



Groundwater Remediation Project
Naval Weapons Industrial Reserve Plant
Bethpage, NY
GM-38 Area

Technical Advisory Committee Meeting
April 7, 2005



TETRA TECH EC, INC.



Overview

- Site History
- Treatment System Design
- Well Installations
- Construction
- Operation & Maintenance

GM-38 Area

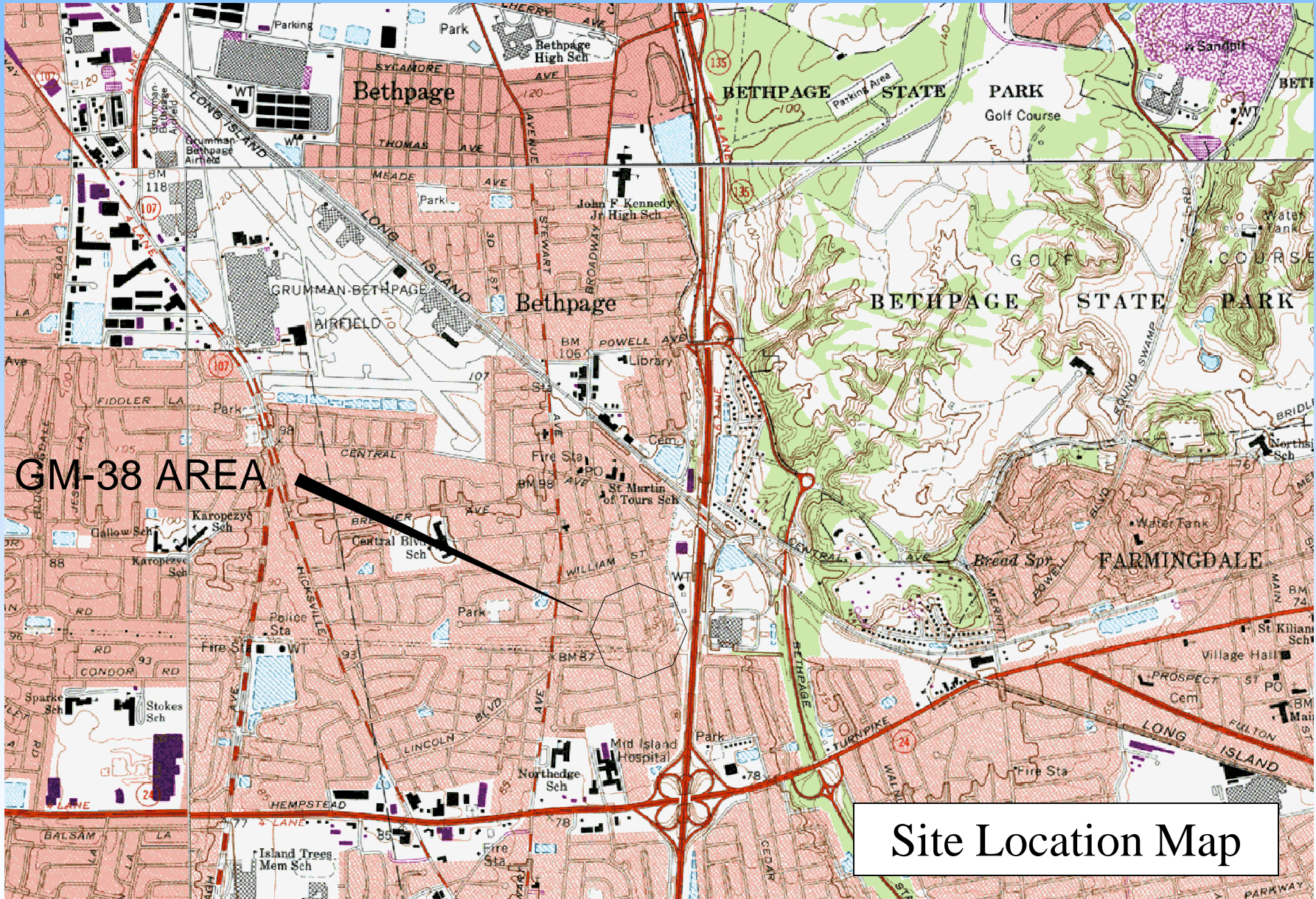
- Site History
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Site History

- TCE contamination detected in GW
- GW pump & treat system installed on Northrop Grumman property
- GM-38 Area delineated (June 2000-April 2002)
- Conceptual Plans to design and build GWTP in GM-38 Area for mass removal (February 2003)

Site History (cont'd)

- Community Workshop (September 2004)
- Pre-design investigation (November 2004)
- Draft Remedial Design (February 2005)
 - Navy and third-party oversight



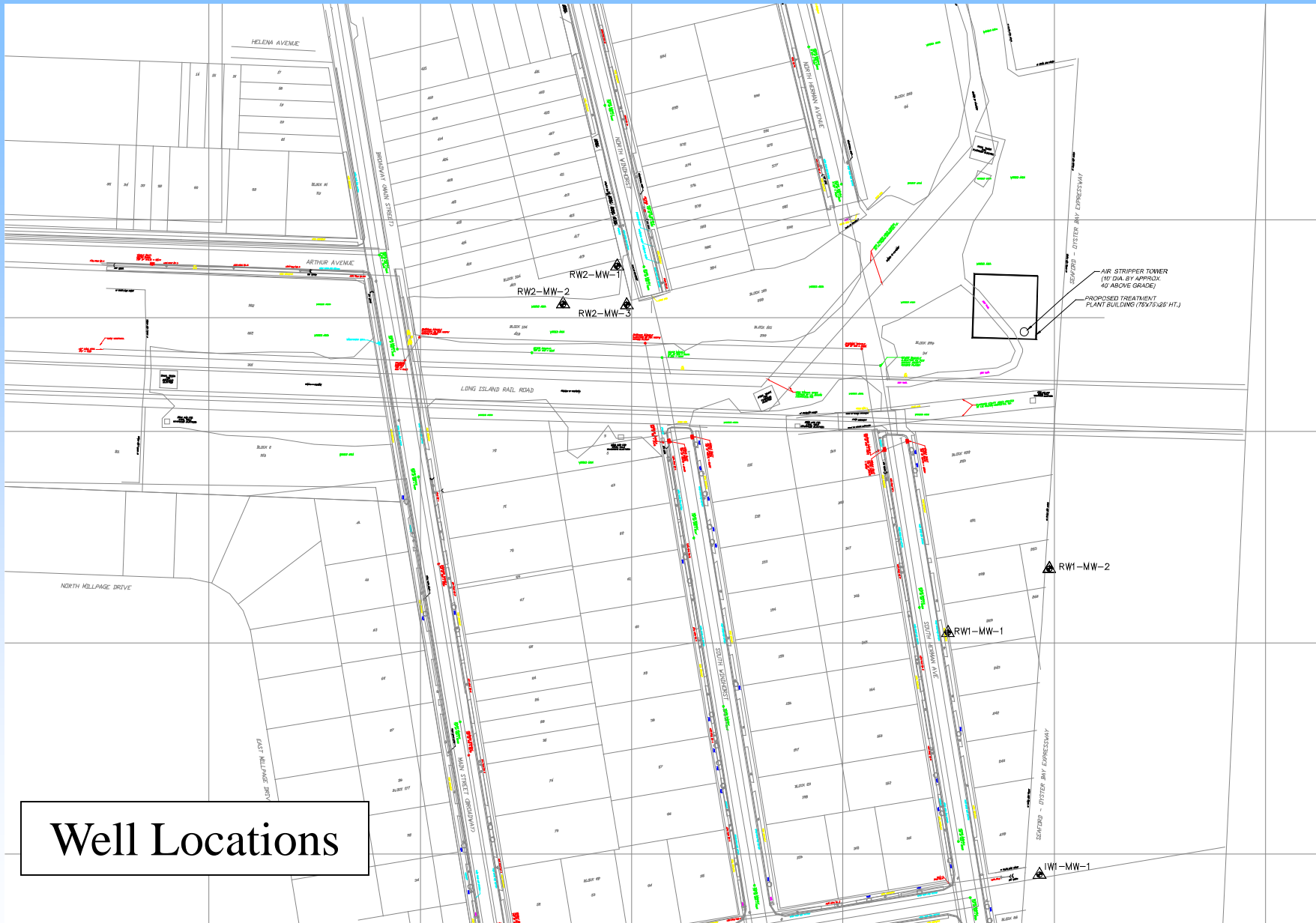
Site Location Map



GM-38 Area

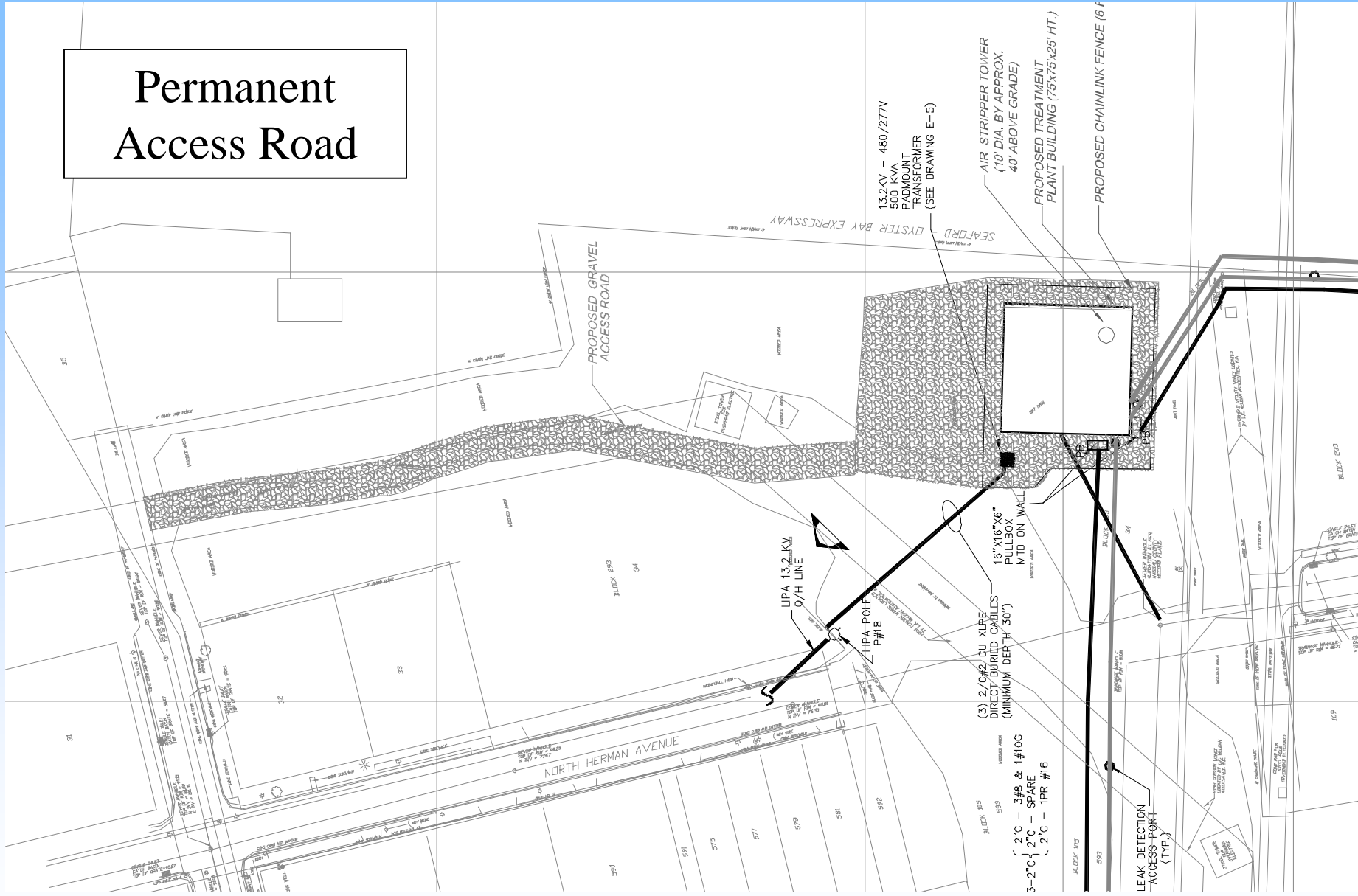
GM-38 Area

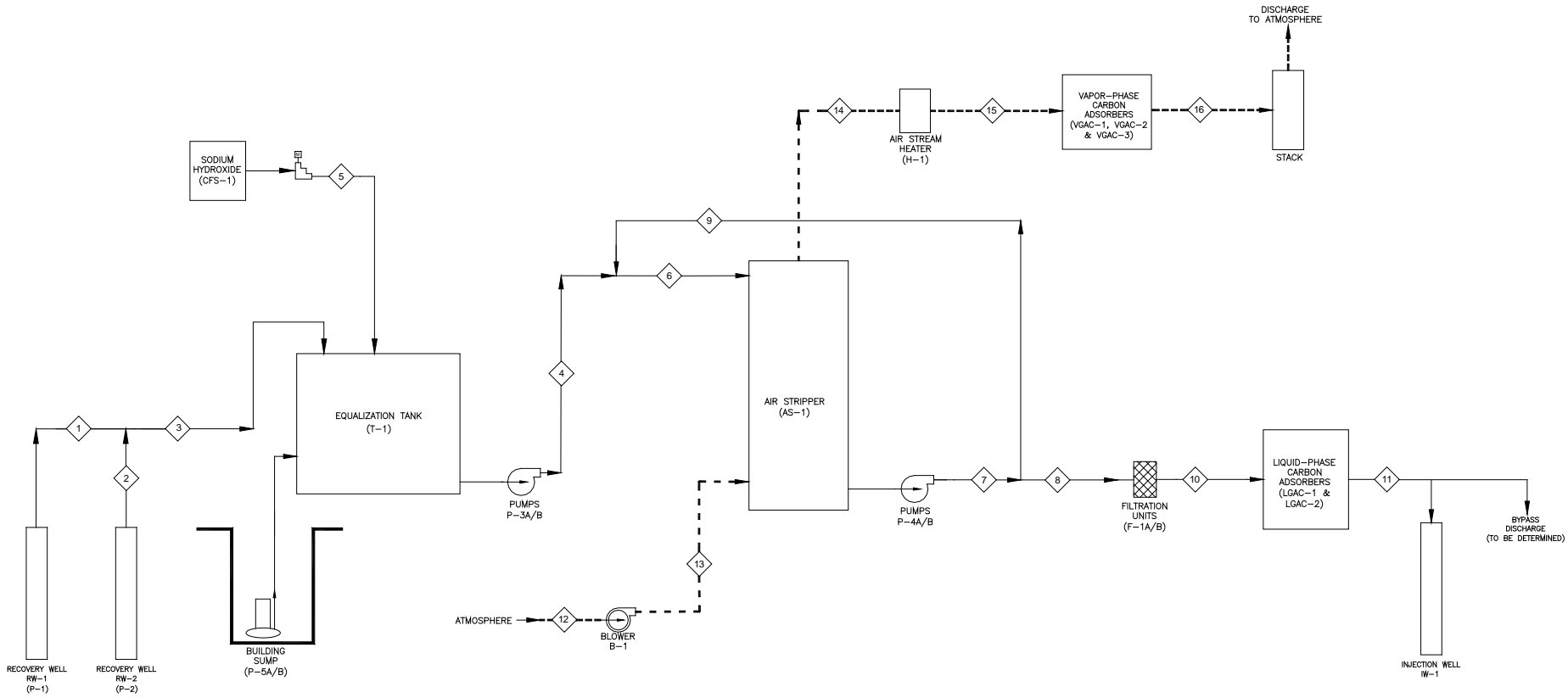
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Well Locations

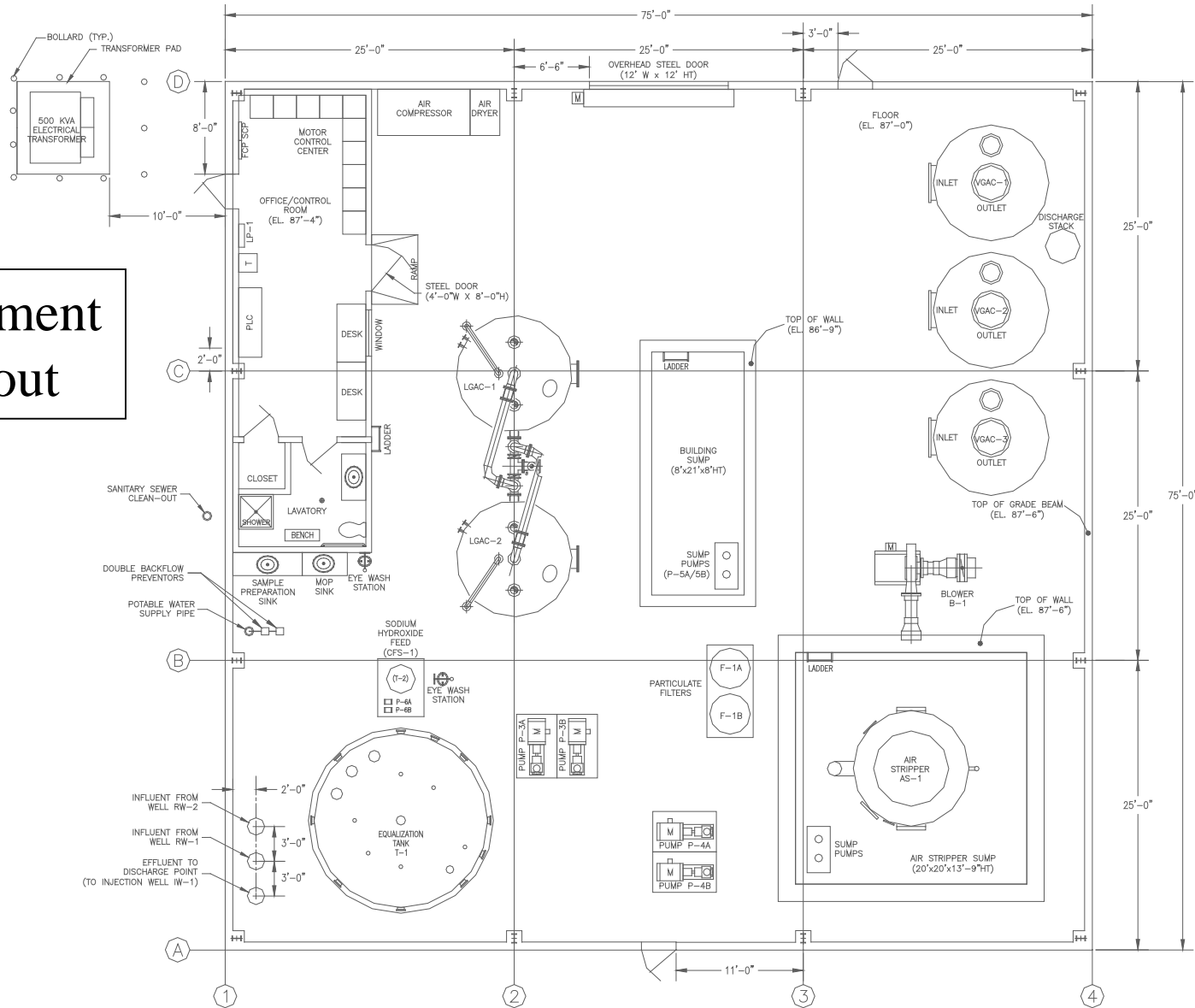
Permanent Access Road





Process Flow Diagram

Equipment Layout

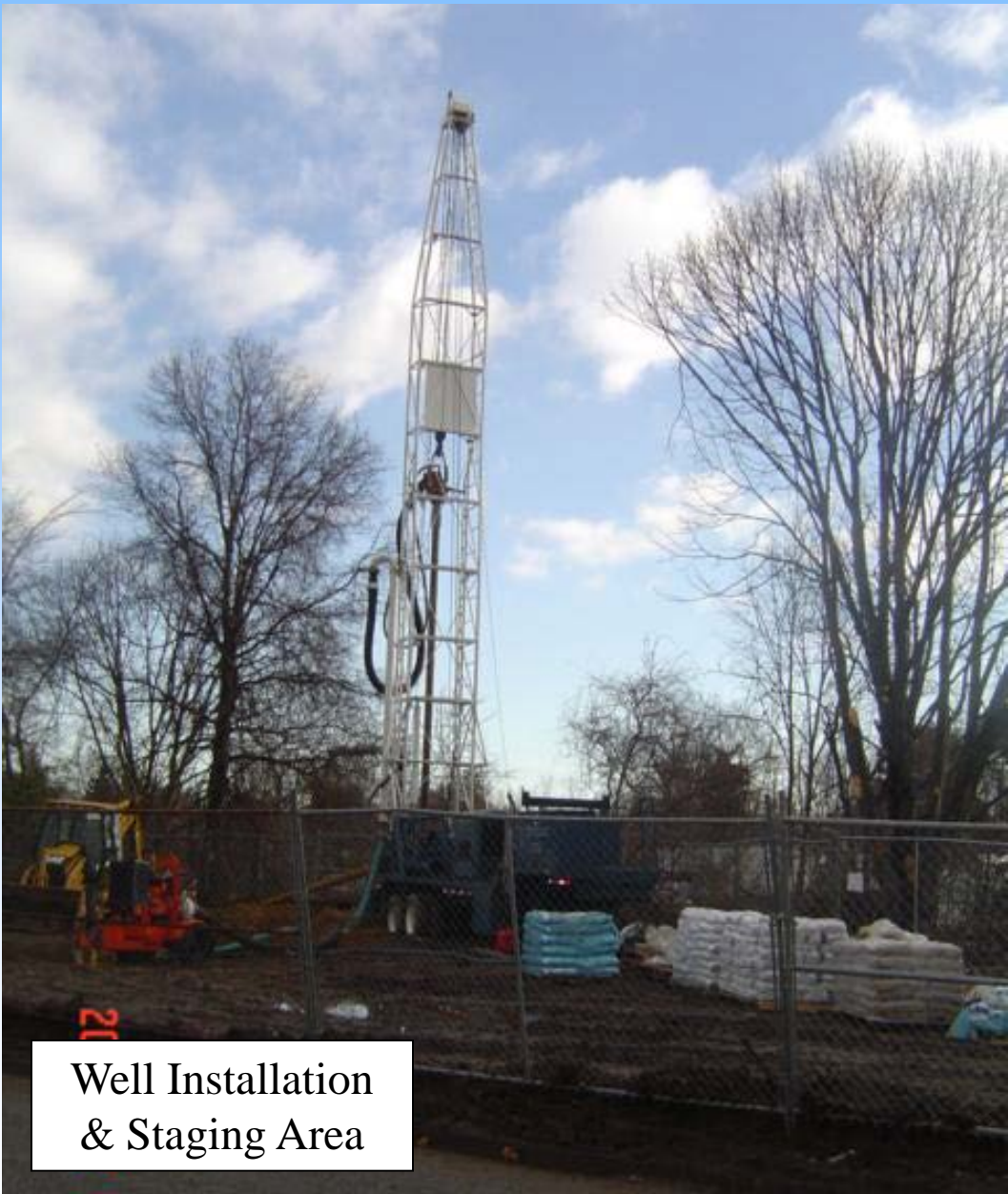


GM-38 Area

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Well Installations

- Currently on-going (Nov 2004-present)
 - 2 Recovery Wells
 - 1 Injection Well (3 more to be installed)
 - 6 Monitoring Wells (6 more to be installed)
 - Schedule



Well Installation
& Staging Area



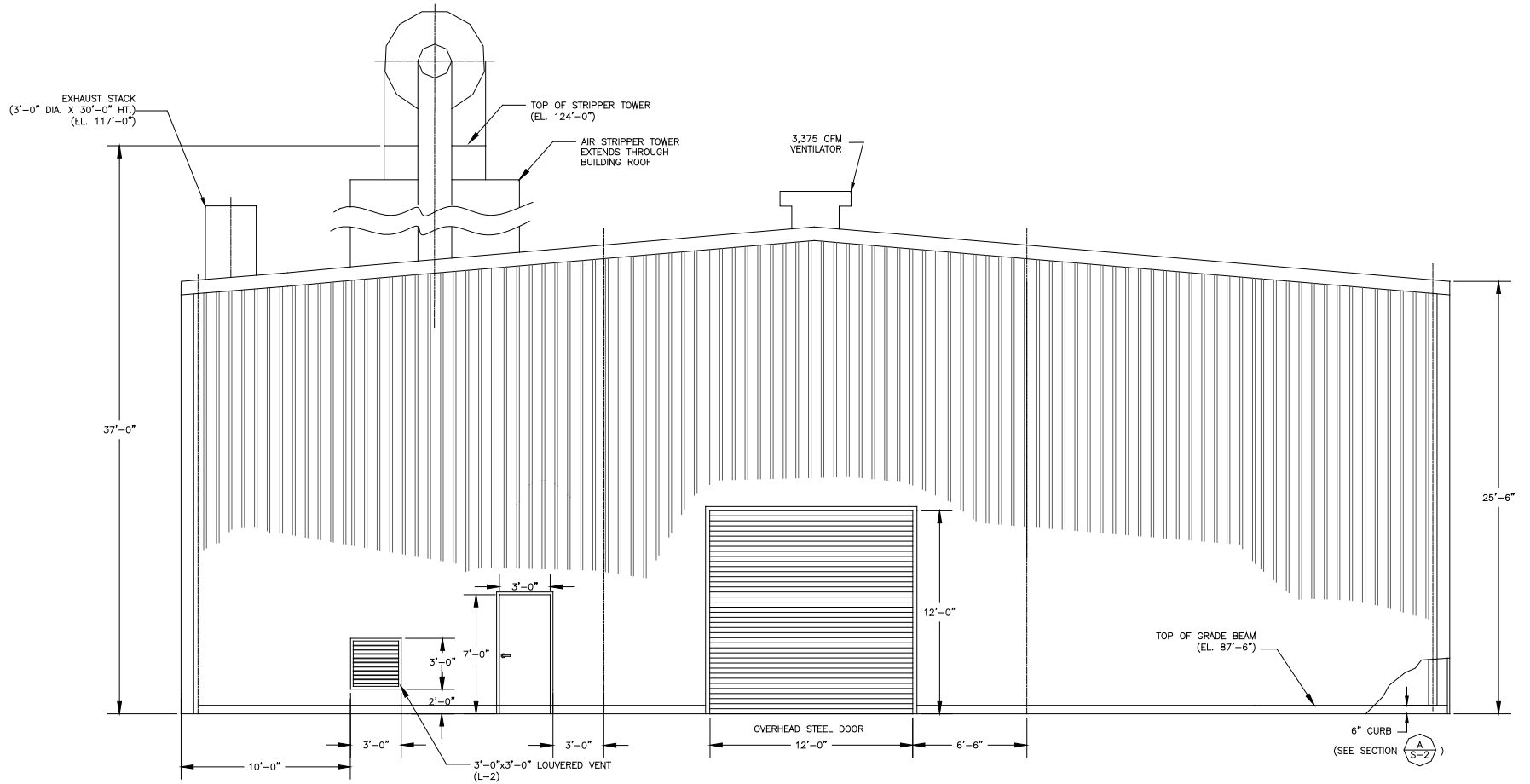
Reverse Rotary
Drill Head

GM-38 Area

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- **Construction**
- Operation & Maintenance

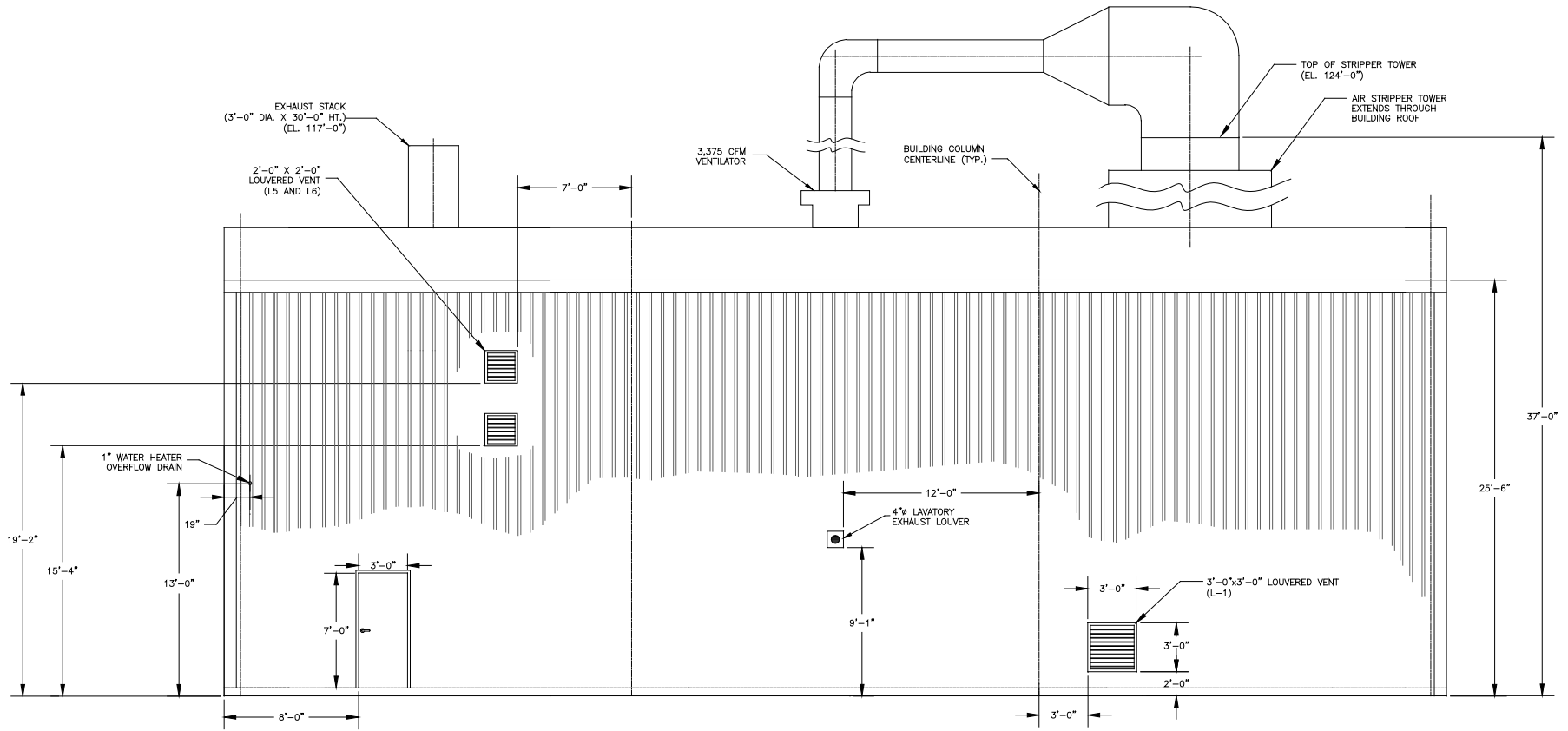
Construction

- Access Roads (permanent and temporary)
- Install Building Footers and Foundation
- Trenching to Recovery and Injection Wells
- Building Floor
- Set Large Equipment with Crane
- Erect Building
- Complete Building Interior



DETAIL A NORTH ELEVATION
 1/4" = 1'-0" A-1 TREATMENT PLANT BUILDING

Building End View



DETAIL B WEST ELEVATION
 1/4" = 1'-0" A-1 TREATMENT PLANT BUILDING

Building Side View



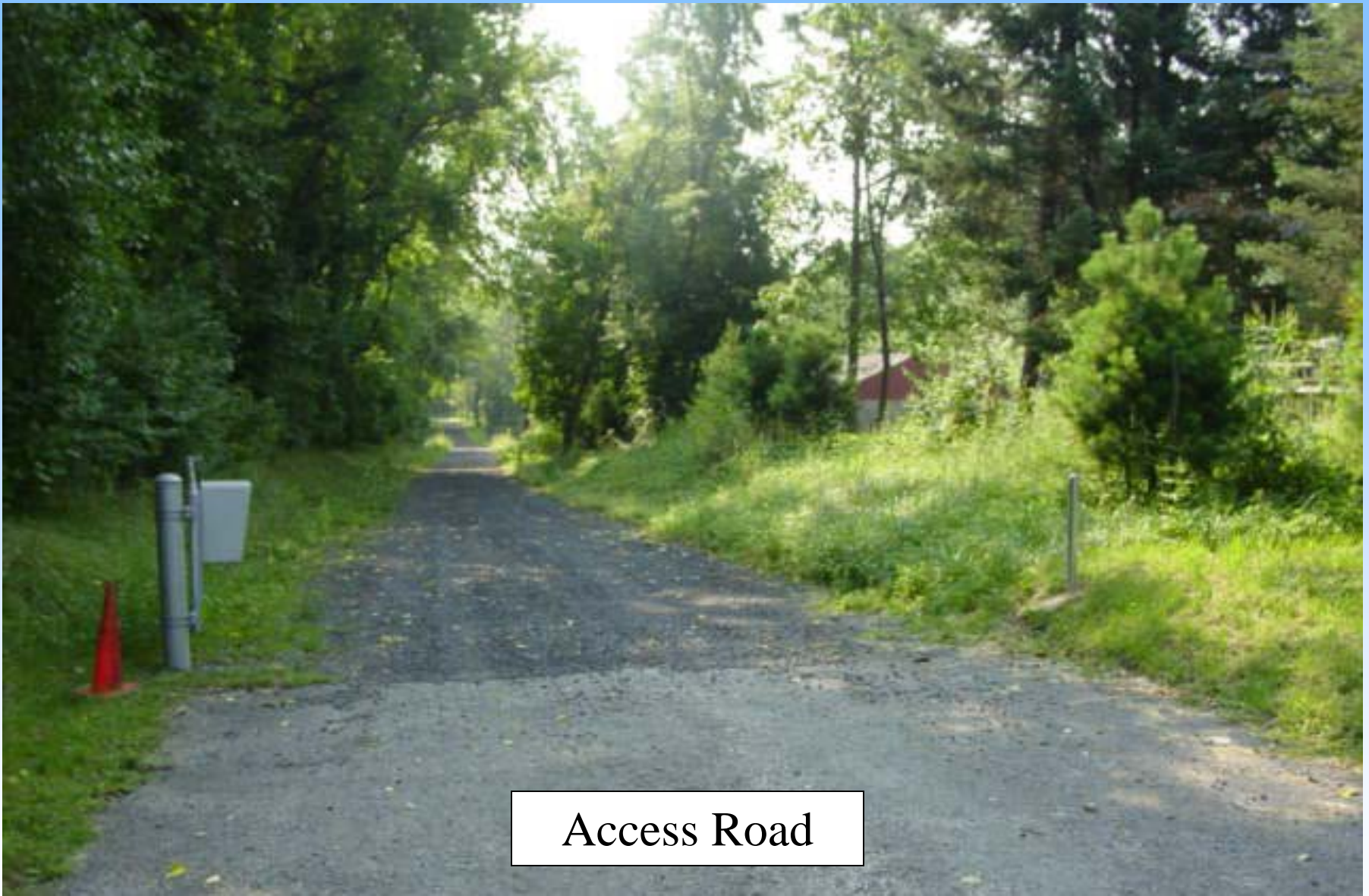
Interior Piping

Carbon Units





Well Vault



Access Road

GM-38 Area

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Operation & Maintenance

- Operate 24 hours per day
- Trained personnel visits
 - 3 days per week during initial 6 months
 - Additional visits as needed
- Fire detection and alarm system
- Security alarm system
- Locked fence surrounds building

Safety Considerations

- Instrumentation
 - Monitor key operating parameters
 - Automatic system shut-down signals
 - Requires manual restart
 - Telemonitoring system

Telemonitoring

- Remote system monitoring via PC
- Alarm conditions communicated to designated personnel via autodialer
- Troubleshooting operational issues before arriving at the site

Operation, Maintenance and Monitoring Plan

- Establishes method of operating & tracking progress of GWTP
- Sampling frequency (system & wells)
- Modify GW model with analytical results
 - Decrease in Total VOC over time
- Emergency response and troubleshooting

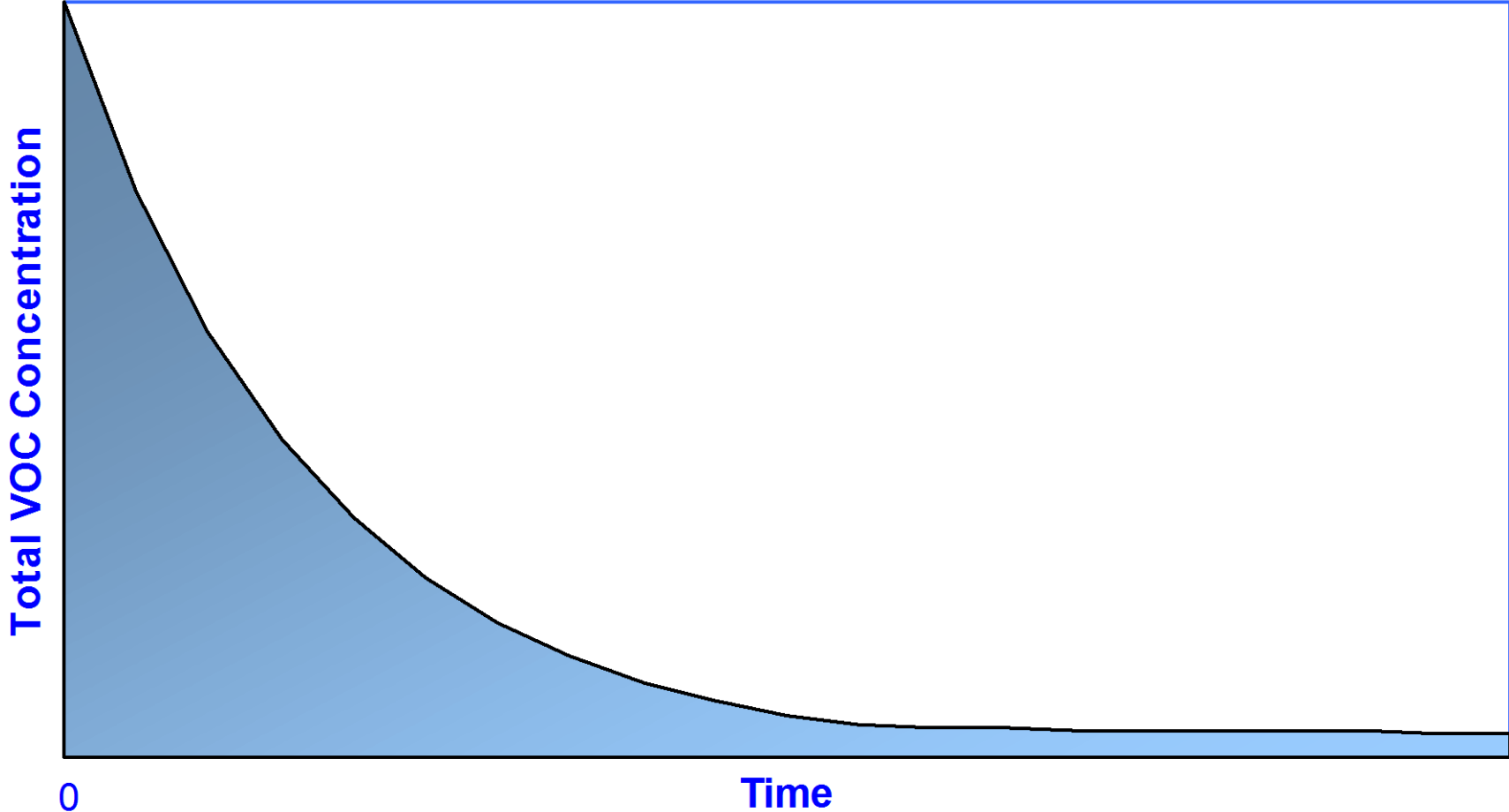
Operation, Maintenance and Monitoring Plan (cont'd)

- Components:
 - Regulatory requirements
 - Safety
 - GWTP control and monitoring system
 - GW collection and treatment systems
 - Vapor and ancillary treatment systems
 - Preventative maintenance
 - Emergency response and troubleshooting

Operation, Maintenance and Monitoring Plan (cont'd)

- Appendices:
 - Final list of equip., instrumentation & valves
 - Recommended spare parts list
 - Maintenance schedule
 - GWTP start-up procedure
 - Record drawings (surveys, process, PLC, etc.)

Total VOC Concentrations Over Time



Project Status

- GW investigation:
 - Completed by end April 2005
 - Last well to be installed is RW-1
 - All wells to be developed & sampled
 - Treatability study to be performed
 - Pump tests on both RW's
 - Injection test on IW

Project Status (cont'd)

- Remedial Design:
 - Will incorporate GW investigation results
 - Incorporate review comments on Draft Design
 - Draft Final Remedial Design submitted
 - Regulatory agencies, RAB & TAC

Schedule

Milestones	Date
Project Planning	On-going
Mobilization	August 1, 2005
Start of Construction	August 8, 2005
End of Construction	September 1, 2006
Plant Start-Up and Shakedown	September 4, 2006
Start of Operation & Maintenance	October 2, 2006
Plant Decommissioning	2011

Wrap-up

Questions?