0.0		ST	Start of Survey					
	0.0		MH	Manhole/Node					D6
	0.0		WL	Water level				3	
	75.7		OS	Begin Pipe Sag					
	105.3		CUS	Camera Submerged Begin					
	174.9		CUE	Camera Submerged End					
	197.4		OF	End pipe sag					6-8 Depth Change
	268.4		MH	Manhole/Node					07
	268.4		PH	Finish of Survey					

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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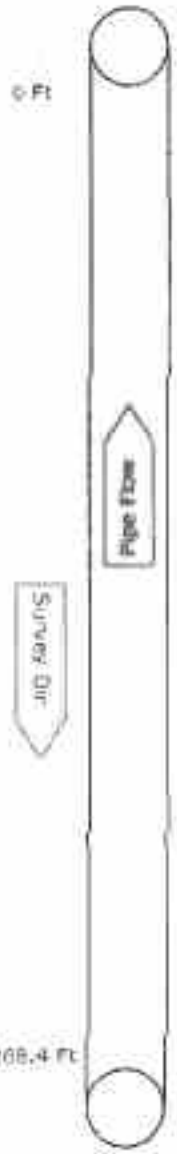
Pipe Graphic Report of PLR 07 X for Bureau Veritas NA

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	**From**	06	**Depth**	Ft
Shape	Circular	**Size**	10 **by** ins	**To**	07	**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	



0.0 Ft	Start of Survey Manhole/Node [06] Water level 5
75.7 Ft	Begin Pipe Seg
105.3 Ft	Camera Submerged Begin
174.9 Ft	Camera Submergoff End
197.4 Ft	End pipe seg [6-8" Depth Change]
268.4 Ft	Manhole/Node [07] Finish of Surveys

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Tabular 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** Holmdel
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
Location note

Structural Service Constructional
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	
	18.1		DEG	Debris (Grease)	B	12			
	88.6		DS	Begin Pipe Seg					
	88.6		GO	General observation					Camera going submerged, end o
	88.6		SA	Survey abandoned					

88.6 Ft **Total Length Surveyed**

Scores

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

Pipe Graphic Report of PLR 07 X **for** Bursau 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**	Hollville
Location type			
Surface			
Survey purpose	Random survey of pipes and things	**Weather**	Dry

Pipe Use	Sanitary	**Schedule length**	Ft	**From** 07	**Depth** Ft
Shape	Circular	**Size** 10 **by**	ins	**To** 08	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic

0.0 Ft	Start of Survey Manhole/Node [07] Water level 5
18.1 Ft	Debris (Grease) 12 o'clock
66.6 Ft	Begin Pipe Sag
88.6 Ft	General observation [Camera going submerged, end point] Survey abandoned

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Tabular Report of PLR 11 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 45
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 10/26/2012

Street Name Barbara Worth Dr **City** Hollville
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
Location note

Structural Service Combination
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	
	7.0		JD	Joint Displaced	M				
	103.4		DE	Debris	L				1/2 Pipe full of grease
	103.4		DFG	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**

Pipe Graphic Report of PLR 11 X for Bureau Veritas NA

Work Order	**Contract**	**Video**	**Setup** 46
Facility	**Operator** NJF	**Van Ref** 10	**Surveyed On** 10/25/2012
Street Name Barbara Worth Dr	**City** Hohtille		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use	Sanitary	**Schedule length** Ft	**From** 07	**Depth** Ft	
Shape	Circular	**Size** 6 **by** Ins	**To** 11	**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	

0.0 Ft	Start of Survey Manhole/Node [07] Water level: 5
7.0 Ft	Joint Displaced
103.4 Ft	Debris [1/2 Pipe full of grease] Debris (Grease) General observation [Blocked by grease] Survey abandoned

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Tabular Report of PLR 11 X **for Bureau Veritas NA**

Work Order	**Contract**	**Video**	**Setup** 46
Facility	**Operator** NJT	**Van Ref** 10	**Surveyed On** 10/26/2012
Street Name Barbara Worth Dr		**City** Hohlle	
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 Construction
Location note		Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
	0.0		WL	Water level				5	
	0.0		BT	Begin of Survey					
	0.0		MH	Manhole/Node					07
	7.0		JD	Joint Displaced	M				
	84.2		CC	Circular Crack	S	12	12		
	84.7		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 Survey					

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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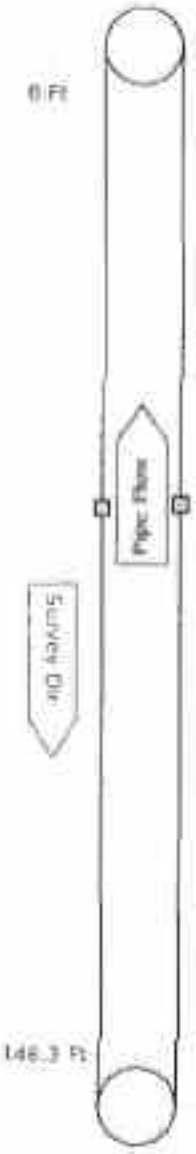
Pipe Graphic Report of PLR 11 X for Bureau Veritas NA

Work Order		**Contract**		**Video**	**Setup** 48
Facility		**Operator** NJF		**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	**From** 07	**Depth** Ft
Shape	Circular	**Size** 8 **by**	Ins	**To** 11	**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



Water level 5
0.0 Ft Start of Survey
Manhole/Node [07]

7.0 Ft Joint Displaced

64.2 Ft Circular Crack 12 to 12 o'clock

64.7 Ft Hole in sewer 02 o'clock

148.3 Ft General observation [LARGE DEBRIS/GREASE IN US MH]
Manhole/Node [11]
Finish of Surveys

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Tabular Report of PLR 08 X for Bureau Veritas NA

Work Order	Contract	Video	Setup 47
Facility	Operator N.P	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 fittings		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				
	4.3		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

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	**From** 07	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 08	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note
Location note

Structural | Service | Construction
Miscellaneous | Hydraulic

0.0 Ft Start of Survey
Manhole/Node [07]
Water level 5

1.0 Ft Debris (Grease)

4.0 Ft Debris [CONTINUES]
General observation [BLOCKED BY DEBRIS]
Survey abandoned

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Tabular Report of PLR 08 X for Bureau Veritas NA

Work Order	Contract	Video	Setup 40
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 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
Location note

Structural Service Constructional
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		FH	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

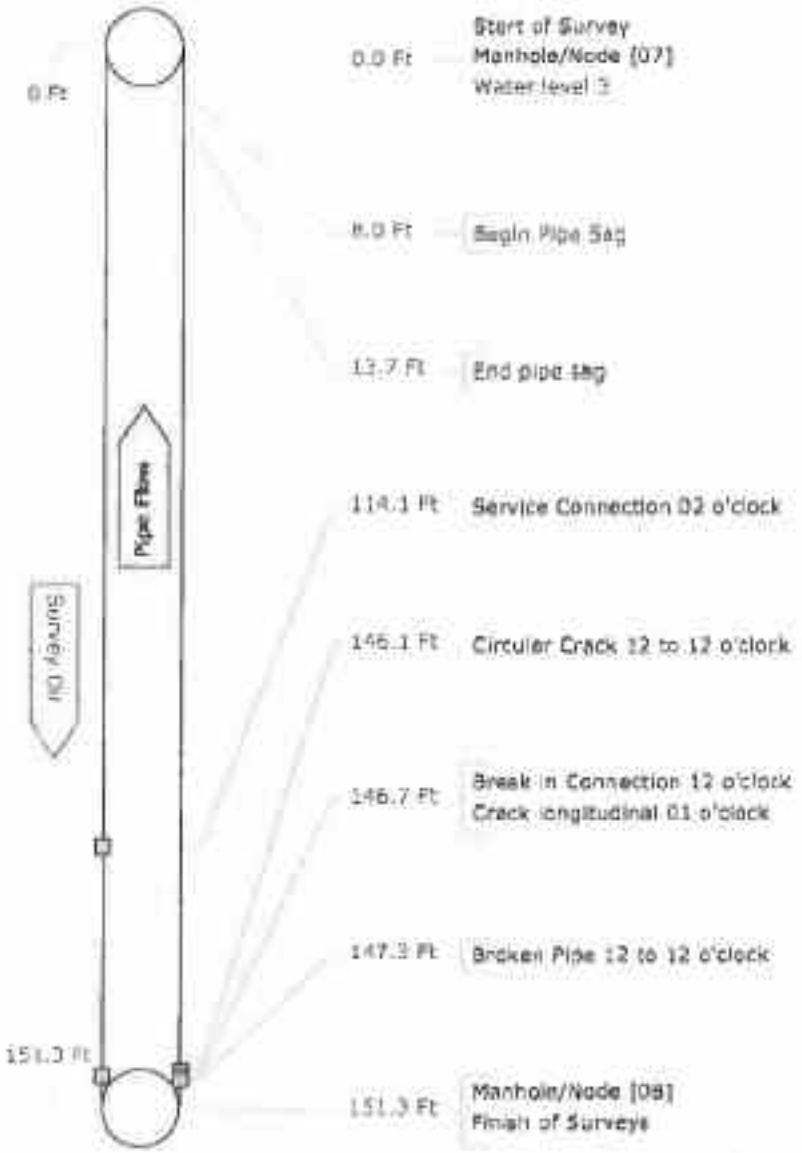
Work Order	**Contract**	**Video**	**Setup** 48
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 10/25/2012
Street Name Barbara Worth Rd	**City** Hollville		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use	Sanitary	**Schedule length**	Ft	**From** 07	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 08	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic



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Tabular 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	Sched length Ft	From 28	Depth Ft
Shape Circular	Size 8 by ins	To 29	Depth Ft
Material Vitrified clay	Joint Spacing Ft	Direction Up	
Lining	Year laid	Pre-clean N	Last Cleaned

General note
Location note

Structural Service Constructional
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				3	
	105.6		CP	Plugged Connection		03			
	192.8		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			
	316.6		DE	Debris	L				
	325.0		CB	Break In Connection		02			
	339.6		CP	Plugged Connection		03			
	366.6		MH	Manhole/Node					29
	366.6		FN	Finish of Survey					

366.6 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 29 X for Bureau Veritas NA

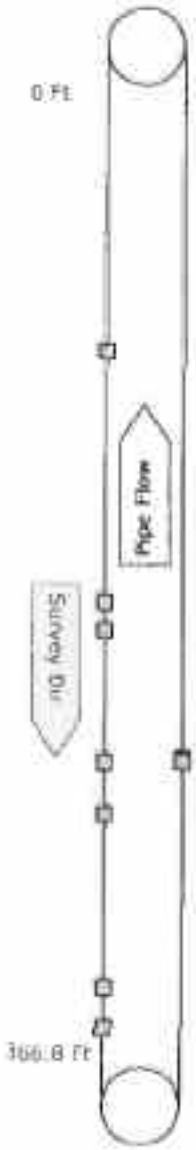
Work Order	**Contract**	**Video**	**Setup** 49
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 10/25/2012
Street Name Barbara Worth Rd	**City** Holmdel		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use	Sanitary	**Schedule length**	Ft	**From** 28	**Depth** Ft
Shape	Circular	**Size** 8 **by**	ins	**To** 29	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic



0.0 Ft	Start of Survey Manhole/Node [28] Water level 3
109.6 Ft	Plugged Connection 03 o'clock
192.6 Ft	Plugged Connection 03 o'clock
202.4 Ft	Break in Connection 02 o'clock
247.3 Ft	Circular Crack 12 to 12 o'clock
248.1 Ft	Break in Connection 12 o'clock Crack longitudinal 01 o'clock
253.5 Ft	Joint displaced
266.0 Ft	Plugged Connection 03 o'clock
318.6 Ft	Debris
325.9 Ft	Break in Connection 02 o'clock
339.6 Ft	Plugged Connection 03 o'clock
366.8 Ft	Manhole/Node [29] Finish of Surveys

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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 Hollvile	
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 Constructional	
Location note		Maintenance Hydraulic	

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				5	
	35.8		CB	Break in Connection		02			
	50.2		CP	Plugged Connection		03			
	81.4		CB	Break in Connection		03			
	124.1		CP	Plugged Connection		02			
	157.0		CB	Break in Connection		03			
	197.6		CP	Plugged Connection		03			
	270.7		CB	Break in Connection		03			
	276.7		CP	Plugged Connection		03			
	327.8		CN	Service Connection		02			
	339.7		CN	Service Connection		02			
	359.3		MH	Manhole/Node					30
	359.3		FH	Finish of Survey					

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

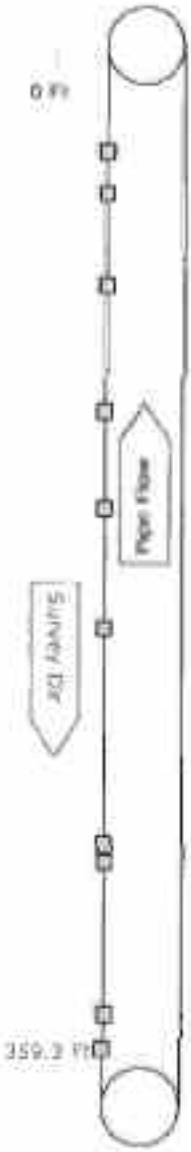
Work Order	**Contract**	**Video**	**Setup** 50
Facility	**Operator** NJP	**Van Ref** 10	**Surveyed On** 10/25/2012
Street Name Barbara Worth Rd	**City** Holtville		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use	Sanitary	**Schedule length**	Ft	**From** 29	**Depth** Ft
Shape	Circular	**Size** 8 **by**	Ins	**To** 30	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Upstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note

Location note

Structural Service Constructional
Miscellaneous Hydraulic



0.0 Ft	**Start of Survey** Manhole/Node [29] Water level 5
35.8 Ft	Break in Connection 02 o'clock
50.2 Ft	Plugged Connection 03 o'clock
81.4 Ft	Break in Connection 03 o'clock
124.1 Ft	Plugged Connection 02 o'clock
157.0 Ft	Break in Connection 03 o'clock
197.6 Ft	Plugged Connection 03 o'clock
270.7 Ft	Break in Connection 02 o'clock
276.7 Ft	Plugged Connection 03 o'clock
327.8 Ft	Service Connection 02 o'clock
339.7 Ft	Service Connection 02 o'clock
359.3 Ft	Manhole/Node [30] Finish of Survey

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Tabular 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** Hotville
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** 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
Location note

Structural Service Construction
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	
	58.0		CN	Service Connection		10			
	176.0		DE	Debris	M				DEBRIS AND GREASE
	150.0		GO	General observation					CAMERA STOPPED PUSHING
	150.0		GO	General observation					PULL CAMERA BACK TO START
	150.0		SA	Survey abandoned					END AT 0 FOOT

150.0 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** Holtville		
Location type			
Surface			
Survey purpose Random survey of pipes and things		**Weather** Dry	

Pipe Use	Sanitary	**Schedule length** Ft	**From** 28	**Depth**	Ft
Shape	Circular	**Size** 4 **by** Ins	**To** 33	**Depth**	Ft
Material	Vitrified clay	**Joint spacing** Ft	**Direction** Upstream		
Lining		**Year laid**	**Pre-clean** N	**Last cleaned**	

General note RAN WITH PUSH CAMERA
Location note

Structural | Service | Constructional
Miscellaneous | Hydraulic

0.0 Ft	Start of Survey Manhole/Node [28] Water level 5
59.0 Ft	Service Connection 10 o'clock
178.0 Ft	Debris [DEBRIS AND GREASE]
180.0 Ft	General observation [CAMERA STOPPED PUISHING] General observation [PULL CAMERA BACK TO START] Survey abandoned [END AT 0 FOOT]

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FORCE MAIN

Tabular 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 Howes Hwy **City** Holtville
Location type
Surface
Survey purpose Random survey of pipes and things **Weather** Dry

Pipe Use Sanitary	**Scled length** Ft	**From** PUMP STATION 01 **Depth** Ft
Shape Circular	**Size** 4 **by** Ins	**To** NORTH **Depth** Ft
Material Polyvinly chloride	**Joint Spacing** Ft	**Direction** Down
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note Valve removed for camera access
Location note Line is a force main

Structural Service Constructional
Miscellaneous Hydraulic

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	**From** PUMP STATION 01	**Depth** Ft
Shape	Circular	**Size** 4 **by**	ins	**To** NORTH	**Depth** Ft
Material	Polyvinly chloride	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**
General note	Valve removed for camera access			Structural	Service Constructional
Location note	Line is a force main			Miscelaneous	Hydraulic

0.0 Ft	Start of Survey Manhole/Node [PUMP STATION 01] Water level 0
2.0 Ft	Bend in pipe down [90 degrees bend above surface]
6.0 Ft	Camera Submerged Begin [At Second 90 degree bend]
43.0 Ft	Camera Submerged End
68.0 Ft	Camera Submerged Begin
95.0 Ft	Camera Submerged End General observation [Losing push on camera due to two 90 degree bends]
100.0 Ft	General observation [Lost push on camera] Survey abandoned

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

FORCE MAIN

Tabular 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 Even Hewes Hwy **City** Holtville
Location type
Surface
Survey purpose Random survey of pipes and things **Weather** Dry

Pipe Use Sanitary	**Sched length** Ft	**From**NORTH **Depth** Ft
Shape Circular	**Size** 4 **by** Ins	**To** PUMP STATION 01 **Depth** Ft
Material Polyvinly chloride	**Joint Spacing** Ft	**Direction** Up
Lining	**Year laid**	**Pre-clean** Y **Last Cleaned** 9/25/2012

General note Reverse setup attempted for maximum length of
Location note inspection

Structural Service Constructional
Miscellaneous Hydraulic

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

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

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

0.0 Ft	Start of Survey Manhole/Node [NORTH] Water level 0.0
21.0 Ft	Camera Submerged Begin
33.0 Ft	Camera Submerged End
99.0 Ft	Camera Submerged Begin
132.0 Ft	Camera Submerged End
315.0 Ft	General observation [Started video at 315ft] Survey abandoned [Completed video at 0ft at DS MH]

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Fax: 760-406-6023

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Tabular 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** Hollville
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 ~~Vitrified clay~~ PVC	**Joint Spacing** Ft	**Direction** Down
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note RAN WITH PUSH CAMERA
Location note

Structural Service Construction
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
	0.0		BT	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		CUS	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

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

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	**From** OPEN PIT	**Depth** Ft
Shape	Circular	**Size** 4 **by**	ins	**To** TO NORTH	**Depth** Ft
Material	Vitrified clay	**Joint spacing**	Ft	**Direction** Downstream	
Lining		**Year laid**		**Pre-clean** N	**Last cleaned**

General note RAN WITH PUSH CAMERA
Location note

Structural Service Constructional
Miscellaneous Hydraulic

0.0 Ft	Start of Survey Manhole/Node [OPEN PIT] Water level 0 General observation [END IN PIT]
64.0 Ft	Camera Submerged End
165.0 Ft	Camera Submerged End
196.0 Ft	Camera Submerged End Debris [DEBRIS AND GREASE]
218.0 Ft	Debris [UNDER FLOW]
298.0 Ft	Bend in pipe left Camera Submerged Begin
308.0 Ft	General observation [END OF CABLE] General observation [START OF RUN] Survey abandoned

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Fax: 760-406-6023

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Tabular 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	**Sched length** Ft	**From** OPEN PIT **Depth** Ft
Shape Circular	**Size** 4 **by** Ins	**To** TO PUMP STATION **Depth** Ft
Material ~~Unspecified~~ PVC	**Joint Spacing** Ft	**Direction** Up
Lining	**Year laid**	**Pre-clean** N **Last Cleaned**

General note RAN WITH PUSH CAMERA
Location note

Structural Service Constructional
Miscellaneous Hydraulic

Video	Count	CD	Code		Sev	Fr	To	Value	Remarks
	0.0		BT	Start of Survey					
	0.0		MH	Manhole/Node					OPEN PIT
	0.0		WL	Water level				0	
	24.0		CUE	Camera Submerged End					
	59.0		CUB	Camera Submerged Begin					
	72.0		CUE	Camera Submerged End					
	179.0		GO	General observation					START OF RUN
	178.0		CUB	Camera Submerged Begin					
	178.0		GO	General observation					END OF RUN AT PIT
	178.0		SA	Survey abandoned					

178.0 Ft **Total Length Surveyed**

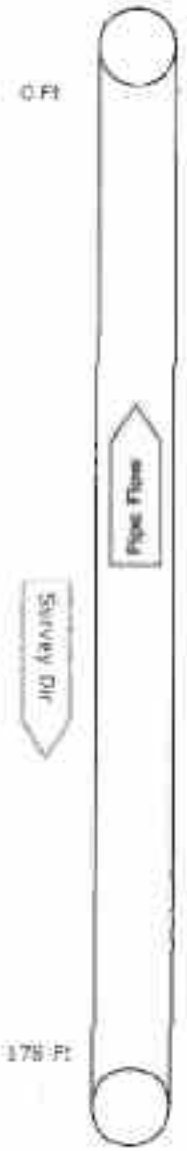
Scores

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

PIPELOGIX
PipeLogix Inc.
Phone: 866-299-3160
Fax: 760-406-6023

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	**From** OPEN PIT	**Depth** Ft
Shape Circular	**Size** 4 **by** ins	**To** TO PUMP STATION	**Depth** Ft
Material Vitrified clay	**Joint spacing** Ft	**Direction** Upstream	
Lining	**Year laid**	**Pre-clean** N	**Last cleaned**
General note RAN WITH PUSH CAMERA		Structural Service Constructional	
Location note		Miscellaneous Hydraulic	



0.0 Ft	Start of Survey Manhole/Node [OPEN PIT] Water level 0
24.0 Ft	Camera Submerged End
58.0 Ft	Camera Submerged Begin
72.0 Ft	Camera Submerged End
178.0 Ft	General observation [START OF RUN] Camera Submerged Begin General observation [END OF RUN AT PIT] Survey abandoned

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

Exhibit B – Colorado River Basin Regional Water Quality Control Board – NOTICE OF VIOLATION, Barbara Worth Country Club Collection System, October 5, 2021

CALIFORNIA
Water Boards

GAVIN NEWSOM
GOVERNOR

JARED BLUMENFELD
SECRETARY FOR
ENVIRONMENTAL PROTECTION

Colorado River Basin Regional Water Quality Control Board

Certified Mail: 7018 1830 0001 0265 0484

October 5, 2021

John Gay
Director of Public Works
Imperial County
155 S. 11th Street
El Centro, CA 92243
JohnGay@co.imperial.ca.us

SUBJECT: NOTICE OF VIOLATION, BARBARA WORTH COUNTRY CLUB COLLECTION SYSTEM, HOLTVILLE, IMPERIAL COUNTY

Dear Mr. Gay:

The California Regional Water Quality Control Board, Colorado River Basin Region (Regional Water Board), is the public agency with primary responsibility for the protection of ground and surface water quality for all beneficial uses within Imperial County (County) as well as portions of Riverside, San Diego and San Bernardino County, including the referenced property above.

On February 1, 2021 at approximately 1:30 p.m., Joseph Lechuga of Percwater notified the Regional Water Board of a Sanitary Sewer Overflow (SSO) event at Barbara Worth Country Club Force Main south of Zen Drive near 2050 Country Club Drive, Holtville, CA 92250. The total volume of the spill was reported to be 36,000 gallons, with all the sewage percolating into the ground.

On a separate event, April 21, 2021 at approximately 12:34 p.m. Joseph Lechuga of Percwater notified the Regional Water Board of a SSO event at Barbara Worth Country Club Force Main south of Zen Drive near 2050 Country Club Drive, Holtville, CA 92250. The total volume of the spill was reported to be 30,000 gallons, with all the sewage washed away into the drain ditch.

YOU ARE HEREBY NOTIFIED that the discharge violated the California Water Code (CWC) section 13350 as follows:

- Discharge of untreated sewage into Waters of the United States

The County is required to comply with the following tasks:

1. Immediately implement corrective and preventive actions to prevent further discharge of untreated sewage from the collection system, and

2. In accordance to Order No. 2006-0003-DWQ, the enrollee must develop and implement a system-specific Sewer System Management Plan (SSMP). Please provide the SSMP for the Barbara Worth sewer system to the Regional Water Board by November 1, 2021.

Pursuant to CWC section 13350(e), you are subject to penalties of up to $5,000 for each day in which the violation occurs or $10 for each gallon of waste discharged, but not both, for the violation listed above. These administrative civil liabilities may be assessed by the Regional Water Board beginning with the date that the violations first occurred and without further warning. This matter may be referred to the Office of the Attorney General for further enforcement. The Regional Water Board reserves its right to take any further enforcement action authorized by law.

If you have any questions concerning this matter, please contact Reggie Tan at (760) 776-8944 (reginald.tan@waterboards.ca.gov), or Jose Cortez at (760) 776-8963 (jose.cortez@waterboards.ca.gov)

Sincerely,

Cassandra D. Owens

Cassandra Owens
Assistant Executive Officer
Colorado River Basin
Regional Water Quality Control Board

RT/jc

Enclosure: General Order 2006-0003-DWQ

cc: Joseph Lechuga, Percwater, jlechuga@percwater.com
Frank Cornejo, City of Holtville, fcornejo@holtville.ca.gov
Jeff Lamoure, Imperial County Department of Environmental Health, jefflamoure@co.imperial.ca.us
Alphonso Andrade, Imperial County Department of Environmental Health, AlphonsoAndrade@co.imperial.ca.us
Afrooz Farsimadan, State Water Board, Afrooz.Farsimadan@waterboards.ca.gov