


SESSION II Collection System O&M

Long Range Sewer Cleaning Equipment, Jobs and Job Set Ups

PVSC Main Interceptor Sewer Cleaning, Contract B165A




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- CAPACITY ANALYSIS THROUGH CCTV INSPECTION, SONAR INSPECTION AND MULTI SENSOR TECHNOLOGIES
- IDENTIFICATION OF AREAS OF LOST CAPACITY
- PERFORM SEDIMENT REMOVAL IN THOSE AREAS TO RESTORE THE LOST CAPACITY TO REMAIN IN COMPLIANCE OF CMOM

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GUIDE FOR EVALUATING CAPACITY, MANAGEMENT, OPERATION, AND MAINTENANCE (CMOM) PROGRAMS AT SANITARY SEWER COLLECTION SYSTEMS

United States Environmental Protection Agency
Office of Enforcement and Compliance Assurance (2224A)
EPA 305-B-05-002
www.epa.gov
January 2005

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- NEW YORK CITY PERFORMED SONAR/CCTV INSPECTION OF APPROXIMATELY 1,000,000 LINEAR FEET OF INTERCEPTING SEWERS FROM 36 INCH IN DIAMETER TO 12-FOOT DIAMETER TO IDENTIFY WHERE THEY HAD LOST IN EXCESS OF 20% CAPACITY
- BASED ON THIS ANALYSIS, THERE WAS IDENTIFIED APPROXIMATELY 80,000 LINEAR FEET OF SEWERS THAT HAD LOST 20% OR MORE OF CAPACITY
- CONTRACTS WERE BID TO CLEAN, REMOVE ACCUMULATED DEBRIS AND RESTORE THE LOST CAPACITY

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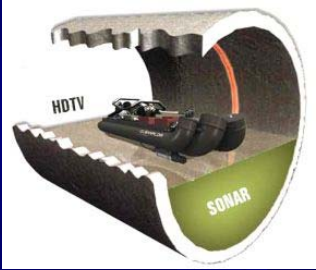
CMOM = “Capacity, Management, Operations, and Maintenance”.

It is a flexible, dynamic framework for municipalities to identify and incorporate widely accepted wastewater industry practices to:

1. Better manage, operate, and maintain collection systems
2. Investigate capacity constrained areas of your system
3. Respond to sanitary sewer overflow (SSO) events
4. Proactively prevent sanitary sewer overflows

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Sensor Applicability

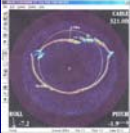



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Combination CCTV/Sonar

Application – To Evaluate sediment levels and significant structural deficiencies:

- Surcharged pipe lines
- Siphons & River Crossings

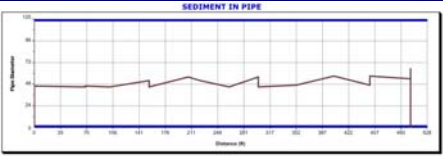


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Combination CCTV/Sonar



Results of Sonar Inspection of a Half Full 120 inch Sewer

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Combination CCTV/Sonar

SEDIMENT DATA			
Max grease on top:	Avg. Sediments on top:	Est. Sediments Vol. on top:	Blockage % on top:
0.0	0.0		
Max debris on bottom:	Avg. Sediments on bottom:	Est. Sediments Vol. on bottom:	Blockage % on bottom:
58.0	49.8	20,897.11 cu ft	39.6 %
Max debris sum:	Avg. Sediment sum:	Est. Sediment Vol. sum:	Total blockage %:
58.0	49.8	20,897.11 cu ft	39.6 %

Results of Sonar Inspection of a Half Full 120 inch Sewer – Approximately 775 Cubic Yards of Debris in less than 500 Feet of Pipes

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Sewer and Drain Cleaning



FACTS:

- Standard 80 gallon/min combo jet vacs
- 125 gal/min, 150 gal/min and 175 gal/min utilized for large diameter cleaning
- 2 Jetvac with rail gear utilized on track working for MBTA, Amtrak, NYC Transit Authority.
- Vacuum truck utilized for wetwell cleaning
- Vacuum trucks utilized for vacuum excavation services
- Easement Machine Utilized for Continuous Sewer segment in off road areas.

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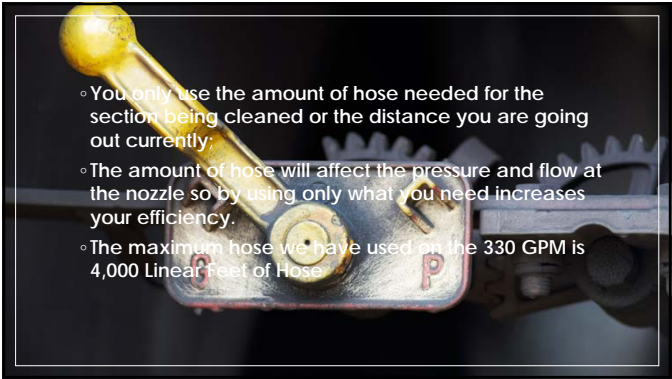
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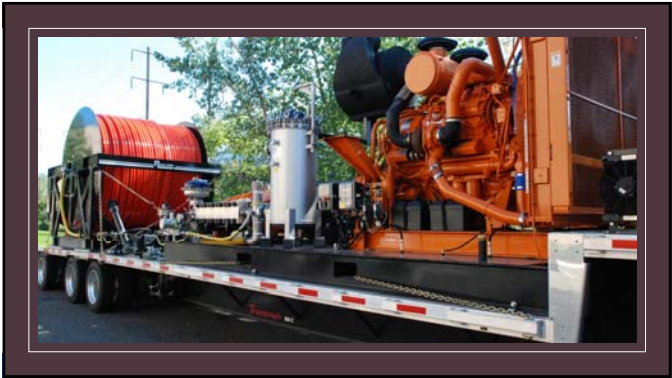
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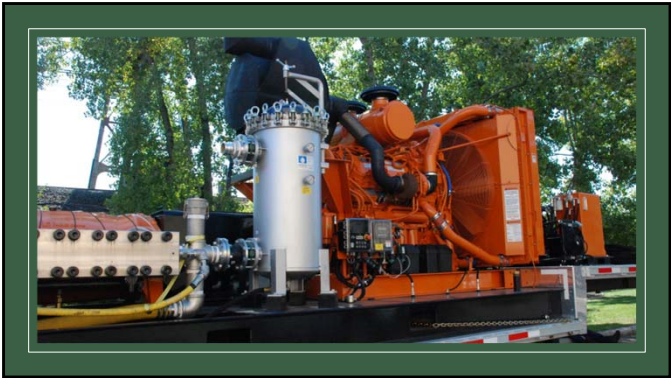
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Wards Island Bronx Interceptor

The Wards Island Bronx Interceptor was one of the Unique interceptors identified in inspections completed in 2012

- Constructed between 1933 and 1940
- The Interceptor receives all flow from Marble Hill, Van Courtland Park, Fordham Heights, Kingsbridge Heights, Morris Heights, and Highbridge areas of the Bronx
- Our 2012 inspection of the Interceptor indicated that no repairs are required
- Over 70 years of service has led to a build up of compacted material that can cause potential overflow situations during high rainfall periods



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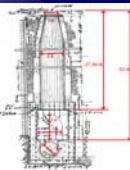


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Wards Island Bronx Interceptor

What Makes this Interceptor Unique?

- The distance between manholes is over 3000 feet in some locations
- The manholes are not directly over the interceptor and are only accessible via 200 foot long adit tunnels
- The interceptors are 80 to 120 feet below street level
- One manhole, M19, can only be accessed from an entrance ramp onto the Major Deegan Expressway



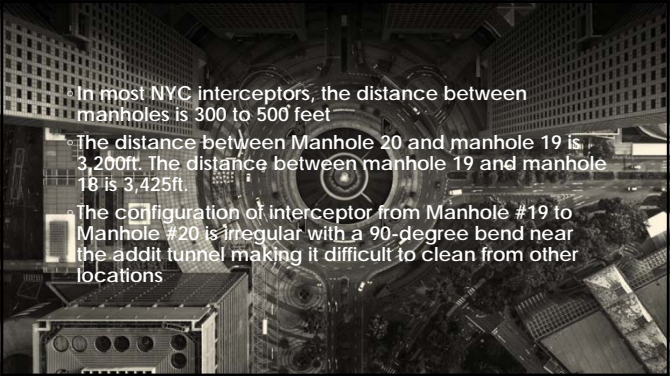
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Cleaning Locations: Manhole #19



- The manhole located on the North bound entrance ramp to the Major Deegan Expressway at Fordham Road.
- Road space is limited near the manhole
- The Contractor will need to close of the entrance to the highway during their operation in order to have room for equipment and personnel

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In most NYC interceptors, the distance between manholes is 300 to 500 feet

The distance between Manhole 20 and manhole 19 is 3,200ft. The distance between manhole 19 and manhole 18 is 3,425ft.

The configuration of interceptor from Manhole #19 to Manhole #20 is irregular with a 90-degree bend near the addit tunnel making it difficult to clean from other locations

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Cleaning Locations: Manhole #19



- Part of the contract work is to permanently reconfigure the manhole
- To meet OSHA Regulations the contractor will expand the 24" manhole rim to a 48" x 70" standard frame opening.
- Specialized equipment has been built specifically for this project

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Wards Island (MH WIB_W_19 to 20_2)

Location 1: WI_W_20

Location 2: WI_W_19

Legend

- All interceptors
- Manholes
- Addit Tunnel
- Road
- Water
- Park
- Other

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Cleaning Locations: Manhole #19

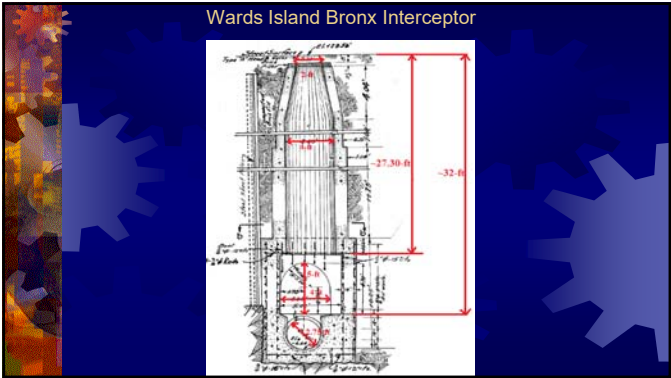


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Manhole 19 Adit Tunnel

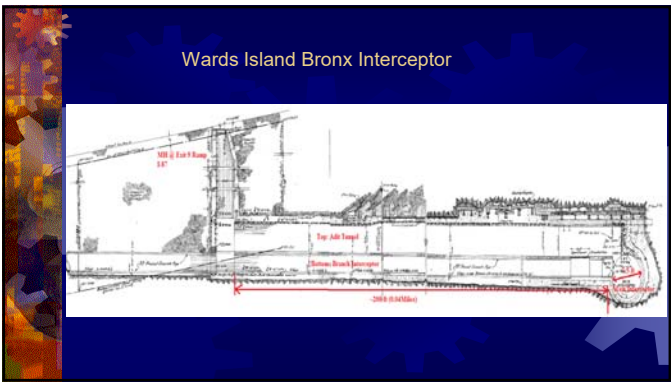
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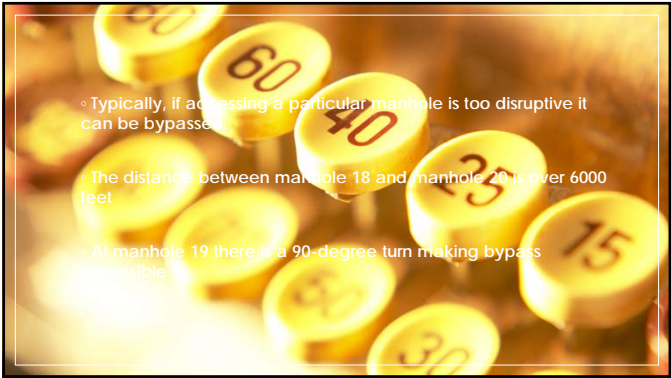
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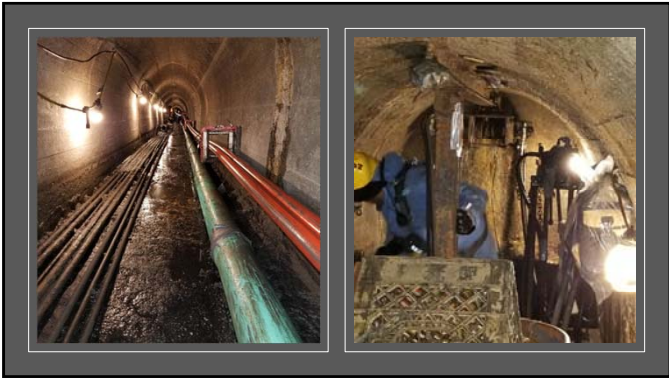
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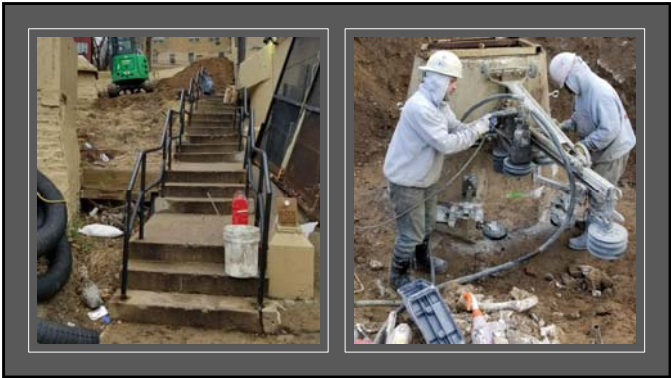
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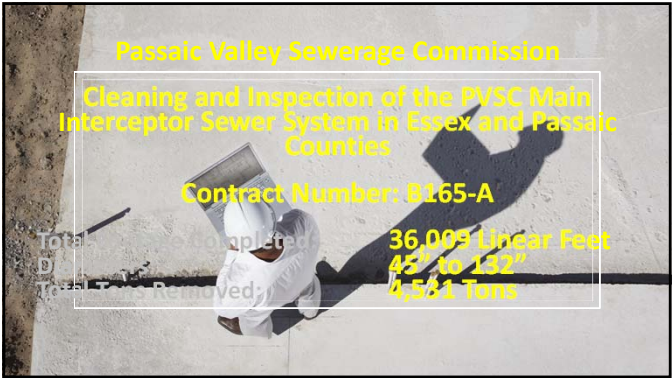
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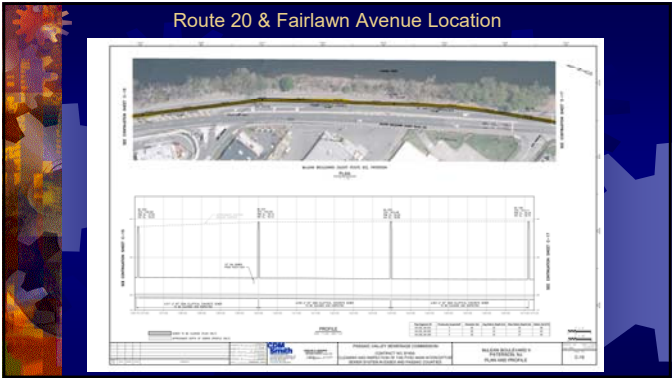


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ROUTE 20 AND FAIRLAWN
AVE,
PATERSON, NJ

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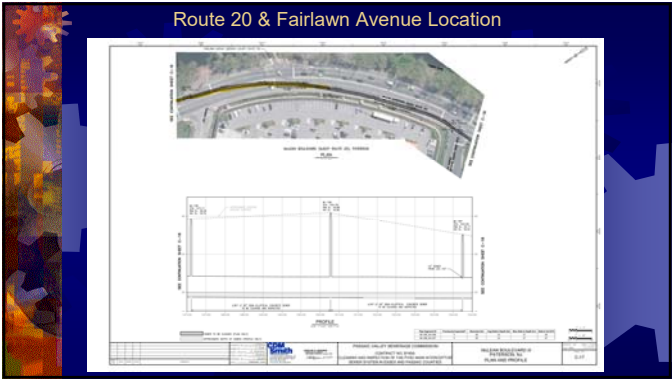


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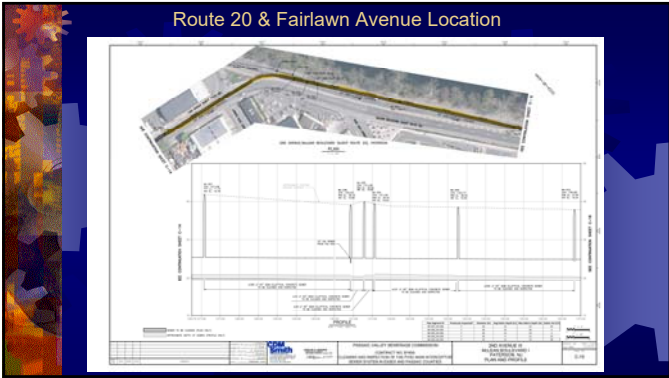


We jetted out 2,370' from this location.
The immediate manholes were in bad locations with no access
for jetting and setups that would have required extensive and
expensive road closures of Rt 20 Northbound.
We did a double lane closure on the southbound side and jetted from

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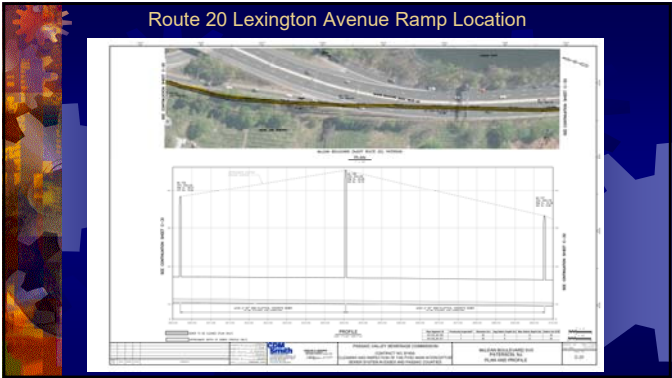


Route 20 and Fairlawn Ave, Paterson, NJ
Setup on MH-198 for 25 days
35 tons of Debris
Double lane closure completed by MPI would have been \$4,098
per shift so figure a \$102,450 savings in traffic (we did our own
traffic here so did have some cost associated with it the setup
though.)

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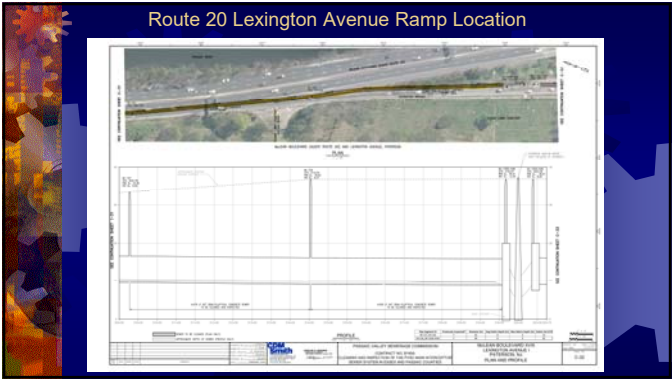
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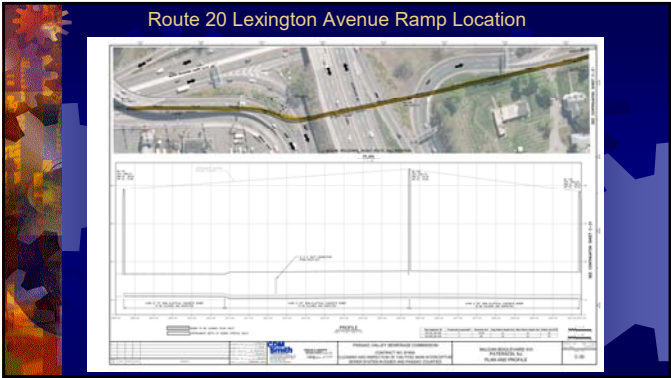
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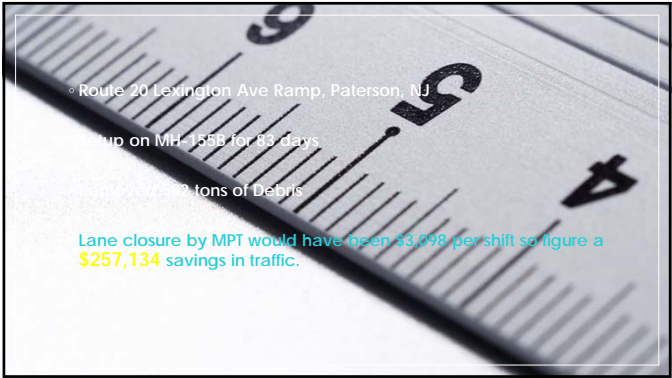
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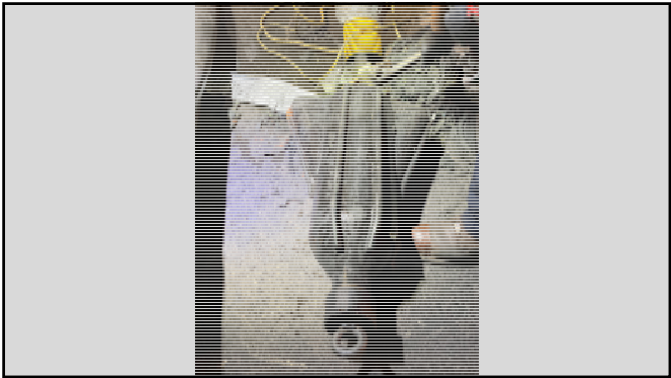
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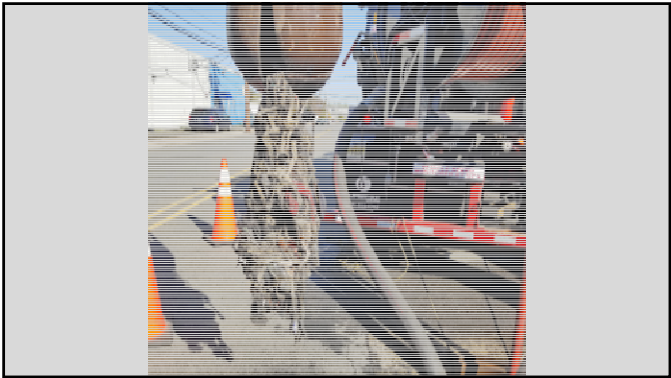
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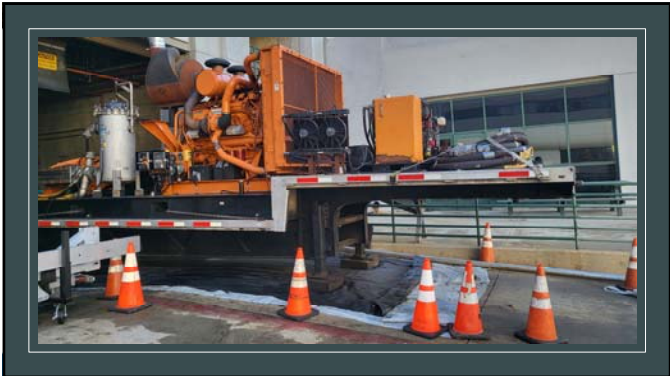
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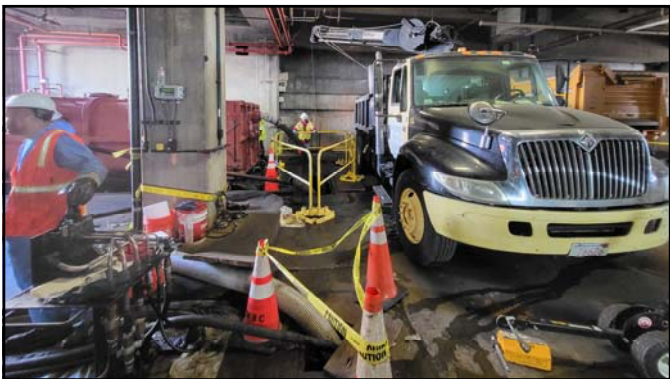
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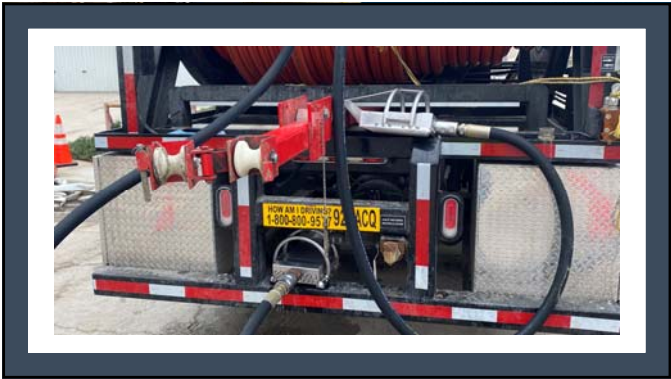
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