ENGINEERING REPORT

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Storm Sewer Rehabilitation IRM
Former Inland Fisher Guide Facility
Syracuse, New York
(Site No. 7-34-057)

General Motors Corporation
Syracuse, New York

October 2002

O'BRIEN & GERE
ENGINEERS, INC.

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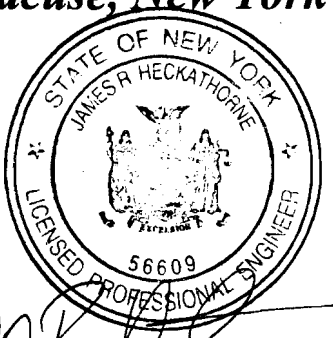

James R. Heckathorne, P.E.
Vice President

October 2002

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1. Introduction

1.1. Project review

The General Motors Corporation (GM) and the New York State NYSDEC of Environmental Conservation (NYSDEC) entered into an Administrative Order on Consent (Index # D-7-0001-97-06; Order) on September 25, 1997 for the development and implementation of a Remedial Investigation/Feasibility Study (RI/FS) at the Former Inland Fisher Guide (IFG) Facility and the Ley Creek Deferred Media (collectively designated the site) located at 1 General Motors Drive in the Town of Salina, Onondaga County, New York. In addition to requiring an RI/FS, the Order included a State Pollutant Discharge Elimination System (SPDES) permit that provided interim and final discharge limits for Outfalls 003, 03B, 004, and 04I. Final discharge limits were scheduled to be effective on September 25, 2000, but NYSDEC and GM agreed on an extension until December 2002 of the interim limit for polychlorinated biphenyls (PCBs) and interim action level for trichloroethene (TCE) in Outfall 003 (Hartnett 2000a, Conyers 2000, Hartnett 2000b, Benjamin 2001c, Hartnett 2001b, Baker, 2001). GM's SPDES permit was renewed on April 23, 2002 (Rinaldi 2002).

The Order provided for the performance of Interim Remedial Measures (IRMs) to achieve final discharge limits. Sewer cleaning and televising were conducted during a Storm Sewer Televising IRM, as documented in the Storm Sewer Televising IRM Work Plan (O'Brien & Gere 2000a) and Revised Storm Sewer Televising IRM Engineering Report (O'Brien & Gere 2001b), both approved by NYSDEC (Benjamin 2000; Benjamin 2002).

A Storm Sewer Rehabilitation IRM Work Plan was submitted to NYSDEC on December 21, 2000 (O'Brien & Gere 2000b). NYSDEC issued comments in a letter dated January 12, 2001 (Benjamin 2001a). A Revised Storm Sewer Rehabilitation IRM Work Plan presenting the rehabilitation plan for the main storm sewer system leading to Outfall 003 was submitted to NYSDEC on March 28, 2001 (O'Brien & Gere 2001a). Subsequently, NYSDEC issued additional comments on the revised work plan in its draft letter of May 16, 2001 (Benjamin 2001b). The Revised Final Storm Sewer Rehabilitation IRM Work Plan incorporated NYSDEC's draft May 16, 2001 comments, and was

submitted to NYSDEC on June 1, 2001 (O'Brien & Gere 2001c). The Revised Final Storm Sewer Rehabilitation IRM Work Plan was approved by NYSDEC on September 21, 2001 (Benjamin, 2001d).

This Engineering Report documents implementation of the Storm Sewer Rehabilitation IRM in accordance with the Revised Final Storm Sewer Rehabilitation IRM Work Plan and the Order.

1.2. Site description

The Former IFG Facility comprises approximately 65 acres of property. Facility structures include the main manufacturing building, the attached administration building, the primary switch house, the powerhouse, the industrial wastewater treatment plant (IWTP), mold storage (former tank farm) building, and bulk handling building. Various paved parking lots and undeveloped areas are present on the property. The facility is bounded to the south by Conrail railroad tracks and a wood pallet recycling facility; to the east and northeast by GM Circle and Townline Road; to the west by a Niagara Mohawk Power Corporation (NMPC) electrical transfer station; and to the north by Factory Avenue and an undeveloped area adjacent to Ley Creek. The facility is located in an area zoned for industrial use. The area surrounding the facility is generally characterized as highly urbanized.

1.3. Storm sewer history

The storm sewer system at the facility comprises piping associated with surface water discharge outfalls designated 003 and 004. The storm sewer system in the immediate vicinity of the manufacturing building and in the majority of the northern property area drains to Outfall 003, and is referred to as the main storm sewer system. The main storm sewer system drains precipitation runoff from the facility ground surface and manufacturing building as well as other building roofs and run-on from off-site. Since September 25, 1997, the effective date of the current SPDES permit, the main storm sewer system also received IWTP treated effluent in accordance with the SPDES permit. In December 2000 the IWTP was taken off-line and a new system was installed that discharges treated water under the current SPDES permit. The IWTP was brought back on-line temporarily from February 2001 to August 2001, and treated water was also discharged under the current SPDES permit. The southeastern corner of the property, portions of the parking lot areas east of the facility, and run on from off-site drain to Outfall 004; this system is referred to as the eastern storm sewer system. Both Outfalls 003 and 004 discharge to Ley Creek under the terms of the September 25, 1997 SPDES permit. Outfall 03B receives water that has been treated by the Thinner Spill Area Ground Water Treatment System. Outfall 04I

receives storm water from off-site areas south of the Former IFG Facility. The storm sewer system is shown in Figure 1.

The current SPDES permit requires the following sampling and analysis of Outfalls 003 and 004:

- Outfall 003 is sampled semi-annually for 1,1,1-trichloroethane (1,1,1-TCA), toluene, trans-1,2-dichloroethene, bis(2-ethylhexyl)phthalate, di-n-octylphthalate, naphthalene, antimony, arsenic, copper, mercury, and zinc; quarterly for 5-day biochemical oxygen demand and nickel; monthly for pH, aluminum, iron, total phenolics, trichloroethene (TCE), cis-1,2-dichloroethene (cis-1,2-DCE), and xylenes; twice per month for oil and grease and total suspended solids; and weekly for PCBs and flow.

- Outfall 004 is sampled semi-annually for TCE, 1,1,1-TCA, toluene, bis(2-ethylhexyl)phthalate, di-n-octyl phthalate, naphthalene, antimony, arsenic, and mercury; quarterly for copper and nickel; monthly for tetrachloroethene (PCE) and total phenolics; and weekly for PCBs and flow.

The results of the sampling events conducted in accordance with the September 25, 1997 SPDES Permit have shown that most constituents have been discharged at concentrations below the final permit limits. PCBs have been detected in Outfall 004 on occasion, generally below the final discharge limit of 0.3 ug/l. In accordance with the SPDES permit, the source of the detectable PCBs in Outfall 004 was evaluated, and a plan (i.e., removing sediment from the outfall and the sewer line) was submitted to NYSDEC (Hartnett 2001a). NYSDEC approved the plan on August 13, 2001 (Baker 2001). To date, a significant portion of sediment has been removed from the sewer line leading to Outfall 004. It is anticipated that remaining sediment will be removed in Fall 2002.

Analytical results of SPDES sampling conducted at Outfall 003 indicate that TCE and PCB concentrations currently meet the interim action level and discharge limits of 160 ug/L and 2 ug/L, respectively. However, detections in Outfall 003 exceed the final action level for TCE (5 ug/L) and the final discharge limits for PCBs (0.3 ug/L). Based on these results in Outfall 003, the Storm Sewer Televising IRM was performed to evaluate the integrity of the storm sewer system leading to Outfall 003, and to identify potential infiltration into the system. During the sewer televising IRM, cleaning of the storm sewer was conducted to facilitate televising. Since the Storm Sewer Televising IRM was performed, DCE was also detected in Outfall 003 at concentrations above the final action level.

In addition to the active storm water sewer system, a portion of the historic storm water collection system is located beneath the manufacturing building. This part of the system was formerly connected to downspouts from the building roof and conveyed storm water from the roof through the facility property and eventually to Ley Creek. In the mid-1980s, the historic storm water collection system beneath the

manufacturing building floor was abandoned, and a new overhead system was constructed. Oil/water collection sumps were installed to collect oil that was observed within the abandoned storm sewers beneath the building. Ground water that accumulated in the oil/water collection sumps was periodically pumped to the IWTP for treatment. In anticipation of more efficient management of facility water streams, GM shut down the IWTP in December 2000. GM implemented weekly inspection of the oil/water collection sumps and quarterly collection of accumulated oil under a new oil/water collection sump management program agreed upon with the NYSDEC (Hartnett 2000c, Baker 2000). Due to no significant accumulation of oil, and slight water level fluctuations in sumps, the inspection frequency was modified in January 2002 to six times per year, with removal of oil on an as needed basis (Hartnett 2002). The configuration of the facility's inactive historic storm sewer system is shown in Figure 1. Given that oil continues to be observed in some of these sumps, the Storm Sewer Televising IRM included cleaning and televising of the sumps and accessible portions of the piping associated with these sumps.

Based on the results of the Storm Sewer Televising IRM, GM proposed the following efforts as part of the Storm Sewer Rehabilitation IRM:

- rehabilitation of portions of the storm sewer and selected manholes to mitigate infiltration of ground water
- rerouting of the roof drain that directs water collected from the southeastern portion of the roof to manhole B9
- improvements to the western courtyard sewer system

These efforts are summarized in this engineering report.

2. IRM implementation

2.1. Storm sewer rehabilitation

Based on the results of the storm sewer cleaning and televising activities, the subsequent sampling program, and observations made during implementation, storm sewer rehabilitation activities were performed using various techniques, as summarized in Table 2-1. Storm sewer rehabilitation activities are depicted on Figure 1. Storm sewer rehabilitation was performed from June 2001 through November 2001.

For pipes that were rehabilitated using cured-in-place liner (Insituform), the pipes were cleaned and television inspected prior to rehabilitation. Following rehabilitation activities, these lines were television inspected to confirm successful installation. Documentation of television inspections to confirm successful installation is included as Exhibit A. Pipe rehabilitation using Insituform was performed from June 12 through June 22, 2001 and from August 21 through August 28, 2001.

Where storm sewer rehabilitation occurred, and where water flow needed to continue, by-pass pumping was used. Sand bags or a plug were placed in an upstream pipe, and the flow was pumped to a downstream manhole. If the flow could be backed up, a plug was placed in an upstream pipe and released when the rehabilitation was complete. In some cases, the water upstream of the rehabilitation was removed by a vacuum truck while the rehabilitation occurred. The water removed by the vacuum truck was treated by the Thinner Spill Area Ground Water Treatment System. Water generated as part of the installation of the Insituform liners was collected in an "on-site temporary storage tank" frac tank and sampled on August 30, 2001. Based on the analytical results, the water was treated by the Thinner Spill Area Ground Water Treatment System and discharged at Outfall 03B.

2.2. Manhole rehabilitation

In conjunction with the storm sewer rehabilitation discussed above, several manholes were rehabilitated based on their condition and the results of targeted storm water sampling. Table 2-2 summarizes manhole

rehabilitation activities. Manhole rehabilitation activities are also depicted on Figure 1. Manhole rehabilitation activities were performed from June 2001 through November 2001. Additional rehabilitation activities were performed in May 2002.

Manholes were rehabilitated by applying a cementitious grout on the deteriorated portions of the manholes. Prior to application of the coating, the manholes were cleaned to provide a good surface for adhesion. Manholes were cleaned by spraying with a high pressure hose to provide a surface that was clean and free of oils, grease, curing agents, and foreign impurities. Depending on the location of the deterioration within the manhole, bypass pumping was used during manhole rehabilitation to prevent storm sewer flows from coming into contact with the cement prior to curing. Bypass pumping methods were similar to those conducted during the storm sewer rehabilitation and, where possible, were performed at the same time as the sewer rehabilitation to minimize the number of bypass pumping setups required.

Manhole rehabilitiation activities were documented by Royal Environmental. Manhole rehabilitation logs are included in Exhibit B.

2.3. Roof drain rerouting

The roof drain that directs water collected from the southeastern portion of the roof to manhole B9 was rerouted due to concentrations of PCBs detected in H2 and the poor condition of pipe between H2 and B9. The roof drain discharged to manhole H2 located inside the facility in Bay H2. The roof drain was rerouted as shown on Figure 2. Activities associated with rerouting the roof drain were performed from September 6, 2001 through October 30, 2001. Activities associated with rerouting the roof drain included the addition of approximately 145 ft of new 18-inch, steel overhead piping, connection of the overhead piping to replaced manhole BG1 (outside), and replacement of the underground storm sewer piping between manholes BG1 and B8. Following installation of the new piping, the old underground piping from manhole H2 was plugged where it entered manhole B9. The June 2001 Storm Sewer Rehabilitation IRM Work Plan (O'Brien & Gere 2001c) specified that the underground piping would be plugged at both H2 and B9; however, the underground piping from H2 toward B9 was not plugged because manhole H2 is not accessible (i.e., cannot be accessed due to lack of steps to enter the manhole).

Connection to manhole BG1 was accomplished by excavating inside the building and through the foundation wall to replacement manhole BG1. Replacement of the underground storm sewer between manholes BG1 and B8 was accomplished by excavating a trench, approximately 60 ft long by 3 ft wide. The soil was managed as described in Section 4. An

18-inch pipe was installed within the excavation and the trench was backfilled with run-of-crush.

2.4. Improvements to the western courtyard

The June 2001 Storm Sewer Rehabilitation IRM Work Plan (O'Brien & Gere 2001c) specified that a new pipe would be installed between manholes S1 and AB1. However, due to the poor condition of the pipe between S1 and S2, a new pipe was instead installed between manholes S2 and AB2. Installation of this pipe was performed in order to improve drainage to the western courtyard. Improvements to the western courtyard were performed from August 3, 2001 through September 12, 2001.

The pipe between S1 and the courtyard sump and the piping between S2 and S1 was abandoned; Catch Basin S2 was replaced; and a new storm sewer pipe from S2 to AB2 was installed. With this configuration, the surface water collected in this area flows to the main storm sewer line leading to Outfall 003. These improvements to the western courtyard are shown on Figure 1.

The new 12inch ADS Polyethylene N-12 pipe was installed by saw cutting the concrete paving and excavating a trench, approximately 150 ft in length, for the new pipe. During installation of the new pipe, an unknown, 42-inch, abandoned storm sewer pipe was encountered. A section of this abandoned pipe was removed, and the remaining portions of the abandoned pipe were plugged with bricks to allow for installation of the new pipe. Soil management associated with this activity is described in Section 4.

2.5. Inspections

Storm sewer rehabilitation, manhole rehabilitation, roof drain rerouting, and improvements to the western courtyard were observed by an on-site O'Brien & Gere representative. Pipe rehabilitation by Insituform installation was confirmed by television inspection, which verified that the piping was free of leaks and deformities such as inclusions, dry spots, pinholes, and delaminations. Manhole rehabilitation, roof drain rerouting, and courtyard improvements were visually inspected.

Some manholes were found to have infiltration following the initial rehabilitation effort. Regrouting activities were initiated in May 2002, but were not completed due to the decision to design and construct an end-of-pipe storm water treatment system for the Outfall 003 storm sewer system. For this reason, further inspections of manholes for infiltration were deemed unnecessary.

3. Confirmatory sampling

After rehabilitation of storm sewer sections was completed, samples were collected from previously identified impacted areas of the storm sewer to assess if the rehabilitation had achieved the desired result of attaining the final SPDES effluent limits at Outfalls 003 and 004. The evaluation of these results served to assess whether additional rehabilitation efforts were required. Confirmatory sample results are summarized in Table 3-1. Table 3-2 summarizes the rationale associated with the confirmatory samples.

Table 3-2 *Confirmatory sample rationale.*

Sample date/Sample ID	***Associated Activities/Observations***	***Confirmatory Sample Rationale***
7/23/01		
B11 Influent	Replaced manhole BL1, rerouted piping south of Powerhouse, abandoned manhole.	Evaluate elimination of storm water contamination from infiltration
B11 E. Influent	Abandoned manholes east of B11.	Evaluate elimination of storm water contamination from infiltration.
A4	Insituform installed upstream of manhole A4.	Evaluate elimination of storm water contamination from infiltration.
A9 Influent	Upstream manholes abandoned, upstream manholes rehabilitated.	Evaluate elimination of storm water contamination from infiltration.
8/6/01		
Powerhouse drain tile	Excavated drain tile north of the powerhouse.	Evaluate elimination of storm water contamination from drain tiles.
8/9/01		
A9 – A10	Infiltration was observed between manholes A9 and A10	Evaluate constituents present in infiltration.
9/27/01		
B11 Influent	Insituform installed upstream of manhole B11.	Evaluate elimination of storm water contamination from infiltration.
B11 Infiltration	Infiltration was observed around Insituform.	Evaluate constituents present in infiltration.

Sample date/Sample ID	*Associated Activities/Observations*	*Confirmatory Sample Rationale*
2/20/02		
B11Effluent B8 Influent A8 Influent A11 A9 Influent	Activities performed in late summer and fall 2001; Insituform in western branch, manhole repairs performed, pipe repairs performed	Evaluate elimination of storm water contamination from infiltration.
2/26/02		
BM1A Influent Infiltration	Infiltration was observed on influent side of BM1A.	Evaluate constituents present in infiltration.
5/22/02		
B11 Influent B9 Effluent	Injection grouting activities performed.	Evaluate elimination of storm water contamination from infiltration.
5/29/02		
B10 Infiltration A10 North A9 Effluent A8 Effluent A2 Effluent	Injection grouting activities performed.	Evaluate elimination of storm water contamination from infiltration.

Source: O'Brien & Gere Engineers, Inc.

Confirmatory samples were collected and handled in accordance with the June 2001 Storm Sewer Rehabilitation IRM Work Plan (O'Brien & Gere 2001c).

Confirmatory data showed infiltration was eliminated upstream of B11 in the eastern branch of the storm sewer. Injection grouting activities performed in May 2002 in manholes on the eastern branch, downstream of B11, were not successful. Infiltration in manhole B10, sampled on May 29, 2002, exhibited detectable concentrations of PCBs and VOCs.

Confirmatory samples collected in the western branch of the storm sewer indicated that infiltration was not eliminated by the storm sewer rehabilitation activities.

Although constituent concentrations (specifically PCBs and VOCs) had not been reduced to below discharge limits, additional rehabilitation activities were not performed due to the decision to construct a storm water treatment system.

4. Material management

4.1. Waste management

Accumulated soil, sediment, and debris generated during storm sewer rehabilitation were sampled and analyzed. Based on the analytical results, these materials were then characterized and managed appropriately. Wastes such as disposable sampling equipment and disposable personnel protective equipment were collected and disposed of appropriately.

Sediment that was accumulated as part of miscellaneous cleaning activities during the sewer rehabilitation activities had detectable concentrations of several constituents at concentrations greater than the NYSDEC TAGM 4046 screening values, but did not exhibit characteristics of a hazardous waste, and did not represent a listed hazardous waste. This sediment was therefore characterized as non-hazardous waste and was profiled for off-site disposal at the Waste Management, Inc. facility in Model City, New York. This material was shipped off-site to Waste Management, Inc. on January 9, 2002.

4.2. Soil waste management summary

Soil excavation was necessary to replace portions of piping, and during manhole rehabilitation activities. With the exception of oil-stained soils observed during excavation activities associated with the installation of a new catch basin BL1A, no excavated soils were observed to be stained or found to have PID detections above background. Soil remaining after backfilling that was not stained and did not have PID detections above background was staged, sampled, and analyzed for characterization.

Soil removed from the excavation associated with installation of a new catch basin BL1A was not used to backfill the excavation, but instead was staged on and covered with polyethylene sheeting behind the Mold Storage building. A composite BL1A soil sample was collected and analyzed for PCBs, VOCs, SVOCs, and site-related metals. Based on the analytical data, BL1A soil was proposed for re-use as on-site fill. The NYSDEC approved this proposal.

Based on analytical results, all staged soil was reused on-site following NYSDEC concurrence for re-use of the soil as on-site fill. As discussed in Section 4.1, sediment from cleaning activities was disposed off-site.

Characterization data are summarized in Table 4-1. A soil/waste management summary is provided in Table 4-2. The soil/waste management summary includes a summary of correspondence with the NYSDEC for each soil pile that was generated during the sewer rehabilitation activities.

5. Operation and maintenance plan

5.1. Manhole inspection

The June 2001 Storm Sewer Rehabilitation IRM Work Plan (O'Brien & Gere 2001c) stated that manholes were to be inspected periodically and maintained. Manholes will be visually inspected for structural integrity on an annual basis. Repairs will be performed on an as needed basis to repair structural deterioration. Due to the decision to install an end-of-pipe storm water treatment system, infiltration observed during annual inspections will not be repaired unless the structural integrity of the manhole is compromised.

6. Engineer's certification

I hereby certify that IRM work has been completed in accordance with the June 2001 Storm Sewer Rehabilitation IRM Work Plan and the Order.

References

Baker, Brian (NYSDEC). 2000. November 2, 2000 letter to James Hartnett (GM) regarding cessation of IWTP operation and management of the oil/water collection sumps.

Baker, Brian (NYSDEC). 2001. August 13, 2001 letter to James F. Hartnett (GM) responding to August 2, 2001 clarification letter and approving mitigation methods for PCB detection in Outfall 004.

Benjamin, Susan (NYSDEC). 2000. May 5, 2000 letter to James Hartnett approving April 2000 Sewer Televising IRM Work Plan.

Benjamin, Susan (NYSDEC). 2001a. January 12, 2001 letter to James Hartnett conveying comments on December 2000 Storm Sewer Rehabilitation IRM Work Plan.

Benjamin, Susan (NYSDEC). 2001b. May 16, 2001 draft letter to James Hartnett (GM) conveying comments on the March 2001 Revised Sewer Rehabilitation IRM Work Plan.

Benjamin, Susan (NYSDEC). 2001c. July 11, 2001 letter to James Hartnett (GM) summarizing discussions and agreements regarding SPDES discharge limits and establishing December 2002 as effective date for final permit limits.

Benjamin, Susan (NYSDEC). 2001d. September 21, 2001 letter to James Hartnett (GM) approving June 2001 Revised Storm Sewer Rehabilitation IRM Work Plan.

Benjamin, Susan (NYSDEC). 2002. March 21, 2002 letter to James F. Hartnett (GM) approving May 2001 Revised Storm Sewer Televising IRM Engineering Report.

Conyers, Carol (NYSDEC). 2000. September 28, 2000 letter to James F. Hartnett (GM) granting temporary extension of the SPDES discharge limits.

Hartnett, James (GM). 2000a. September 8, 2000 letter to Carol Conyers of NYSDEC requesting an extension of the SPDES discharge limits.

Hartnett, James (GM). 2000b. October 10, 2000 letter to Carol Conyers of NYSDEC requesting new effective date of SPDES discharge limits.

Hartnett, James (GM). 2000c. October 12, 2000 to Susan Benjamin and Brian Baker (NYSDEC) regarding cessation of the IWTP operations.

Hartnett, James (GM). 2001a. April 26, 2001 letter to Susan Benjamin (NYSDEC) regarding the evaluation of PCB detections in Outfall 004.

Hartnett, James (GM). 2001b. August 2, 2001 letter to Susan Benjamin (NYSDEC) responding to and clarifying July 11, 2001 letter.

Hartnett, James (GM). 2002. January 23, 2002 letter to Susan Benjamin (NYSDEC) and Brian Baker (NYSDEC) regarding frequency of oil/water collection sump inspection.

O'Brien & Gere Engineers, Inc. 2000a. Sewer Cleaning and Televising IRM Work Plan. April 2000.

O'Brien & Gere Engineers, Inc. 2000b. Storm Sewer Rehabilitation IRM Work Plan. December 2000.

O'Brien & Gere Engineers, Inc. 2001a. Revised Storm Sewer Rehabilitation IRM Work Plan. March 2001.

O'Brien & Gere Engineers, Inc. 2001b. Revised Sewer Televising IRM Engineering Report. June 2001.

O'Brien & Gere Engineers, Inc. 2001c. Revised Final Storm Sewer Rehabilitation IRM Work Plan. June 2001.

Rinaldi, Barbara B. (NYSDEC). 2002. April 23, 3003 SPDES permit renewal letter and form.

Table 2-1 – Summary of rehabilitation activities for pipes

Location	Status	Goal	Technology	Post-Implementation Inspection
Western Branch				
* A3 to AB1	completed	Eliminate infiltration	Grouting of cracks up to 2' from each end	Visual inspection performed
* S2 to AB2	completed	Improve drainage in western courtyard	Abandon S1; install new 12 " ADS Polyethylene N-12 pipe from S2 to AB2	Visual inspection performed
A7 to A5	completed	Eliminate infiltration	Insituform	Television inspection performed
A5 to A4	completed	Eliminate infiltration	Insituform	Television inspection performed
Sump 7 to (A4)	completed	Repair pipe plug	Grouting at plug to Sump 7 and create plug at A4.	Visual inspection performed
AG3	completed	Repair pipe plug	Grouting at plug to A12. Install new plug to Sump 6.	Visual inspection performed
* A12 to AG3	completed	Abandon pipe	Grout plug to AG3	Visual inspection performed
A12A to A12	completed	Abandon pipe	Grout at both ends of pipe	Visual inspection performed
* AH2 in front of clarifier	completed	Repair pipe	Install new section of 24 " PVC pipe	Visual inspection performed
AH1A to A12A	completed	Abandon pipe	Grout at both ends of pipe	Visual inspection performed
A12B to A12A	completed	Abandon pipe	Grout at both ends of pipe	Visual inspection performed
* A12 to AH1A	completed	Eliminate infiltration	Insituform	Television inspection performed
* AH1A to AH2A	completed	Eliminate infiltration	Insituform	Television inspection performed
* A9 to A10	completed	Eliminate infiltration	Insituform	Television inspection performed
* A10 to A11	completed	Eliminate infiltration	Insituform	Television inspection performed
* A12 to A13	completed	Eliminate infiltration	Insituform	Television inspection performed
Central Branch				
BAF1 to BA6	completed	Eliminate infiltration	Insituform	Television inspection performed
BA7 to BA6	completed	Eliminate infiltration	Insituform	Television inspection performed
BA6 to BA5 and BA4	completed	Eliminate infiltration	Insituform	Television inspection performed
* BAC1 to BAC2	completed	Repair pipe	Replaced section original clay pipe with 10" PVC pipe	Visual inspection performed
Eastern Branch				
Roof drain at H2	completed	Redirect flow	Install new, overhead, 18" steel piping	Visual inspection performed
B9 to H2	completed	Abandon pipe	Grout both ends of pipe	Grouted in B9, H2 was inaccessible and was not grouted. Visual inspection performed

Table 2-1 – Summary of rehabilitation activities for pipes

Location	Status	Goal	Technology	Post-Implementation Inspection
BG1 to B8	completed	Provide connection to storm sewer from roof drain	Replace pipe from BG1 to B8	Visual inspection performed
West influent pipe to BM1	completed	Abandon pipe/fill end with grout	Grout pipe	Visual inspection performed
* B11 to BL1	completed	Eliminate infiltration	Insituform	Television inspection performed
* B11 towards BI1	completed	Eliminate infiltration and continue Powerhouse roof drainage	Insituform	Television inspection performed
BL1 to BM1	completed	Eliminate infiltration	Insituform	Television inspection performed
* BM4 to BM1A to BM1	completed	Reconfigure flow behind powerhouse	Install new 8" PVC pipe from BM4 to BM1A. Install new 12" PVC pipe from BM1A to BM1	Visual inspection performed
* BL1A to BL1	completed	Eliminate infiltration	Install 10" HDPE pipe inside existing pipe	Visual inspection performed

* denotes scope added to June 1, 2001 Sewer Rehabilitation Work Plan.

Table 2-2 – Summary of rehabilitation activities for manholes

Location	Status	Goal	Technology	Post-Implementation Inspection
Western Branch				
* A8B2	completed	Eliminate infiltration	Grout plug pipe to east	Inspection performed; infiltration observed under plug in east pipe
* A8A	completed	Eliminate infiltration	Grout plug pipe to northwest	Inspection performed
* AJ1	completed	Eliminate infiltration	Abandon	Inspection performed
* AH3	completed	Eliminate infiltration	Replace top half of manhole. Grout plug pipe from the east.	Inspection performed
* A12A	completed	Eliminate infiltration	Abandon	Inspection performed
* A12B	completed	Eliminate infiltration	Abandon	Inspection performed
A13	completed	Eliminate infiltration	Grout (patch) walls of manhole. Seal entire basin. Install new floor in basin.	Inspection performed; infiltration observed around effluent pipe.
* AH1A	completed	Eliminate infiltration	Grout (patch) and seal entire basin. Grout plug pipe to A12A.	Inspection performed
* AH2A	completed	Eliminate infiltration	Grout (patch) walls and seal entire basin. Grout around pipe.	Inspection performed
* AH2	completed	New manhole	Install new manhole	Inspection performed
* A12	completed	Eliminate infiltration	Grout (patch) walls where needed. Seal entire basin. Grout plug pipes to AG3 and A121A.	Inspection performed
AG3	completed	Eliminate infiltration from Sump 6	Abandon	Inspection performed
* AF2	completed	Eliminate infiltration	Grout (patch) walls of top 1 ft of catch basin	Unable to inspect due to sediment in bottom.
* AF1	completed	Eliminate infiltration	Grout (patch) walls of top 2 ft of catch basin. Grout around all pipes. Seal entire basin.	Inspection performed
* A10	completed	Eliminate infiltration	Grout (patch) and seal walls of top 1 ft of basin.	Inspection performed
* A9	completed	Eliminate infiltration	Grout (patch) and seal walls of top 1 ft of basin. Grout around all pipes.	Inspection performed
* A8	completed	Eliminate infiltration	Grout (patch) and seal walls of top 1 ft of basin. Grout around all pipes.	Inspection performed
* A7	completed	Eliminate infiltration	Grout around all pipes	Inspection performed
* A6	completed	Eliminate infiltration	Grout (patch) and seal walls of top 1 ft of basin. Grout around all pipes.	Inspection performed
* AE1	completed	Eliminate infiltration	Abandon	Inspection performed

Table 2-2 – Summary of rehabilitation activities for manholes

Location	Status	Goal	Technology	Post-Implementation Inspection
* AE2	completed	Eliminate infiltration	Abandon	Inspection performed
A5	completed	Eliminate infiltration.	Grout (patch) and seal walls of top 1 ft of basin. Grout around all pipes.	Inspection performed
Sump 7 (A4)	completed	Eliminate infiltration from Sump 7	Grout plug at Sump 7. Grout (patch) and seal top 1 ft of basin. Grout around all pipes.	Inspection performed
* A3	completed	Eliminate infiltration	Grout around all pipes.	Inspection performed
* AC2	completed	Simplify network.	Abandon	Inspection performed
* AD1	completed	Eliminate infiltration	Abandon	Inspection performed
* S1	completed	Reroute piping from S2	Abandon as part of rerouting pipe from S2 to AB2. Plug line to the south.	Inspection performed
* S2	completed	Reroute piping to AB2.	Install new catch basin.	Inspection performed
* A2	completed	Eliminate infiltration.	Grout around pipe to A2A. Grout (patch) and seal the top 1 ft of basin.	Inspection performed
* A2A	completed	Eliminate infiltration	Grout around pipes. Seal entire basin.	Inspection performed
* A2B	completed	New catch basin	Install new CB.	Inspection performed
* AB1	completed	Eliminate infiltration	Grout around pipes. Seal entire basin.	Inspection performed
Central Branch				
* BAA1	completed	Eliminate infiltration.	Grout (patch) the top 1 ft of basin. Grout around pipes.	Inspection performed
* BAE2	completed	Eliminate infiltration.	Grout around pipes. Grout (patch) and seal entire basin. Seal floor.	Unable to inspect due to running water
* BA4A	completed	Eliminate infiltration.	Abandon	Inspection performed
* BA4	completed	Eliminate infiltration.	Grout (patch) and seal walls. Grout around pipes.	Inspection performed. Grout observed to be cracked. Infiltration observed around effluent and wall by manhole steps.
* BA5	completed	Eliminate infiltration.	Grout (patch) and seal entire basin. Grout around pipes.	Inspection performed
* BAF1	completed	Eliminate infiltration.	Grout (patch) and seal entire basin. Grout around pipes.	Inspection performed
BAB1	completed	Eliminate infiltration.	Abandon	Inspection performed
BAE1	completed	Eliminate infiltration	Grout walls (patch work) of lower portion of manhole. Seal entire basin.	Inspection performed; infiltration observed on bottom of walls.
BAD1	completed	Eliminate infiltration	Replace catch basin	Unable to inspect due to water in bottom of catch basin.

Table 2-2 – Summary of rehabilitation activities for manholes

Location	Status	Goal	Technology	Post-Implementation Inspection
* BAC1	completed	Eliminate infiltration.	Grout (patch) and seal top 1 ft of basin. Grout around pipes. Install new floor.	Inspection performed
Eastern Branch				
* BM4	completed	Reroute clay pipe influent flow.	New manhole	Inspection performed
* BM3	completed	Simplify network	Abandon	Inspection performed
BM2	completed	Simplify network	Abandon	Inspection performed
* BN1	completed	Simplify network	Abandon	Inspection performed
BM1A	completed	Eliminate potential source of PCBs and simplify network	Replace manhole	Inspection performed
BM1	completed	Eliminate infiltration	Removed as part of BM4 rerouting	Inspection performed
BL2	completed	Simplify network	Abandon	Inspection performed
BL2A	completed	Abandon	Abandon	Inspection performed
BL1A	completed	Eliminate infiltration	Install new catch basin	Inspection performed
BL1	completed	Eliminate infiltration	Install new catch basin	Inspection performed
* B12	completed	Simplify network	Abandon	Inspection performed
* BN1A	completed	Simplify network	Abandon	Inspection performed
* BI1	completed	Simplify network	Abandon	Inspection performed
* BJ1	completed	Simplify network	Abandon	Inspection performed
BK1	completed	Simplify network	Abandon	Inspection performed
BK2	completed	Simplify network	Abandon	Inspection performed
* B11	completed	Eliminate infiltration	New manhole	Inspection performed
* B10	completed	Eliminate infiltration	Grout around all pipes and bottom of manhole.	Inspection performed
* B9	completed	Eliminate infiltration	Replace top section of catch basin. Grout around all pipes and bottom of manhole.	Inspection performed
* BG1	completed	Reroute H2 roof drain	Replace catch basin as part of rerouting roof drain	Inspection performed
* BG2	completed	Reroute H2 roof drain	Abandoned	Inspection performed
* B8	completed	Eliminate infiltration and reroute H2 roof drain	Replaced manhole	Inspection performed
BH1	completed	Eliminate infiltration	Replace catch basin. Plug lines to south and to BH2.	Inspection performed
BF1	completed	Eliminate infiltration	Replace catch basin	Inspection performed
BE1	completed	Eliminate infiltration	Replace catch basin	Inspection performed
B7	completed	Eliminate infiltration	Replace top 3 ft. of basin. Grout around all pipes and bottom of manhole.	Inspection performed. Grout in general was observed to be cracked in several places. Infiltration observed.
* BD1	completed	Eliminate infiltration	Replace catch basin	Inspection performed. Grout was observed to be damp on side of effluent.

Table 2-2 – Summary of rehabilitation activities for manholes

Location	Status	Goal	Technology	Post-Implementation Inspection
* BD2	completed	Eliminate unknown source of flow	Grout plug influent pipe from the east	Inspection performed
* B6	completed	Eliminate infiltration	Grout (patch) and seal entire basin. Grout around all pipes and bottom of manhole	Inspection performed. Grout was observed to be cracked around the influent. No visible infiltration.
* B5	completed	Eliminate infiltration	Grout (patch) and seal entire basin. Grout around all pipes and bottom of manhole	Inspection performed. Some infiltration and cracks were noted on the south influent.
* BC1	completed	Eliminate infiltration	Replace top 3 ft. Grout around all pipes and bottom of manhole.	Inspection performed
BC2	completed	Eliminate infiltration	Replace top 3 ft. Grout around bottom of manhole.	Inspection performed
B1A	completed	Eliminate infiltration	Grout around top ring. Patch and seal seam between upper and lower portions of basin.	Inspection performed

* denotes scope added to June 1, 2001 Sewer Rehabilitation Work Plan

Table 3-1. Confirmatory Data Summary

Sample Date	Sample Identification	Sample Matrix	Detected Aroclor Concentration (ppb)	Detected VOCs (ppb)		Detected SVOCs (ppb)	Detected Metals (ppm)
7/23/01	B11 Influent	Water	0.2	cis-1,2-Dichloroethene	5.1	NA	NA
				Chloroform	2.2		
				Trichloroethene	1.9		
7/23/01	B11 East Influent	Water	0.1	cis-1,2-Dichloroethene	2	NA	NA
				Chloroform	1.8		
				Trichloroethene	3.3		
7/23/01	A4	Water	0.21	cis-1,2-Dichloroethene	31	NA	NA
				Trichloroethene	96		
7/27/01	A9-Influent	Water	0.77	cis-1,2-Dichloroethene	2.3	NA	NA
				Trichloroethene	2.1		
8/6/01	Powerhouse Drain Tile	Water	0.88	NA		NA	NA
8/9/01	A9 -A10	Water	0.37	cis-1,2-Dichloroethene	2.4	NA	NA
				Trichloroethene	4.3		
9/27/01	B11 Influent	Water	ND	NA		NA	NA
9/27/01	B11 Infiltration	Water	0.17	NA		NA	NA
2/20/02	B11 Effluent	Water	0.12	cis-1,2-Dichloroethene	1.4	NA	NA
				Trichloroethene	11		
2/20/02	B8 Influent	Water	0.14	cis-1,2-Dichloroethene	12	NA	NA
				Trichloroethene	29		
2/20/02	A8 Influent	Water	0.077J	ND		NA	NA
2/20/02	A11	Water	0.61 ppb (1)	ND		NA	NA
2/20/02	A9 Influent	Water	0.33 ppb	cis-1,2-Dichloroethene	11	NA	NA
				Trichloroethene	1.2		
2/26/02	BM1A Influent Infiltration	Water	ND	Trichloroethene	1.9	NA	NA
5/22/02	B11 Influent	Water	ND	ND		NA	NA
5/22/02	B9 Effluent	Water	ND	ND		NA	NA
5/29/02	B10 Infiltration	Water	0.21 ppb	cis-1,2-Dichloroethene	6	NA	NA
				Trichloroethene	9.4	NA	NA
				Chloroform	1.8	NA	NA
5/29/02	A10 North	Water	0.89 ppb	cis-1,2-Dichloroethene	5.7	NA	NA
				Trichloroethene	1.7	NA	NA
5/29/02	A9 Effluent	Water	1.1 ppb	cis-1,2-Dichloroethene	11	NA	NA
				Trichloroethene	1.7	NA	NA
5/29/02	A8 Effluent	Water	ND	cis-1,2-Dichloroethene	0.82	NA	NA
				Trichloroethene	0.53	NA	NA
5/29/02	A2 Effluent	Water	0.39 ppb	cis-1,2-Dichloroethene	16	NA	NA
				Trichloroethene	50	NA	NA
				Ehtylbenzene	4.9	NA	NA
				Xylene (total)	26	NA	NA

Notes: * -Aroclor 1248 concentration unless otherwise noted. Other Aroclors less than detectable unless noted
(1) Aroclor 1248 was detected at 0.50 ug/L; Aroclor 1260 was detected at 0.11 ug/L.
NA -Not analyzed
ND -Not detected

Table 4-1. Characterization Data Summary

Sample Date	Sample Identification	Sample Matrix	Detected Aroclor Concentration (ppm)	Detected VOCs (ppb)		Detected SVOCs (ppb)		Detected Metals (ppm)	
7/3/01	BL1	Soil	11	Methylene chloride **	14	Phenanthrene	1300	Arsenic	4.5
				Trichloroethene	9.4	Anthracene	380	Barium	70
						Fluoranthene	1700	Chromium	18
						Pyrene	1300	Lead	11
						Benzo(a)anthracene	720	Mercury	0.6
						Chrysene	700		
						Benzo(b)fluoranthene	760		
						Benzo(a)pyrene	580		
						Benzo(g,h,i)perylene	350		
7/3/01	BH1	Soil	ND	Methylene chloride **	43	ND		Arsenic	9.8
								Barium	80
								Chromium	13
								Lead	6.8
7/3/01	North of East Clarifier	Soil	1.8	Methylene chloride **	32	ND		Arsenic	5
				Trichloroethene	9.8			Barium	60
								Chromium	19
								Lead	11
7/18/01	Court yard concrete	Concrete	ND	NA		NA		NA	
8/3/01	B7	Soil	ND	Methylene chloride **	6	Phenanthrene	52 J	Arsenic	5.2
						Fluoranthene	100 J	Barium	70
						Pyrene	88 J	Chromium	15
						Benzo(a)anthracene	49 J	Lead	13
						Chrysene	60 J	Selenium	0.6
						bis(2-Ethylhexyl)phtha	74 J		
						Benzo(b)fluoranthene	83 J		
						Benzo(k)fluoranthene	37 J		
						Benzo(a)pyrene	49 J		

Table 4-1. Characterization Data Summary

Sample Date	Sample Identification	Sample Matrix	Detected Aroclor Concentration (ppm)	Detected VOCs (ppb)		Detected SVOCs (ppb)		Detected Metals (ppm)	
8/3/01	BM4-BM1A	Soil	ND	Methylene chloride **	75	Naphthalene	78 J	Arsenic	7.3
						2-Methylnaphthalene	140 J	Barium	70
						Acenaphthylene	48 J	Chromium	17
						Acemaphthene	250 J	Lead	27
						Dibenzofuran	210 J	Selenium	0.6
						Fluorene	280 J		
						Phenanthrene	690		
						Anthracene	130 J		
						Fluoranthene	810		
						Pyrene	690		
						Benzo(a)anthracene	280 J		
						Chrysene	360		
						bis(2-Ethylhexyl)phtha	74 J		
						Benzo(b)fluoranthene	480		
						Benzo(k)fluoranthene	170 J		
						Benzo(a)pyrene	250 J		
						Indeno(1,2,3-cd)pyren	98 J		
						Benzo(g,h,i)perylene	97 J		

Table 4-1. Characterization Data Summary

Sample Date	Sample Identification	Sample Matrix	Detected Aroclor Concentration (ppm)	Detected VOCs (ppb)		Detected SVOCs (ppb)		Detected Metals (ppm)	
8/3/01	Vac-Truck Sediment	Soil	4.5	Methylene chloride **	9.6	Benzyl alcohol	70 J	Arsenic	2.8
						Naphthalene	73 J	Barium	50
						2-Methylnaphthalene	53 J	Chromium	14
						Acenaphthene	190 J	Lead	15
						Dibenzofuran	100 J	Mercury	0.1
						Fluorene	190 J		
						Phenanthrene	2000		
						Anthracene	370		
						Di-n-octyl phthalate	70 J		
						Fluoranthene	2700		
						Pyrene	3700		
						Butyl benzyl phthalate	190 J		
						Benzo(a)anthracene	1400		
						Chrysene	1600		
						bis(2-Ethylhexyl)phtha	2000		
						Benzo(b)fluoranthene	2300		
						Benzo(k)fluoranthene	780		
						Benzo(a)pyrene	1300		
						Indeno(1,2,3-cd)pyren	490		
						Dibenz(a,h)anthracen	150 J		
						Benzo(g,h,i)perylene	510		

Table 4-1. Characterization Data Summary

Sample Date	Sample Identification	Sample Matrix	Detected Aroclor Concentration (ppm)	Detected VOCs (ppb)		Detected SVOCs (ppb)		Detected Metals (ppm)	
8/3/01	S1	Soil	ND	Methylene chloride **	26	Butyl benzyl phthalate	41 J	Arsenic	4.3
						bis(2-Ethylhexyl)phtha	41 J	Barium	50
						Benzo(b)fluoranthene	56 J	Chromium	12
								Lead	7.2
8/3/01	AC2	Soil	3.3	Methylene chloride **	24	Fluoranthene	62 J	Arsenic	4.5
				Xylene (total)	13	Pyrene	70 J	Barium	140
						Benzo(a)anthracene	54 J	Chromium	19
						Chrysene	69 J	Lead	16
						bis(2-Ethylhexyl)phtha	47 J		
						Benzo(b)fluoranthene	110 J		
						Benzo(k)fluoranthene	42 J		
						Benzo(a)pyrene	59 J		
9/4/01	S2	Soil	ND	Toluene	49	ND		Arsenic	5.9
				Ethylbenzene	18			Barium	70
				Xylene (Total)	74			Chromium	18
								Lead	13
9/4/01	S2 Trench	Soil	9.6	Ethylbenzene	4	ND		Arsenic	3.9
				Xylene (Total)	32			Barium	40
								Chromium	17
								Lead	6.3
9/27/01	BL1A	Soil	ND	ND		ND		Arsenic	4.7
								Barium	40
								Chromium	11
								Lead	9
9/27/01	BAD1	Soil	ND	ND		Fluoranthene	500	Arsenic	2.3
						Pyrene	440	Barium	40
						Benzo(b)fluoranthene	430	Chromium	6
								Lead	6.2

Table 4-1. Characterization Data Summary

Sample Date	Sample Identification	Sample Matrix	Detected Aroclor Concentration (ppm)	Detected VOCs (ppb)		Detected SVOCs (ppb)		Detected Metals (ppm)	
9/27/01	Powerhouse North	Soil	ND	ND		ND		Arsenic	7.6
								Barium	70
								Chromium	17
								Lead	9.5
10/3/01	Frac Tank Floor	Wipe	ND	NA		NA		NA	
10/3/01	Frac Tank Wall	Wipe	ND	NA		NA		NA	
10/4/01	BD1	Soil	6.5	ND		ND		Arsenic	3.8
								Barium	50
								Chromium	16
								Lead	19
10/4/01	BC2	Soil	ND	Toluene	36	bis(2-Ethylhexyl)phtha	560	Arsenic	4.2
				Ethylbenzene	6			Barium	60
				Xylene (total)	39			Chromium	13
								Lead	9.1
10/12/01	BG1	Soil	ND	Methylene chloride	33	ND		Arsenic	11
								Barium	50
								Chromium	16
								Lead	6.4

Notes:
* - Detected Aroclor is 1248 unless otherwise noted
** - Suspected lab contaminant
NA - Not Analyzed
ND - Not Detected
J - Estimated Value

Table 4-2. Soil/Waste Management Summary

Soil Pile (*sample ID*)	Origin	Intended Reuse/Management	Notices Submitted/NYSDEC Approval for On-site Reuse	Final Disposition
BL1 Soil (*BL1*)	Excavation to install new catch basin.	On-site reuse as fill.	Notice: 8/15/01 Approval: 12/5/01	Used as fill in the northern truck dock.
BH-1 Soil (*BH-1*)	Installation of new manhole.	On-site reuse as fill.	Notice: 8/15/01 Approval: 12/5/01	Used as fill in the northern truck dock.
Soil from north of east clarifier (*N or E Clarifier*)	Installation of new pipe and manhole AH2.	On-site reuse as fill	Notice: 9/14/010 Approval: 11/15/01	Used as fill in the northern truck dock.
Court yard concrete (*Court yard concrete*)	Sewer investigation activities in the court yard.	On-site reuse as fill	Notice: 8/15/01 Approval:9/6/01	Used as fill in the northern truck dock.
B7 Soil (*B7*)	Installation of new manhole in northern parking lot.	On-site reuse as fill	Notice: 9/14/01 Approval: 11/15/01	Used as fill in the northern truck dock.
BM4-BM1A Soil (*BM4 – BM1A*)	Installation of new 6 inch pipe between BM4 and BM1A.	On-site reuse as fill	Notice: 9/14/01 Approval: 12/5/01	Used as fill in the northern truck dock.
Vac truck sediment (*Vac truck sediment*)	General cleaning activities.	Off-site disposal as non-haz soil.	Notice: 9/14/01 Approval: 4/23/02	Shipped off-site for disposal on 1/9/02.
Court yard soil from S1 (*S1*)	Sewer investigation activities in the court yard.	On-site reuse as fill	Notice: 9/14/01 Approval: 11/15/01	Used as fill in the northern truck dock.
Court yard soil from AC2 (*AC2*)	Sewer investigation activities in the court yard.	On-site reuse as fill	Notice: 9/14/01 Approval: 11/15/01	Used as fill in the northern truck dock.
S2 Soil (*S2*)	Soil generated from replacement of manhole S2.	On-site reuse as fill.	Notice: 10/24/01 Approval: 12/5/01	Used as fill in the northern truck dock.
S2 Trench Soil (*S2 Trench*)	Excavation of trench in vicinity of manhole S2.	On-site reuse as fill	Notice: 10/24/01 Approval: 11/15/01	Used as fill in the northern truck dock.
BL1A Soil (*BL1A*)	Soil generated from installation of manhole BL1A.	On-site reuse as fill	Notice: 10/24/01 Approval: 11/15/01	Used as fill in the northern truck dock.
BAD1 Soil (*BAD1*)	Soil generated from replacement of manhole BAD1	On-site reuse as fill	Notice: 12/11/01 Approval: 12/14/01	Used as fill in the northern truck dock.
Powerhouse North Soil (*Powerhouse North*)	Soil generated from the investigation of drainage pipe leading to the powerhouse sump.	On-site reuse as fill	Notice: 10/24/01 Approval: 11/15/01	Used as fill in the northern truck dock.
BD1 Soil (*BD1*)	Soil generated from replacement of catch basin BD1	On-site reuse as fill.	Notice: 12/11/01 Approval: 12/14/01	Used as fill in the northern truck dock.
BC2 Soil (*BC2*)	Soil generated from replacement of catch basin BC2	On-site reuse as fill.	Notice: 12/11/01 Approval: 12/14/01	Used as fill in the northern truck dock.
BG1 Soil (*BG1*)	Soil generated from replacement of catch basin BG1.	On-site reuse as fill.	Notice: 1/3/02 Approval: 1/8/02	Used as fill in the northern truck dock.

Notes:

1. Soil/debris to be used as subsurface fill; therefore, TAGM 4046 screening level of 10 ppm for PCBs was used.
2. TAGM 4046 screening value for chromium is 10 ppm; however, based on communications with NYSDEC, the proposed screening value for chromium (50 ppm) was used.

E:\DIV71\PROJECTS\4966\30472\Task 004\Figures\115.DWG SF:1 (120)

FIGURE 1

LEGEND

- ACTIVE STORM SEWER (AB1)
- INACTIVE STORM SEWER–COULD NOT ACCESS
- PROPERTY LINE
- OIL/WATER COLLECTION SUMP
- MANHOLE
- BURIED MANHOLE
- CAPPED LINE / PLUGGED
- LINES REHABILITATED
- MANHOLES REHABILITATED
- LINES ABANDONED
- MANHOLES ABANDONED

GENERAL MOTORS CORPORATION
SYRACUSE, NEW YORK
FORMER IFG FACILITY

STORM SEWER REHABILITATION PLAN

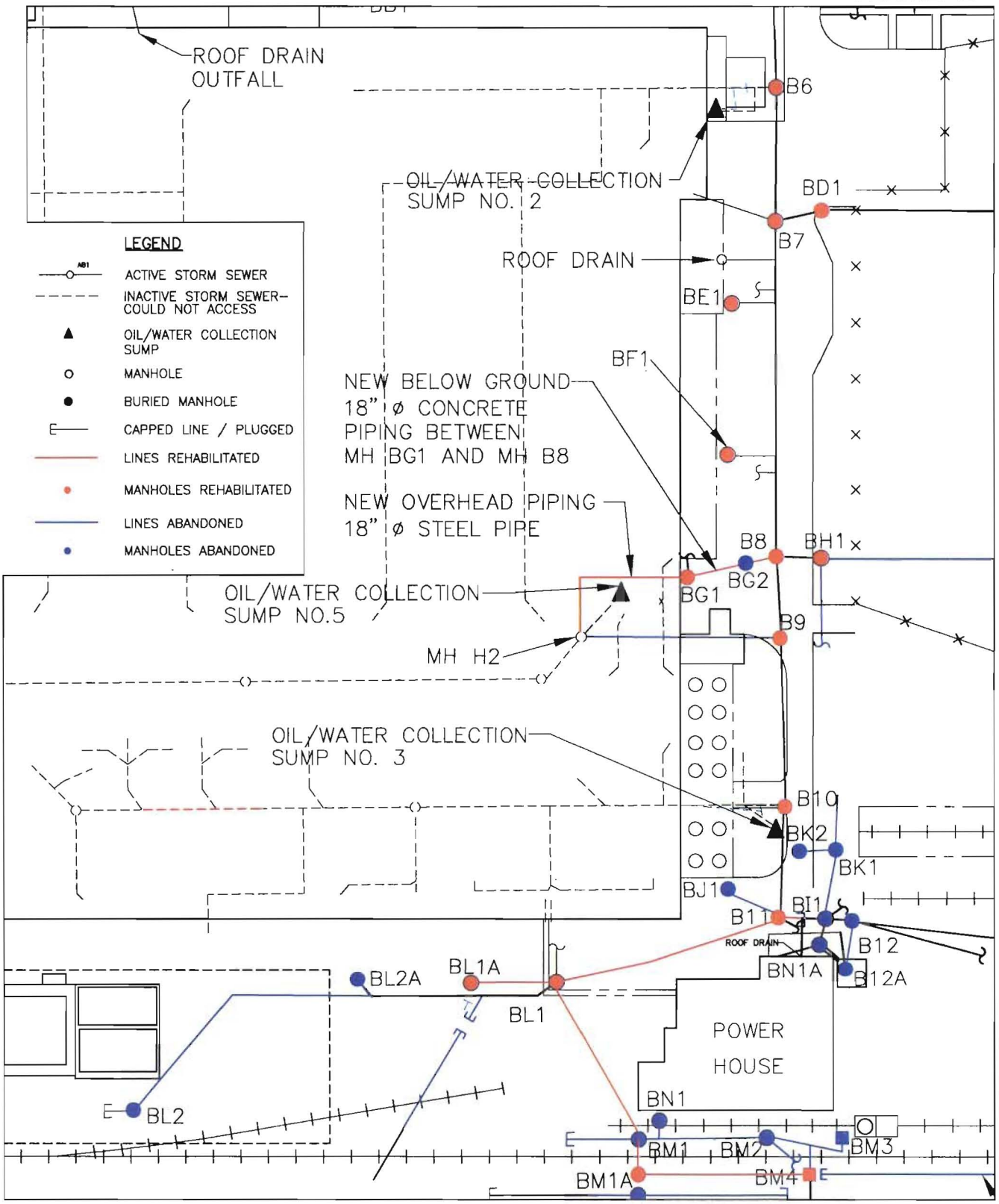
100 0 100
SCALE IN FEET

FILE NO. 4966.30472.115
OCTOBER 2002

O'BRIEN & GERE ENGINEERS, INC.

PLOT DATE: 10/18/02

FIGURE 2



GENERAL MOTORS CORPORATION
FORMER IFG FACILITY
SYRACUSE, NEW YORK

ROOF DRAIN RE-ROUTING PLAN

4966.30472.116
OCTOBER 2002

1"=100' 100 0 100

O'BRIEN & GERE ENGINEERS INC.

DWG PATH: I:\DIV71\PROJECTS\4966\30472\Task 004\Figures\115.DWG SF-100

PLOT DATE: 10/16/02

EXHIBIT A

Insituform Television Inspection Forms

INSITUFORM TECHNOLOGIES
MT VERNON N.Y.
TELEVISION INSPECTION

LOG REPORT
01-01-1980

JOB # : 260-061
JOB NAME : GM PLANT
OPERATOR : M.DECOSKE
TAPE # : 1
TIME : 05:00 PM
DATE : 06-20-01
STREET : SERVICE RD
:

PIPE INFORMATION
UPSTREAM MH# :B11
DOWNSTREAM MH#:BL1
PIPE TYPE :CEM/INSIT
PIPE SIZE :18"
TV DIRECTION :AWAY
WEATHER: SUN & CLOUDS
REMARKS: FINAL TV

FOOTAGE:	FAULT OR COMMENTS:
6.0 Ft	UPSTREAM MH
152.3 Ft	DOWNSTREAM MH

INSITUFORM TECHNOLOGIES
MT VERNON N.Y.
TELEVISION INSPECTION

LOG REPORT
01-01-1980

JOB # : 260-061
JOB NAME : GM PLANT
OPERATOR : M.DECOSKE
TAPE # : 1
TIME : 07:00 PM
DATE : 06-21-01
STREET : SERVICE RD
:

PIPE INFORMATION
UPSTREAM MH# :BL1
DOWNSTREAM MH#:BM1
PIPE TYPE :VCP/INSIT
PIPE SIZE :15"
TV DIRECTION :AWAY

WEATHER: SUN & CLOUDS
REMARKS: FINAL TV

FOOTAGE:	FAULT OR COMMENTS:
6.0 Ft	UPSTREAM MH
119.1 Ft	DOWNSTREAM MH

INSITUFORM TECHNOLOGIES
MT VERNON N.Y.
TELEVISION INSPECTION
LOG REPORT
01-01-1980

JOB # : 260-061
JOB NAME : GM PLANT
OPERATOR : M.DECOSKE
TAPE # : 1
TIME : 07:30 PM
DATE : 06-21-01
STREET : SERVICE RD
:

PIPE INFORMATION
UPSTREAM MH# :BA7
DOWNSTREAM MH# :BA6
PIPE TYPE :VCP/INSIT
PIPE SIZE :30"
TV DIRECTION :AWAY

WEATHER: SUN & CLOUDS
REMARKS: FINAL TV

FOOTAGE:	FAULT OR COMMENTS:
6.0 Ft	UPSTREAM MH
145.4 Ft	DOWNSTREAM MH

INSITUFORM TECHNOLOGIES
MT VERNON N.Y.
TELEVISION INSPECTION

LOG REPORT
01-01-1980

JOB # : 260-061
JOB NAME : GM PLANT
OPERATOR : M.DECOSKE
TAPE # : 1
TIME : 07:40 PM
DATE : 06-21-01
STREET : SERVICE RD
:

PIPE INFORMATION
UPSTREAM MH# :BA6
DOWNSTREAM MH#:BA5
PIPE TYPE :VCP/INSIT
PIPE SIZE :30"
TV DIRECTION :AWAY
WEATHER: SUN & CLOUDS
REMARKS: FINAL TV

FOOTAGE:	FAULT OR COMMENTS:
7.3 Ft	UPSTREAM MH
124.9 Ft	DOWNSTREAM MH

INSITUFORM TECHNOLOGIES
MT VERNON N.Y.
TELEVISION INSPECTION

LOG REPORT
01-01-1980

JOB # : 260-061
JOB NAME : GM PLANT
OPERATOR : M.DECOSKE
TAPE # : 1
TIME : 07:55 PM
DATE : 06-21-01
STREET : SERVICE RD
:

PIPE INFORMATION
UPSTREAM MH# :BA5
DOWNSTREAM MH#:BA4
PIPE TYPE :VCP/INSIT
PIPE SIZE :30"
TV DIRECTION :AWAY

WEATHER: SUN & CLOUDS
REMARKS: FINAL TV

FOOTAGE:	FAULT OR COMMENTS:
6.0 Ft	UPSTREAM MH
30.6 Ft	DOWNSTREAM MH

INSITUFORM TECHNOLOGIES
MT VERNON N.Y.
TELEVISION INSPECTION

LOG REPORT
01-01-1980

JOB # : 260-061
JOB NAME : GM PLANT
OPERATOR : M.DECOSKE
TAPE # : 1
TIME : 08:15 PM
DATE : 06-21-01
STREET : SERVICE RD

PIPE INFORMATION
UPSTREAM MH# :BAF1
DOWNSTREAM MH#:BA6
PIPE TYPE :VCP/INSIT
PIPE SIZE : 8"
TV DIRECTION :AWAY

WEATHER: SUN & CLOUDS
REMARKS: FINAL TV

FOOTAGE:	FAULT OR COMMENTS:
6.7 Ft	UPSTREAM MH
98.1 Ft	DOWNSTREAM MH

INSITUFORM TECHNOLOGIES
MT VERNON N.Y.
TELEVISION INSPECTION

LOG REPORT
01-01-1980

JOB # : 260-061
JOB NAME : GM PLANT
OPERATOR : M.DECOSKE
TAPE # : 1
TIME : 10:00 PM
DATE : 06-21-01
STREET : SERVICE RD

PIPE INFORMATION
UPSTREAM MH# :A7
DOWNSTREAM MH# :A6
PIPE TYPE :VCP/INSIT
PIPE SIZE :36"
TV DIRECTION :AWAY

WEATHER: SUN & CLOUDS
REMARKS: FINAL TV

FOOTAGE:	FAULT OR COMMENTS:
6.1 Ft	DOWNSTREAM MH
100.3 Ft	SAG
103.6 Ft	UPSTREAM MH

INSITUFORM TECHNOLOGIES
MT VERNON N.Y.
TELEVISION INSPECTION
LOG REPORT
01-01-1980

JOB # : 260-061
JOB NAME : GM PLANT
OPERATOR : M.DECOSKE
TAPE # : 1
TIME : 08:00 AM
DATE : 06-22-01
STREET : SERVICE RD
:

PIPE INFORMATION
UPSTREAM MH# :A6
DOWNSTREAM MH# :A5
PIPE TYPE :VCP/INSIT
PIPE SIZE :24"
TV DIRECTION :AWAY

WEATHER: SUN & CLOUDS
REMARKS: FINAL TV

FOOTAGE:	FAULT OR COMMENTS:
6.0 Ft	UPSTREAM MH
311.4 Ft	DOWNSTREAM MH

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TABLE of Contents

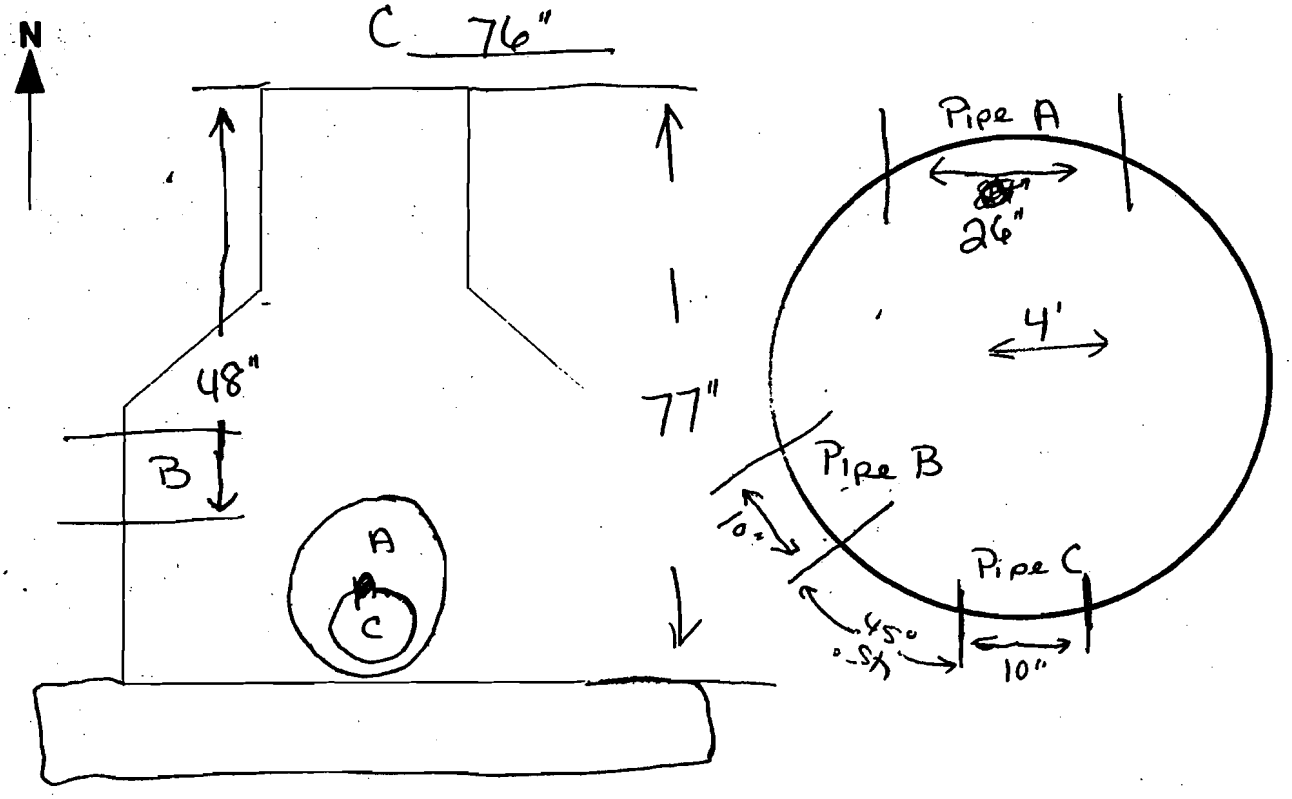
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A #2 Sewer Branch: Western Date: 6/27/01

Superviser: DAN Sheldon

Description of Repairs Made: New Catch Basin
A 9' Section of Pipe B was Replaced from The Catch Basin - out. A 4' Section of Pipe C was Replaced From the Catch Basin - out. AND A 39' section was put in place of the 8" pipe we removed making ALL of Pipe A 21" in Diameter

Effluents
A 77"
B 48"
C 76"

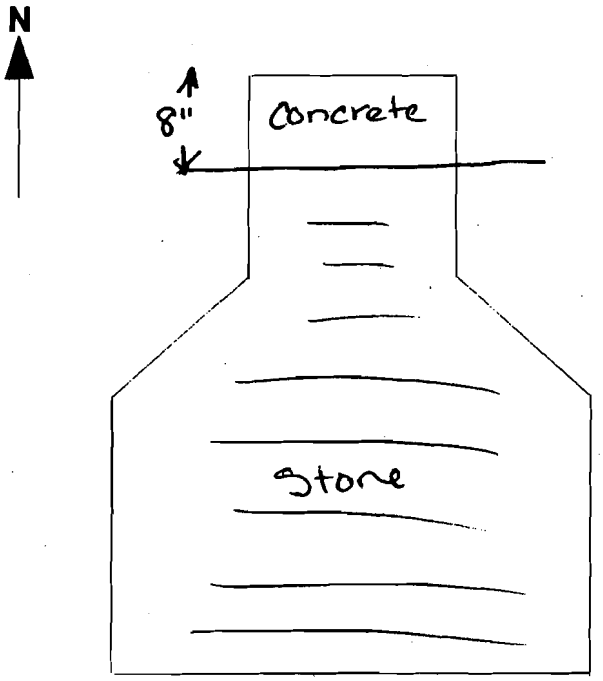


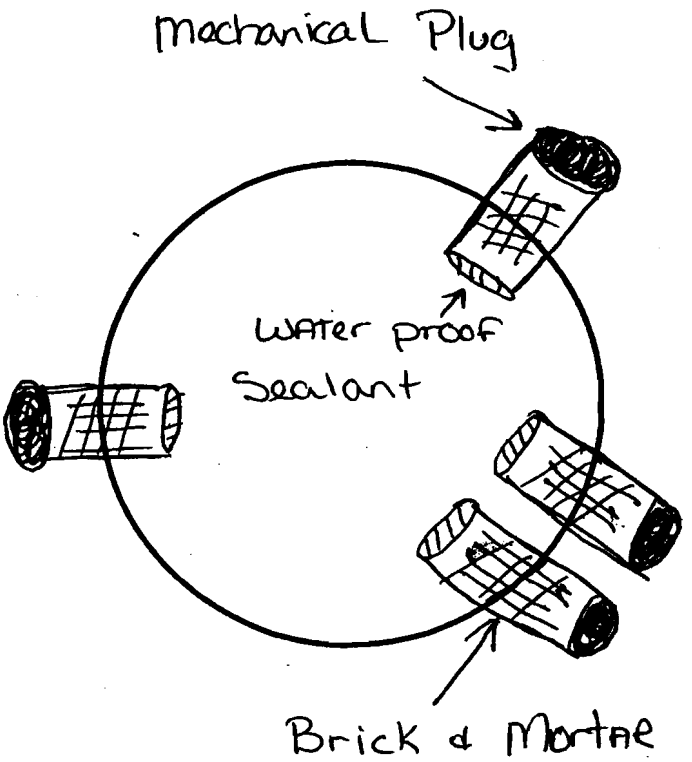
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BN1A Sewer Branch: Eastern Date: 6/8/01

Superviser: DAN Sheldon

Description of Repairs Made: Installed Mechanical Plugs, Bricked & mortar'd 6" Thick Then Sealed the last 2" with a water proof Sealant. Filled catch basin with stone then concrete (8")



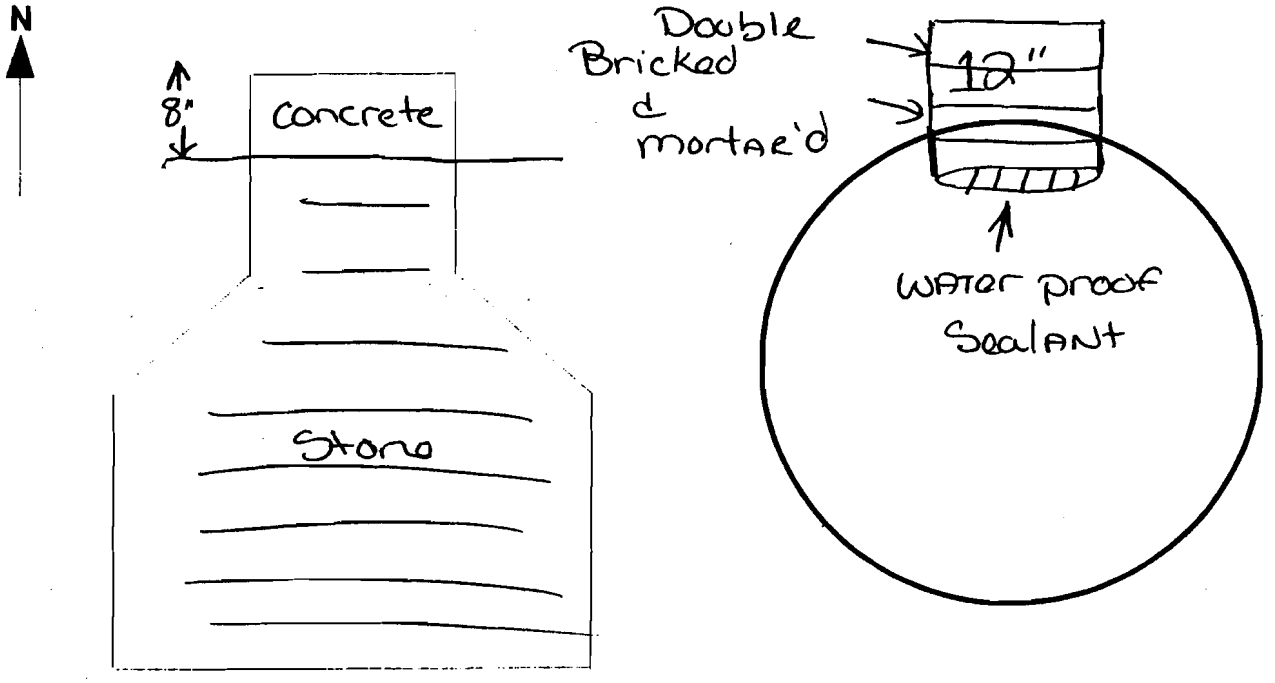


Manhole #: BK2 Sewer Branch: Eastern Date: 6-8-01

Superviser: DAN Sheldon

Description of Repairs Made: Double Bricked & mortar'd Sealed End with waterproof Sealant filled Basin with Stone & Sealed with Concrete

unable to Install mechanical Plug Because the End of the pipe was Badly out of Round



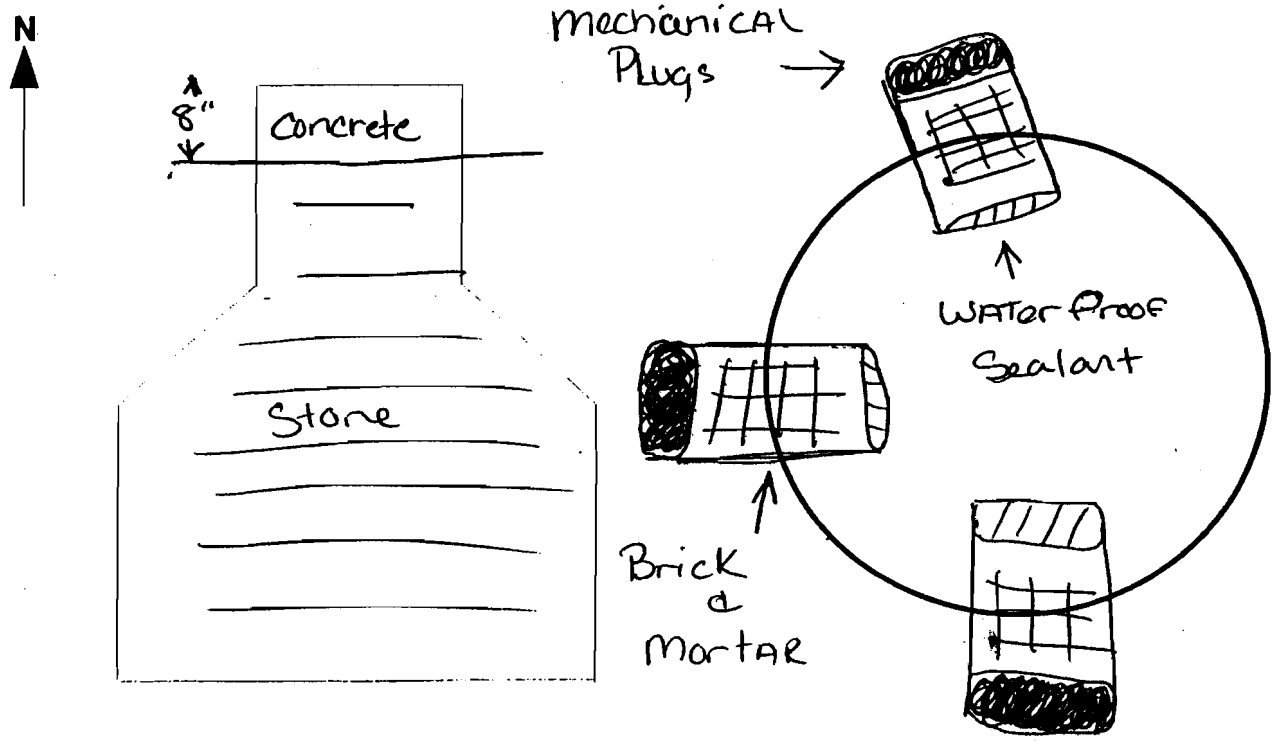
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BK1 Sewer Branch: Eastern Date: 6/8/01

Superviser: DAN Sheldon

Description of Repairs Made: Installed mechanical Plugs, Bricked & mortar'd 6-8" Sealed Ends with Water Proof Sealant.

Filled Basin with Stone, Sealed with concrete



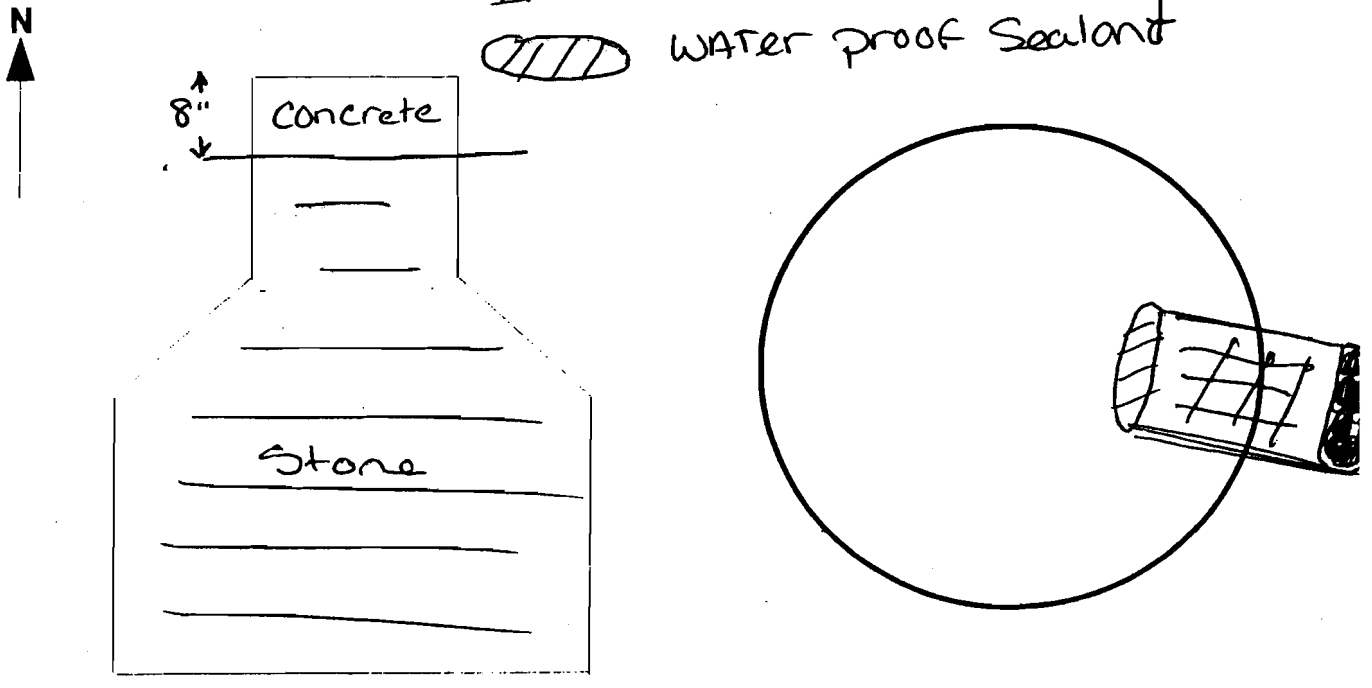
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BJ 1 Sewer Branch: Eastern Date: 6/8/01

Superviser: DAN Sheldon

Description of Repairs Made: Installed Mechanical Plug Bricked & Mortar'd 6-8" Sealed end with Water Proof Sealant

Filled Basin with Stone & Sealed with Concrete



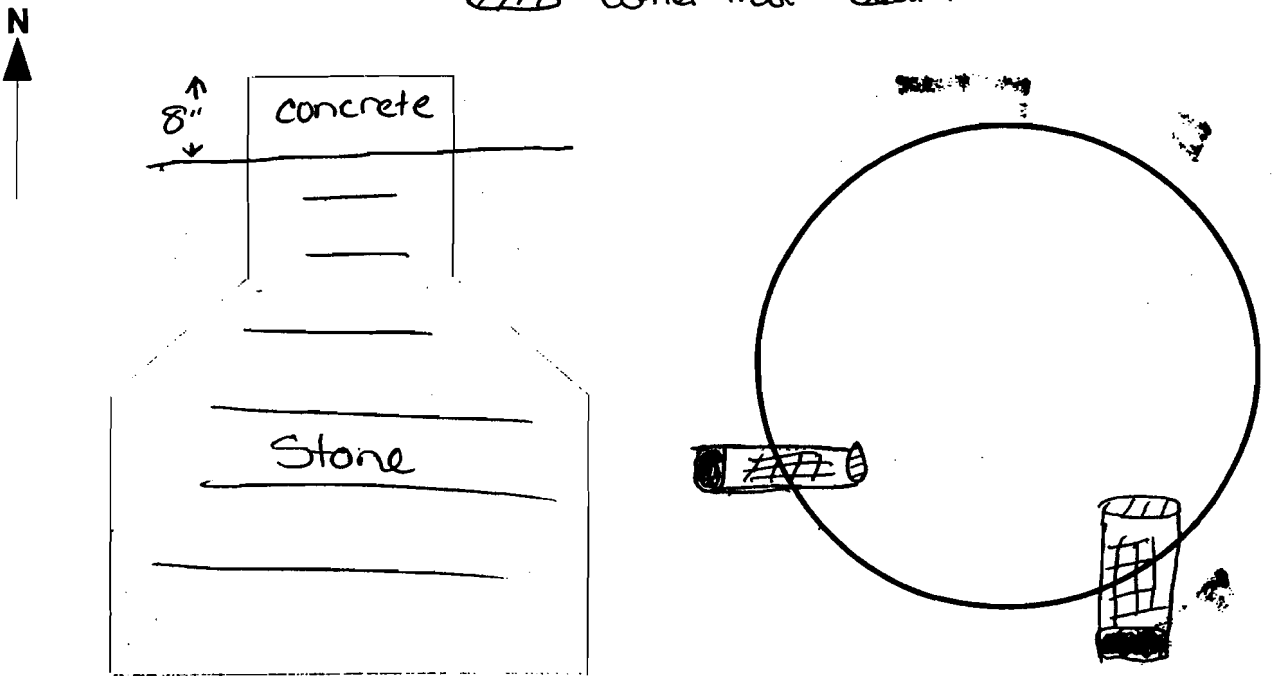
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BM 3 Sewer Branch: Eastern Date: 6/8/01

Superviser: DAN Shaldon

Description of Repairs Made: Installed Mechanical Plugs, Bricked & Mortar'd, Sealed with Water Proof Sealant Filled Basin with Stone & Sealed with Concrete

Mechanical Plugs
Brick & Mortar
Water Proof Sealant



Former IFG Facility, Syracuse, NY * Revised (6/15/01)
Storm Sewer Rehabilitation Project

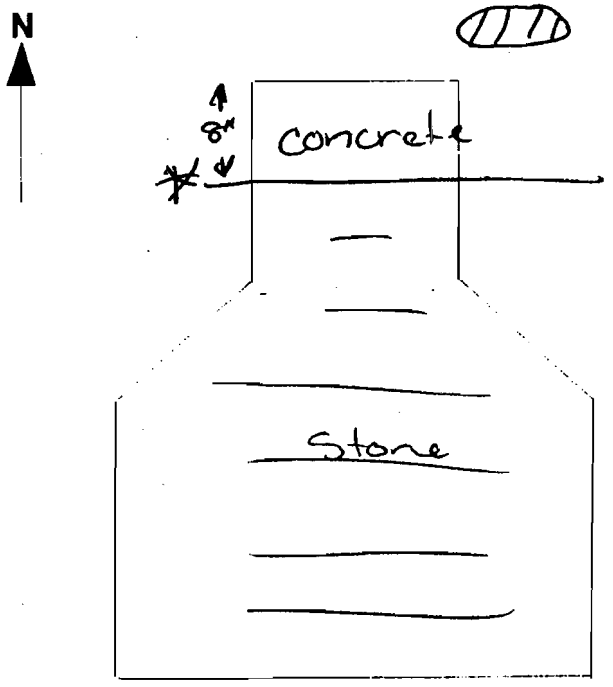
Manhole #: B12 Sewer Branch: Eastern Date: 6/9/01 ~~6/8/01~~

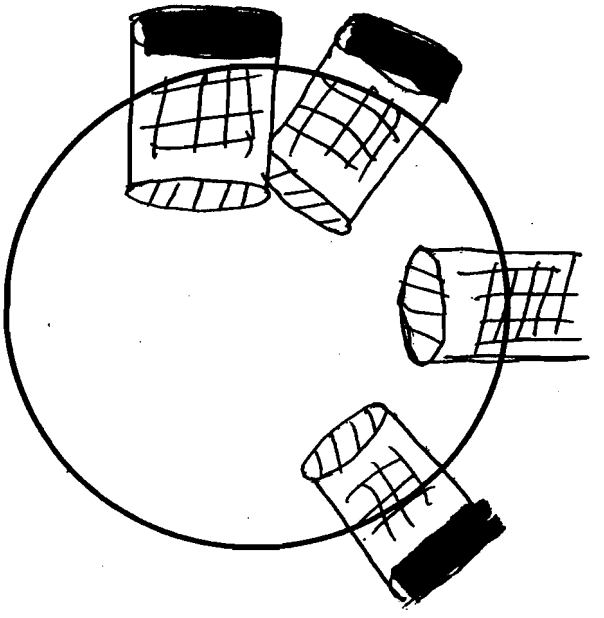
Superviser: DAN Sheldon

Description of Repairs Made: Installed 3 mechanical Plugs
Bricked & mortar'd 6-8" Sealed with WATER Proof Sealant

* CATCH Basin has Been filled with Stone & Sealed with Concrete

mechanical Plugs
Brick & mortAR
WATER Proof Sealant





Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

* Revised 6/15/01

Manhole #: BI1 Sewer Branch: Eastern Date: 6/9/01

Superviser: DAN Sheldon

Description of Repairs Made: Installed Mechanical Plugs (4) Bricked & Mortar'd then Sealed with Water Proof Sealant

2 Lines left open for Drainage - Possible Closure At A Later Date

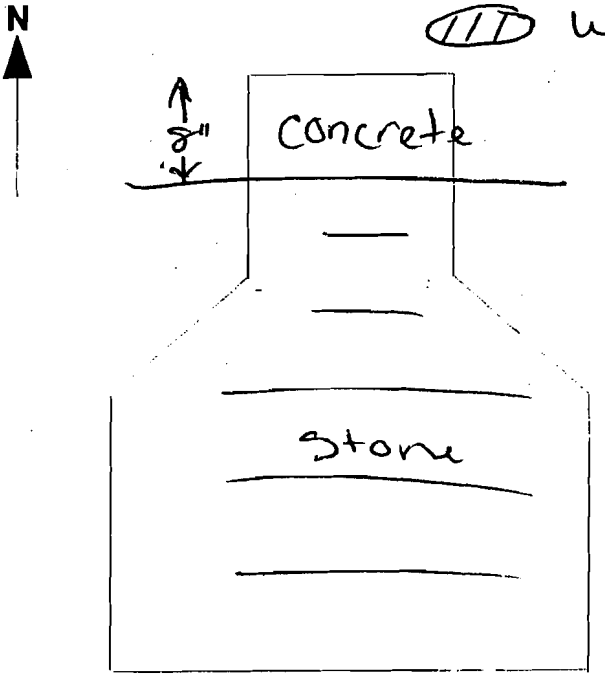
* The 2 pipes Left open Have Been Sealed. Also in the Same manner

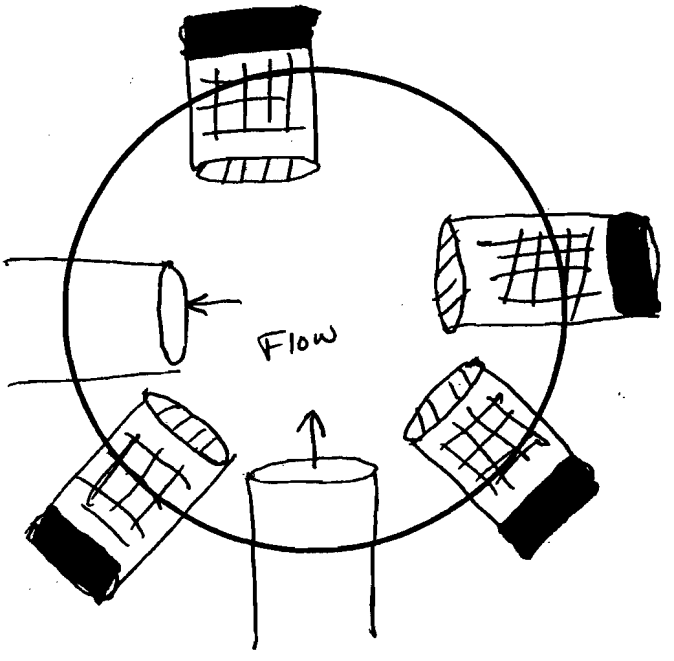
* The CATCH Basin was Been Filled with Stone & Sealed with Concrete

mechanical Plug

Brick & mortar

Water Proof Sealant





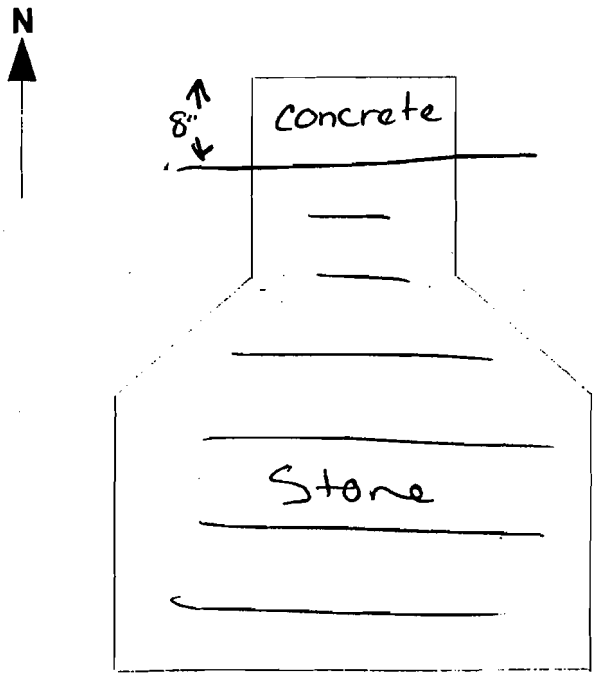
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

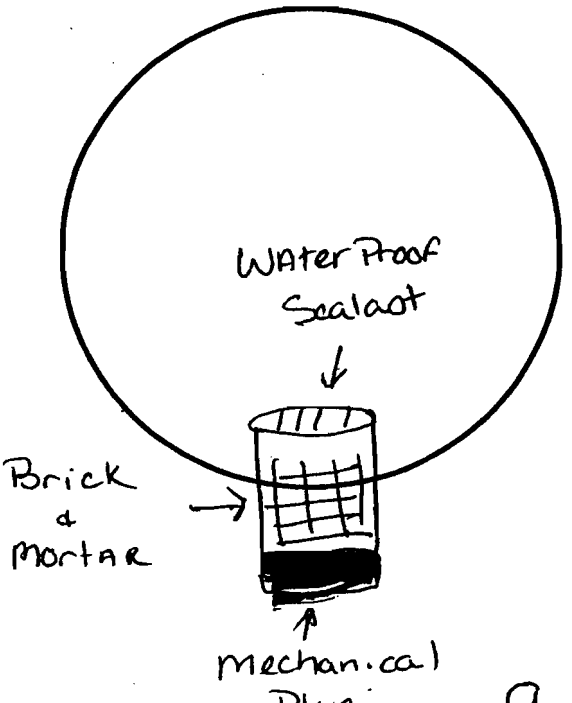
Manhole #: BN1 Sewer Branch: Eastern Date: 6/9/01

Superviser: DAN Sheldon

Description of Repairs Made: Installed mechanical Plug, Bricked & mortar'd Then Sealed End with WATERPROOF Sealant

Filled Basin with Stone & Sealed with Concrete





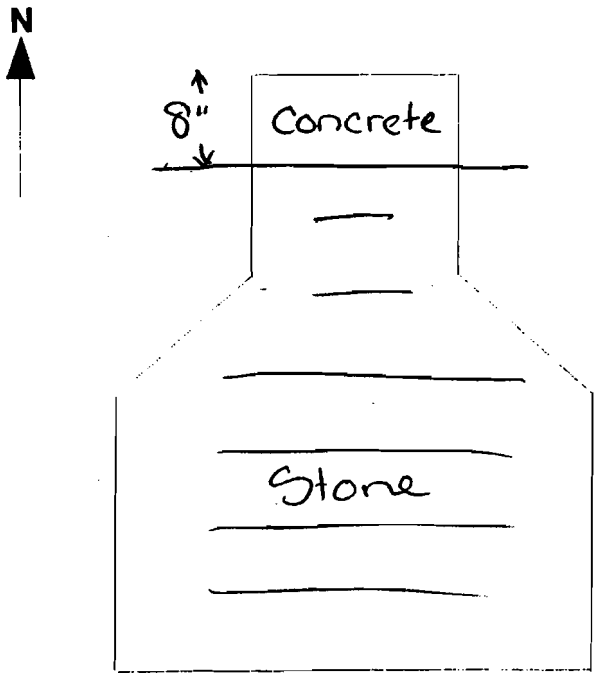
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

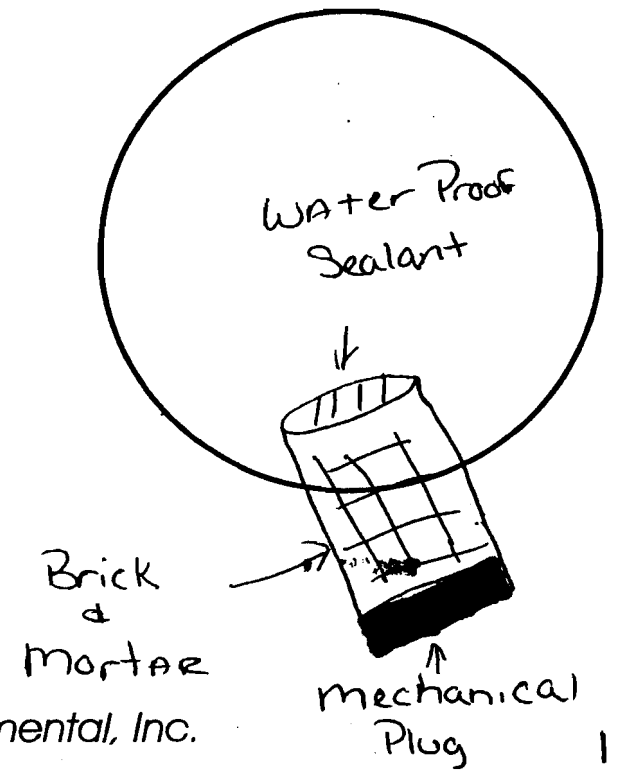
Manhole #: BL2A Sewer Branch: Eastern Date: 6/9/01

Superviser: DAN Shelton

Description of Repairs Made: Installed Mechanical Plug.
Bricked & mortar'd then Sealed with Water Proof Sealant

Filled Basin with Stone & Sealed with Concrete





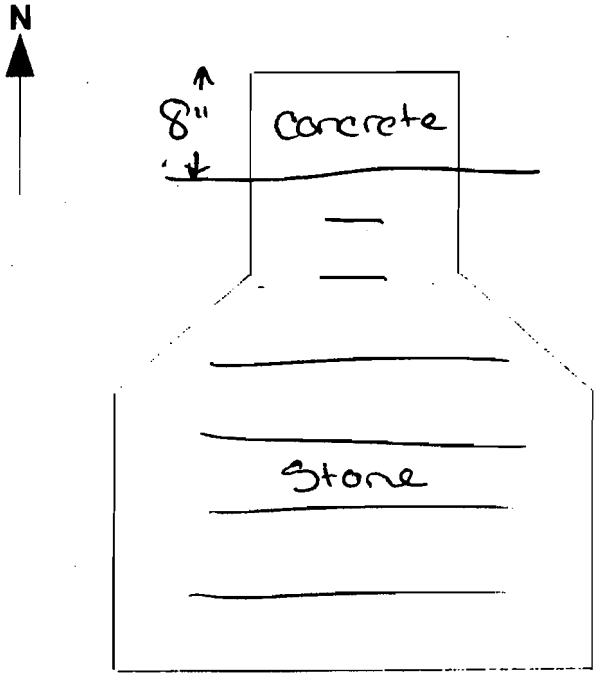
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

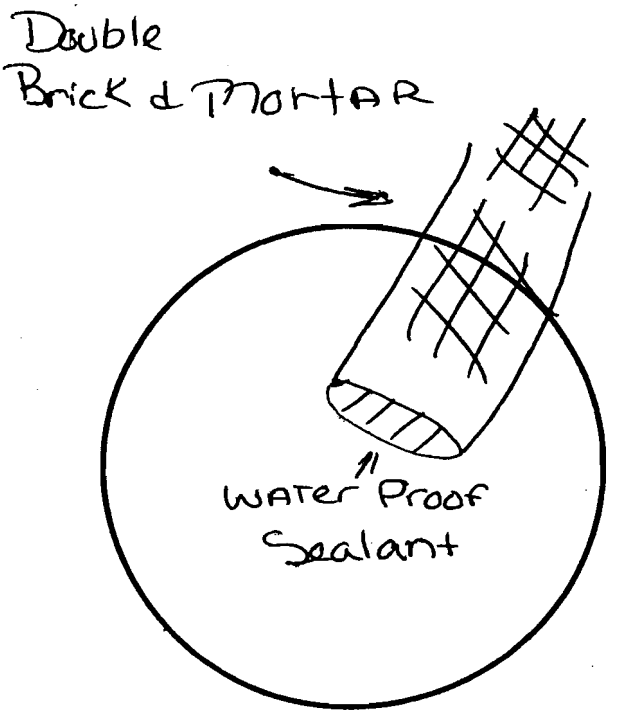
Manhole #: BL2 Sewer Branch: Eastern Date: 6/10/01

Superviser: DAN Sheldon

Description of Repairs Made: Double Brick & Mortar.
Sealed end with water Proof Sealant

Filled Basin with Stone & Sealed with Concrete





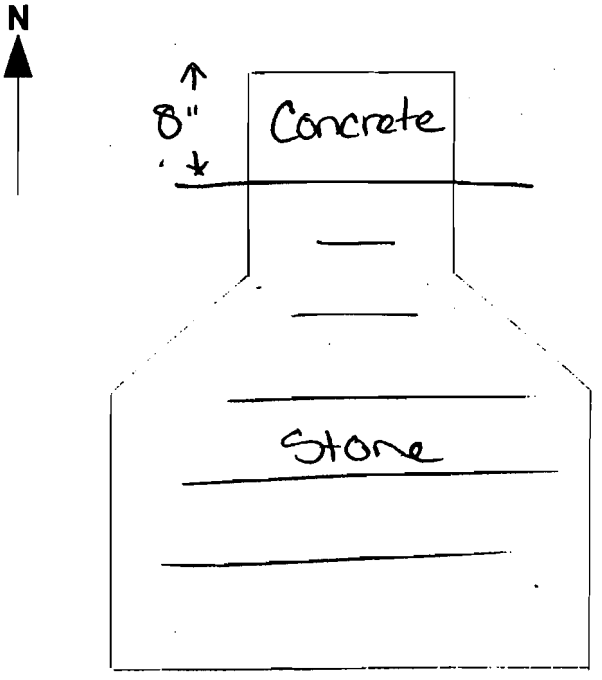
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

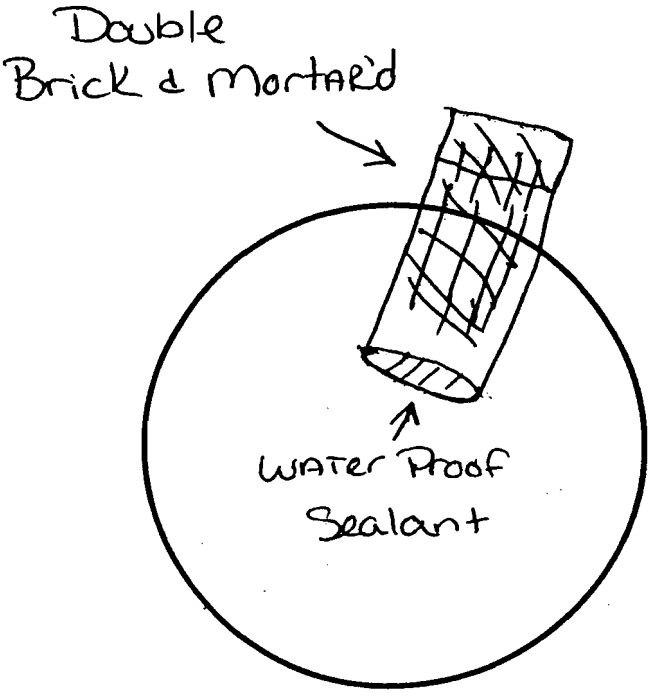
Manhole #: AJ1 Sewer Branch: Western Date: 6/10/01

Superviser: DAN Shelton

Description of Repairs Made: Double Brick & Mortar'd, Sealed end with Water Proof Sealant

Filled Basin With Stone & Sealed with Concrete



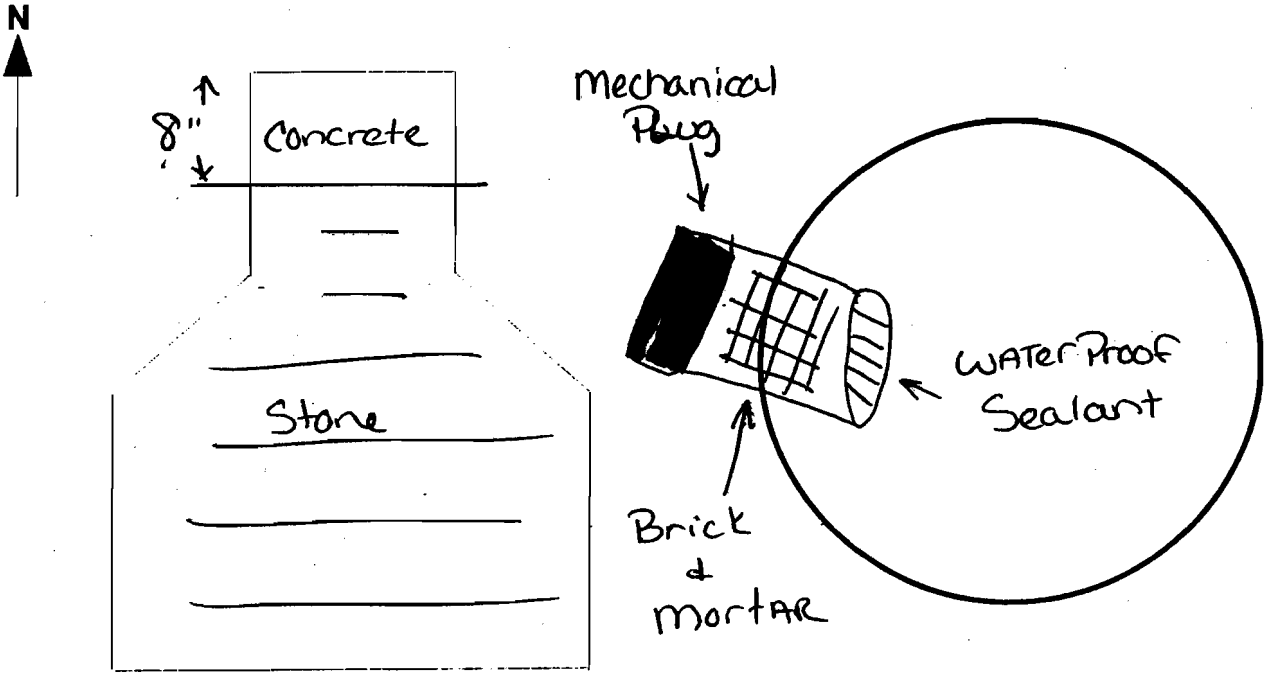


Manhole #: A12B Sewer Branch: Western Date: 6/10/01

Superviser: DAN Sheldon

Description of Repairs Made: Installed Mechanical Plug Bricked & Mortar'd Then Sealed end with Water Proof Sealant

Filled with Stone & Sealed with Concrete



Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

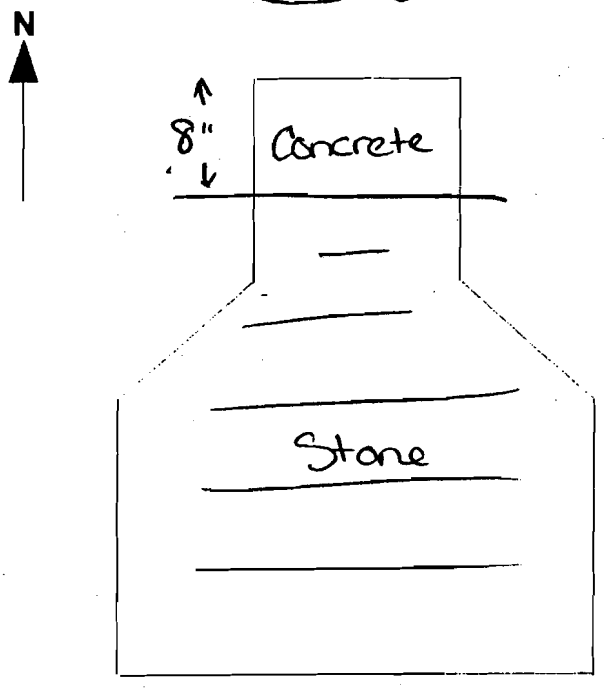
Manhole #: A12A Sewer Branch: Western Date: 6/10/01

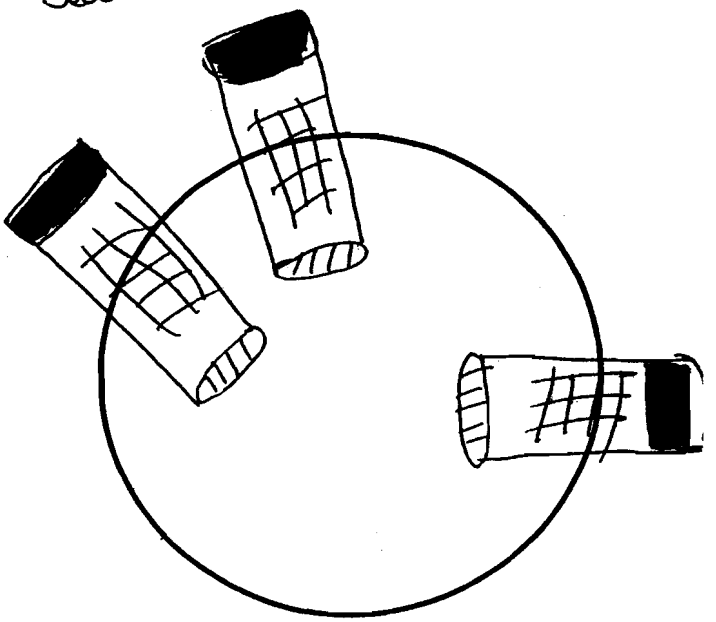
Superviser: DAN Sheldon

Description of Repairs Made: Installed Mechanical Plugs Bricked & Mortar'd then Sealed ends with Water Proof Sealant

Filled Basin with Stone & Sealed with Concrete

■ Mechanical Plugs
Brick & Mortar
((( ))) Water Proof Sealant



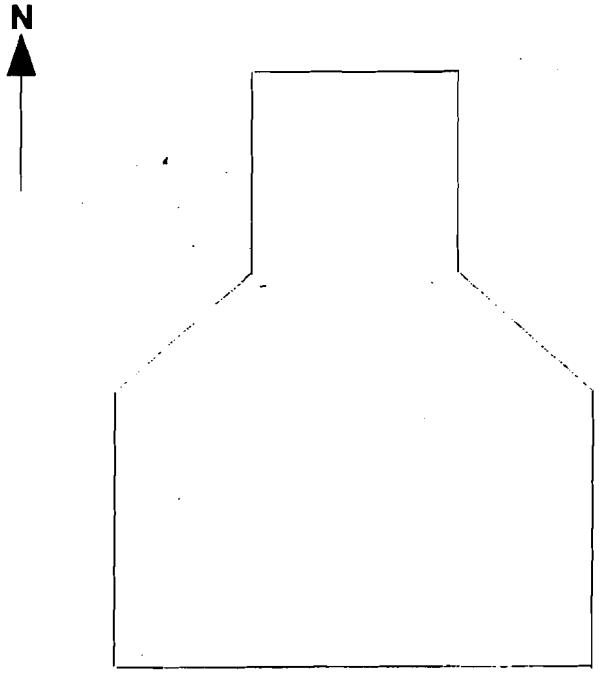


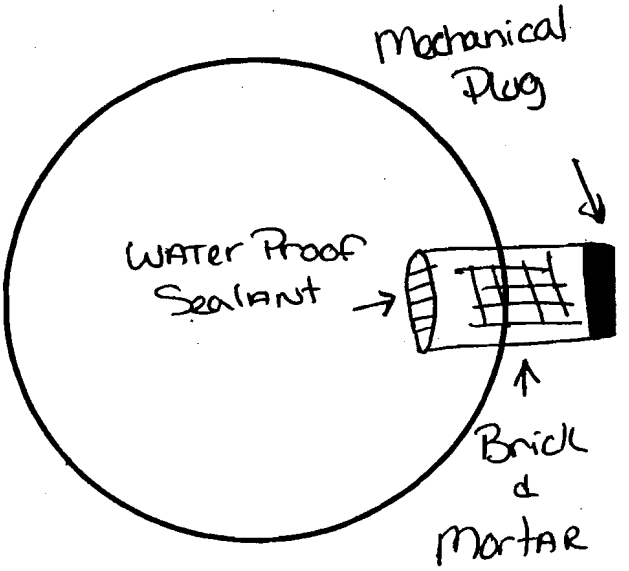
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A8B2 Sewer Branch: Western Date: 6/10/01

Superviser: DAN Shelton

Description of Repairs Made: Installed Mechanical Plug in 6" Line Heading East From Catch basin then Bricked & Mortar'd & Sealed with WATER Proof Sealant



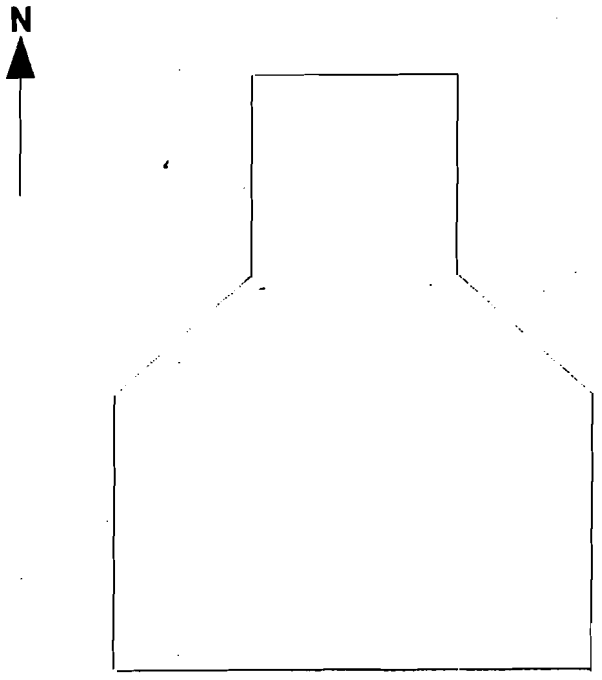


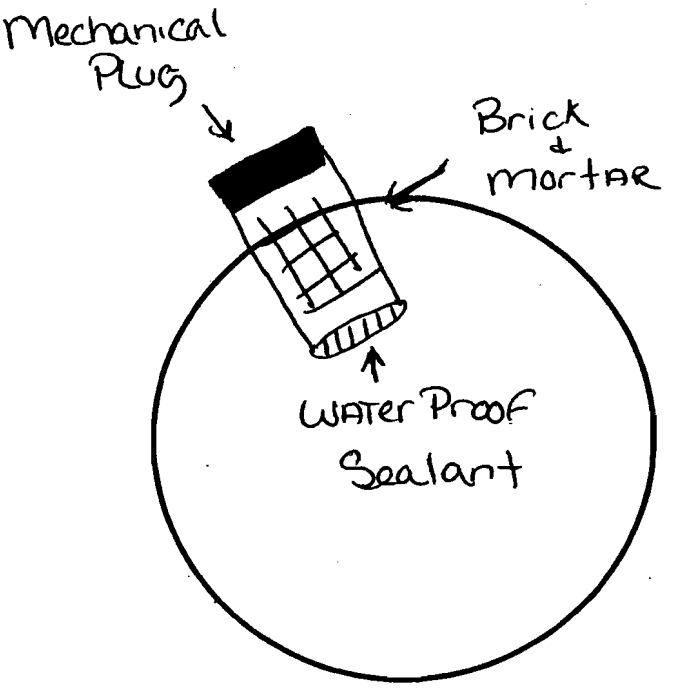
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A8A Sewer Branch: Western Date: 6/10/01

Superviser: DAN Shelton

Description of Repairs Made: Installed A Mechanical Plug in the 6" Line heading North-West out of the CATCH Basin Then Bricked & Mortar'd & Sealed end of PIPE with WATER Proof Sealant





Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

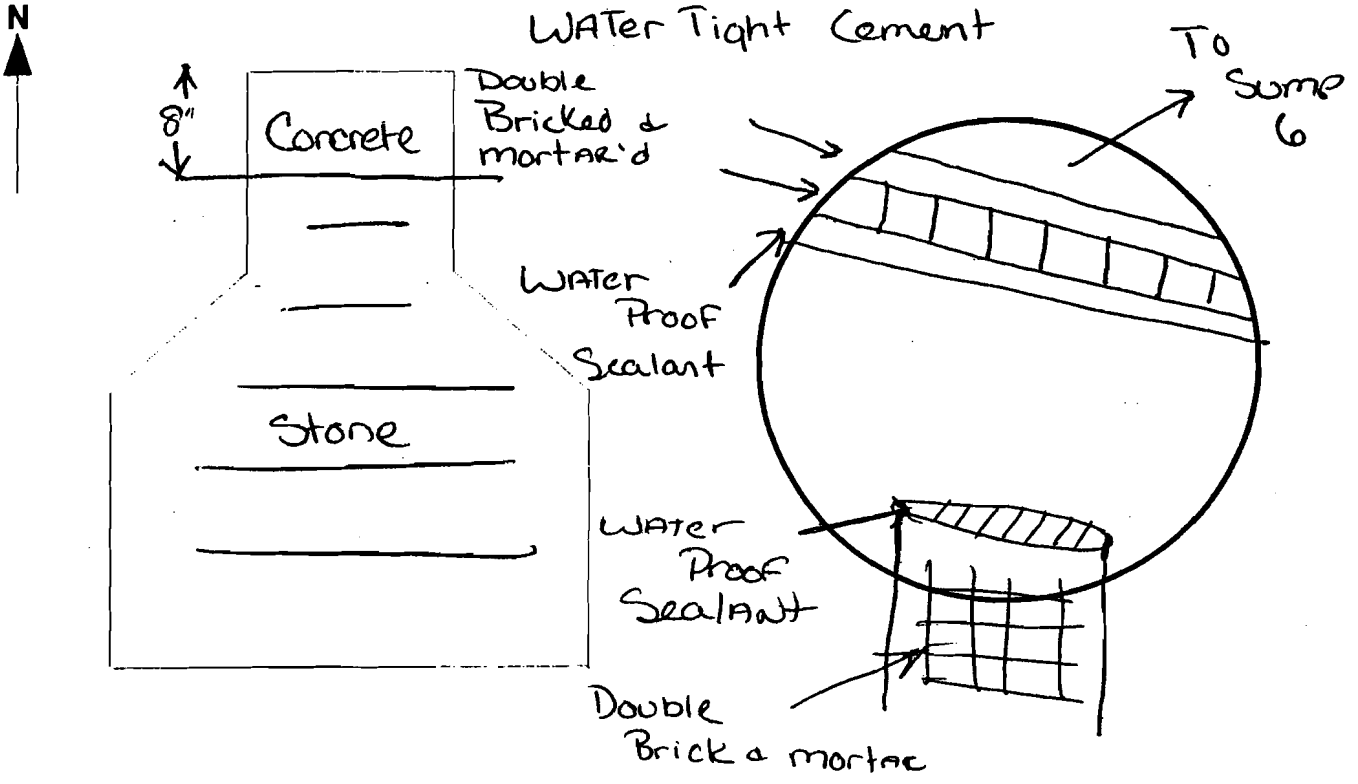
Manhole #: AG 3 Sewer Branch: Western Date: 6/10/01

Superviser: DAN Sheldon

Description of Repairs Made: After putting up a Double Brick WALL we poured Cement Behind the new wall - Sealing The old ~~could~~ WALL Then we seald The Face of the New wall with WATer Proof Sealant.

We Double Bricked & Mortar'd The Pipe leading to A12, Then Sealed the pipe with WATer Proof Sealant

* CATch Basin was filled w/stone & Sealed with Concrete



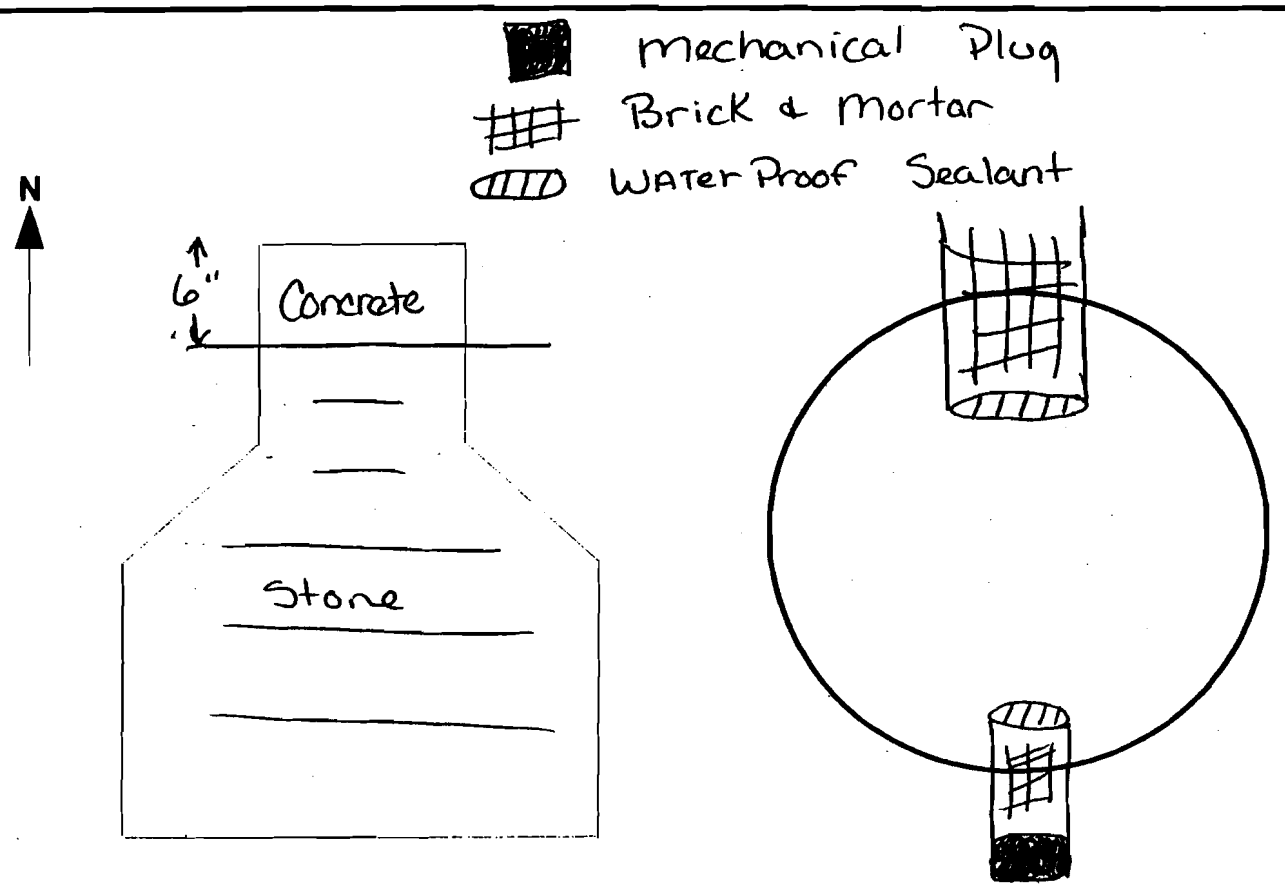
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A&2 Sewer Branch: Western Date: 6/12/01

Superviser: DAN Sheldon

Description of Repairs Made: A mechanical Plug was installed in the 4" pipe Then Both pipes were Bricked & Mortar'd And a WATER Proof Sealant WAS [redacted] used to CAP the Ends

The Basin was Filled w/ Stone & Sealed with Concrete



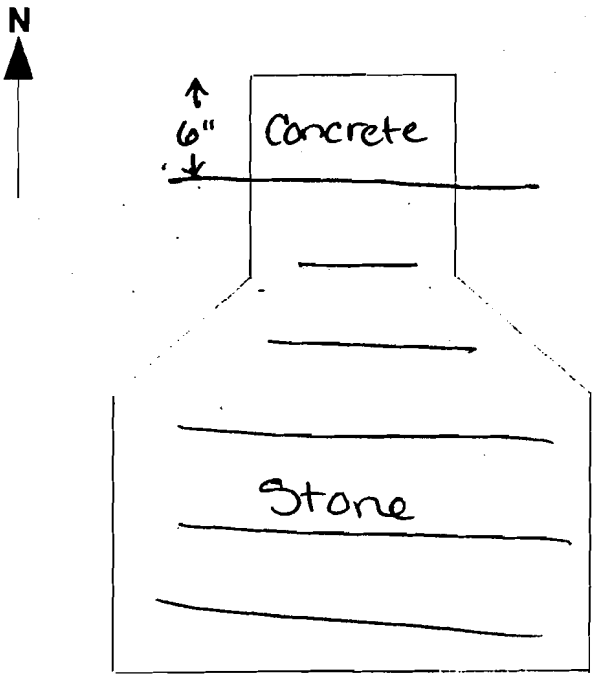
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

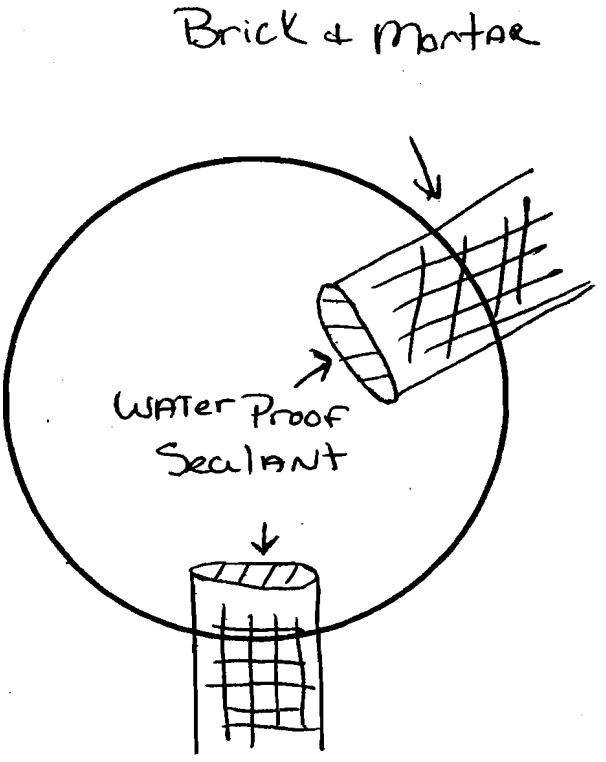
Manhole #: AE 1 Sewer Branch: Western Date: 6/12/01

Superviser: DAN Sheldon

Description of Repairs Made: Both Pipes were Double Bricked & Mortar'd Then Sealed with Water Proof Sealant

The Basin was filled with Stone & Sealed with Concrete





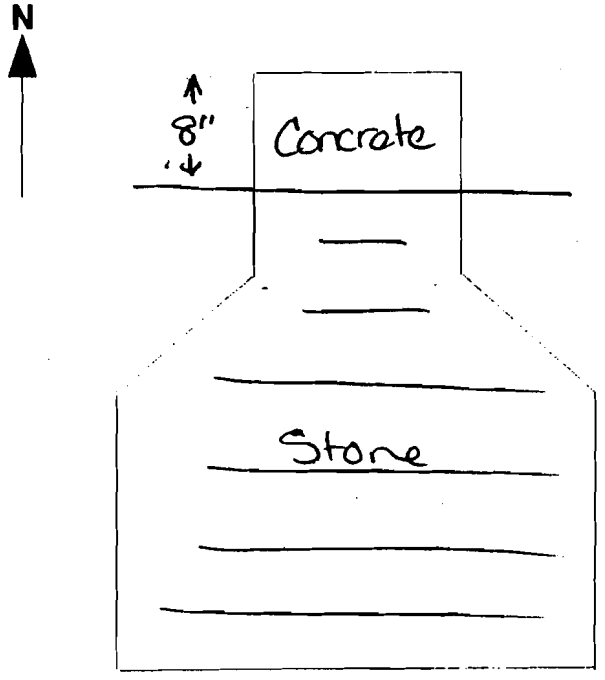
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

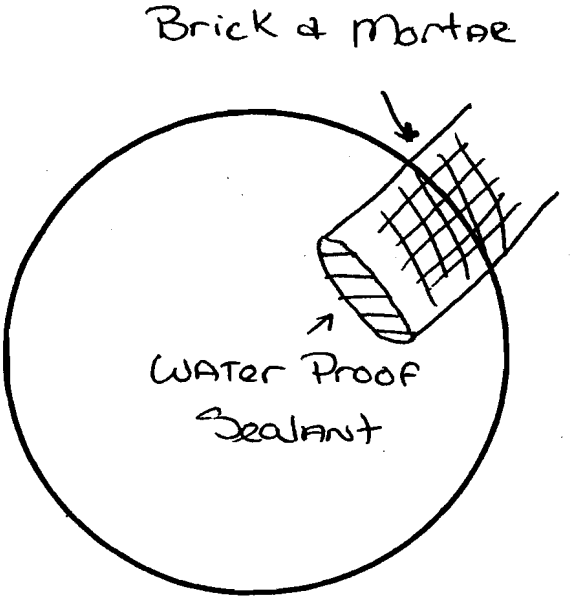
Manhole #: AD1 Sewer Branch: Western Date: 6/13/01

Superviser: DAN Sheldon

Description of Repairs Made: Pipe was Double Bricked & Mortar'd Then Sealed with a Water Proof Sealant

The Basin was then filled with Stone & Sealed with Concrete





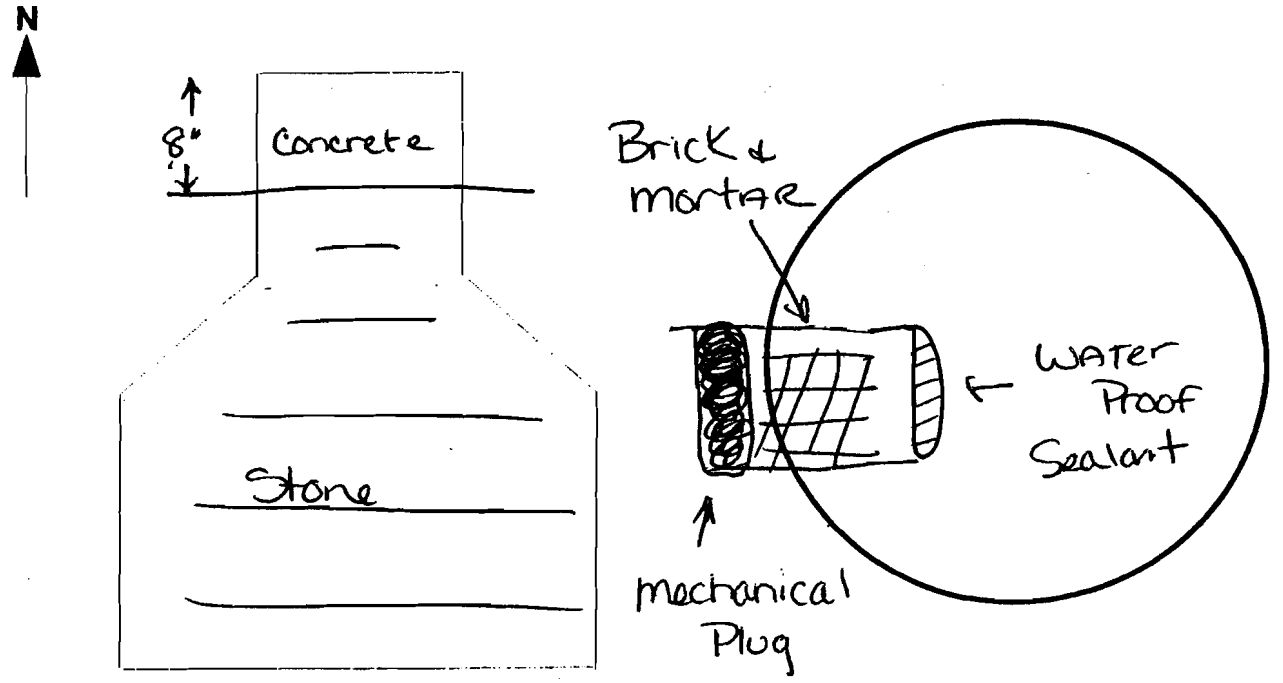
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: AC2 Sewer Branch: Western Date: 6/14/01

Superviser: DAN Sheldon

Description of Repairs Made: A mechanical plug was installed in The pipe Then the pipe was Bricked & mortar'd AND a water tight Sealant was used to cap the pipe

The Basin was filled with Stone then Sealed with Concrete



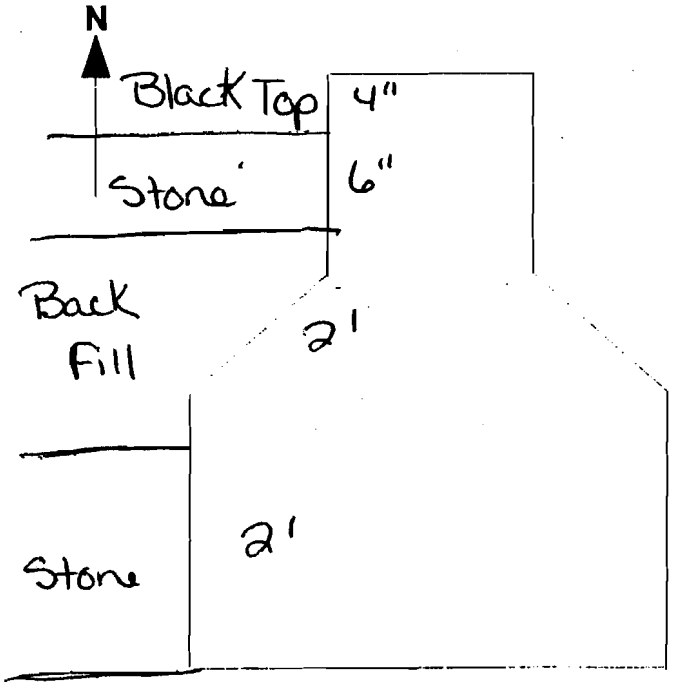
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

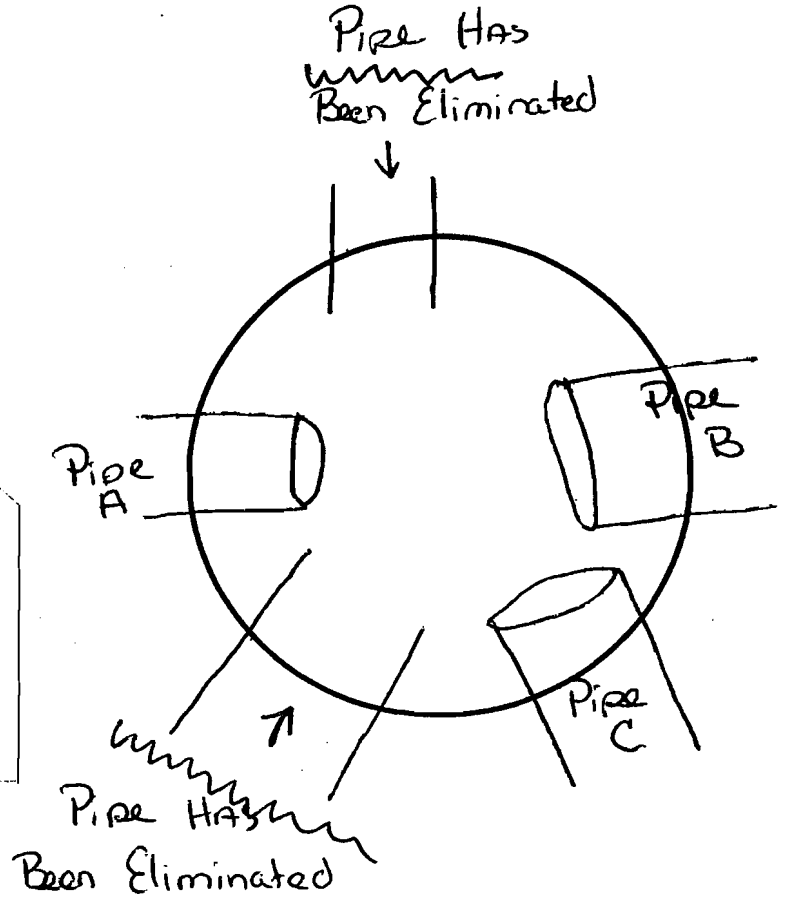
Manhole #: BL1 Sewer Branch: Eastern Date: 6/18/01 thru 6/21/01

Superviser: DAN Shelton

Description of Repairs Made: A New Catch Basin has been Installed 2 pipes 1 to the North & 1 to the Southwest Have Been Capped off - (mechanical Plugs, Bricked & Mortared - then Sealed outside the Catch Basin.
A 4 foot Section was Replaced (Pipe A) then Connected to the New Basin. A 9 foot Section was Replaced (Pipe C) Then Connected to New Basin. Pipe B was Reconnected to the New Basin. Both pipes B & C were then Insituformed.

The pipes were Covered with Stone. Back Fill of Dirt was used to Fill the rest of the Escavated Area Then topped with Stone & Black topped



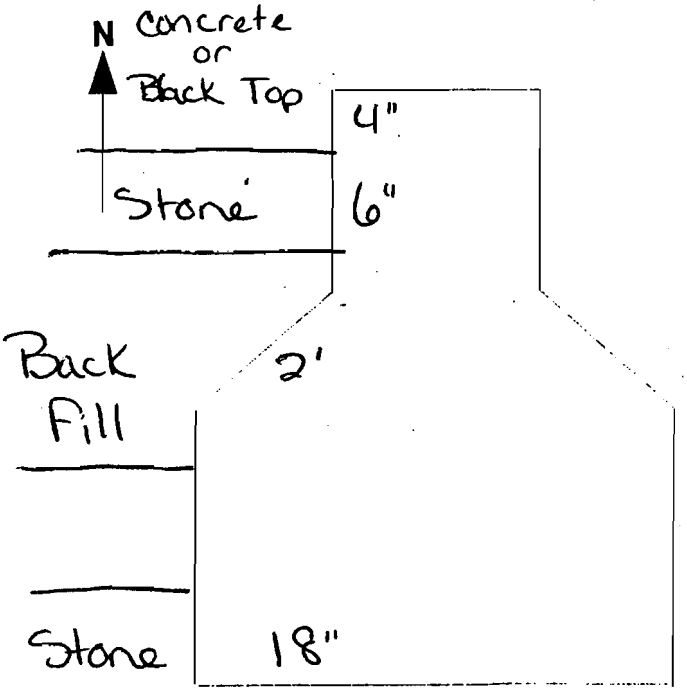


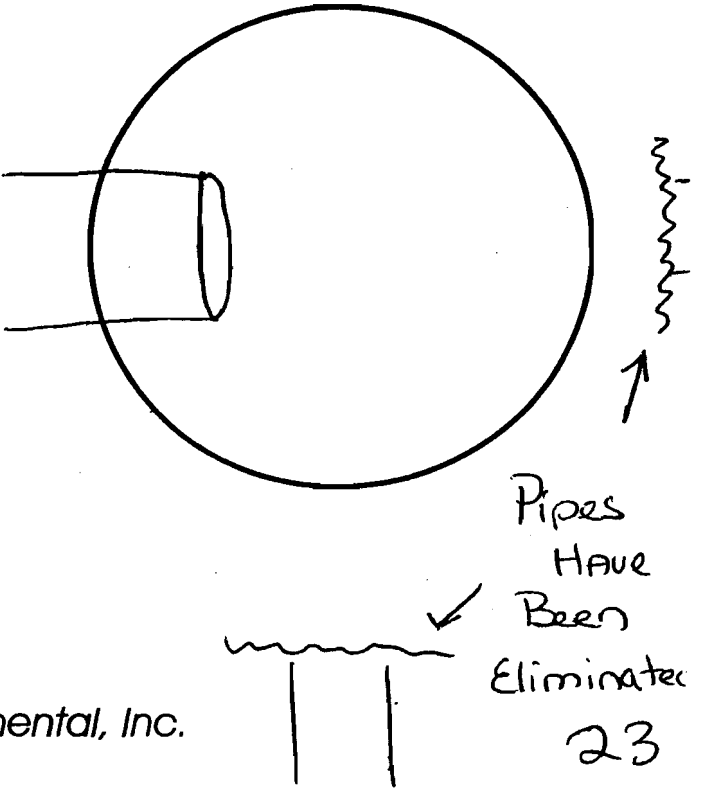
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BH1 Sewer Branch: Eastern Date: 6/21/01
Thru 6/28/01

Superviser: DAN Shelton

Description of Repairs Made: A New Catch Basin was Installed The Pipes going out of the OLD CATCH Basin to the South & to the East were Capped off (mechanical plugs, Bricked & Mortar'd them Sealed) Outside of the New Basin. the Pipe going West was Reconnected to the New Basin.



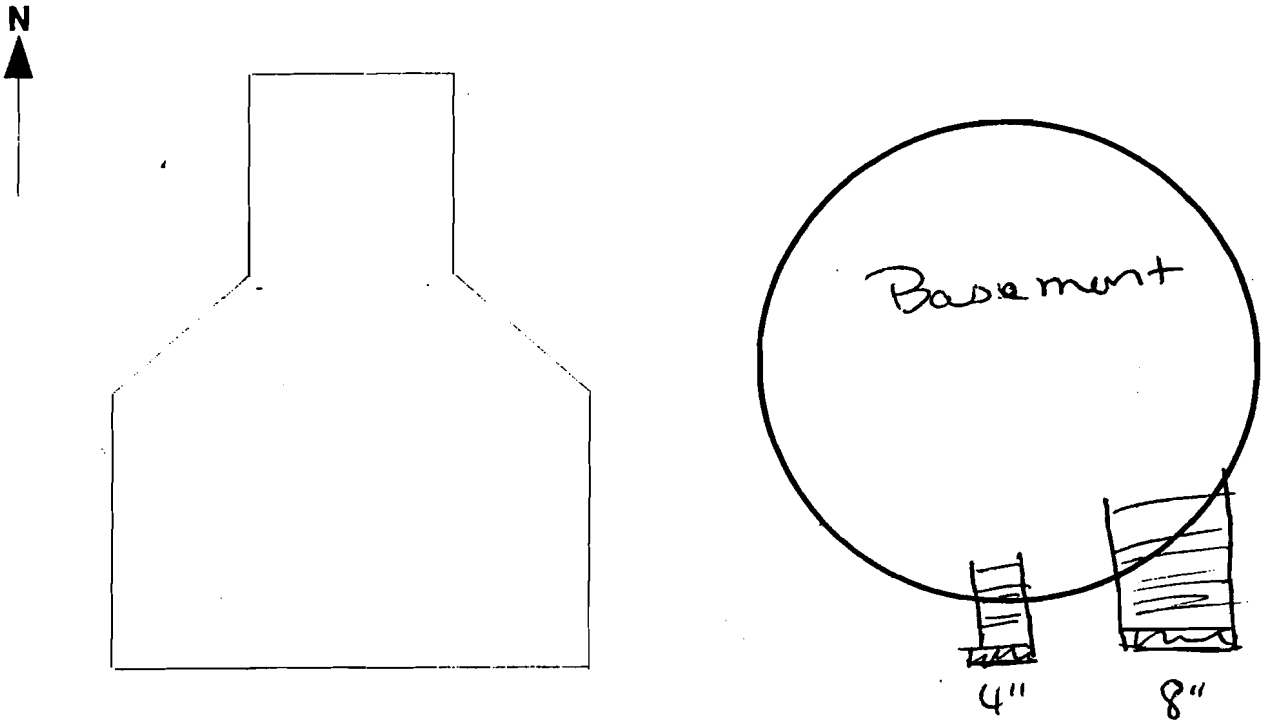


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: Basement Under Silo's Sewer Branch: Eastern Date: 6/27/01 6/28/01

Superviser: DAN Shalton

Description of Repairs Made: We pumped out the Existing Water Then Eliminated 2 Pipes Exiting the Eastern WALL 4' Below Grade Heading towards Powerhouse Sump. Both Pipes were Double Bricked & Mortar'd Then Sealed (A 4" & 8" were sealed)

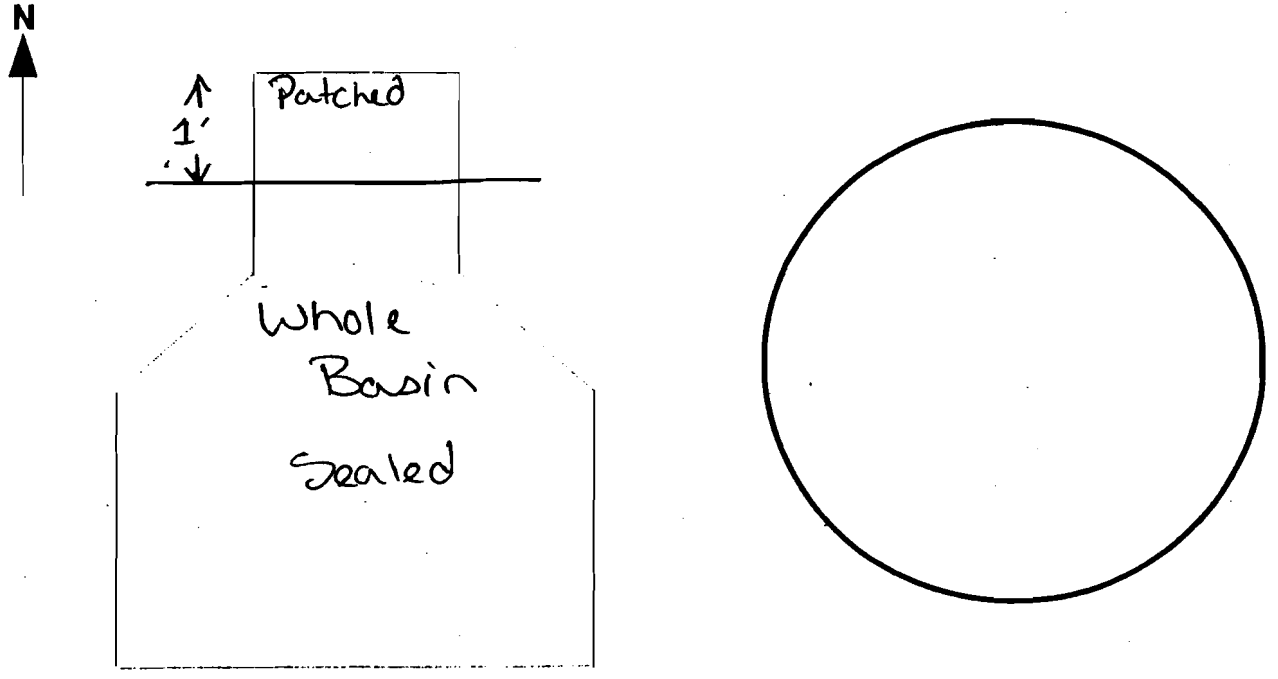


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: AF2 Sewer Branch: Western Date: 6/11/01

Superviser: DAN Sheldon

Description of Repairs Made: Top 1' of The Catch Basin was Patched with Vertical Speed mortar Then The Basin was Sealed with a WATER tight Sealant

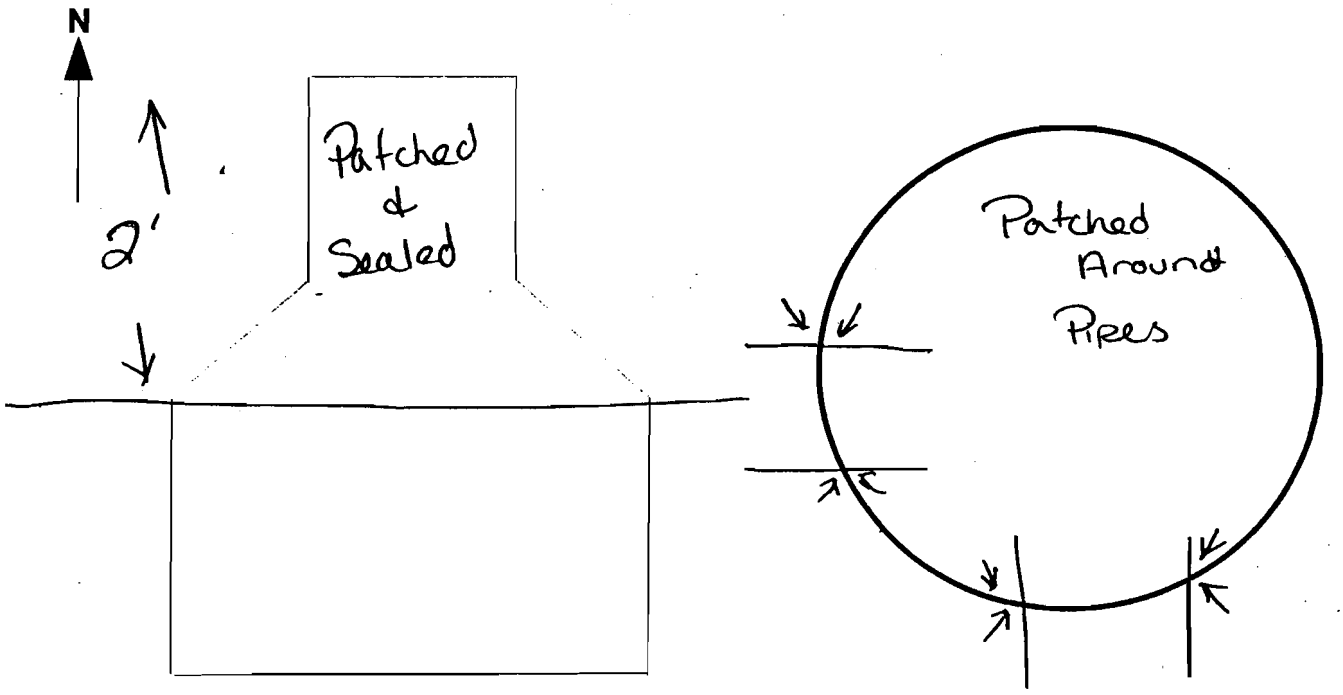


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: AF1 Sewer Branch: Western Date: 7/11/01

Superviser: DAN Sheldon

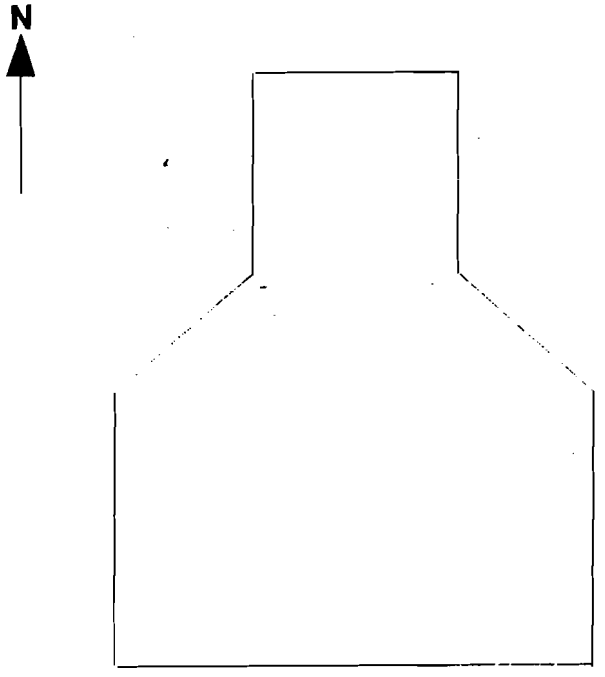
Description of Repairs Made: The Top half of The Basin and around Pipes was patched with Vertical Speed mortar Then the Entire Basin was sealed with a WATER Tight Sealant

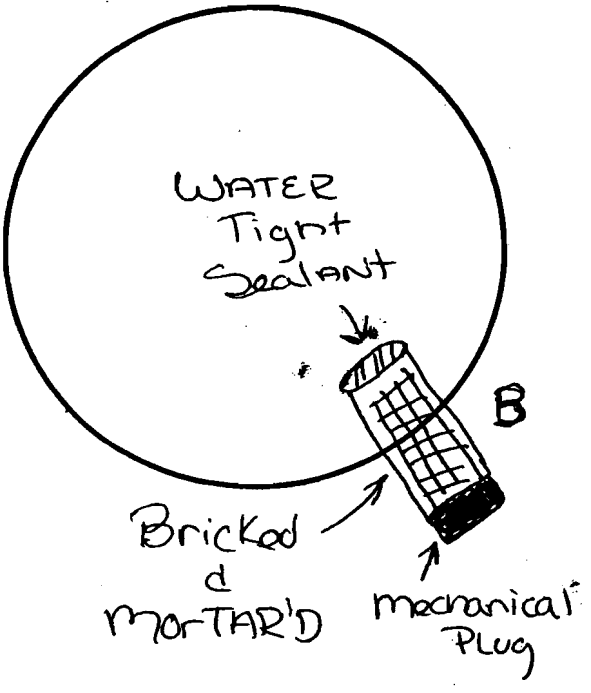


Manhole #: AH1A Sewer Branch: Western Date: 7/11/01

Superviser: Dan Sheldon

Description of Repairs Made: Pipe B (from page 10) was plugged, Bricked & MortAR'D then Sealed. The Rest of The Basin was patched & Sealed



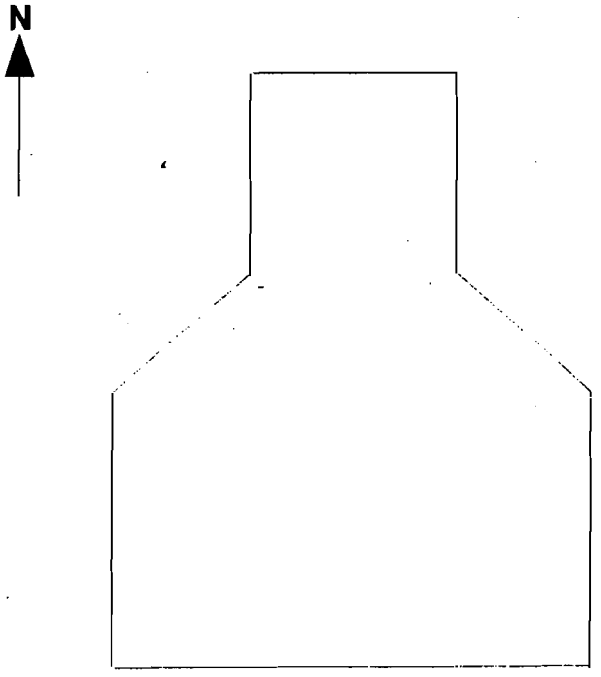


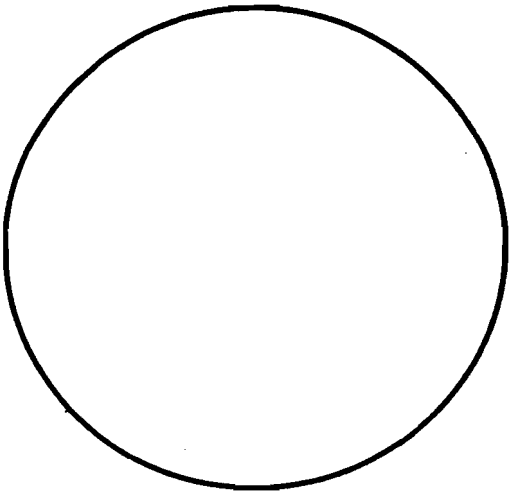
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: AH2A Sewer Branch: Western Date: 7/11/01

Superviser: Dan Sheldon

Description of Repairs Made: The WALLS & Around The Pipe were Patched & Sealed Then Waterproofed



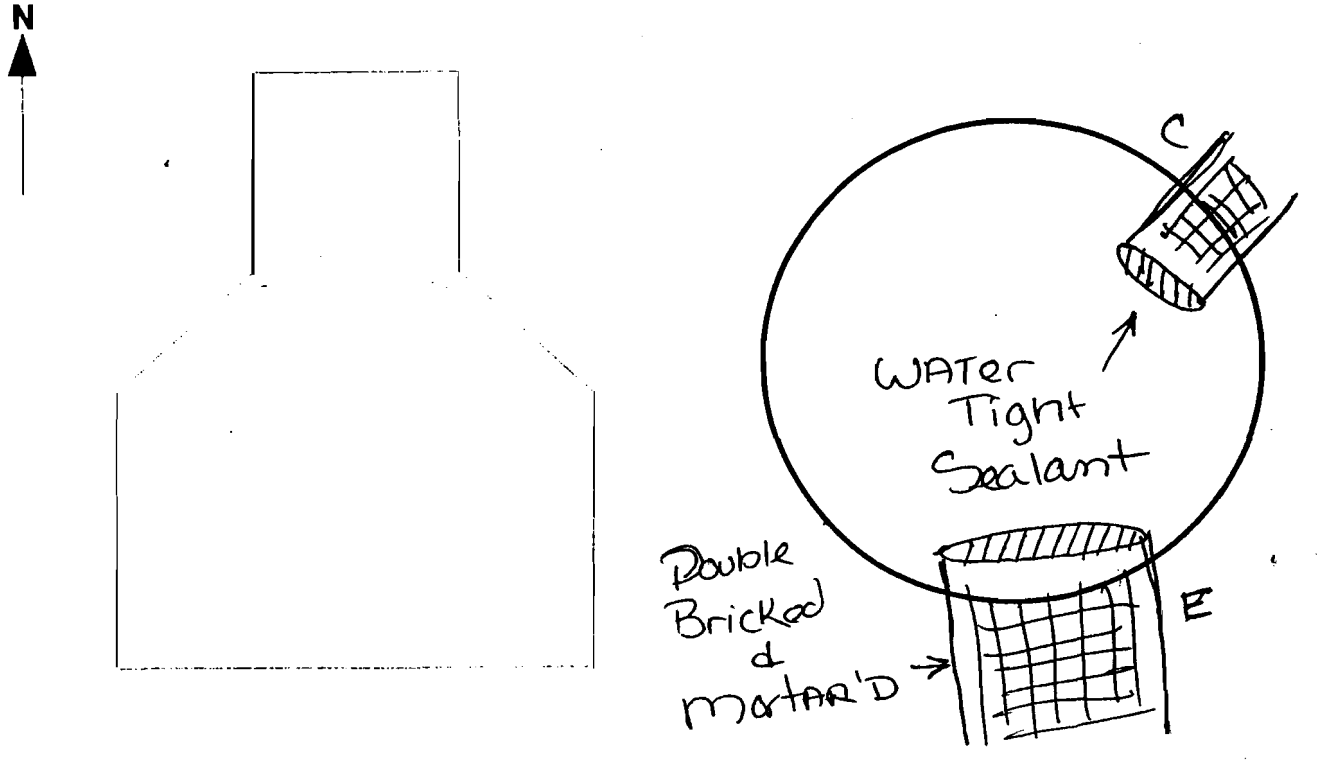


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A12 Sewer Branch: Western Date: 7/11/01

Superviser: Dan Sheldon

Description of Repairs Made: Pipes C & E (From page 11) were Both Double Bricked & MortAR'D then Sealed with WATER Tight Sealant. The walls of The Basin were Patched ~~were~~ where Needed then Sealed with Hey D1 K11 WATER Proofing

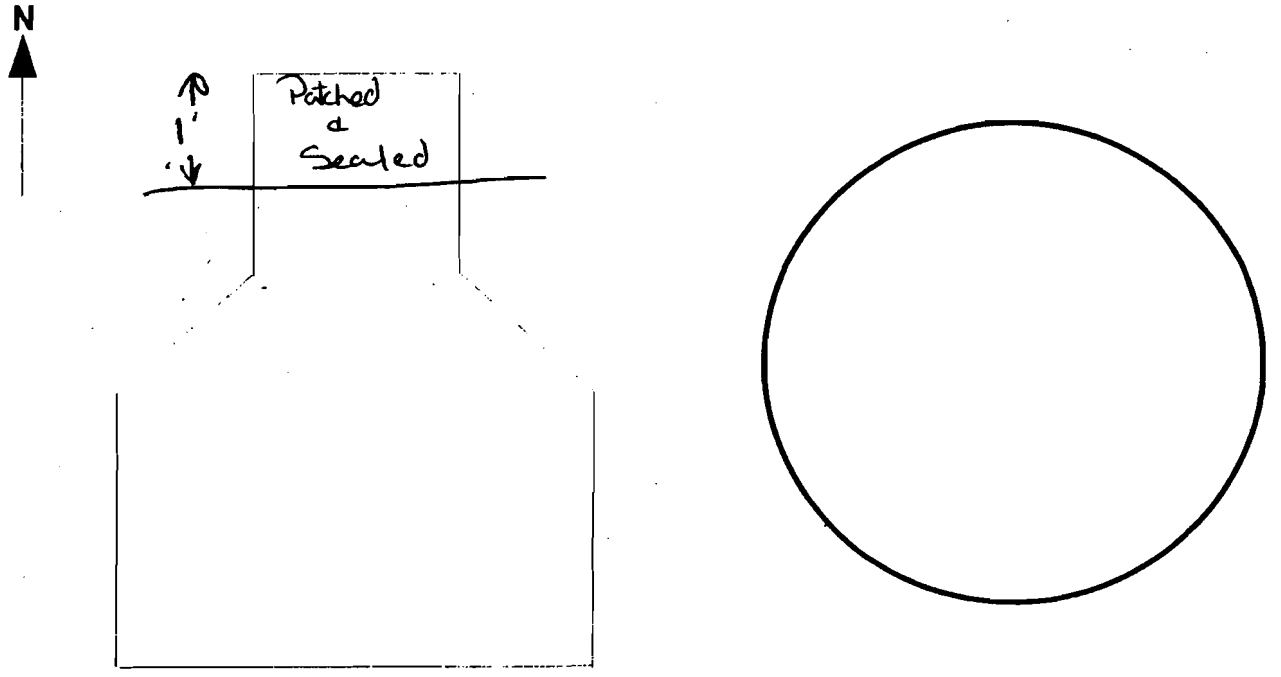


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A10 Sewer Branch: Western Date: 7 5/11/01

Superviser: DAN Sheldon

Description of Repairs Made: Top 1' of Basin was Patched with vertical mortar & Sealed with water tight Sealant

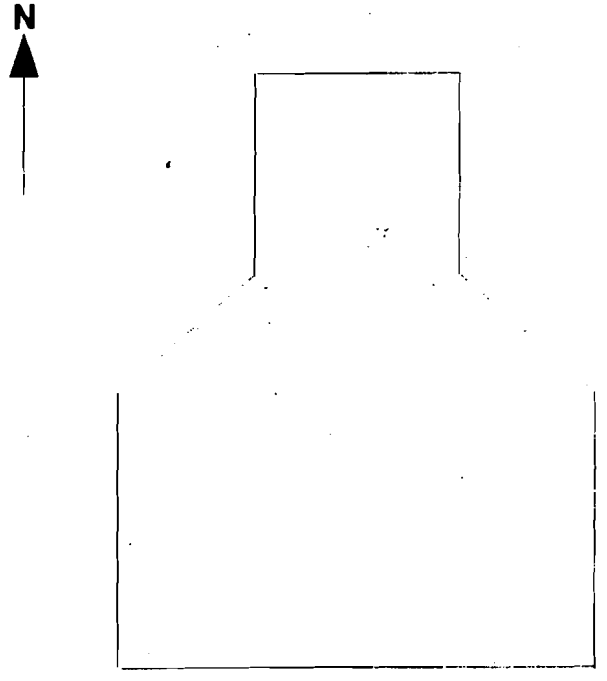


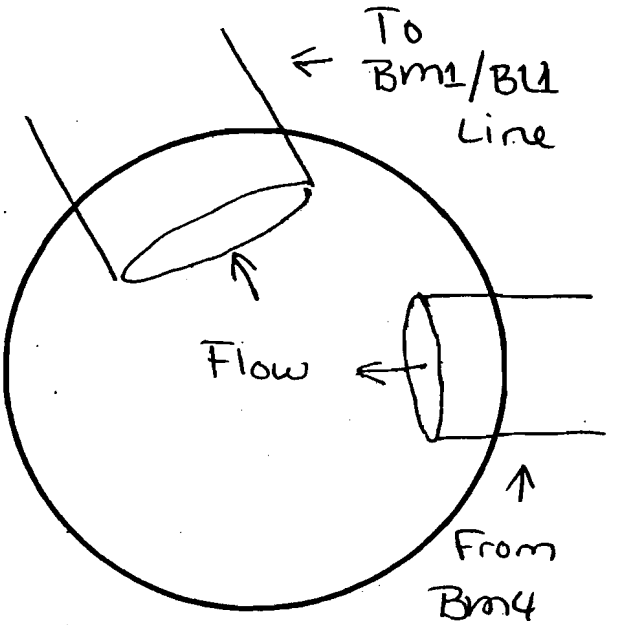
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: New Bm1A Sewer Branch: Eastern Date: 7/9-12

Superviser: DAN Sheldon

Description of Repairs Made: The OLD Bm1A was filled Both pipes East & West were CAPPED OFF. The New Bm1A Catch Basin was installed Just to the East of the OLD one. a New Pipe was installed from Bm4 to Bm1A (8") AND a 12" PVC Pipe was installed From Bm1A to the Bm1/BL1 Line Bypassing The Bm1 CATCH Basin which was eliminated



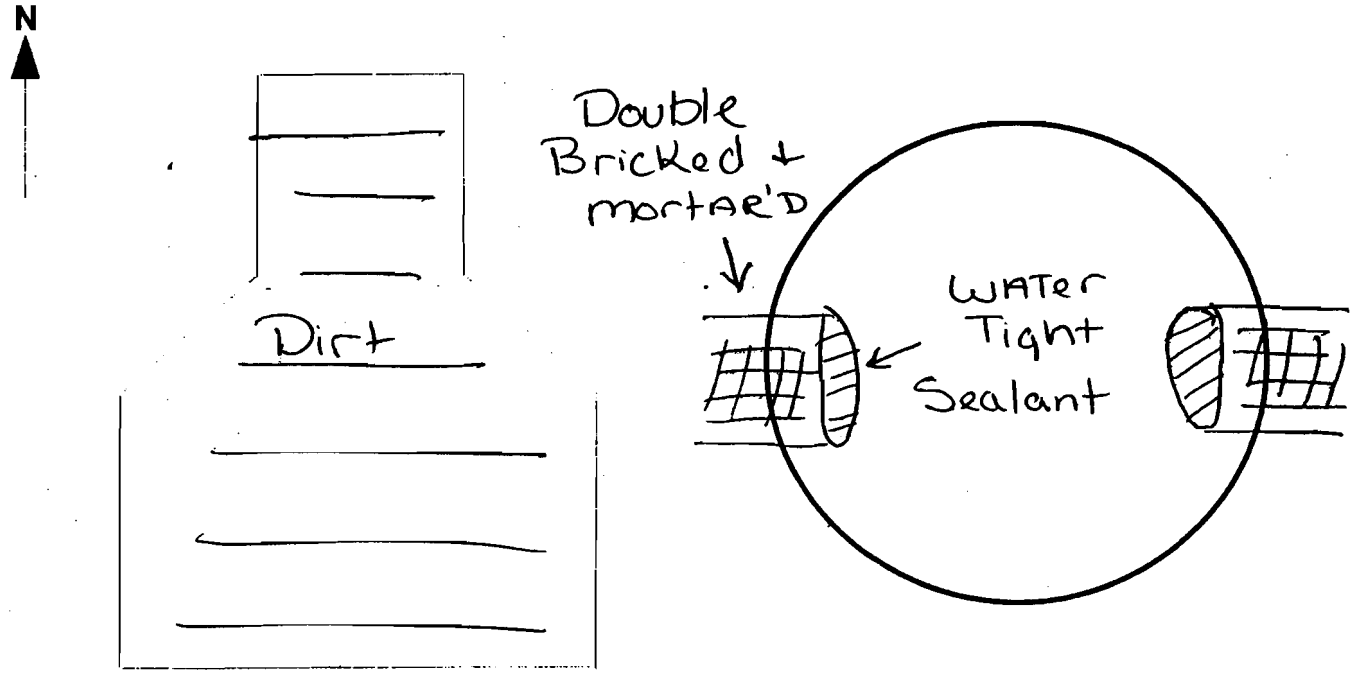


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: OLD BM1A Sewer Branch: Eastern Date: 7 8/11/01

Superviser: DAN Shelton

Description of Repairs Made: Both Pipes East & West were Double Bricked & Mortard & Sealed
The Catch Basin was filled with Dirt and Eliminated



Former IFG Facility, Syracuse, NY * New CATCHBASIN
Storm Sewer Rehabilitation Project

Manhole #: B7 Sewer Branch: Eastern Date: 7/18/01

Superviser: DAN Sheldon

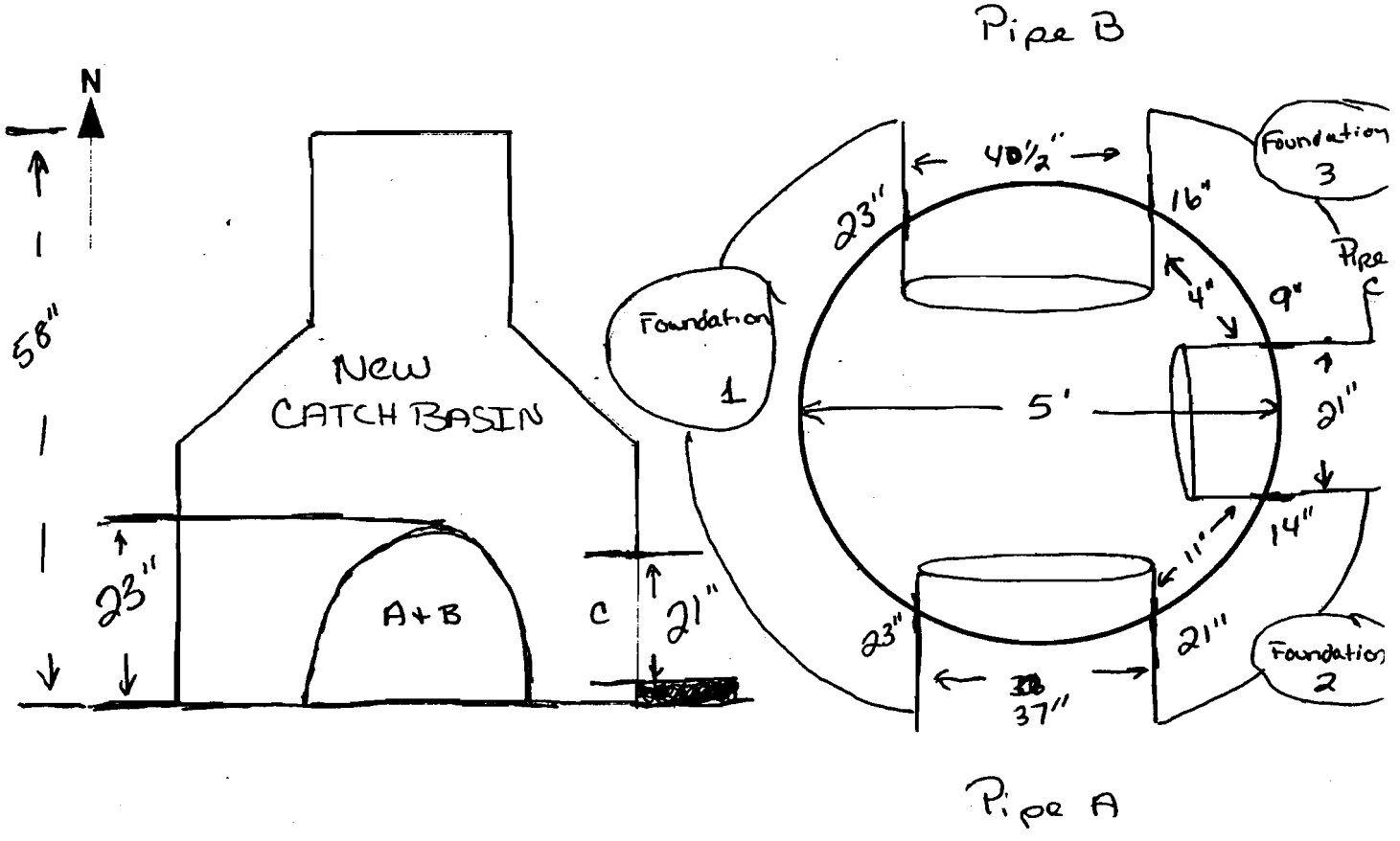
Description of Repairs Made:

Width to outside of Pipes: Pipe A - 36" + 1" = 37"
Pipe B - 39¼" + 1" = 40½"
Pipe C - 20" + 1" = 21"

Height From top of Pipe B Down to Foundations:
Foundation 1 23"
Foundation 2 21"
Foundation 3 16"

Gap Between Ends of Pipes:
Pipe A to pipe C 11"
Pipe C to pipe B 4"

Over ALL Height 58"

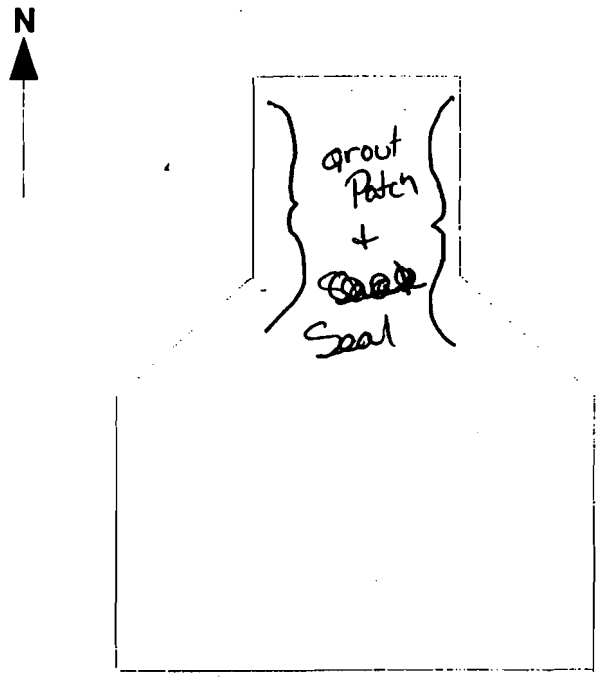


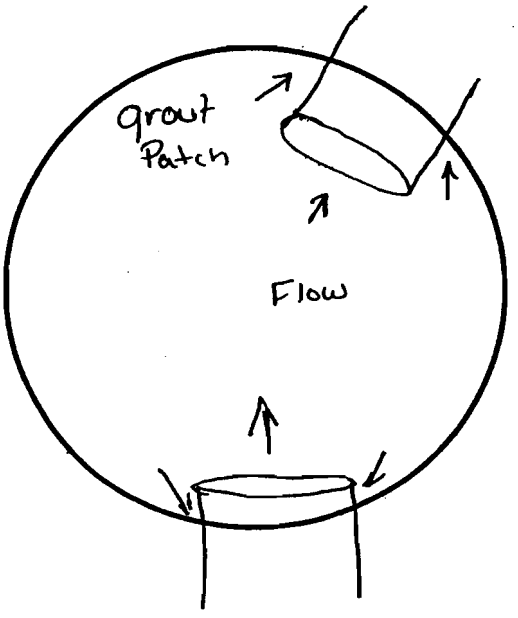
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A2A Sewer Branch: Western Date: _____

Superviser: _____

Description of Repairs Made: Grout Patch around Pipes and patch and seal walls.





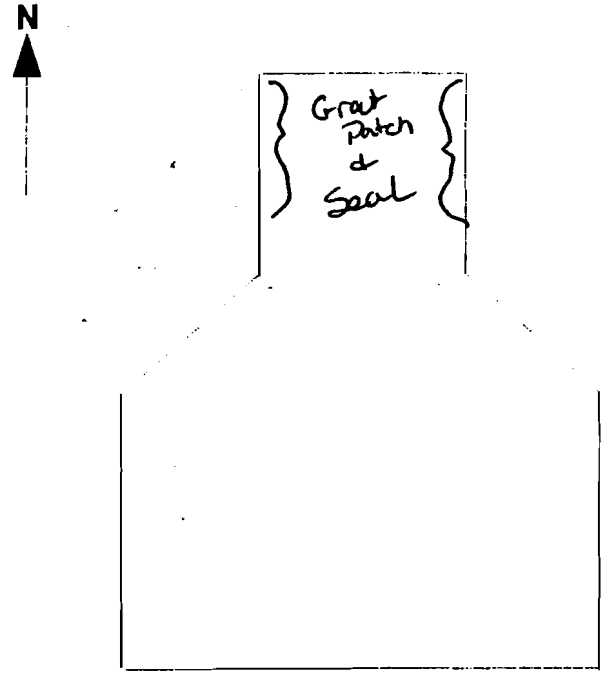
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

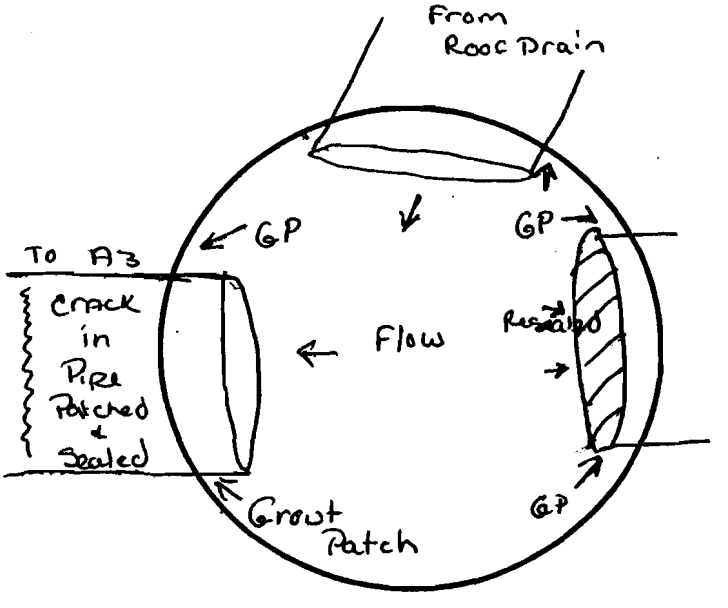
Manhole #: AB1 Sewer Branch: Western Date: _____

Superviser: _____

Description of Repairs Made: Patched Around Pipes & Resealed Plugged Pipe

Waterproofed WALLS & TOP of Catch Basin
About 24" into the A3 pipe was a crack ~~~~ That we Also Patched with SIKATOP



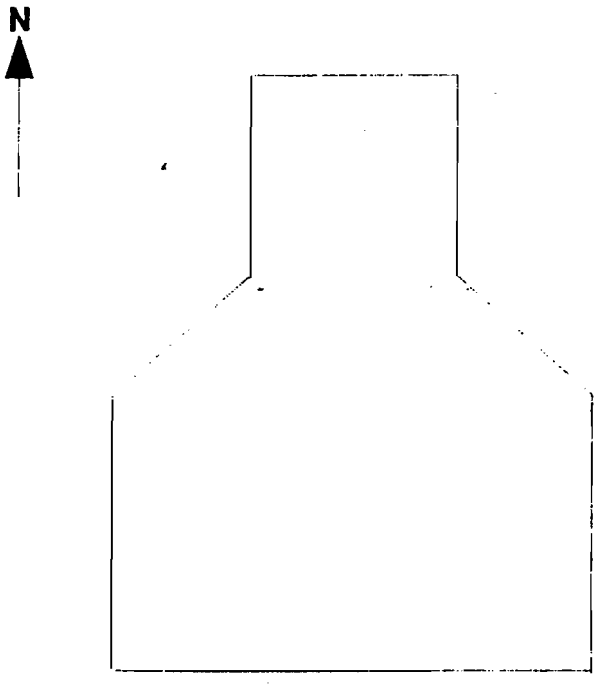


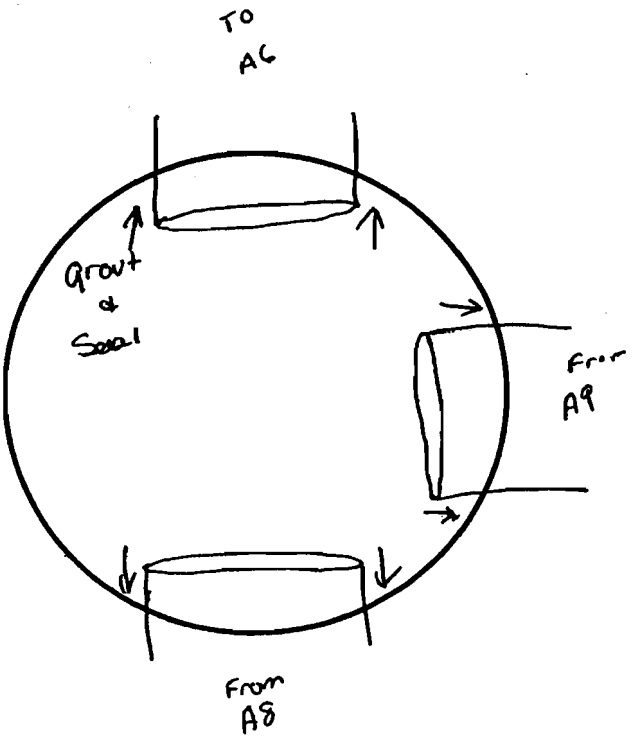
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A7 Sewer Branch: Western Date: _____

Superviser: _____

Description of Repairs Made: Grout Patch & Seal Around Bottom of All Three Pipes



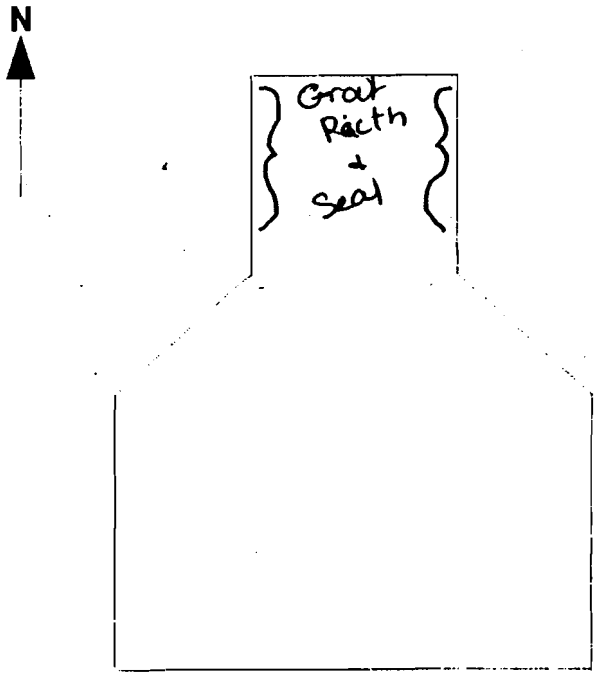


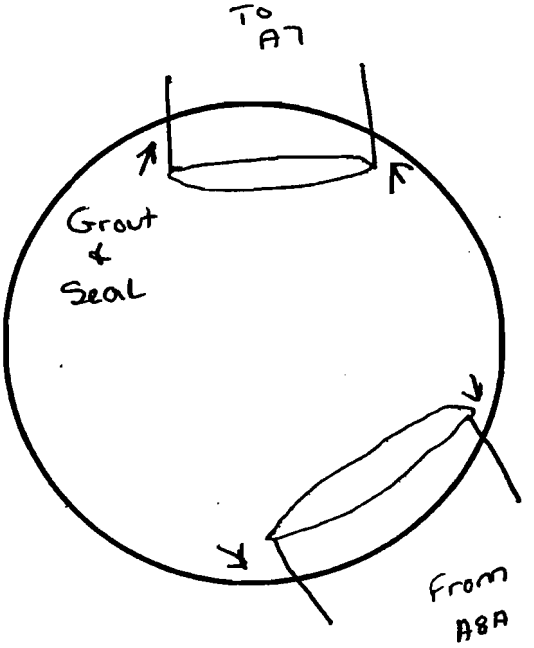
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A8 Sewer Branch: Western Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Grout Patch & Seal under Both Pipes AND patched & Sealed top Ring



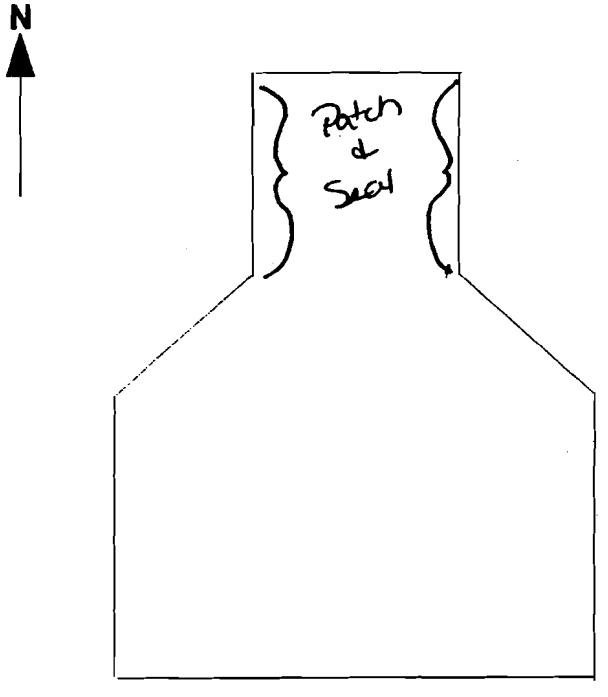


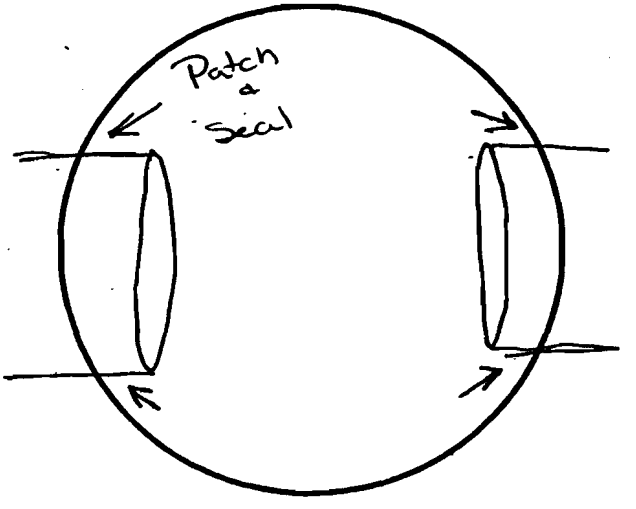
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A9 Sewer Branch: Western Date: _____

Superviser: _____

Description of Repairs Made: Grout Patch Around Pipes then Patched & Sealed top Ring



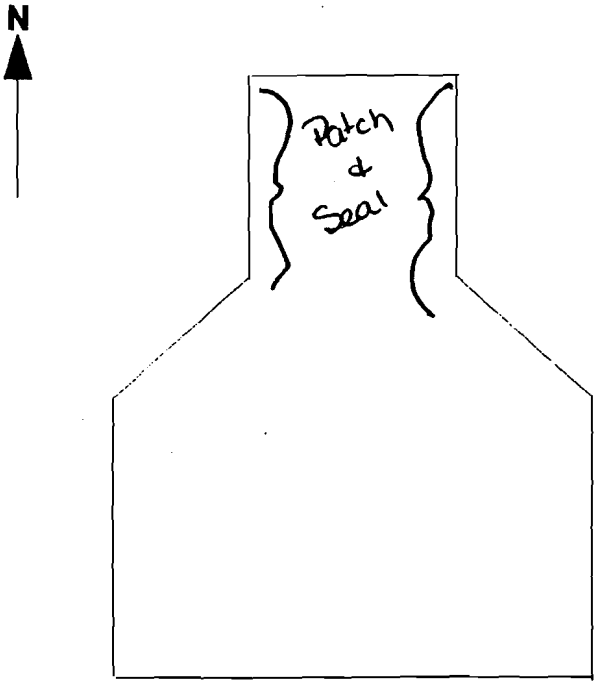


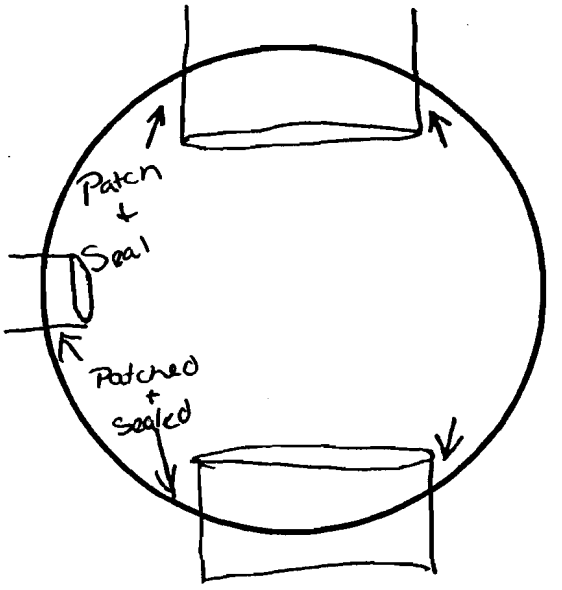
Manhole #: A6 Sewer Branch: Western Date: _____

Superviser: _____

Description of Repairs Made: Grout Patch Around Both Pipes & Patched & Sealed Around top Ring

Also Sealed Around small pipe to the East



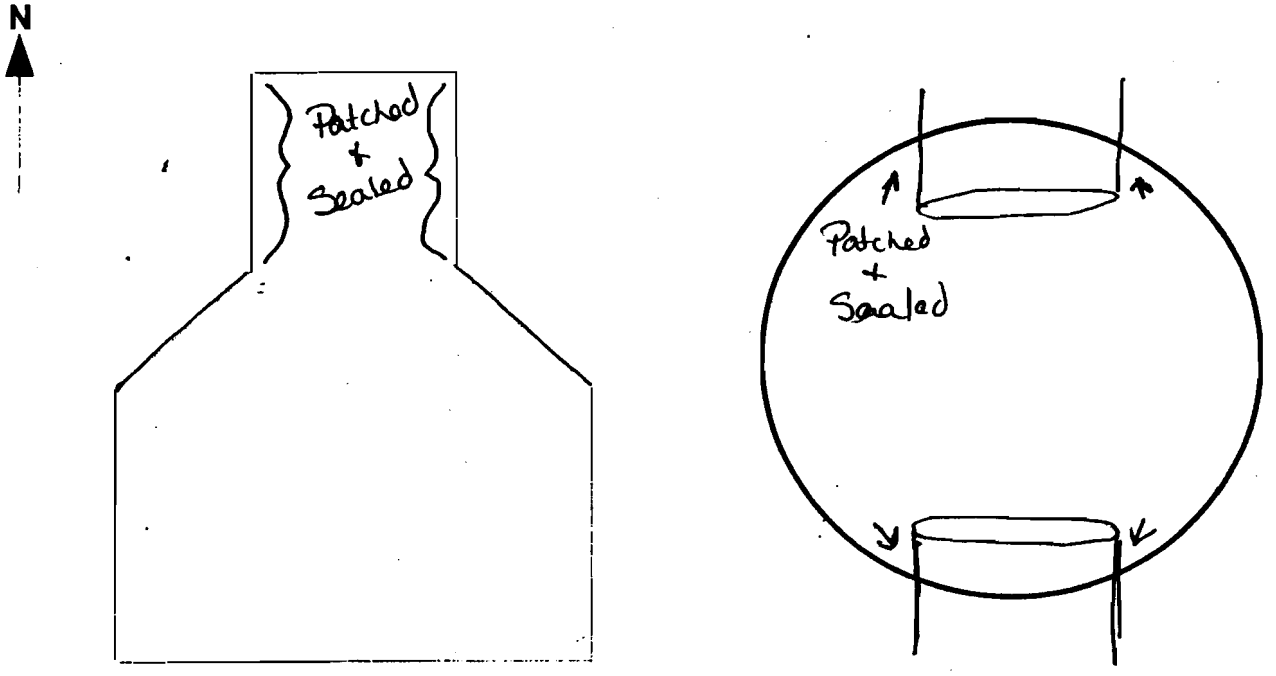


Former IFG Facility; Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A5 Sewer Branch: Western Date:

Superviser: DAN Sheldon

Description of Repairs Made: Grout Patched & Sealed Around Bottom of Both pipes then patched & Sealed Around Top Ring

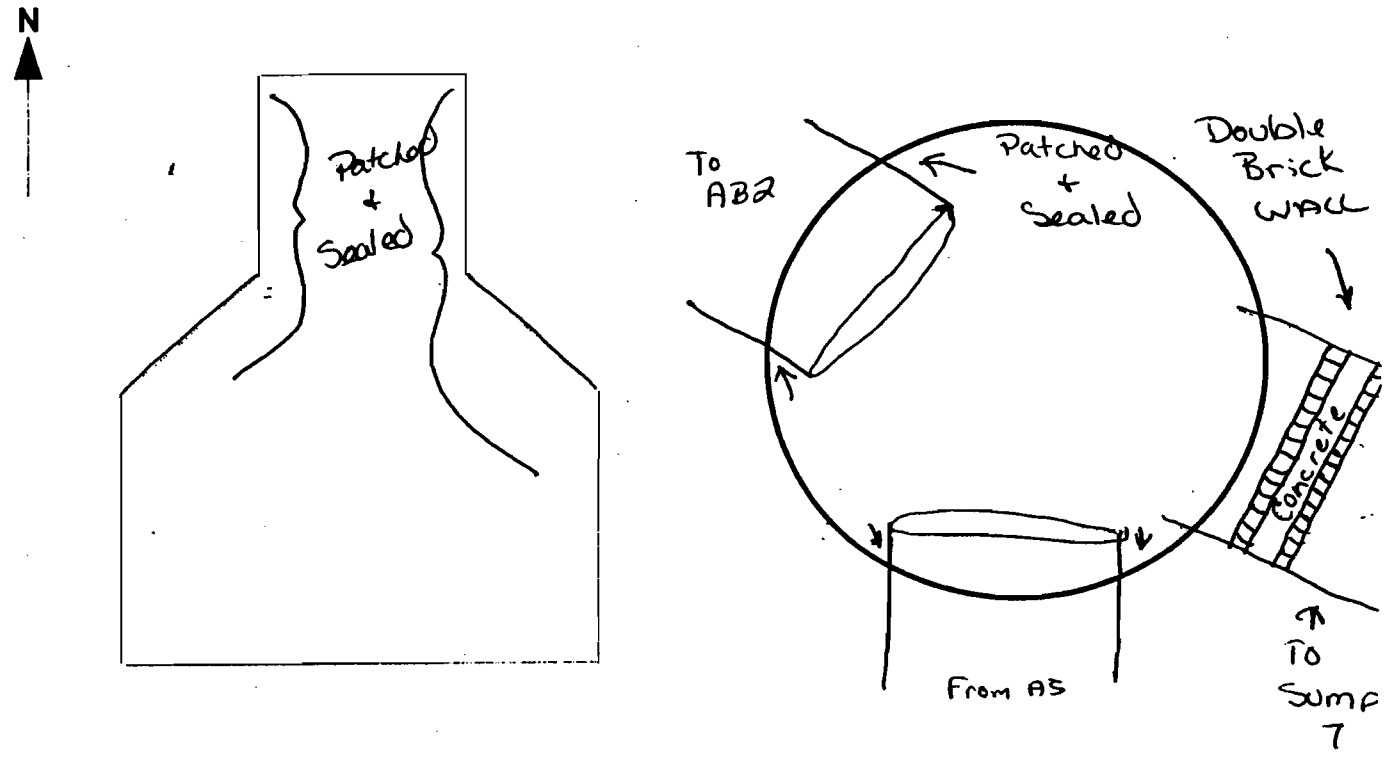


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A4 Sewer Branch: Western Date:

Superviser: Dan Sheldon

Description of Repairs Made: A Double Brick wall was Put up in the Pipe To Sump 7, Concrete was Poured Between The walls Both walls were Sealed w/ Hey Di K11 Around Both Pipes was Patched & Sealed & The Top Half of the Basin was Sealed

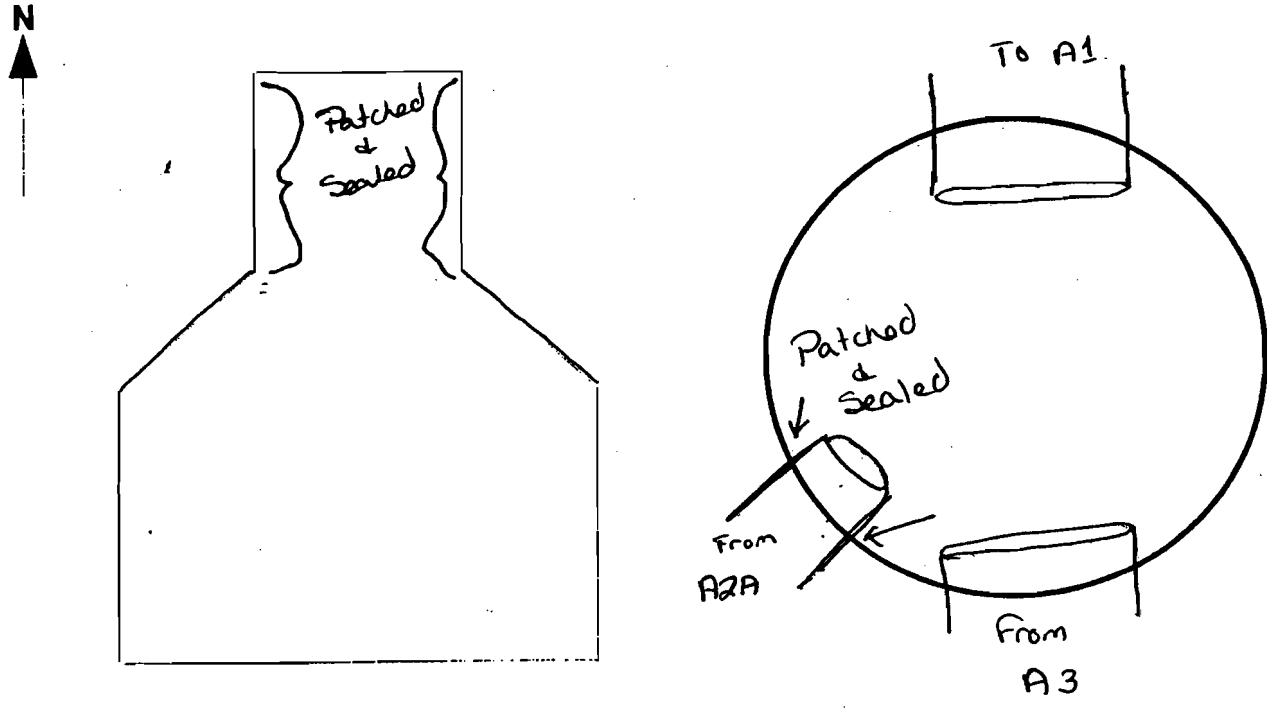


Former IFG Facility; Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: A2 Sewer Branch: Western Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Around the A2A pipe was patched & Sealed, Also The top 1' of the Basin was patched & Sealed



Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

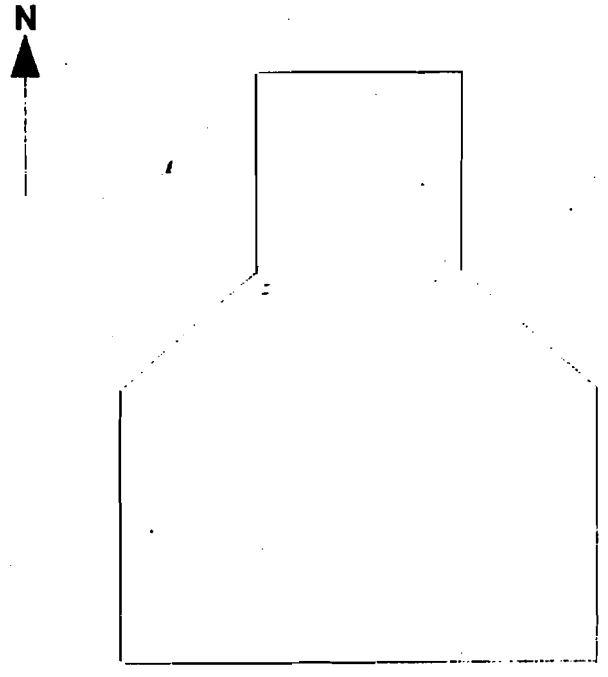
* updated

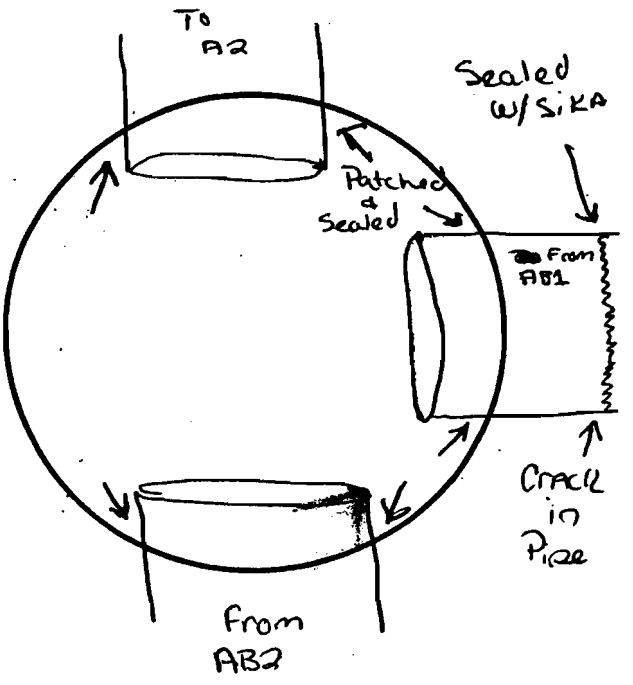
Manhole #: A3 Sewer Branch: Western Date:

Superviser: DAN Sheldon

Description of Repairs Made: Pipe going to AB1 was cracked 48" in to The pipe we Sealed the Crack with SIKATOP Also patched Around Same Pipe in the Catch Basin

* In Addition to Above work the other 2 pipes were Resealed Around the Insituform





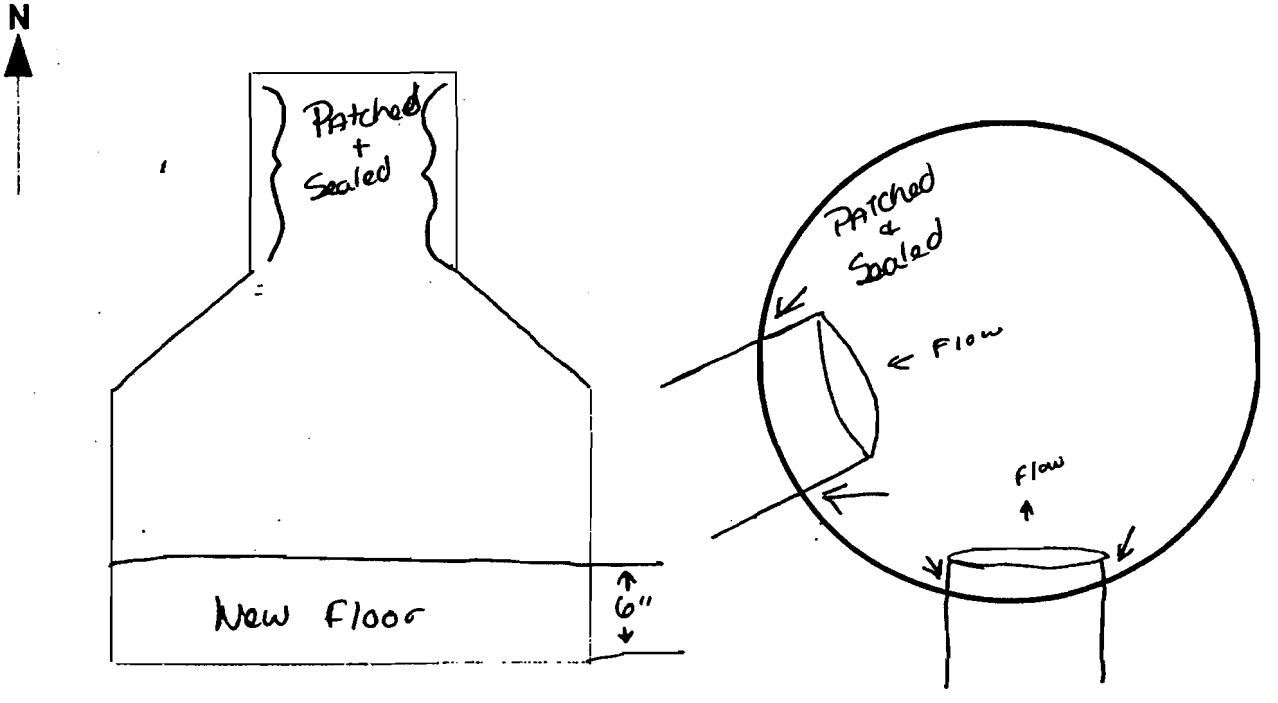
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BAC1 Sewer Branch: Central Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Around Both Pipes was Patched & Sealed Also Around the Top 1' of Basin

A New Floor was poured, Because of WATER Seeping in From Bottom edges, Raising the Floor by 6"

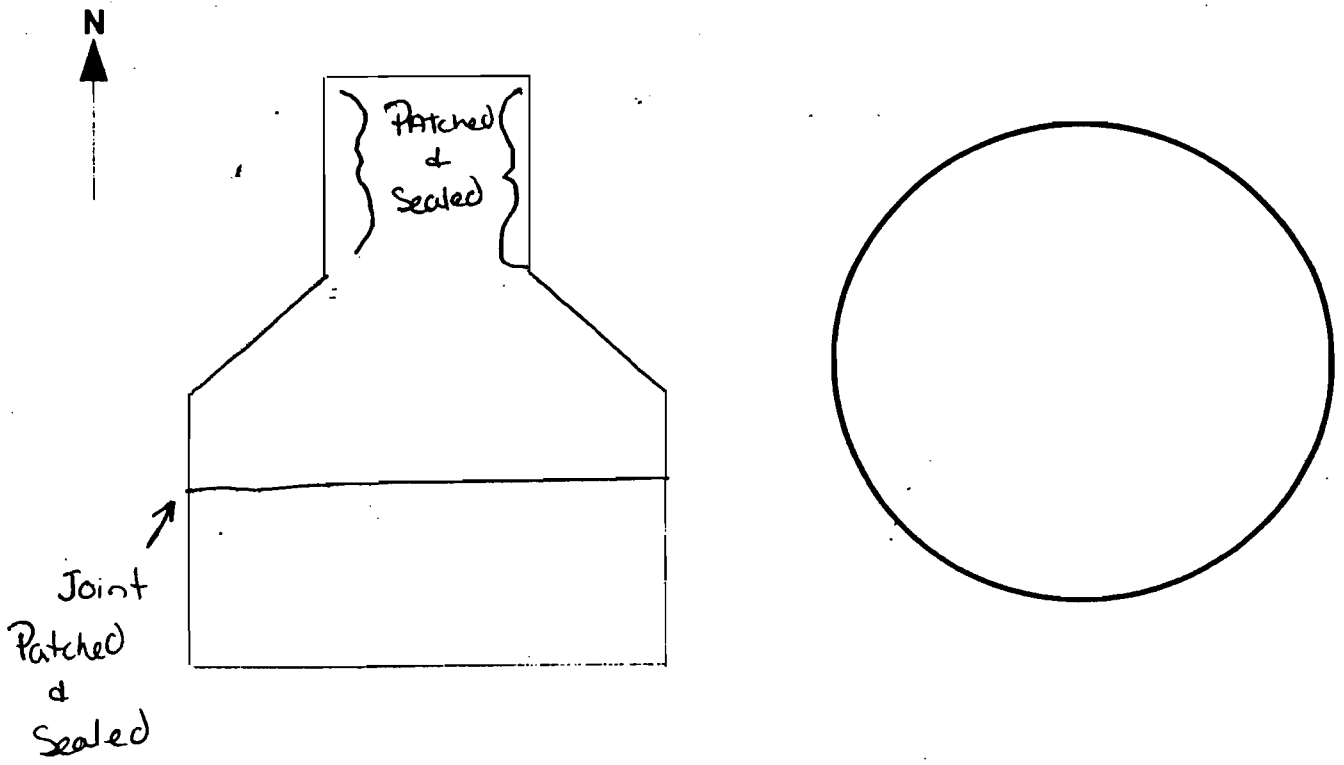


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: B1A Sewer Branch: Central Date:

Superviser: DAN Sheldon

Description of Repairs Made: The Seam between the Top & Bottom Halves was Patched & Sealed ALSO the top 1' of Basin was Sealed

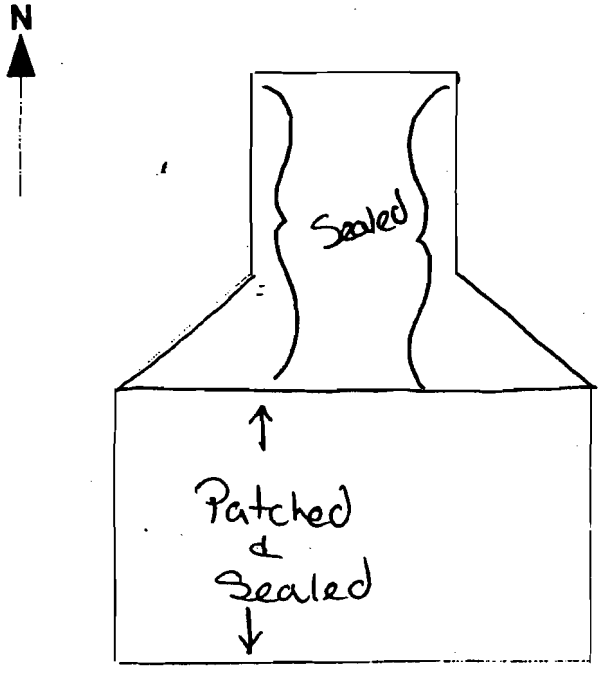


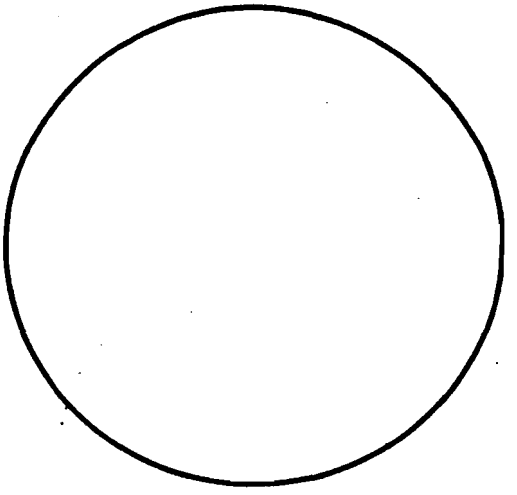
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BAE1 [redacted] Sewer Branch: Central Date: _____

Superviser: DAW Sheldon

Description of Repairs Made: Patched & Sealed [redacted] Lower HALF including around ALL pipes. Then waterproofed The entire Basin



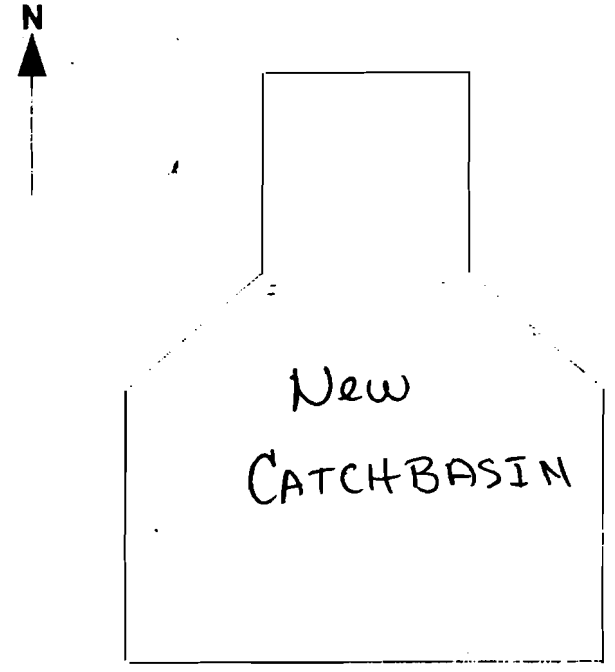


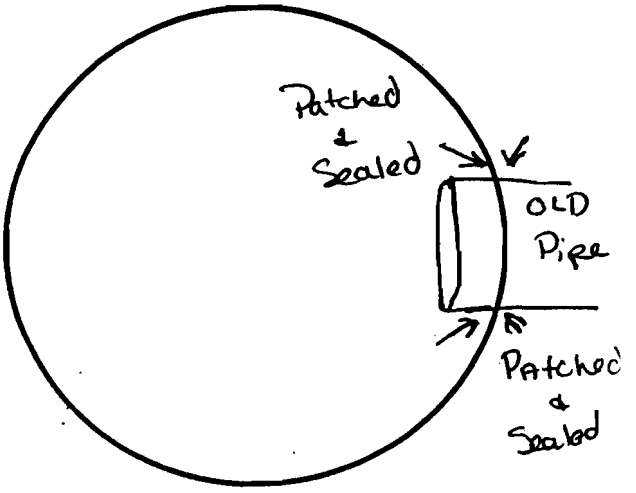
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BF1 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Installed New CATCH Basin
Tied into exsisting Pipe





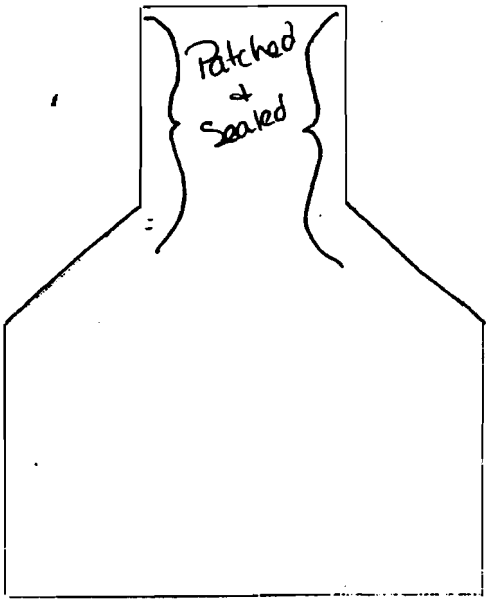
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

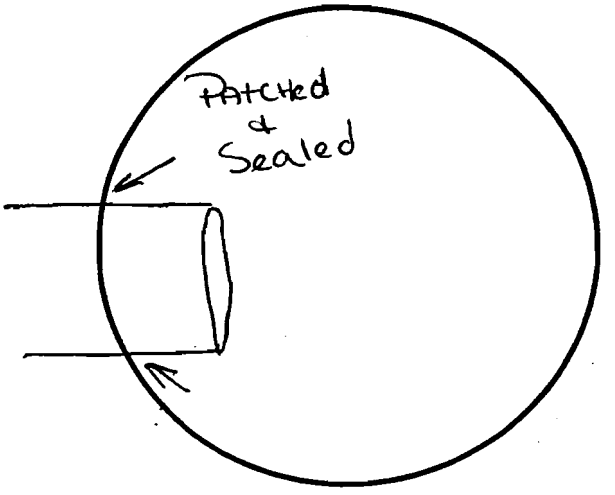
Manhole #: BAA1 Sewer Branch: Central Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Patched and Sealed Around Pipe and Top 1' of Catchbasin

N





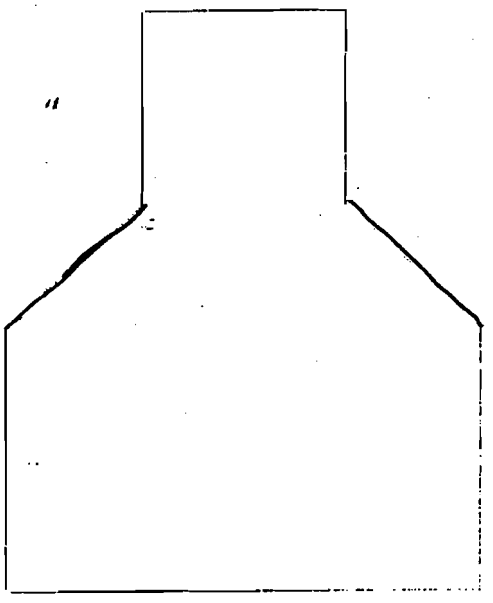
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

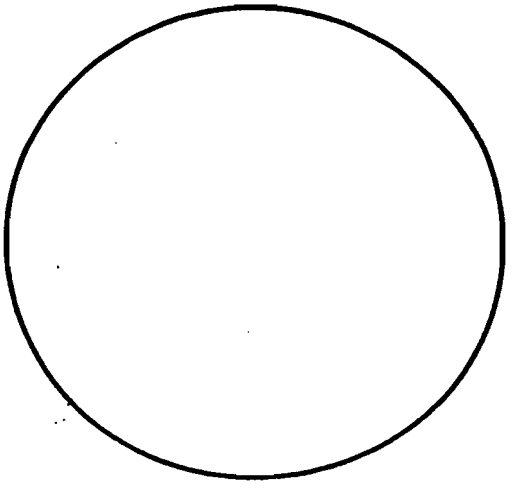
Manhole #: BAE2 Sewer Branch: Central Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Entire Basin was Patched & Sealed including Floor

N





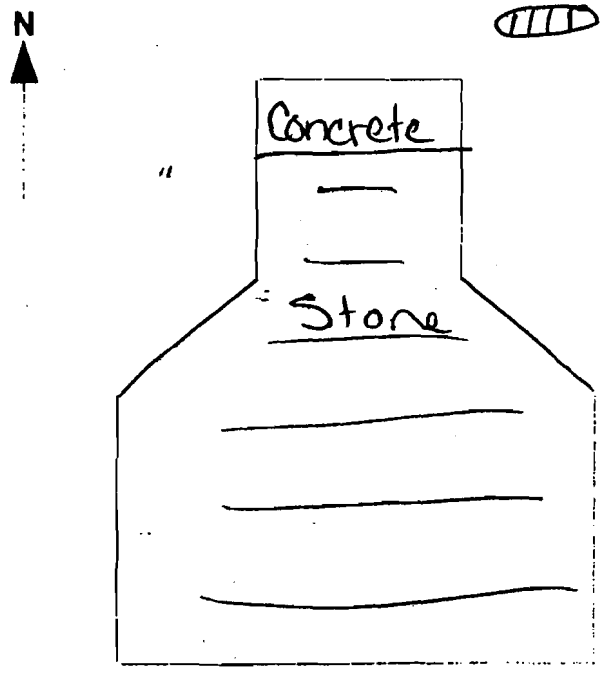
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

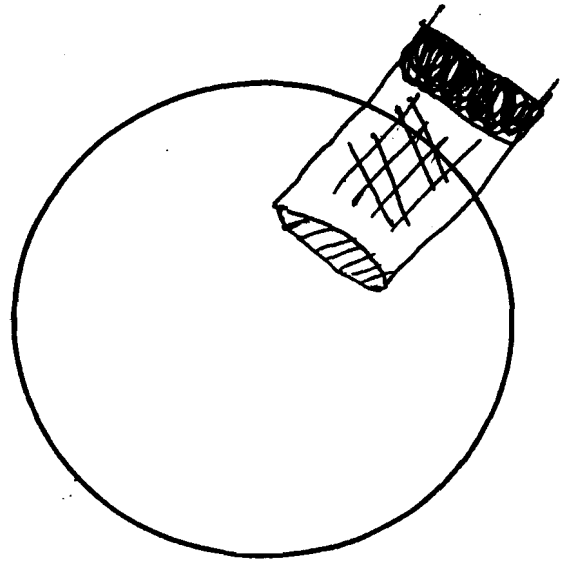
Manhole #: BAB1 Sewer Branch: Central Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Pipe to BAB was plugged, Bricked & mortared AND Then Sealed.
Catch Basin was filled with stone & Sealed with concrete

Mechanical Plug
Brick & mortar
Sealant





Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BA4A Sewer Branch: Central Date: _____

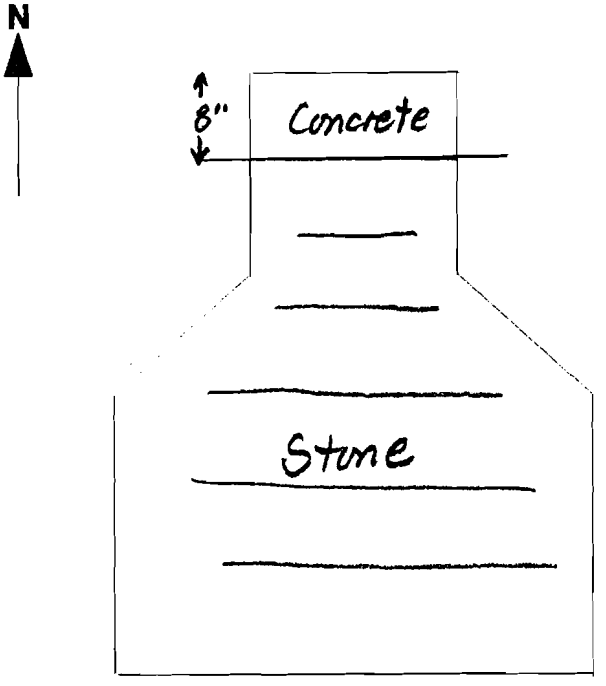
Superviser: Dan Sheldon

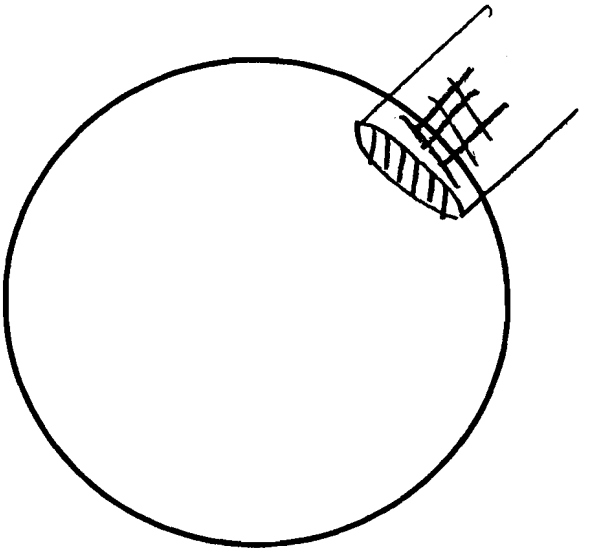
Description of Repairs Made: Brick & Mortared 6-8" Sealed end with water proof sealant

Filled basin with Stone and Sealed with Concrete.

Brick & mortar

Water proof Sealant



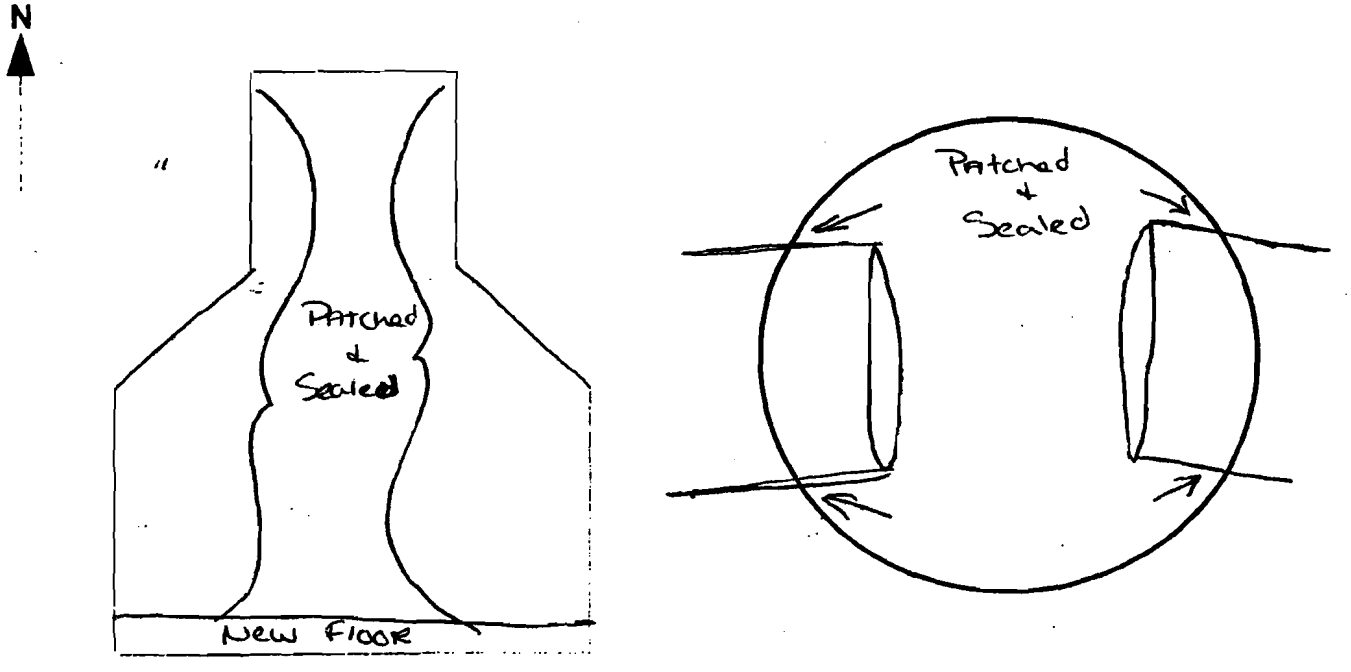


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project.

Manhole #: A13 Sewer Branch: Western Date: _____

Superviser: DAN Shelton

Description of Repairs Made: Entire Basin was Patched & Sealed AND A New floor was poured Raising the Floor by 3"

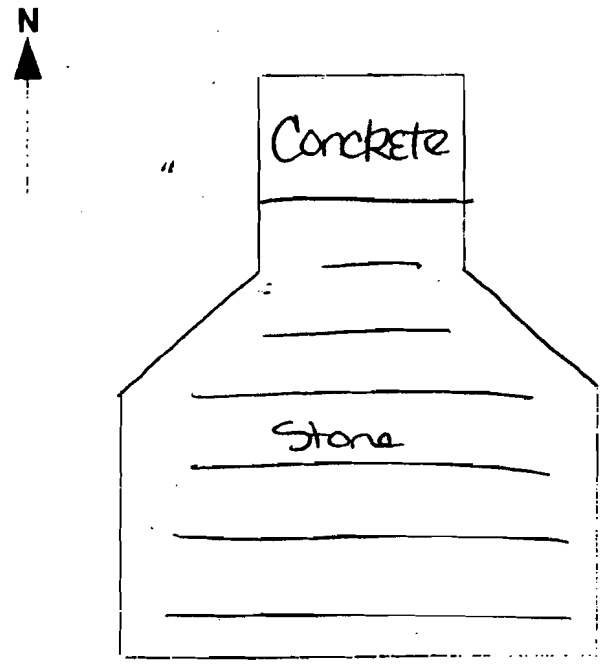


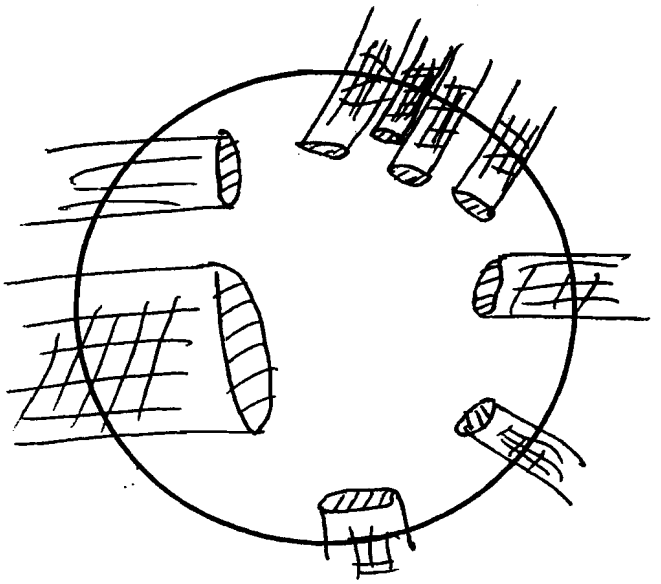
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BM2 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: All pipes were Double Bricked & MortARED Then watertight Sealed.
The CatchBasin was filled with Stone + Sealed with Concrete





Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

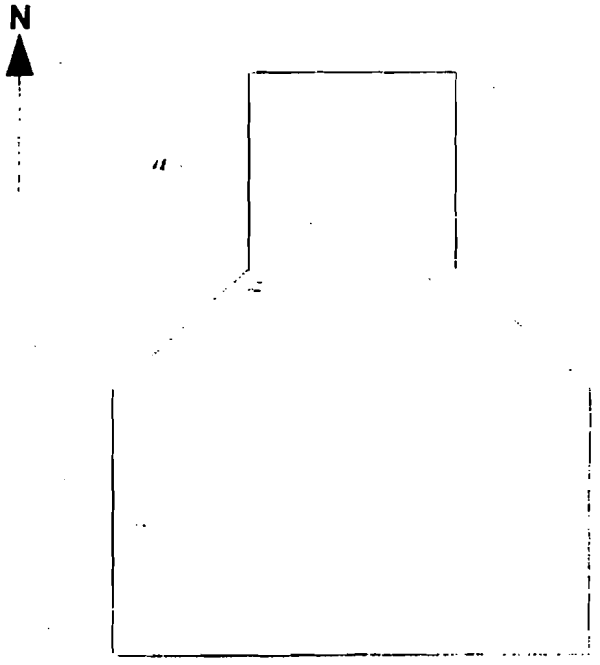
Manhole #: Bm1 Sewer Branch: Eastern Date: _____

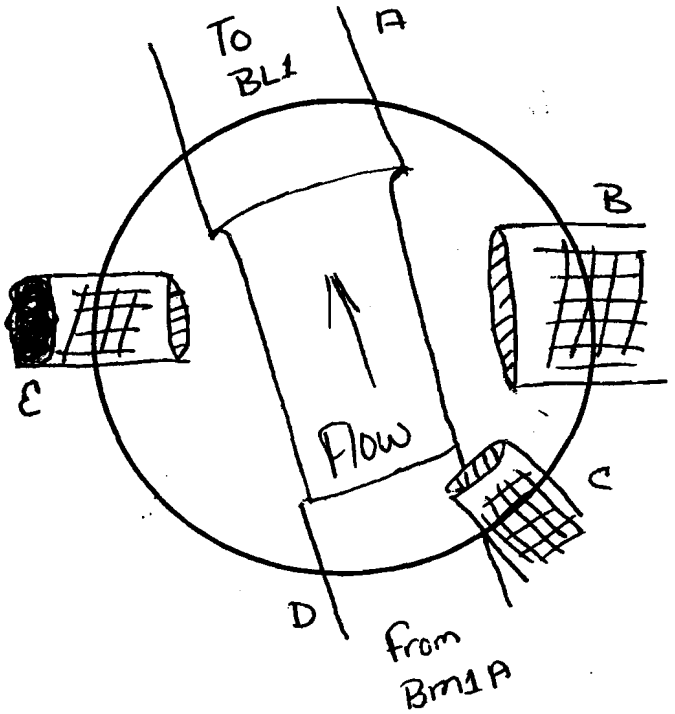
Superviser: DAN Sheldon

Description of Repairs Made: pipes B, C, & E were Double Bricked & Mortared Then Sealed with WATERtight Sealant Pipe E also had a mechanical plug Installed.

A New Pipe was Installed from Catch Basin Bm1B (New) (pipe D) AND connected Directly to pipe A.

The Catch Basin was then Eliminated





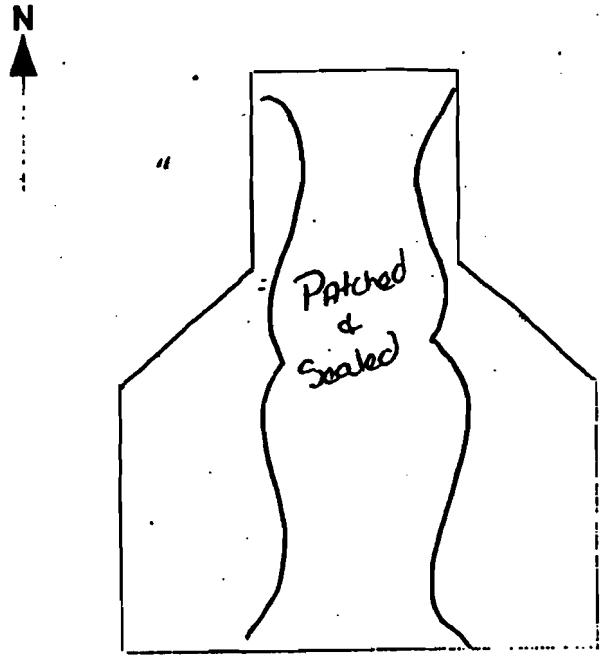
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

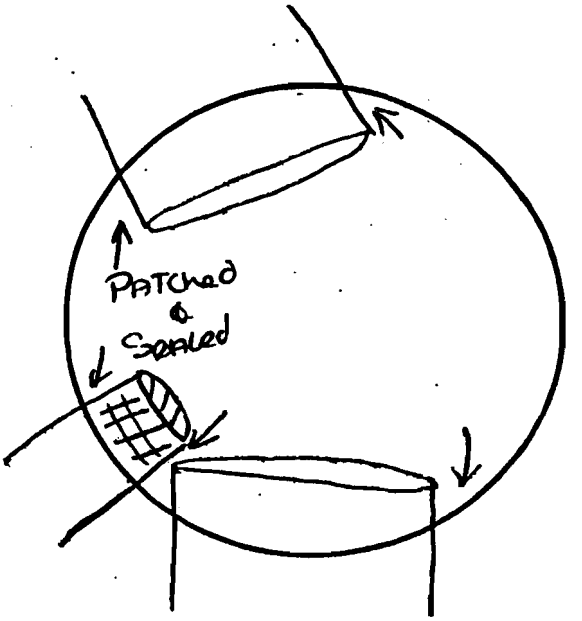
Manhole #: BA4 Sewer Branch: Central Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: The walls & Around the pipes were Patched & The entire Basin was Sealed
The pipe from BA4A was abandon by plugging with brick & mortar and sealing the end with water proof sealant.

Brick & Mortar
(////) Water Proof Sealant



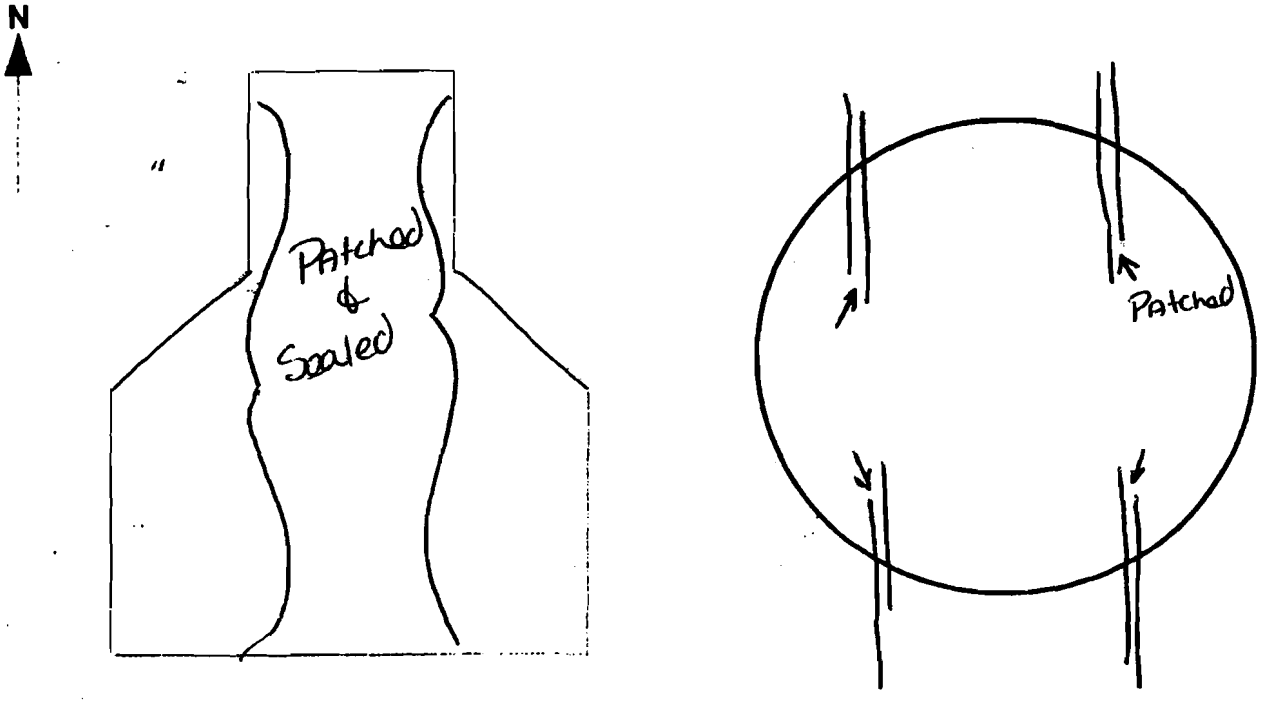


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BA5 Sewer Branch: Central Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Around Insituform was ~~Sealed~~ Patched then the entire Basin was Sealed

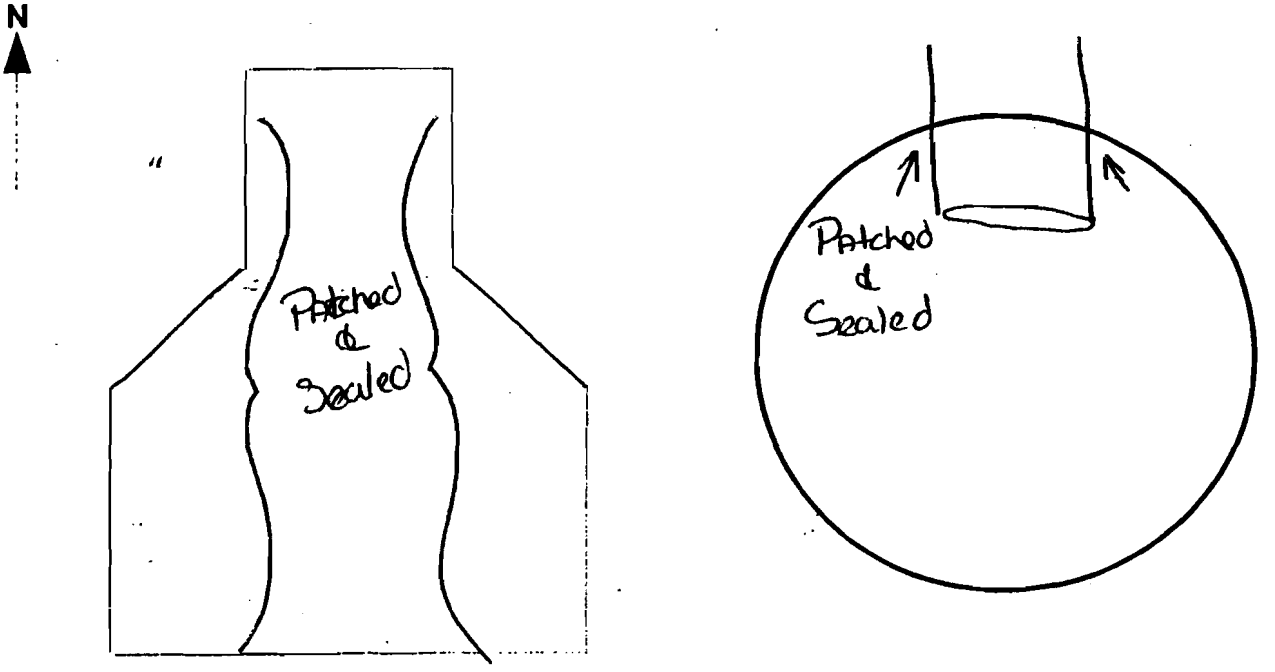


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BAE1 Sewer Branch: Central Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Around pipe and ALL around the walls was patched & sealed

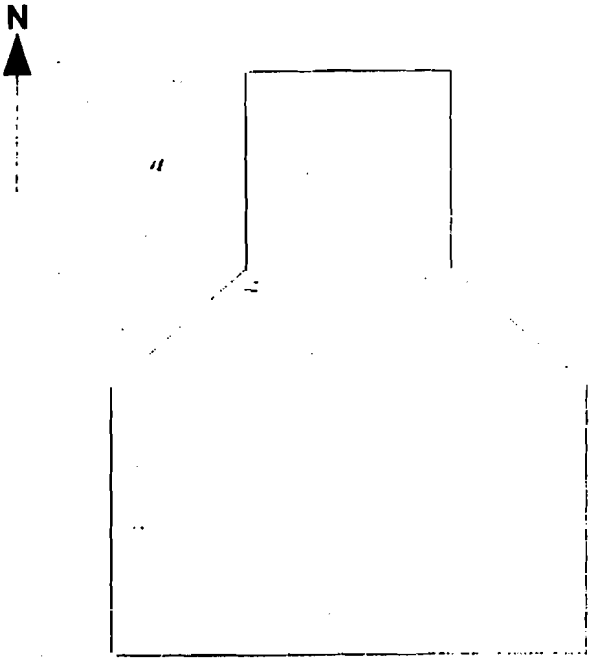


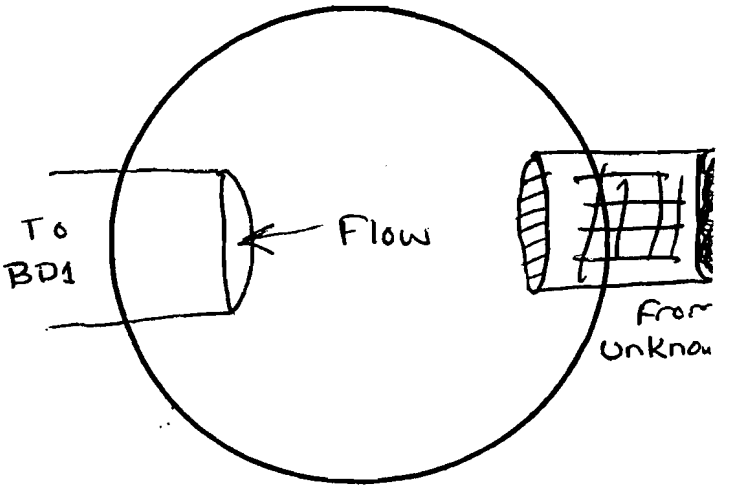
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BD 2 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: The pipe going East out of the Catch Basin was Capped off with a Mechanical plug Then Double Bricked & MortAR'D AND Sealed with Water tight Sealant



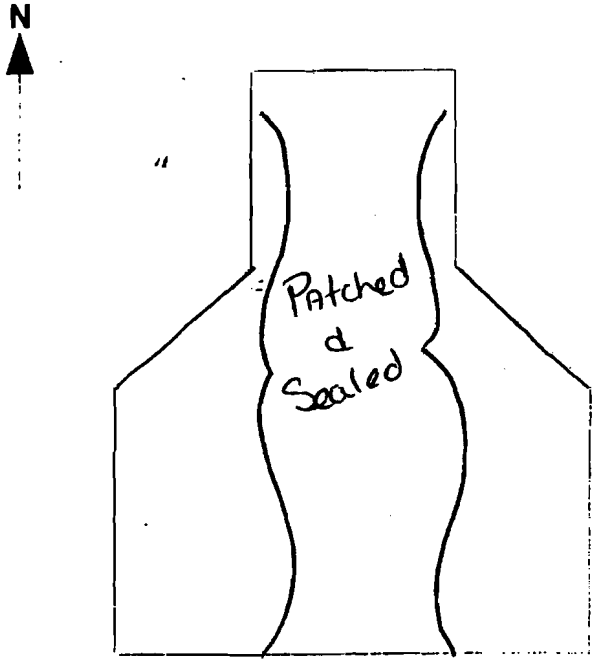


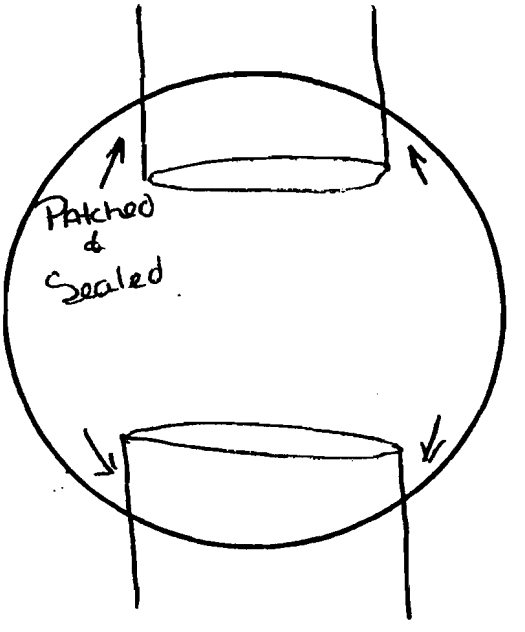
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: B6 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Around pipes AND WALLS were Patched Then Entire Basin was Sealed with Waterproof Sealant





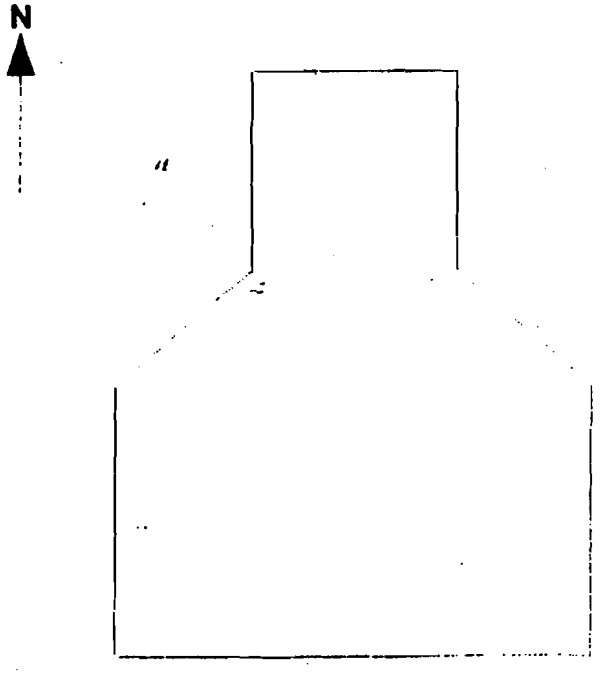
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

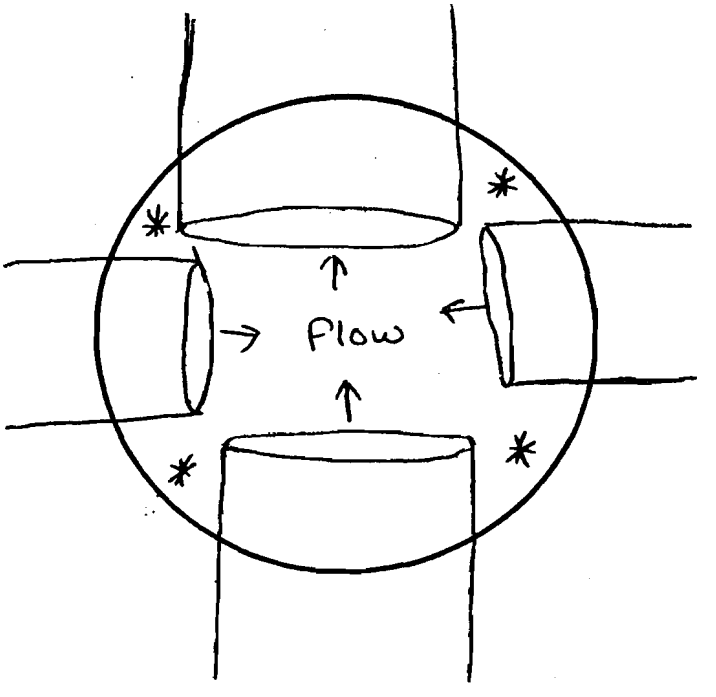
Manhole #: B5 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Around pipes and WALLS was Patched Then entire basin was waterproof Sealed

* Patched & Sealed



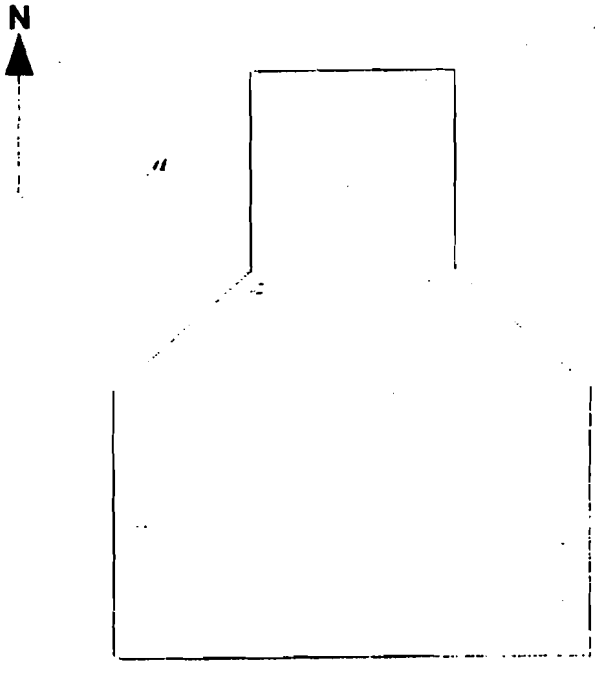


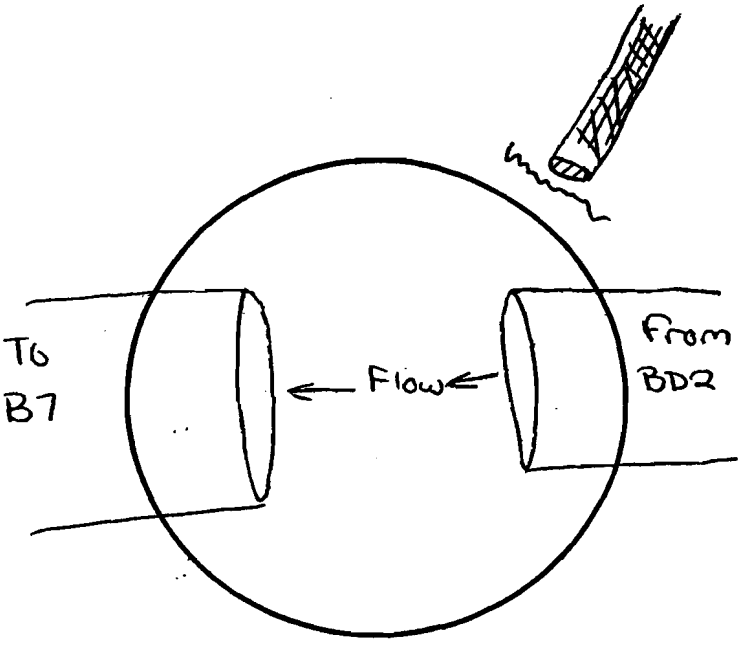
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BD1 Sewer Branch: Eastern Date: _____

Superviser: DAN Shaldon

Description of Repairs Made: A NEW CATCH Basin was Installed A small (4") CLAY pipe to the North East going to an unknown Source was Eliminated



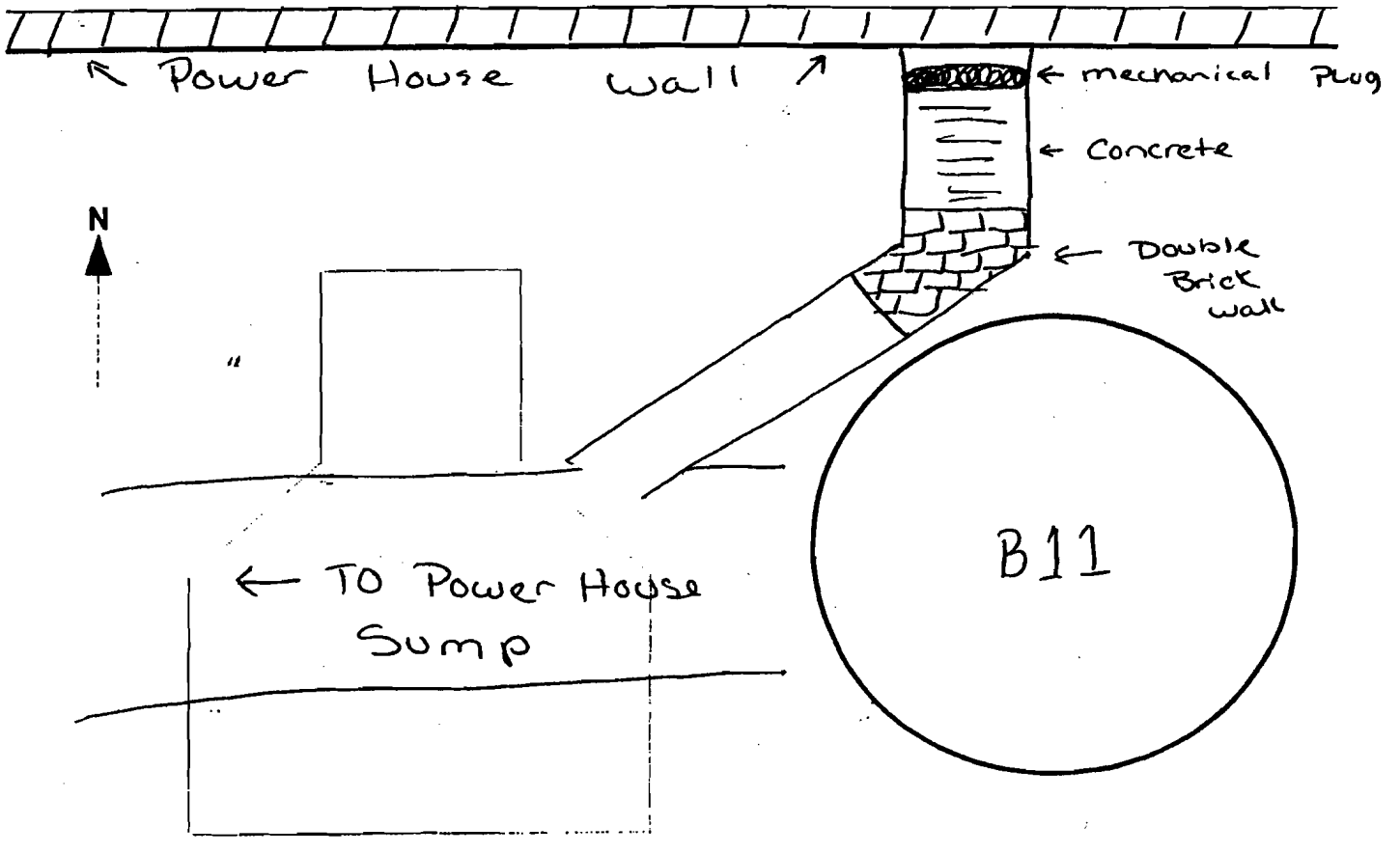


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: Power House Floor Drains Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: 6' out from the WALL of the power House Just Before B11 MANHOLE we installed a mechanical Plug, A Double Bricked ~~WALL~~ WALL, AND then poured 2' of Concrete Between the two. To Seal up the old Floor Drain main Pipe.



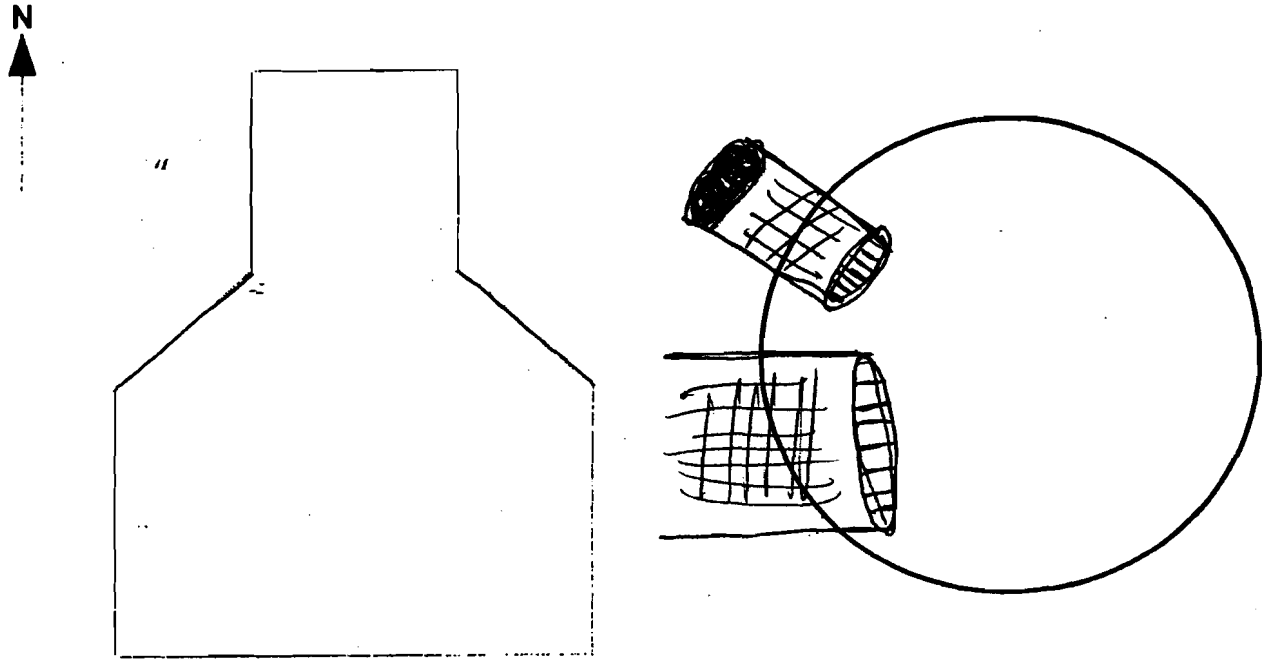
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: Power House Sump Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: The 10" pipe to the Northeast had a Mechanical plug installed then it was Bricked & MortAR'D AND Sealed
The 20" pipe to the North was Double Bricked & Mortar'd then Sealed

mechanical plug
Brick & mortar
Watertight Sealant



Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

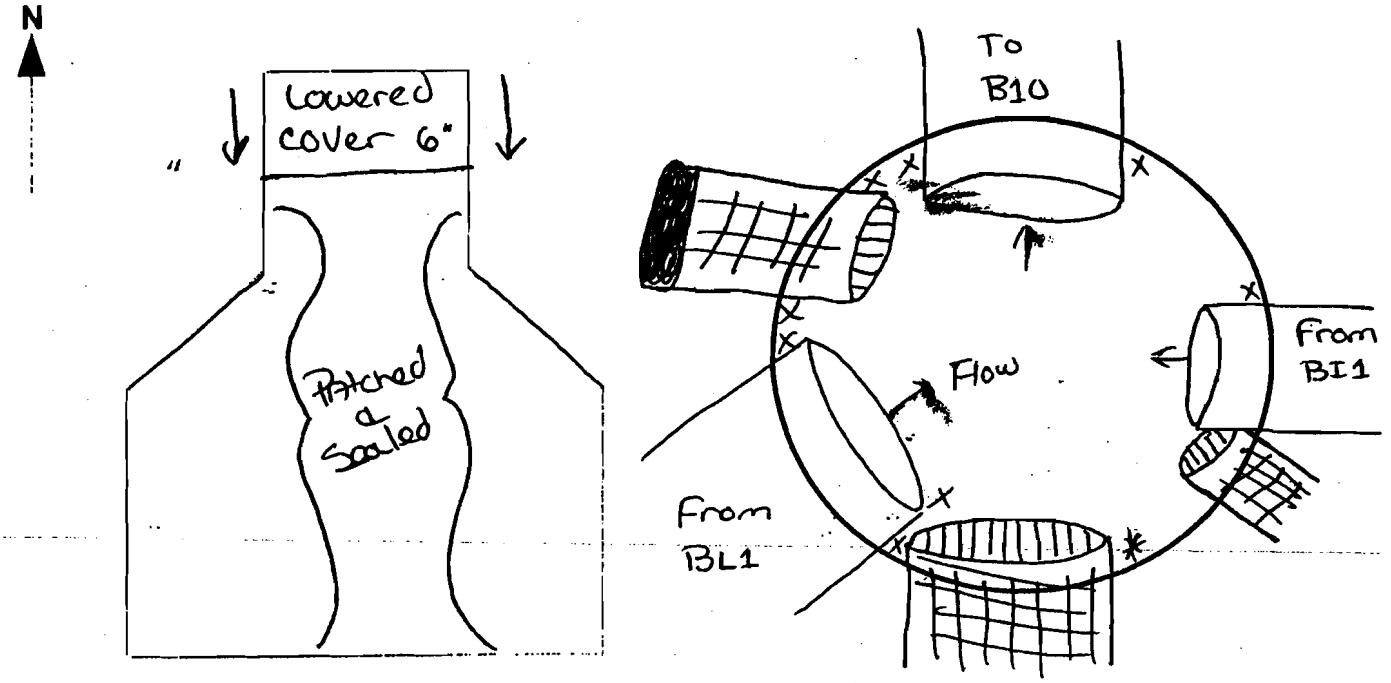
Manhole #: B11 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: 3 pipes were Eliminated the other 3 pipes were patched & Sealed Around edges & then the walls were patched & Sealed

The manhole cover & framing was Lowered by 6" for paving ~~proposed~~

mechanical plug
Brick & Mortar
water proof Sealant



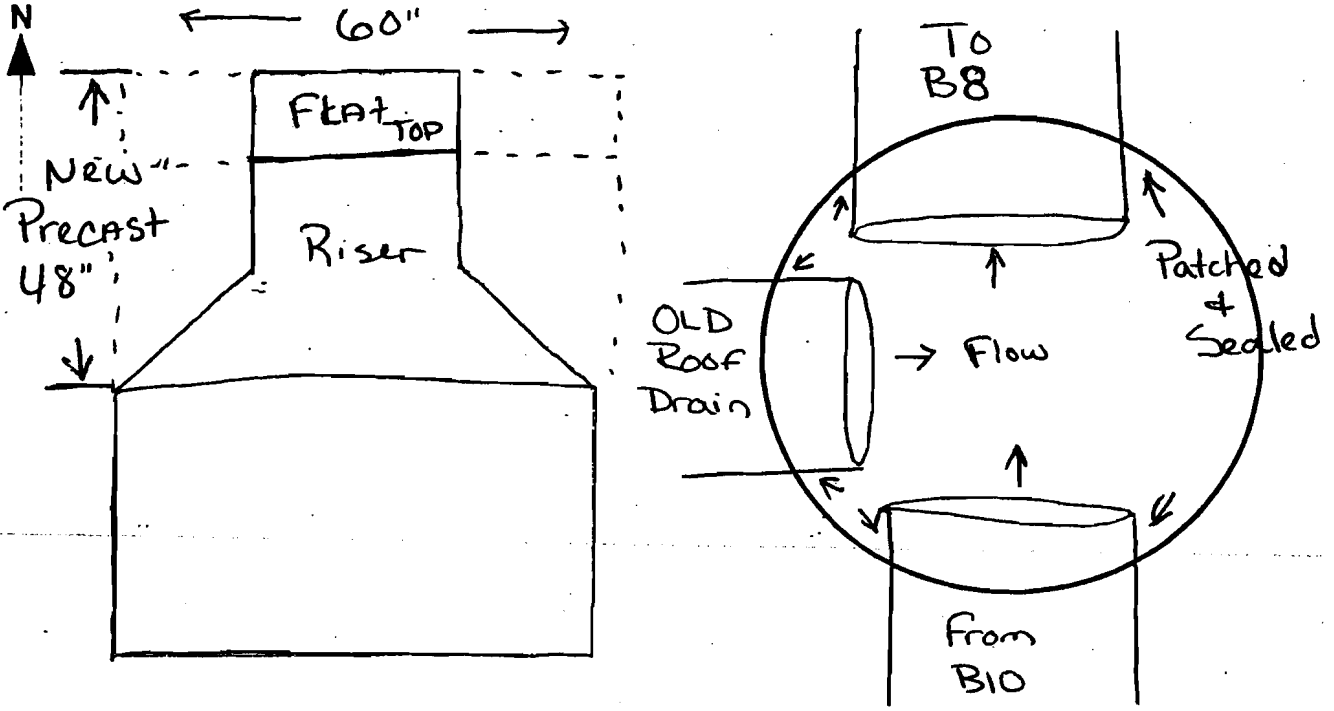
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: B9 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: A New Precast Riser & Flat Top were installed, A New Frame & Grate were also needed The New Riser was Placed Apon a Framed in Concrete Base which was Built on top of the Original Bottom CATCH Basin. All Three Pipes were Patched & Sealed AND A new 3" Floor was poured with concrete & Speed Crete (Quickset Cement)

The OLD Roof Drain Pipe will Be CAPPED OFF Once the New Roof Drain is in Place (B8)



Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

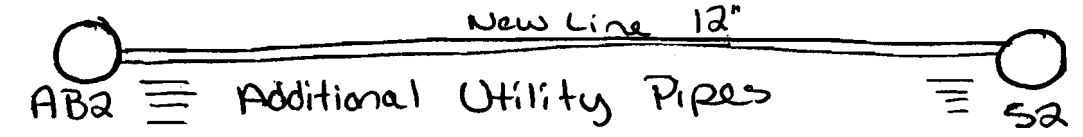
Manhole #: S2 Sewer Branch: Western Date: 8/29/01

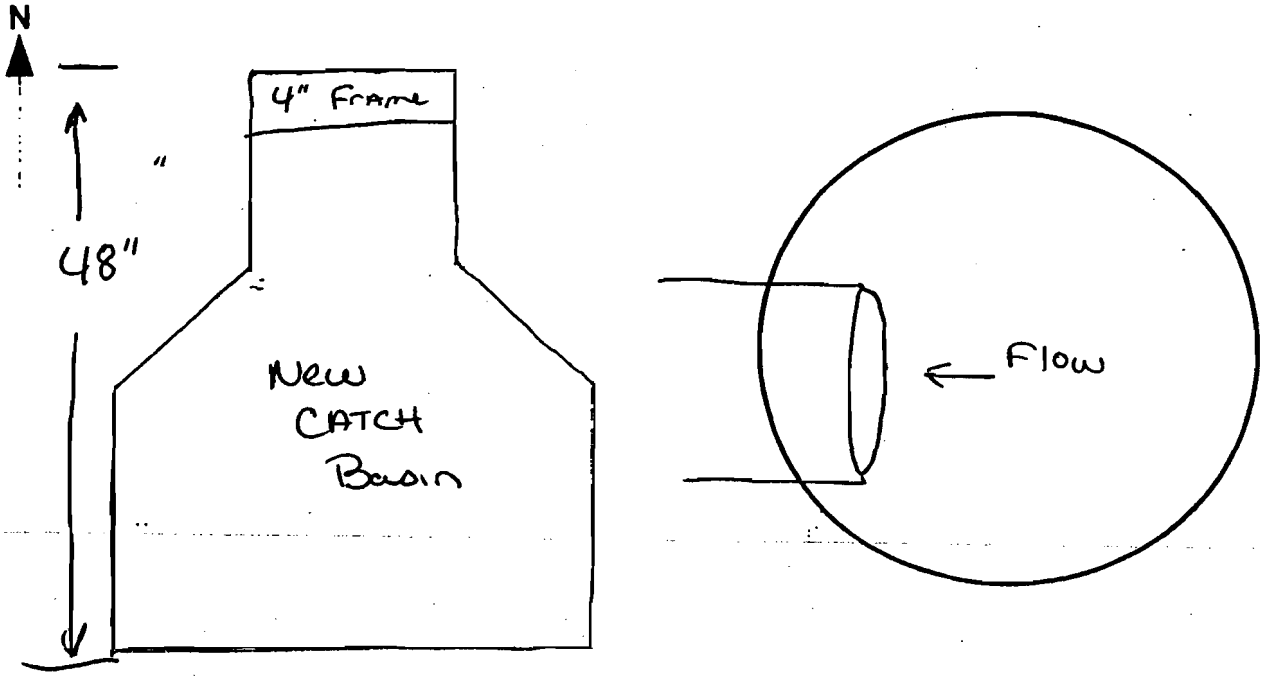
Superviser: DAN Sheldon

Description of Repairs Made: A New Catch Basin was installed. A 12" Dia Drain pipe was put in Connecting S2 to AB2. The connection from S2 to S1 was eliminated

A New 4" Frame & Grate was installed.

4 Utility Pipes were Added to New trench
① 3" Sanitary pipe - DR 21 — 48" Depth
② 1½" WATER pipe - PVC (Rigid) — 45" Depth
③ 1" Sch 40 - Elec. Conduct — 24" Depth
④ 2" Sch 40 - Elec. Conduct — 24" Depth
All pipes were Sealed for possible future use





Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

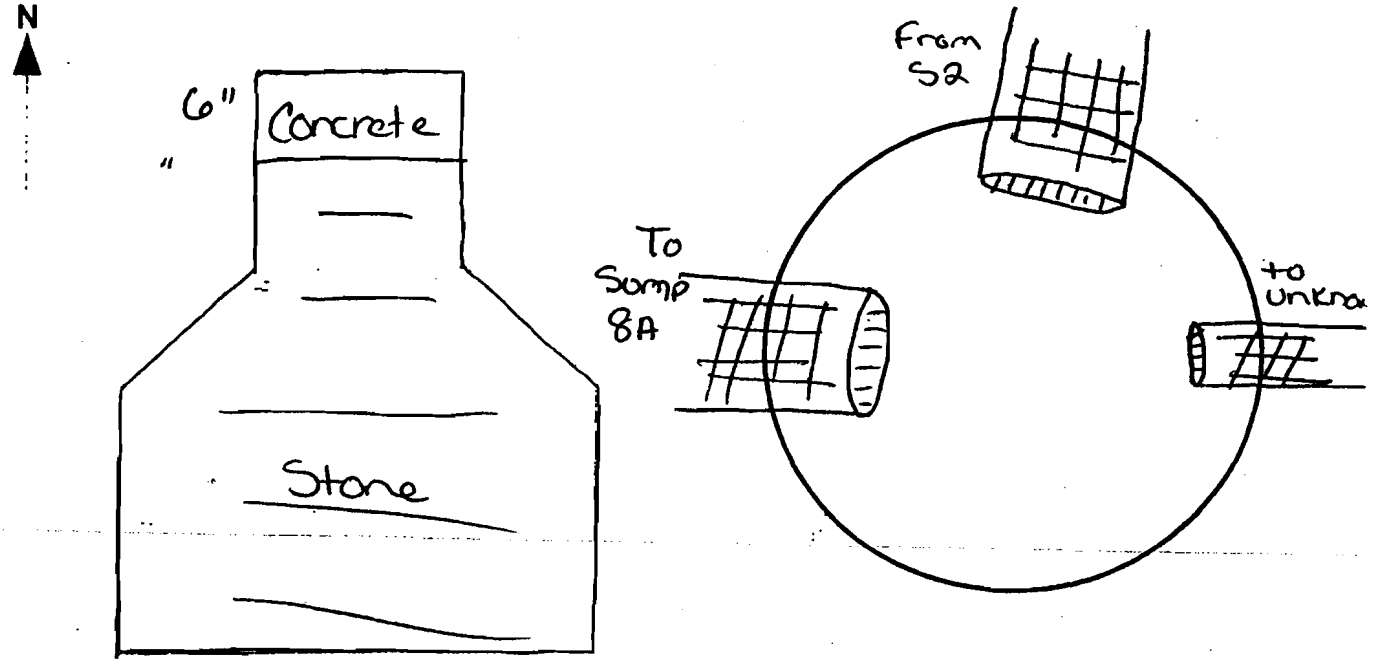
Manhole #: S1 Sewer Branch: Western Date:

Superviser: DAN Sheldon

Description of Repairs Made: All 3 Pipes in S1 Have Been Eliminated

CATCH Basin was Filled with Stone and topped with Concrete

Double Bricked & Mortared
(1) Water tight Sealant



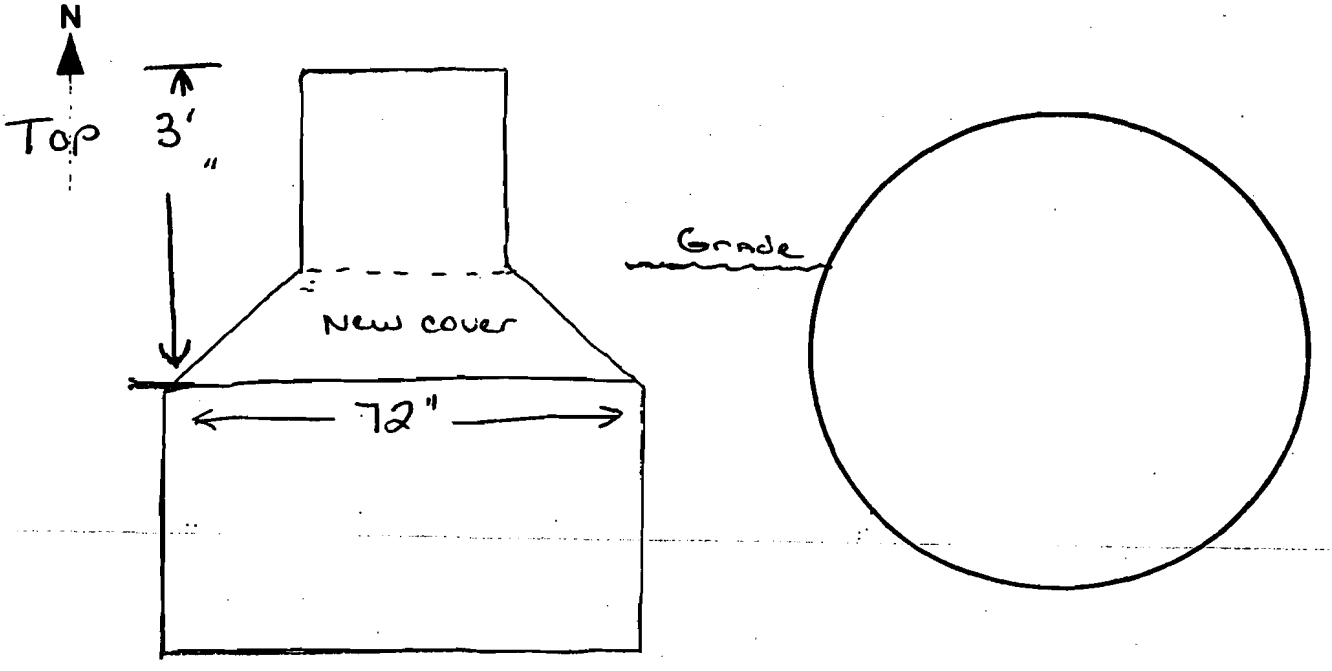
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: Sump 2 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: The top Ring of The Basin was Removed, Lowering it to 1½' Below grade
A new Flat Slab cover was installed

A New 32" Frame a Cover was installed
Bolted with a water tight Gasket



Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

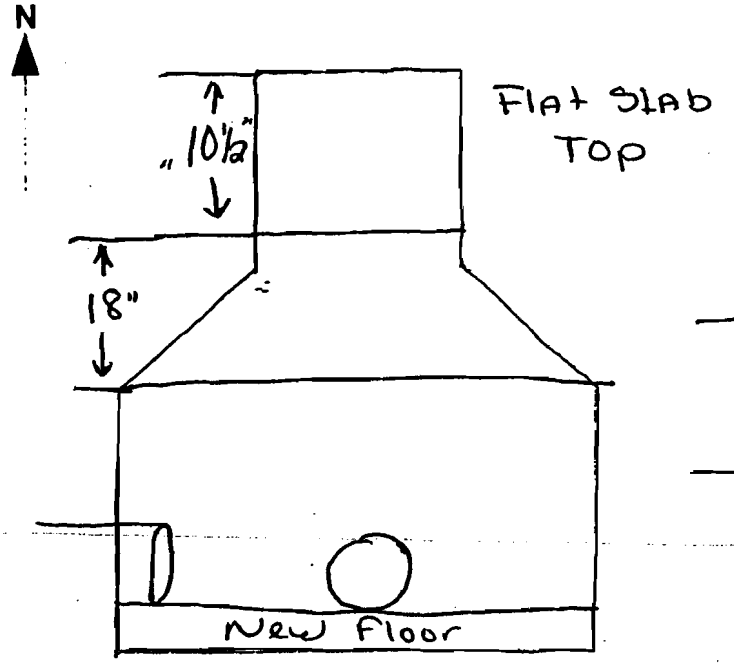
Manhole #: BC1 Sewer Branch: Eastern Date: _____

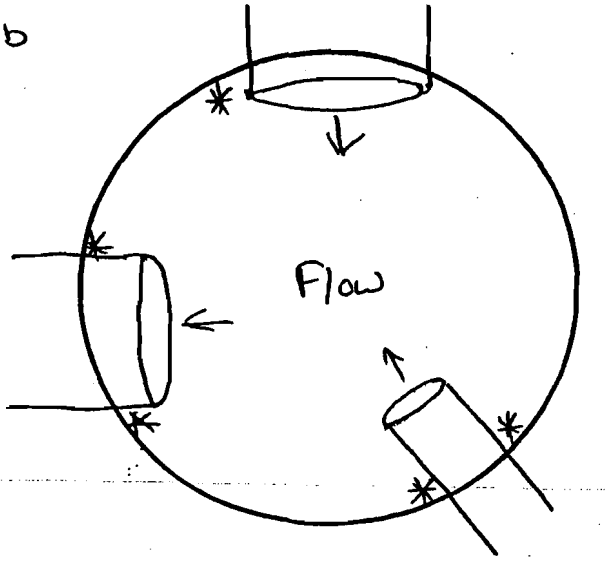
Superviser: DAN Sheldon

Description of Repairs Made: A New Top HALF was installed Consisting of :
A 18" Ring & 10½" FLAT Slab top

A New Floor was poured bringing the floor up to The Bottom of the Effluent pipe

* Patched & Sealed





Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

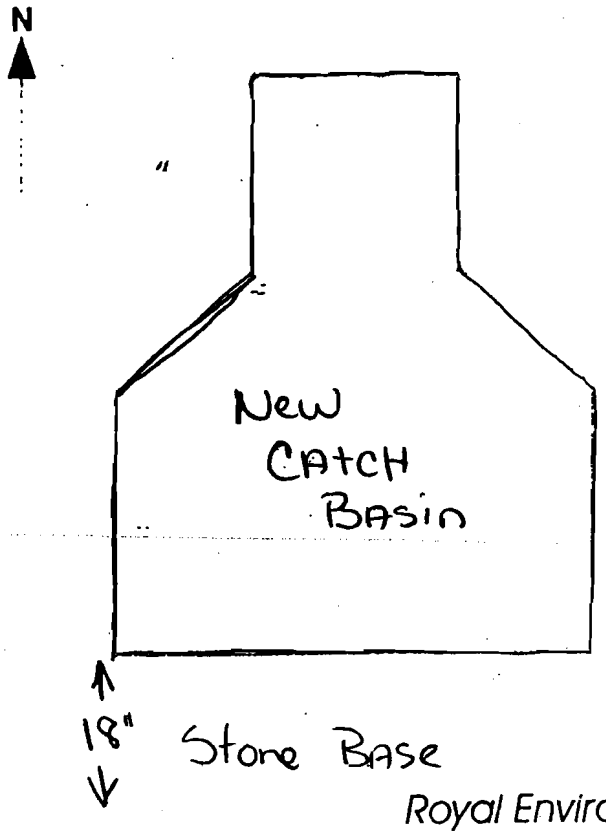
Manhole #: BL1A Sewer Branch: Eastern Date: _____

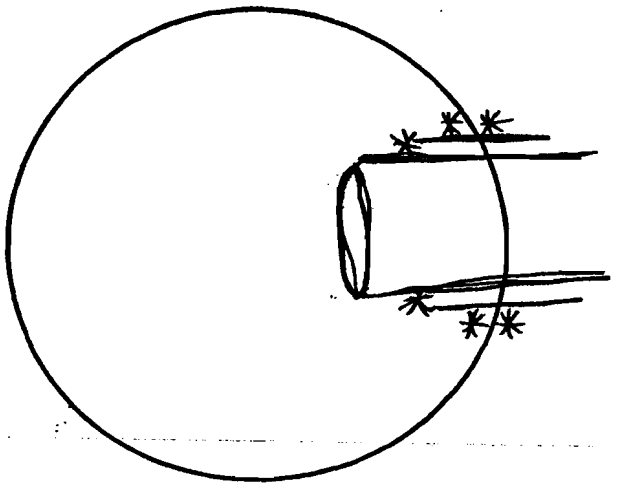
Superviser: DAN Sheldon

Description of Repairs Made: A New CATCHBASIN was installed

The Pipe Between BL1A & BL1 was Slip Lined with 10" [redacted] (47')
SDR-17

* Sealed with watertight Sealant





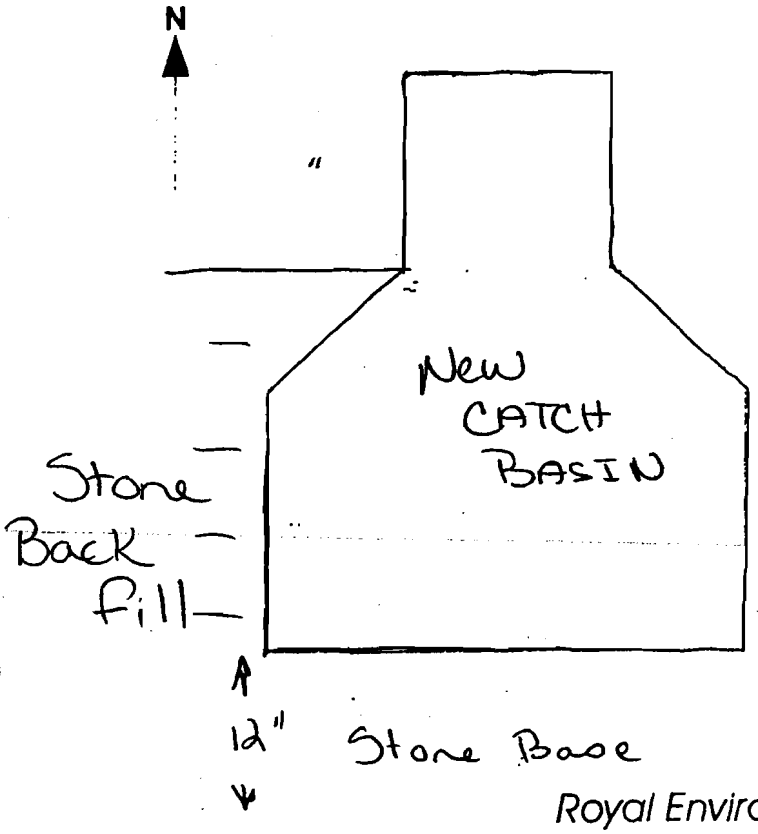
Royal Environmental, Inc.

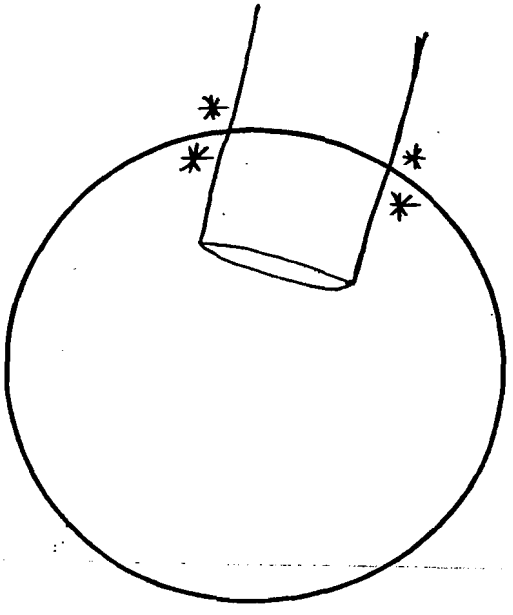
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BAD 1 Sewer Branch: Central Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: A New Catch basin was Installed we Reused the essisting pipe which was in good condition





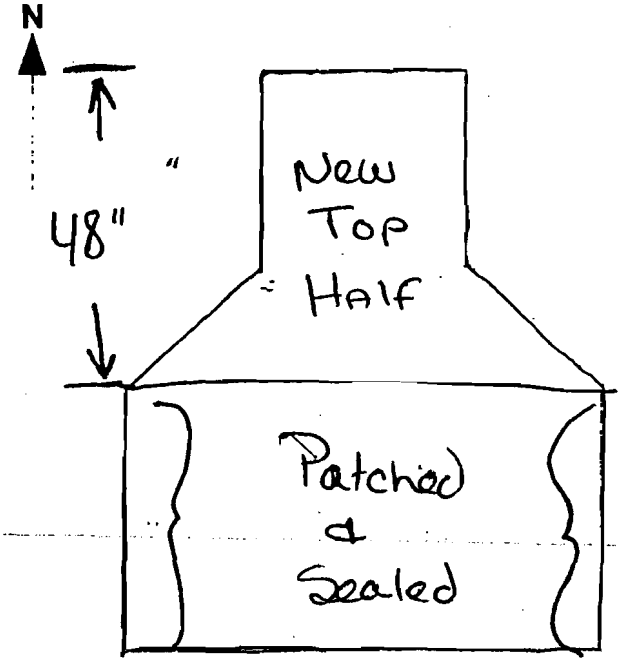
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

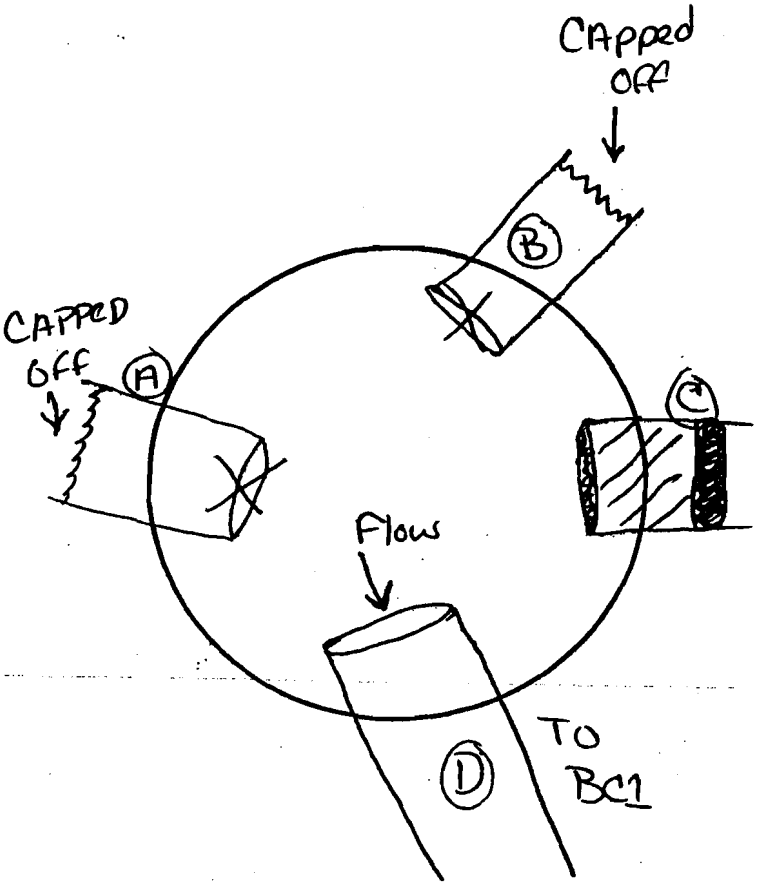
Manhole #: BC2 Sewer Branch: Eastern Date:

Superviser: DAN Sheldon

Description of Repairs Made: Pipes A & B (per Diagram) were Sealed and eliminated outside the CATch Basin. Pipe C was plugged & Sealed in the CATch Basin.

A 48" Top half was placed on top of the original Bottom which was Sealed with watertight Sealant





P.O. 8391
Former IFG Facility, Syracuse, NY * New Catch Basin
Storm Sewer Rehabilitation Project

Manhole #: B11 Sewer Branch: Eastern Date: _____

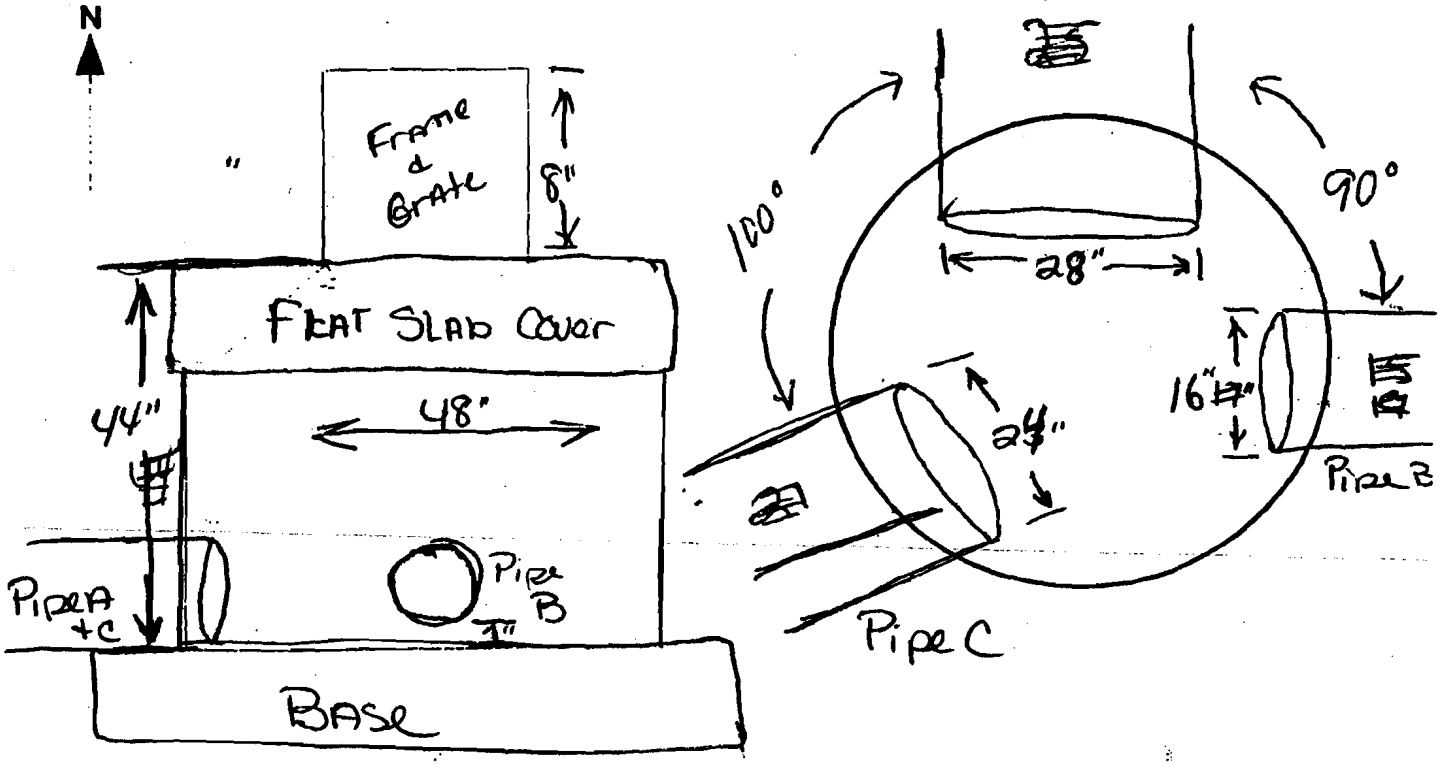
Superviser: DAN Sheldon

Description of Repairs Made: No more Than 44" From ~~Bottom~~ Top of Base to Top of Flat Slab Cover

Pipes A+C on Bottom (At Base)

Pipe B 1" Above bottom

The ferrco's and the New Sections of Pipe Connecting the old pipes to the New Basin were Sealed in concrete



Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project * New Catch Basin

Manhole #: BG1 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

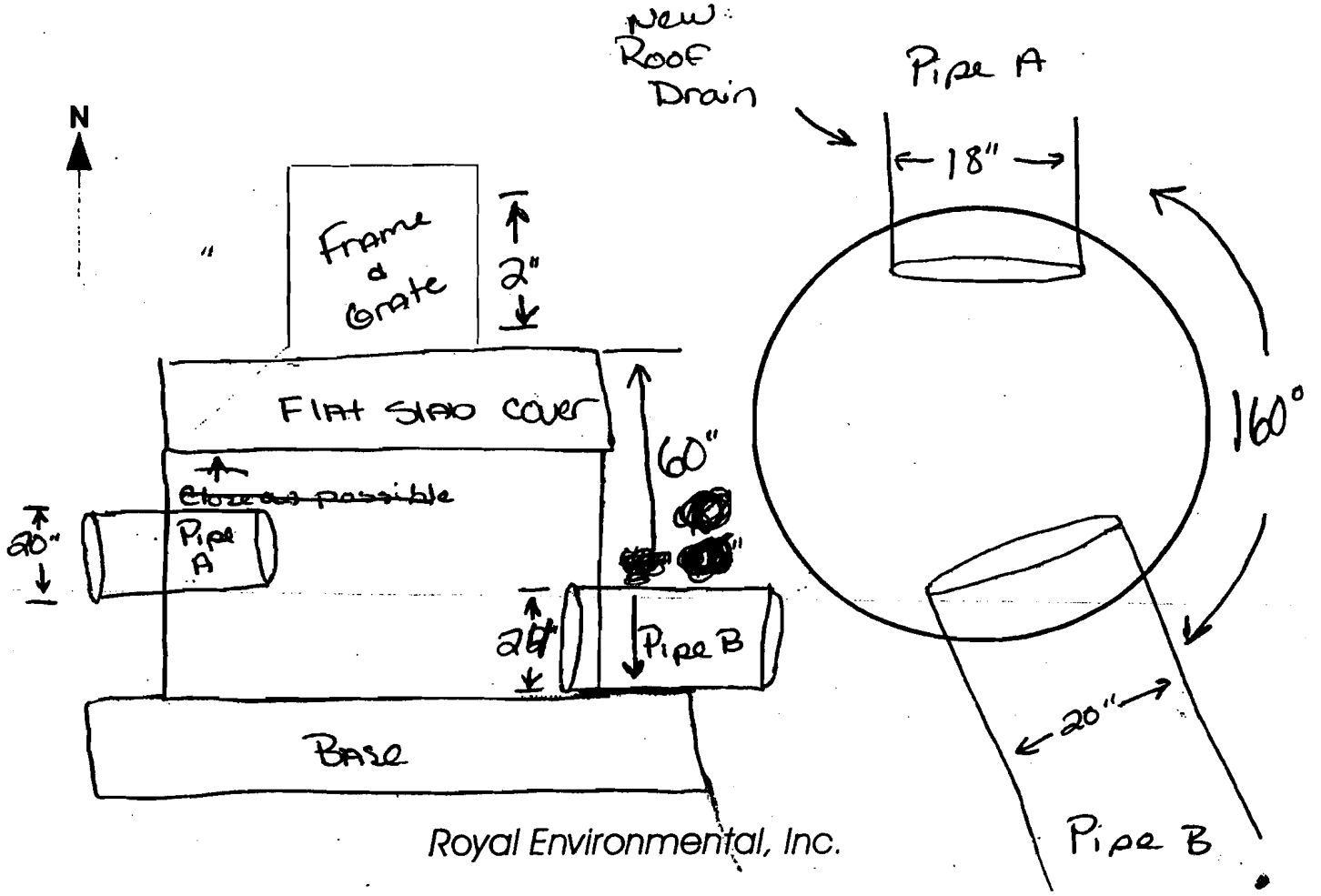
Description of Repairs Made: _____

Pipe A needs to be as close to the TOP OF the CATCH Basin as possible

From top of Base to top of Flat slab cover No more than [redacted] 60"

Pipe B is a New Section of 20" SDR 35 and goes from BG1 to B8

CATCH Basin BG2 was eliminated so was The old BG1



Royal Environmental, Inc.

P.O. 8391
Former IFG Facility, Syracuse, NY * New Catch Basin
Storm Sewer Rehabilitation Project

Manhole #: B11 Sewer Branch: Eastern Date: _____

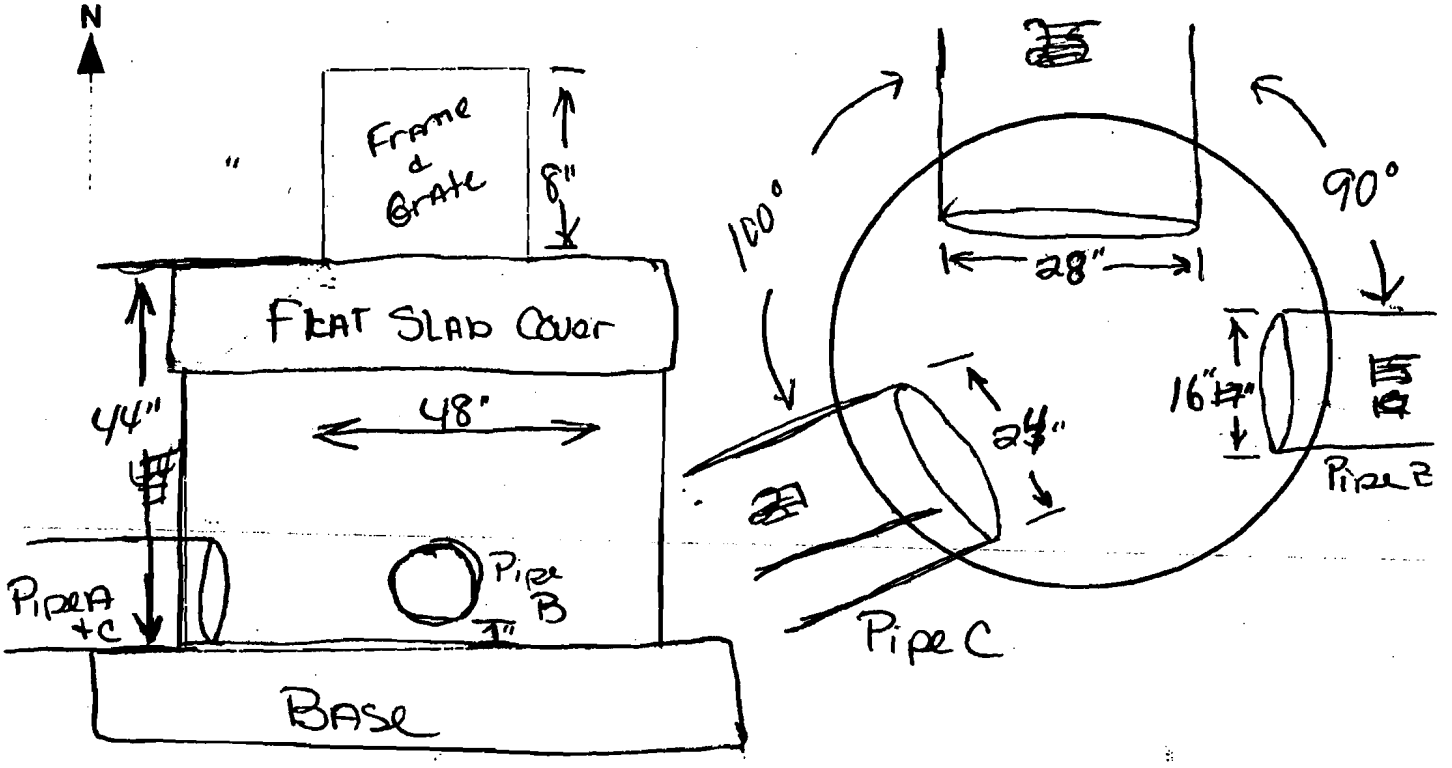
Superviser: DAN Sheldon

Description of Repairs Made:
No more Than 44" From ~~bottom~~ Top of Base to Top of FLAT Slab cover

Pipes A+C on Bottom (At Base)

Pipe B 1" Above bottom

The fernco's and the New Sections of Pipe Connecting the old pipes to the New Basin were Sealed in Concrete



Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project * New Catch Basin

Manhole #: BG1 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

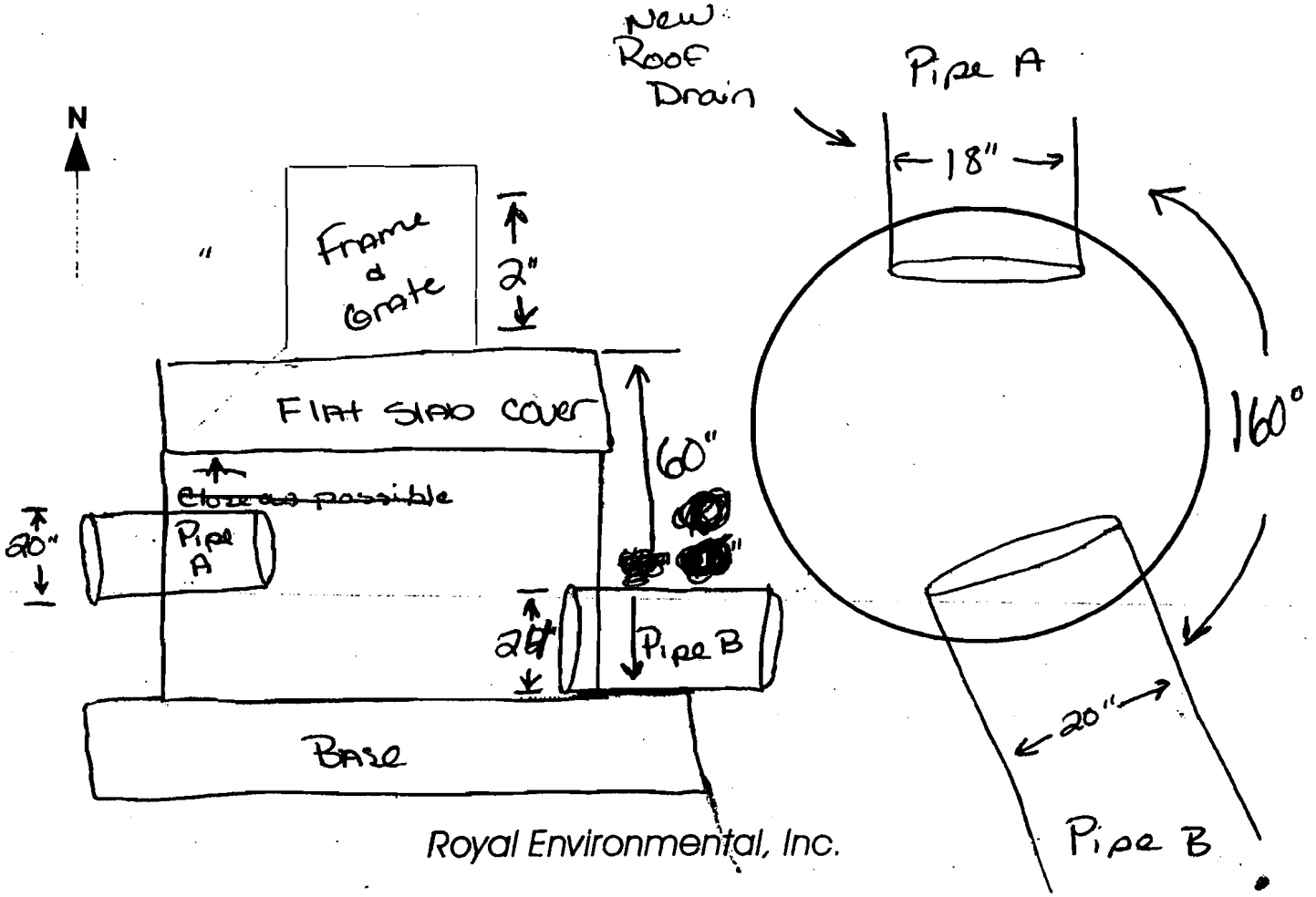
Description of Repairs Made: _____

Pipe A needs to be as close to the Top of the Catch Basin as possible

From top of Base to top of Flat slab cover No more than 60"

Pipe B is a New Section of 20" SDR 35 and goes from BG1 to B8

Catch Basin BG2 was eliminated so was The old BG1



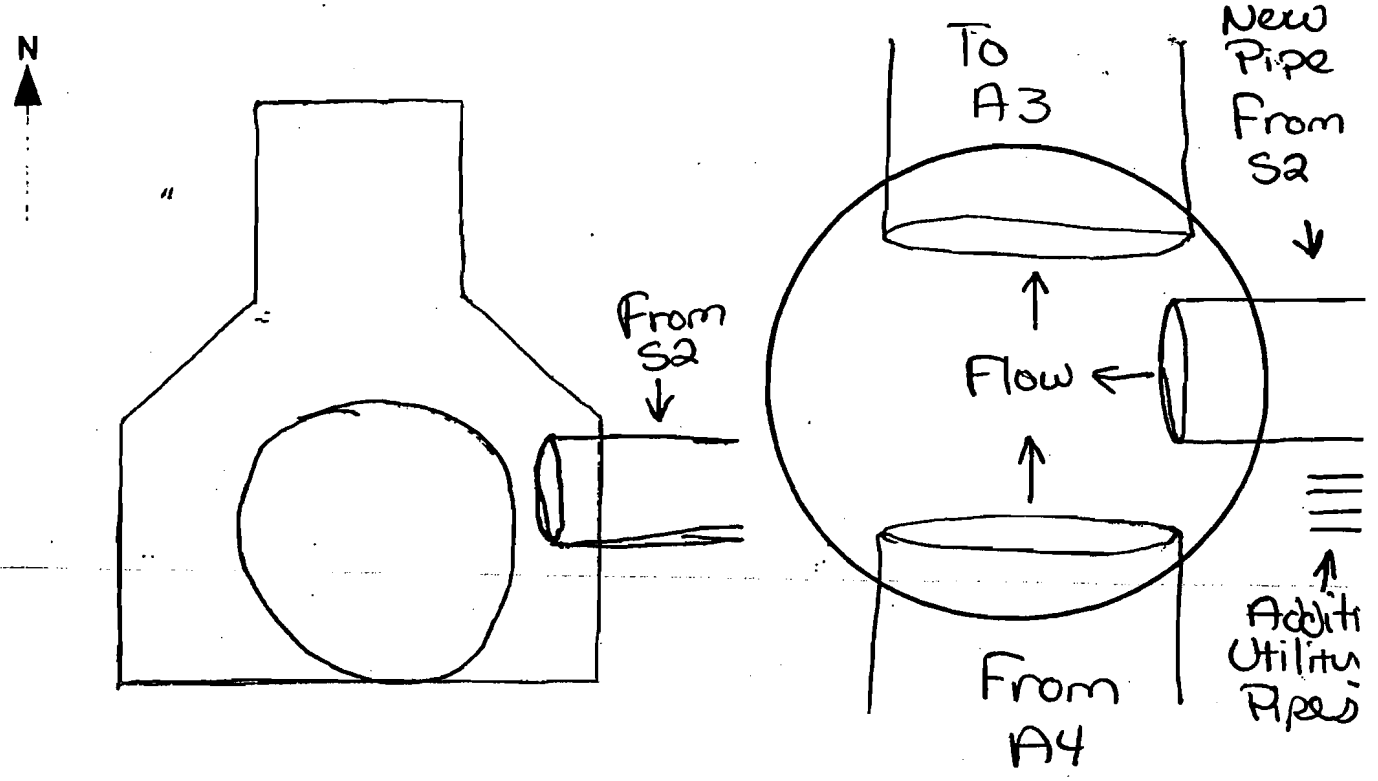
Royal Environmental, Inc.

Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: AB2 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: A New Pipe Line was installed From CATCH Basin S2 to CATCH Basin AB2

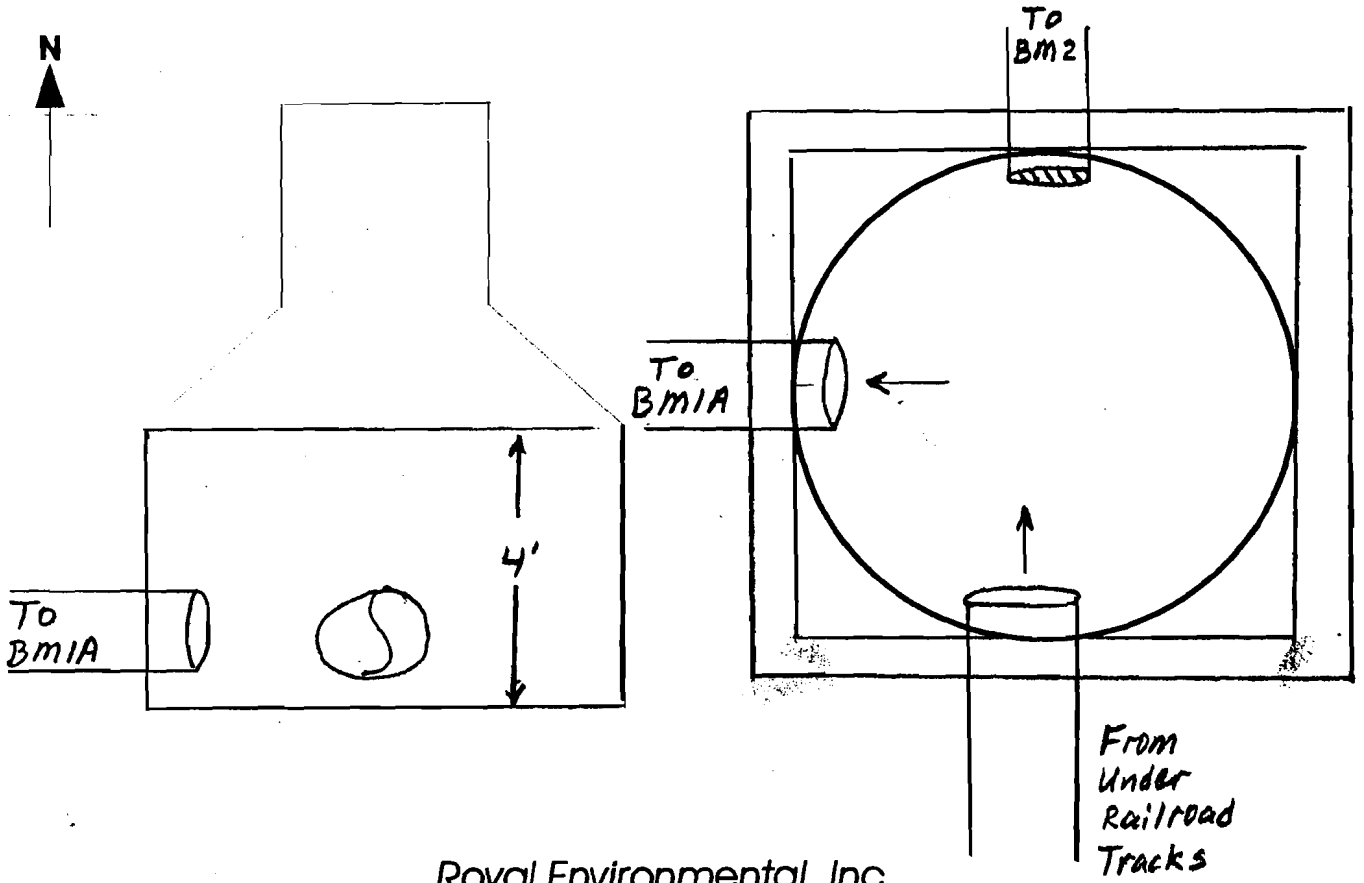


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BM4 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: The catch basin structure was raised from approximately one foot deep to .4. feet deep. The old pipe to man hole BM2 was abandon by plugging with grout. The clay pipe from under the tracks (8") was extended into BM4 and a new 8" pipe was installed from BM4 to replaced man hole BM1A. with cinder blocks

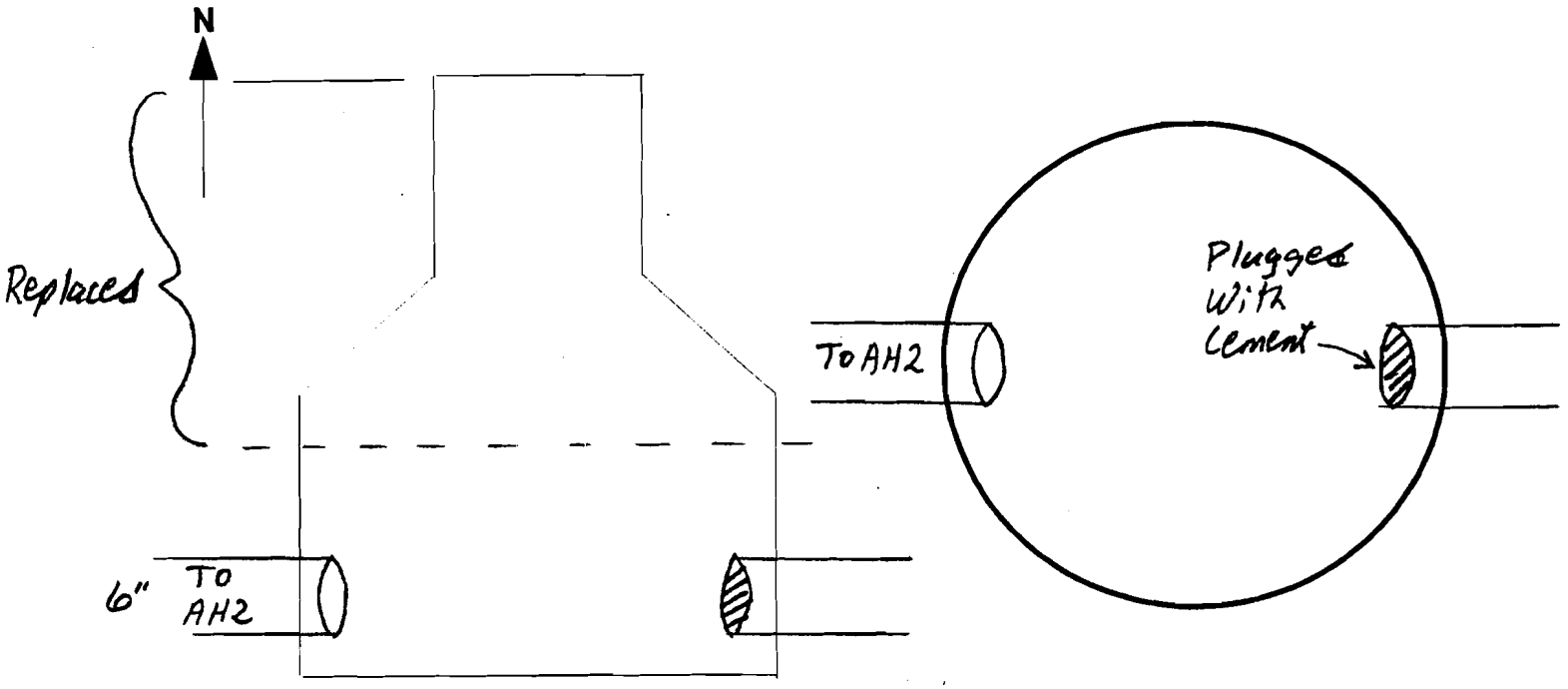


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: AH3 Sewer Branch: Western Date: _____

Superviser: Dan Sheldon

Description of Repairs Made: Replaced the top barrel of the manhole with a new section. Plugged the 6" unknown pipe from the east.

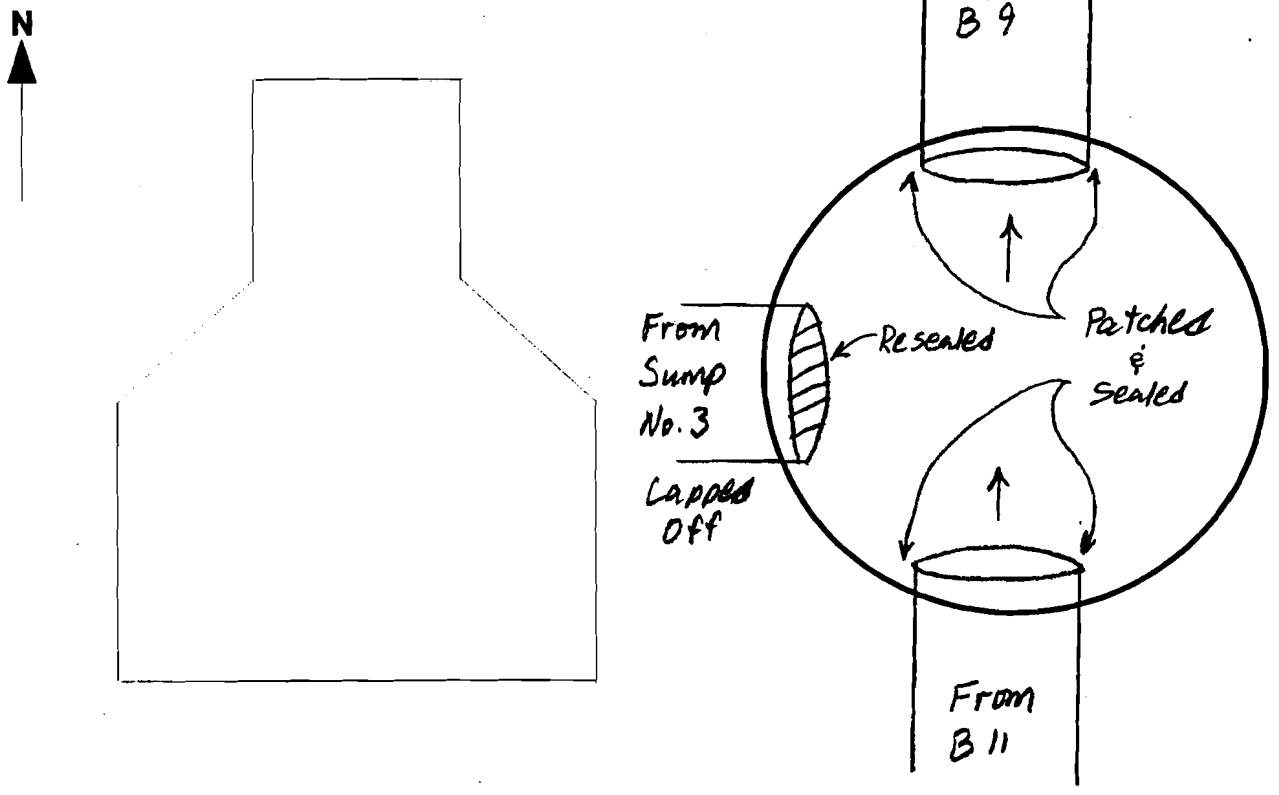


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: B10 Sewer Branch: Eastern Date: _____

Superviser: Dan Sheldon

Description of Repairs Made: Patched and sealed around pipes.
Reseated plugged pipe from Sump 3.

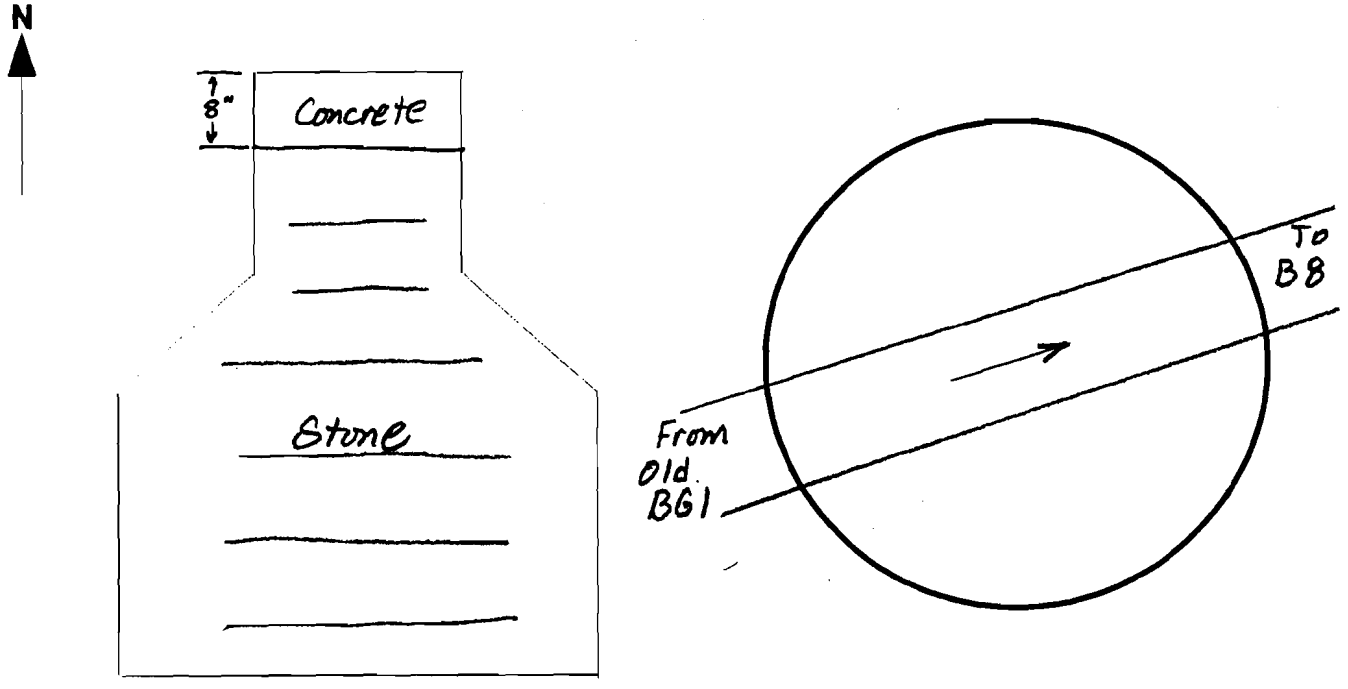


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BG2 Sewer Branch: Eastern Date: _____

Superviser: DAN Sheldon

Description of Repairs Made: Manhole was abandon
Basin was filled w/stone & sealed with concrete.

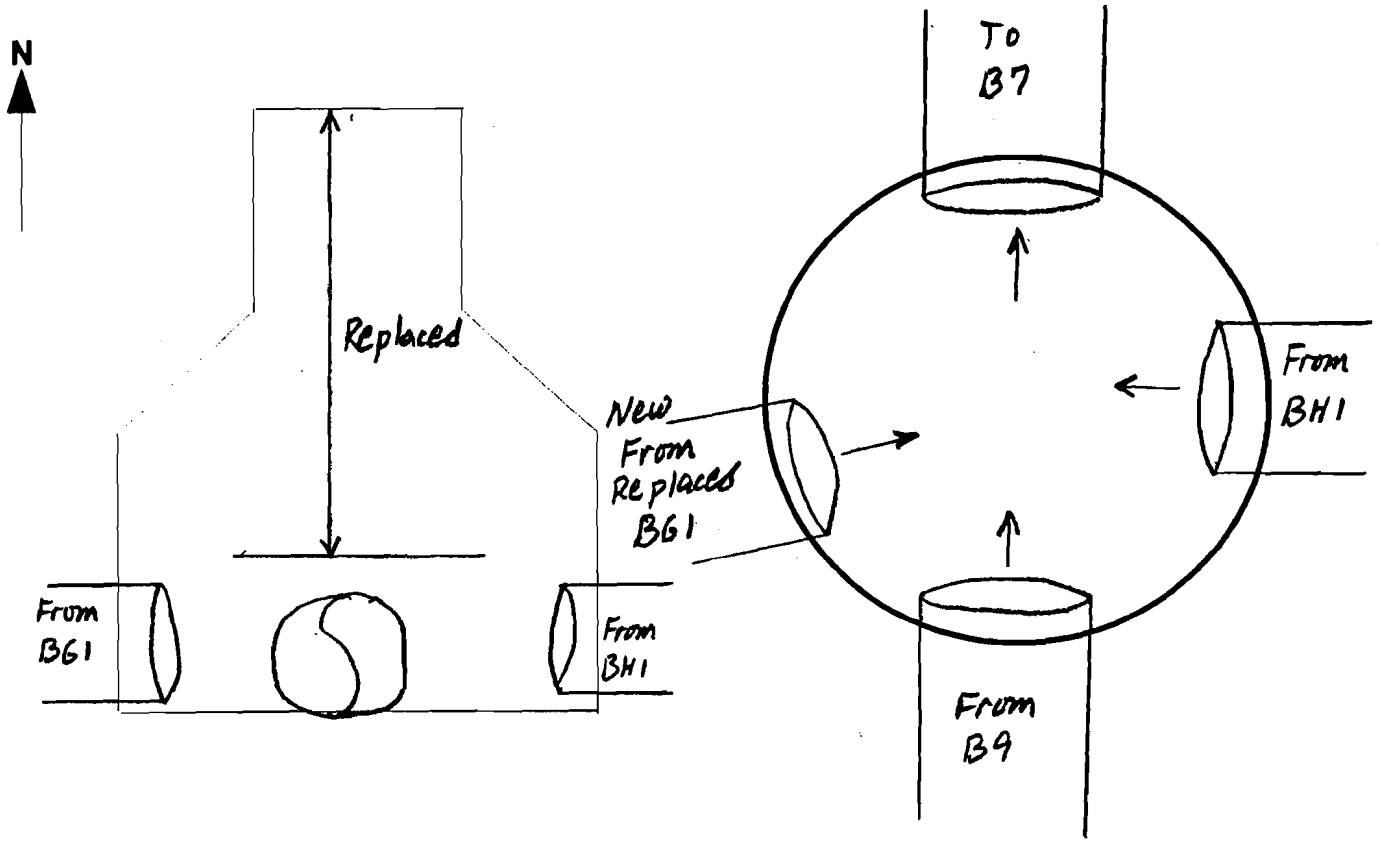


Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: B8 Sewer Branch: Eastern Date: _____

Superviser: DAN Shelden

Description of Repairs Made: A new 18" pipe was installed from BG1 to accomodate the new roof drain. The manhole was replaced down to the pipes.

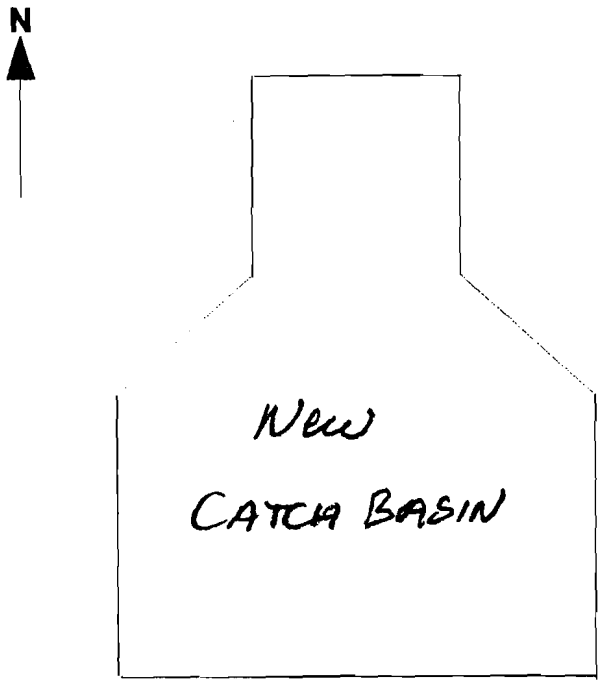


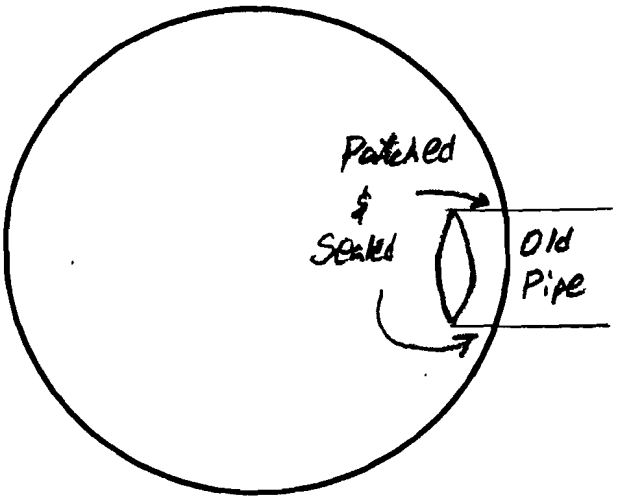
Former IFG Facility, Syracuse, NY
Storm Sewer Rehabilitation Project

Manhole #: BE1 Sewer Branch: Eastern Date: _____

Superviser: Dan Sheldon

Description of Repairs Made: Installed new catch basin
Tied into existing pipe.





Approved 3/12/03

Worldwide Facilities Group
Environmental Services
Remediation Team

James F. Hartnett
Program Manager

January 31, 2003

Ms. Susan Benjamin, P.E.
Bureau of Central Remedial Action
Division of Environmental Remediation
New York State Department of Environmental Conservation
625 Broadway, 12th floor
Albany, New York 12233

Re: Former IFG Facility (Registry # 7-34-057) and Ley Creek Deferred Media
NYSDEC Order on Consent Index # D-7-0001-97-06
Storm Sewer Rehabilitation IRM Engineering Report

Dear Ms. Benjamin:

The purpose of this letter is to provide responses to the Department's January 15, 2003 comment letter regarding the Storm Sewer Rehabilitation IRM Engineering Report (Report). For convenience, the Department's comments have been restated below, followed by GM's response.

Comment 1
Section 1.3, third paragraph: The report is to be revised to discuss the actual removal activities associated with Outfall 004.

Response 1
Sediment removal activities associated with Outfall 004 were not discussed in detail in the Report because they were not included in the June 2001 Storm Sewer Rehabilitation IRM Work Plan. Activities to be performed in the storm sewer line leading to Outfall 004 were proposed in GM's letter of April 26, 2001. The Department approved this letter in its letter dated August 13, 2001. A separate letter report regarding activities performed in the storm sewer line leading to Outfall 004 will be submitted to the Department following completion of these activities.

OK

Comment 2
Section 2.4: The narrative and figures need to be revised to discuss/reflect the location of the "unkown" 42-inch sewer pipe; whether it was part of the line shown as inactive on Figure 1 that lies along the western side of the building and; since the courtyard sump has been abandoned, the narrative should discuss any sediment/liquid removal activities that may have taken place, or if none, why not.

Response 2
The inactive 42-inch sewer pipe was not shown on Figure 1 because its exact orientation is unknown. Only a portion of the pipe was encountered during excavation activities associated with installation of the new storm sewer pipe between AB2 and S2. It is likely that the inactive sewer pipe was associated with the inactive storm sewer system located beneath the facility floor.

The courtyard sump was cleaned as part of the Sewer Televising IRM, as shown on Figure 2 of the Revised Sewer Televising IRM Report dated June 2001. Cleaning activities and sediment/liquid removal activities are discussed in Sections 2.3 and 2.4 of the June 2001 Revised Sewer Televising IRM Report.

Comment 3
Tables 2-1, 2-2: The tables must be revised to indicate the actual status. Not all sections rehabilitated were "completed". The goals stated were not attained in some sections of the pipeline. Please indicate "incomplete" and the reason (e.g., the goal could not be attained, the pipe was inaccessible, further work was not deemed necessary due to a decision to implement site-wide storm water treatment, etc.)

Response 3
Revised Tables 2-1 and 2-2 are included in Attachment 1.

Comment 4
Section 5. O&M Plan: This section should also be included as part of the O&M Plan for the EOP treatment system.

Response 4
GM will consider including manhole inspection as part of the O&M Plan for the SPDES Treatment System.

GM requests that this letter and the associated attachment serve as an addendum to the Report. If you have any questions, please call Clare Leary at (315) 437-6100 or me.

Sincerely,

James F. Hartnett/JMR

James F. Hartnett
Remedial Program Manager

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Attachment 1
Revised Tables 2-1 and 2-2

Table 2-1 – Summary of rehabilitation activities for pipes

Location	Status	Goal	Technology	Post-Implementation Inspection
Western Branch				
* A3 to AB1	Complete	Eliminate infiltration	Grouting of cracks up to 2' from each end	Visual inspection performed
* S2 to AB2	Complete	Improve drainage in western courtyard	Abandon S1; install new 12 " ADS Polyethylene N-12 pipe from S2 to AB2	Visual inspection performed
A7 to A5	Complete	Eliminate infiltration	Insituform	Television inspection performed
A5 to A4	Complete	Eliminate infiltration	Insituform	Television inspection performed
Sump 7 to (A4)	Complete	Repair pipe plug	Grouting at plug to Sump 7 and create plug at A4.	Visual inspection performed
AG3	Complete	Repair pipe plug	Grouting at plug to A12. Install new plug to Sump 6.	Visual inspection performed
* A12 to AG3	Complete	Abandon pipe	Grout plug to AG3	Visual inspection performed
A12A to A12	Complete	Abandon pipe	Grout at both ends of pipe	Visual inspection performed
* AH2 in front of clarifier	Complete	Repair pipe	Install new section of 24 " PVC pipe	Visual inspection performed
AH1A to A12A	Complete	Abandon pipe	Grout at both ends of pipe	Visual inspection performed
A12B to A12A	Complete	Abandon pipe	Grout at both ends of pipe	Visual inspection performed
* A12 to AH1A	Complete	Eliminate infiltration	Insituform	Television inspection performed
* AH1A to AH2A	Complete	Eliminate infiltration	Insituform	Television inspection performed
* A9 to A10	Complete	Eliminate infiltration	Insituform	Television inspection performed
* A10 to A11	Complete	Eliminate infiltration	Insituform	Television inspection performed
* A12 to A13	Complete	Eliminate infiltration	Insituform	Television inspection performed
Central Branch				
BAF1 to BA6	Complete	Eliminate infiltration	Insituform	Television inspection performed
BA7 to BA6	Complete	Eliminate infiltration	Insituform	Television inspection performed
BA6 to BA5 and BA4	Complete	Eliminate infiltration	Insituform	Television inspection performed
* BAC1 to BAC2	Complete	Repair pipe	Replaced section original clay pipe with 10" PVC pipe	Visual inspection performed
Eastern Branch				
Roof drain at H2	Complete	Redirect flow	Install new, overhead, 18" steel piping	Visual inspection performed
B9 to H2	Incomplete; pipe was inaccessible. No further action required.	Abandon pipe	Grout both ends of pipe	Grouted in B9, H2 was inaccessible and was not grouted. Visual inspection performed

Table 2-1 – Summary of rehabilitation activities for pipes

Location	Status	Goal	Technology	Post-Implementation Inspection
BG1 to B8	Complete	Provide connection to storm sewer from roof drain	Replace pipe from BG1 to B8	Visual inspection performed
West influent pipe to BM1	Complete	Abandon pipe/fill end with grout	Grout pipe	Visual inspection performed
* B11 to BL1	Complete	Eliminate infiltration	Insituform	Television inspection performed
* B11 towards BI1	Complete	Eliminate infiltration and continue Powerhouse roof drainage	Insituform	Television inspection performed
BL1 to BM1	Complete	Eliminate infiltration	Insituform	Television inspection performed
* BM4 to BM1A to BM1	Complete	Reconfigure flow behind powerhouse	Install new 8" PVC pipe from BM4 to BM1A. Install new 12" PVC pipe from BM1A to BM1	Visual inspection performed
* BL1A to BL1	Complete	Eliminate infiltration	Install 10" HDPE pipe inside existing pipe	Visual inspection performed

* denotes scope added to June 1, 2001 Sewer Rehabilitation Work Plan.

Table 2-2 – Summary of rehabilitation activities for manholes

Location	Status	Goal	Technology	Post-Implementation Inspection
Western Branch				
* A8B2	Incomplete; no further action required due to construction of a storm water treatment system.	Eliminate infiltration	Grout plug pipe to east	Inspection performed; infiltration observed under plug in east pipe
* A8A	Complete	Eliminate infiltration	Grout plug pipe to northwest	Inspection performed
* AJ1	Complete	Eliminate infiltration	Abandon	Inspection performed
* AH3	Complete	Eliminate infiltration	Replace top half of manhole. Grout plug pipe from the east.	Inspection performed
* A12A	Complete	Eliminate infiltration	Abandon	Inspection performed
* A12B	Complete	Eliminate infiltration	Abandon	Inspection performed
A13	Incomplete; no further action required due to construction of a storm water treatment system.	Eliminate infiltration	Grout (patch) walls of manhole. Seal entire basin. Install new floor in basin.	Inspection performed; infiltration observed around effluent pipe.
* AH1A	Complete	Eliminate infiltration	Grout (patch) and seal entire basin. Grout plug pipe to A12A.	Inspection performed
* AH2A	Complete	Eliminate infiltration	Grout (patch) walls and seal entire basin. Grout around pipe.	Inspection performed
* AH2	Complete	New manhole	Install new manhole	Inspection performed
* A12	Complete	Eliminate infiltration	Grout (patch) walls where needed. Seal entire basin. Grout plug pipes to AG3 and A121A.	Inspection performed
AG3	Complete	Eliminate infiltration from Sump 6	Abandon	Inspection performed
* AF2	Complete	Eliminate infiltration	Grout (patch) walls of top 1 ft of catch basin	Unable to inspect due to sediment in bottom.
* AF1	Complete	Eliminate infiltration	Grout (patch) walls of top 2 ft of catch basin. Grout around all pipes. Seal entire basin.	Inspection performed
* A10	Complete	Eliminate infiltration	Grout (patch) and seal walls of top 1 ft of basin.	Inspection performed
* A9	Complete	Eliminate infiltration	Grout (patch) and seal walls of top 1 ft of basin. Grout around all pipes.	Inspection performed
* A8	Complete	Eliminate infiltration	Grout (patch) and seal walls of top 1 ft of basin. Grout around all pipes.	Inspection performed
* A7	Complete	Eliminate infiltration	Grout around all pipes	Inspection performed
* A6	Complete	Eliminate infiltration	Grout (patch) and seal walls of top 1 ft of basin. Grout around all pipes.	Inspection performed
* AE1	Complete	Eliminate infiltration	Abandon	Inspection performed
* AE2	Complete	Eliminate infiltration	Abandon	Inspection performed
A5	Complete	Eliminate infiltration.	Grout (patch) and seal walls of top 1 ft of basin. Grout around all pipes.	Inspection performed
Sump 7 (A4)	Complete	Eliminate infiltration from Sump 7	Grout plug at Sump 7. Grout (patch) and seal top 1 ft of basin. Grout around all pipes.	Inspection performed

Table 2-2 – Summary of rehabilitation activities for manholes

Location	Status	Goal	Technology	Post-Implementation Inspection
* A3	Complete	Eliminate infiltration	Grout around all pipes.	Inspection performed
* AC2	Complete	Simplify network.	Abandon	Inspection performed
* AD1	Complete	Eliminate infiltration	Abandon	Inspection performed
* S1	Complete	Reroute piping from S2	Abandon as part of rerouting pipe from S2 to AB2. Plug line to the south.	Inspection performed
* S2	Complete	Reroute piping to AB2.	Install new catch basin.	Inspection performed
* A2	Complete	Eliminate infiltration.	Grout around pipe to A2A. Grout (patch) and seal the top 1 ft of basin.	Inspection performed
* A2A	Complete	Eliminate infiltration	Grout around pipes. Seal entire basin.	Inspection performed
* A2B	Complete	New catch basin	Install new CB.	Inspection performed
* AB1	Complete	Eliminate infiltration	Grout around pipes. Seal entire basin.	Inspection performed
Central Branch				
* BAA1	Complete	Eliminate infiltration.	Grout (patch) the top 1 ft of basin. Grout around pipes.	Inspection performed
* BAE2	Complete	Eliminate infiltration.	Grout around pipes. Grout (patch) and seal entire basin. Seal floor.	Unable to inspect due to running water
* BA4A	Complete	Eliminate infiltration.	Abandon	Inspection performed
* BA4	Complete	Eliminate infiltration.	Grout (patch) and seal walls. Grout around pipes.	Inspection performed. Grout observed to be cracked. Infiltration observed around effluent and wall by manhole steps.
* BA5	Complete	Eliminate infiltration.	Grout (patch) and seal entire basin. Grout around pipes.	Inspection performed
* BAF1	Complete	Eliminate infiltration.	Grout (patch) and seal entire basin. Grout around pipes.	Inspection performed
BAB1	Complete	Eliminate infiltration.	Abandon	Inspection performed
BAE1	Incomplete; no further action required due to construction of a storm water treatment system.	Eliminate infiltration	Grout walls (patch work) of lower portion of manhole. Seal entire basin.	Inspection performed; infiltration observed on bottom of walls.
BAD1	Complete	Eliminate infiltration	Replace catch basin	Unable to inspect due to water in bottom of catch basin.
* BAC1	Complete	Eliminate infiltration.	Grout (patch) and seal top 1 ft of basin. Grout around pipes. Install new floor.	Inspection performed
Eastern Branch				
* BM4	Complete	Reroute clay pipe influent flow.	New manhole	Inspection performed
* BM3	Complete	Simplify network	Abandon	Inspection performed
BM2	Complete	Simplify network	Abandon	Inspection performed
* BN1	Complete	Simplify network	Abandon	Inspection performed
BM1A	Complete	Eliminate potential source of PCBs and simplify network	Replace manhole	Inspection performed
BM1	Complete	Eliminate infiltration	Removed as part of BM4 rerouting	Inspection performed
BL2	Complete	Simplify network	Abandon	Inspection performed
BL2A	Complete	Abandon	Abandon	Inspection performed
BL1A	Complete	Eliminate infiltration	Install new catch basin	Inspection performed
BL1	Complete	Eliminate infiltration	Install new catch basin	Inspection performed

Table 2-2 – Summary of rehabilitation activities for manholes

Location	Status	Goal	Technology	Post-Implementation Inspection
* B12	Complete	Simplify network	Abandon	Inspection performed
* BN1A	Complete	Simplify network	Abandon	Inspection performed
* BI1	Complete	Simplify network	Abandon	Inspection performed
* BJ1	Complete	Simplify network	Abandon	Inspection performed
BK1	Complete	Simplify network	Abandon	Inspection performed
BK2	Complete	Simplify network	Abandon	Inspection performed
* B11	Complete	Eliminate infiltration	New manhole	Inspection performed
* B10	Complete	Eliminate infiltration	Grout around all pipes and bottom of manhole.	Inspection performed
* B9	Complete	Eliminate infiltration	Replace top section of catch basin. Grout around all pipes and bottom of manhole.	Inspection performed
* BG1	Complete	Reroute H2 roof drain	Replace catch basin as part of rerouting roof drain	Inspection performed
* BG2	Complete	Reroute H2 roof drain	Abandoned	Inspection performed
* B8	Complete	Eliminate infiltration and reroute H2 roof drain	Replaced manhole	Inspection performed
BH1	Complete	Eliminate infiltration	Replace catch basin. Plug lines to south and to BH2.	Inspection performed
BF1	Complete	Eliminate infiltration	Replace catch basin	Inspection performed
BE1	Complete	Eliminate infiltration	Replace catch basin	Inspection performed
B7	Incomplete; no further action required due to construction of a storm water treatment system.	Eliminate infiltration	Replace top 3 ft. of basin. Grout around all pipes and bottom of manhole.	Inspection performed. Grout in general was observed to be cracked in several places. Infiltration observed.
* BD1	Complete	Eliminate infiltration	Replace catch basin	Inspection performed. Grout was observed to be damp on side of effluent.
* BD2	Complete	Eliminate unknown source of flow	Grout plug influent pipe from the east	Inspection performed
* B6	Complete	Eliminate infiltration	Grout (patch) and seal entire basin. Grout around all pipes and bottom of manhole	Inspection performed. Grout was observed to be cracked around the influent. No visible infiltration.
* B5	Incomplete; no further action required due to construction of a storm water treatment system.	Eliminate infiltration	Grout (patch) and seal entire basin. Grout around all pipes and bottom of manhole	Inspection performed. Some infiltration and cracks were noted on the south influent.
* BC1	Complete	Eliminate infiltration	Replace top 3 ft. Grout around all pipes and bottom of manhole.	Inspection performed
BC2	Complete	Eliminate infiltration	Replace top 3 ft. Grout around bottom of manhole.	Inspection performed
B1A	Complete	Eliminate infiltration	Grout around top ring. Patch and seal seam between upper and lower portions of basin.	Inspection performed

* denotes scope added to June 1, 2001 Sewer Rehabilitation Work Plan

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Worldwide Facilities Group
Environmental Services
Remediation Team

APPROVED

James F. Hartnett
Program Manager

October 31, 2002

Ms. Susan Benjamin, P.E.
Bureau of Central Remedial Action
Division of Environmental Remediation
New York State Department of Environmental Conservation
50 Wolf Road, Room 228
Albany, New York 12233-7010

Re: Former IFG Facility (Registry # 7-34-057) and Ley Creek Deferred Media
NYSDEC Order on Consent Index # D-7-0001-97-06
Storm Sewer Rehabilitation IRM Engineering Report

Dear Ms. Benjamin:

Enclosed for your review and approval is the Storm Sewer Rehabilitation IRM Report for the General Motors Corporation (GM) Former Inland Fisher Guide (IFG) Facility. The enclosed report documents implementation of the Storm Sewer Rehabilitation IRM in accordance with the Department-approved Work Plan and the Order.

Insituform Television Inspection Forms documenting work completed in August 2001 were destroyed in a fire and are not included in Exhibit A. A complete set of videotapes documenting installation of Insituform cured-in-place liners is available upon request.

If you have any questions, please call Clare Leary at (315) 437-6100 or me.

Sincerely,

James F. Hartnett

James F. Hartnett
Remedial Program Manager

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