NAVFAC
Naval Facilities Engineering Command
NAVFAC MID-ATLANTIC

# Restoration Advisory Board (RAB) Meeting

## GM-38 Area Groundwater Treatment Plant and Site 1 Soil Vapor Extraction Containment System Operation

## Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage

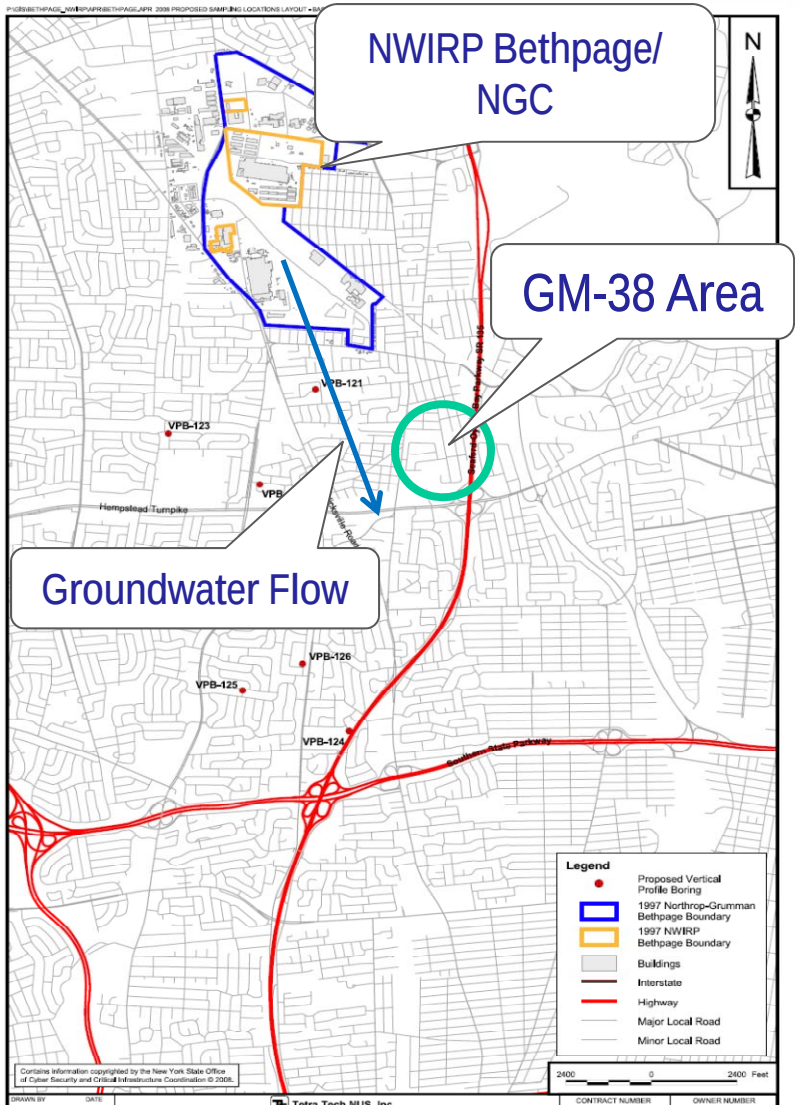
## December 5, 2012

# Presentation Agenda

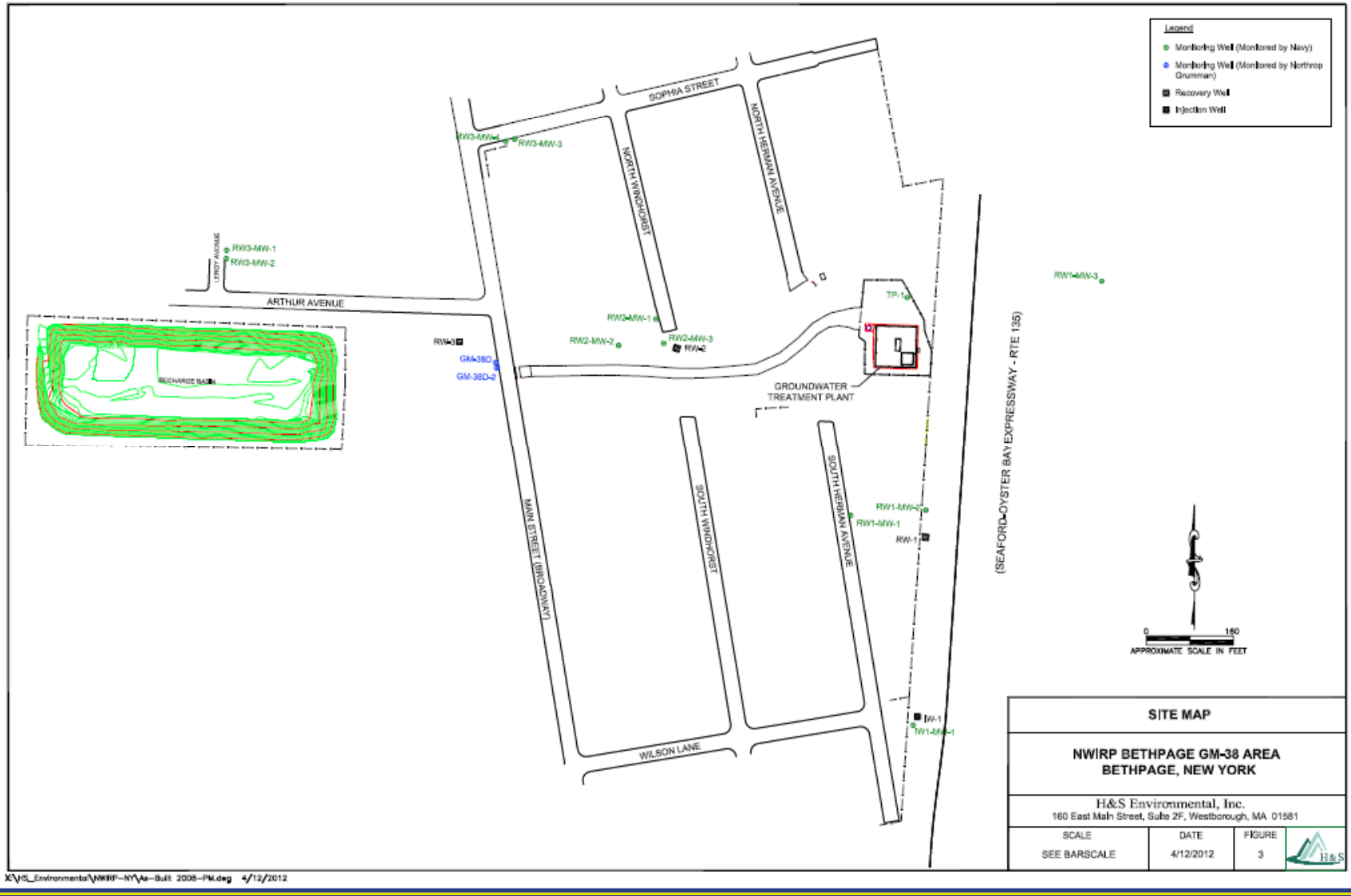
- GM-38 Groundwater Treatment Plant (GWTP)
  - Overview
  - Operational Activities
  - GWTP performance and future activities
- Site 1 SVECS (Soil Vapor Extraction Containment System)
  - Overview
  - Operational Activities
  - System performance and future activities

# GM-38 Project Overview

- Purpose: Treat an area of higher concentration volatile organic compound (VOC)-impacted groundwater.
- System started operation in October 2009.
- Extracts 45 million gallons of water and 135 pounds of VOCs per month.

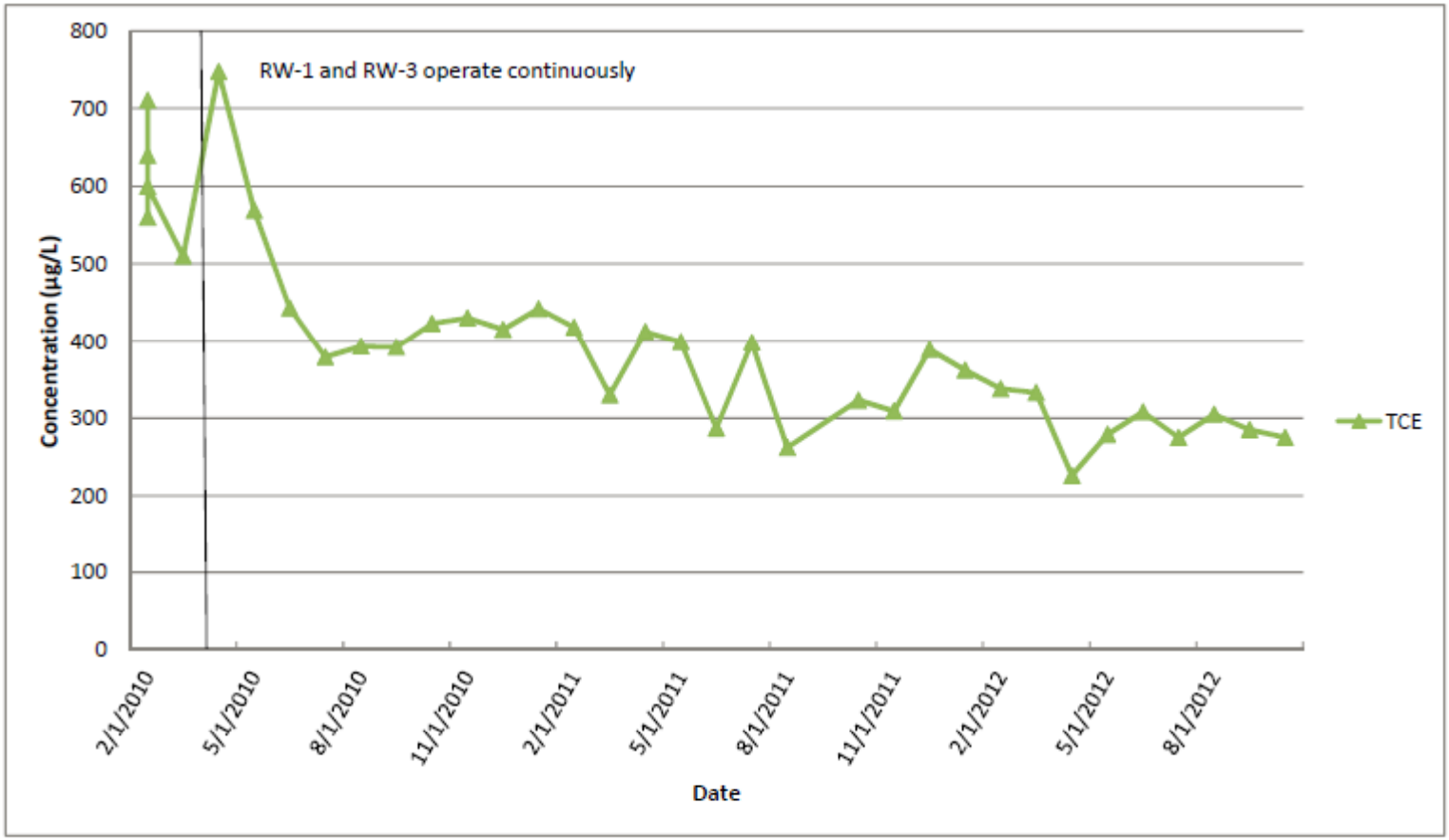


# GM-38 REMEDIAL ACTION



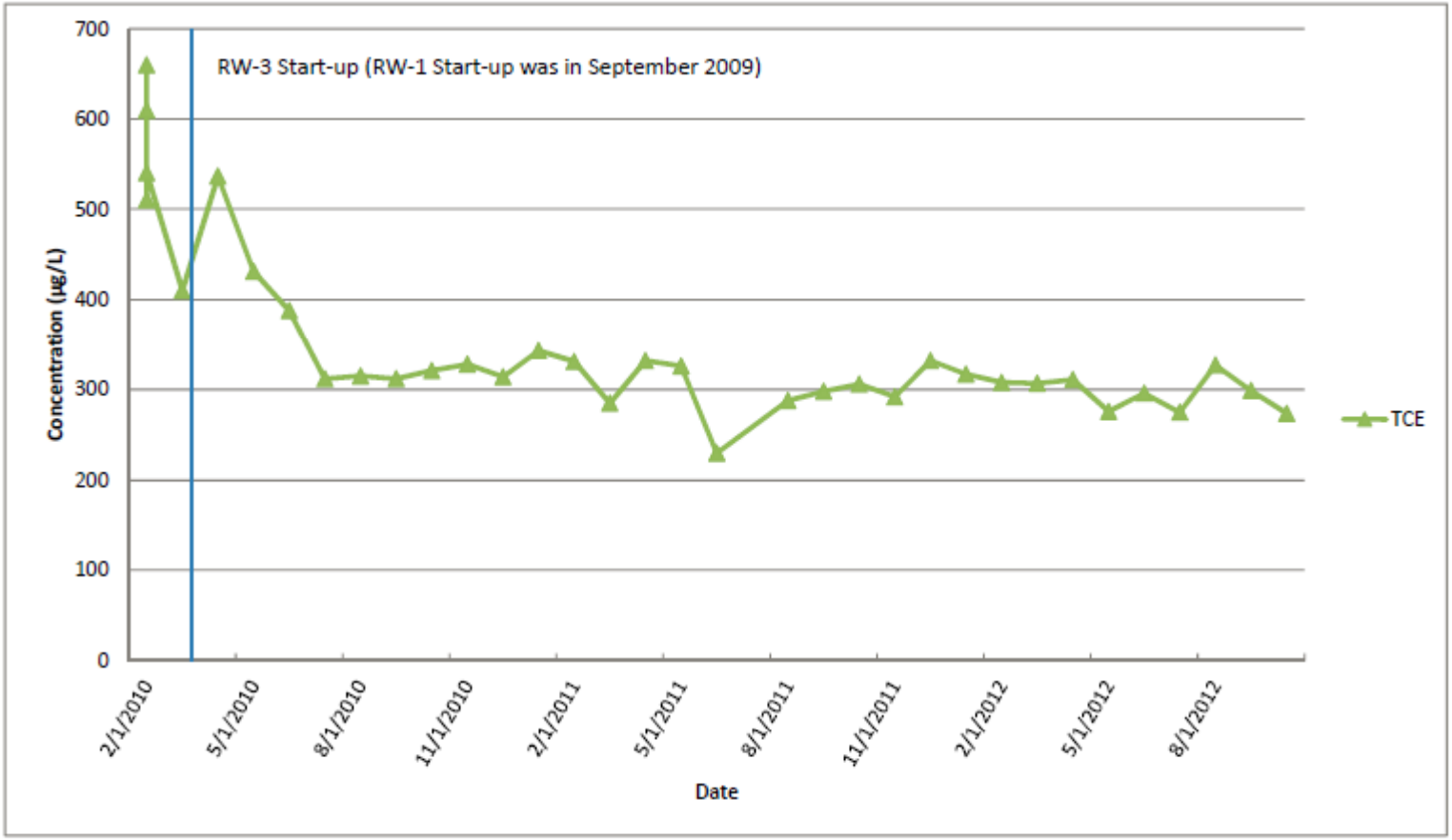
# GM-38 REMEDIAL ACTION

**Recovery Well RW-1 (335-395 and 410-435 ft bgs)**
**TCE Concentrations**
**GM-38 Groundwater Treatment Plant**
**NWIRP Bethpage, NY**



# GM-38 REMEDIAL ACTION

**Recovery Well RW-3 (392-412 and 442-504 ft bgs)**
**TCE Concentrations**
**GM-38 Groundwater Treatment Plant**
**NWIRP Bethpage, NY**



# GM-38 GWTP Operational Activities

- Quarterly groundwater samples collected from eight monitoring wells (6-7 June 2012, 22-23 August 2012 and 3-4 December 2012).
- Performed routine change out of liquid phase granular activated carbon (VGAC) (7 August 2012).
- System down 29 October 2012 through 5 November 2012 when power was restored after Superstorm Sandy.
    - No structural damage from Superstorm Sandy or nor'easter on 7 November 2012.

# GM-38 GWTP Performance and Future Activities

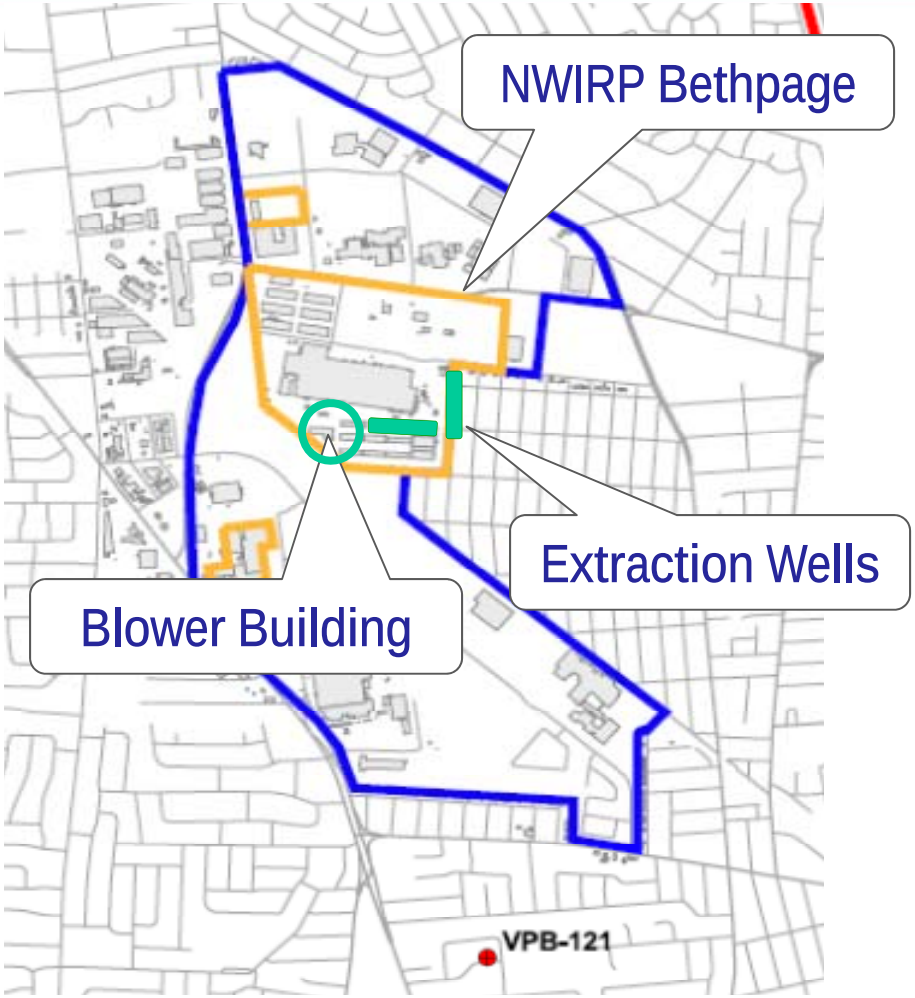
- Plant operates in compliance with air and SPDES permit guidelines.
- Runtime is above 95% with minimal downtime due to power outages and scheduled maintenance.
- Approximately 1,512 million gallons of water treated through October 2012.
- Collect monthly air and water compliance samples.
  - Submit monthly O&M compliance reports.
- Collect quarterly groundwater samples of surrounding monitoring wells.
  - Submit quarterly operations reports.

# GM-38 GWTP Performance and Future Activities

- System is expected to operate until approximately 2014.
- Optimization activities are ongoing
  - Improve performance
  - Evaluate capture zone
  - Reduce operating cost

# SITE 1 SVECS Project Overview

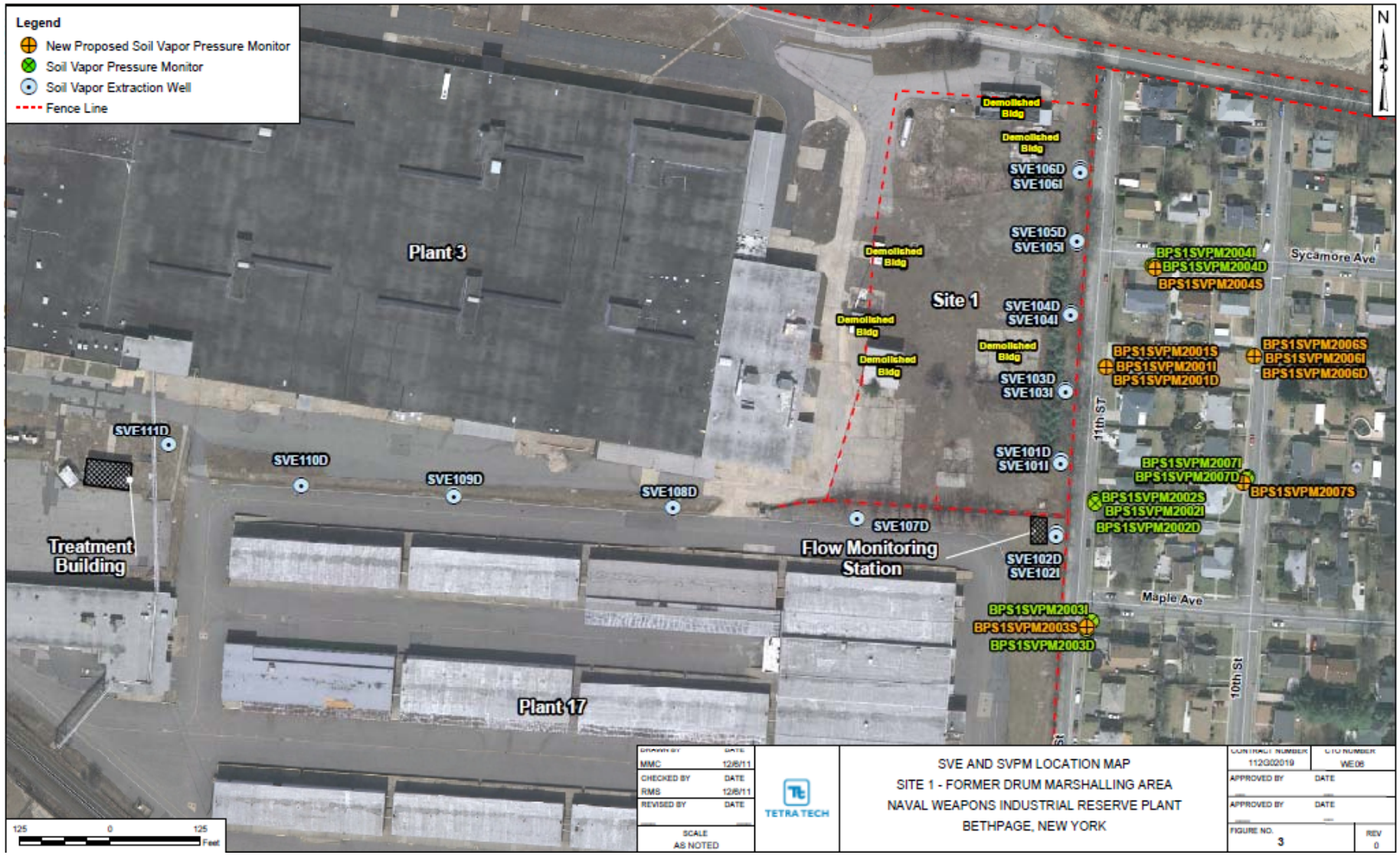
- Purpose: Prevent offsite migration of Site 1 VOC-impacted soil gas and cleanup offsite soil gas.
- System started operation in January 2010 and continues to operate.
- Extracts approximately 400 cubic feet per minute of soil gas from 12 wells located along Site 1 fence line. Five additional extraction wells added in October 2011 to address potential VOCs under Plant No. 3 and South Warehouse.



# SITE 1 SVECS Operational Activities

- Nine additional SVPMs installed along 10th, 11th, and Sycamore Streets 5-6 September 2012.
- Quarterly vapor samples collected from 12 SVE wells (11 May 2012 and 11 September 2012). Quarterly SVPM monitoring performed 13 September 2012.
- Blower motors failed end of September 2012. Replacement blower motors installed 5 October 2012.
- System down 29 October 2012 through 31 October 2012 when power was restored after Superstorm Sandy.
- No structural damage from Superstorm Sandy or nor'easter on 7 November 2012.

# SITE 1 SVECS Offsite Soil Gas Monitoring



# SITE 1 SVECS Performance and Future Activities

- Plant operates in compliance with air permit guidelines.
- Runtime is above 95% with minimal downtime due to power outages and scheduled maintenance.
- Collect monthly air compliance samples.
- Collect quarterly air samples of SVE wells and perform quarterly SVPM monitoring. Collect annual air samples of the SVPMs (January 2012).
    - Submit quarterly operations reports.

# SITE 1 SVECS Performance and Future Activities

- System is expected to operate until approximately 2015.
- Optimization activities are ongoing
  - Improve performance
  - Evaluate capture zone
  - Reduce operating cost

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# Restoration Advisory Board (RAB) Meeting

## Sites 1 and 4 Activities, OU2 - Offsite Groundwater Investigation, and Public Water Supply Design

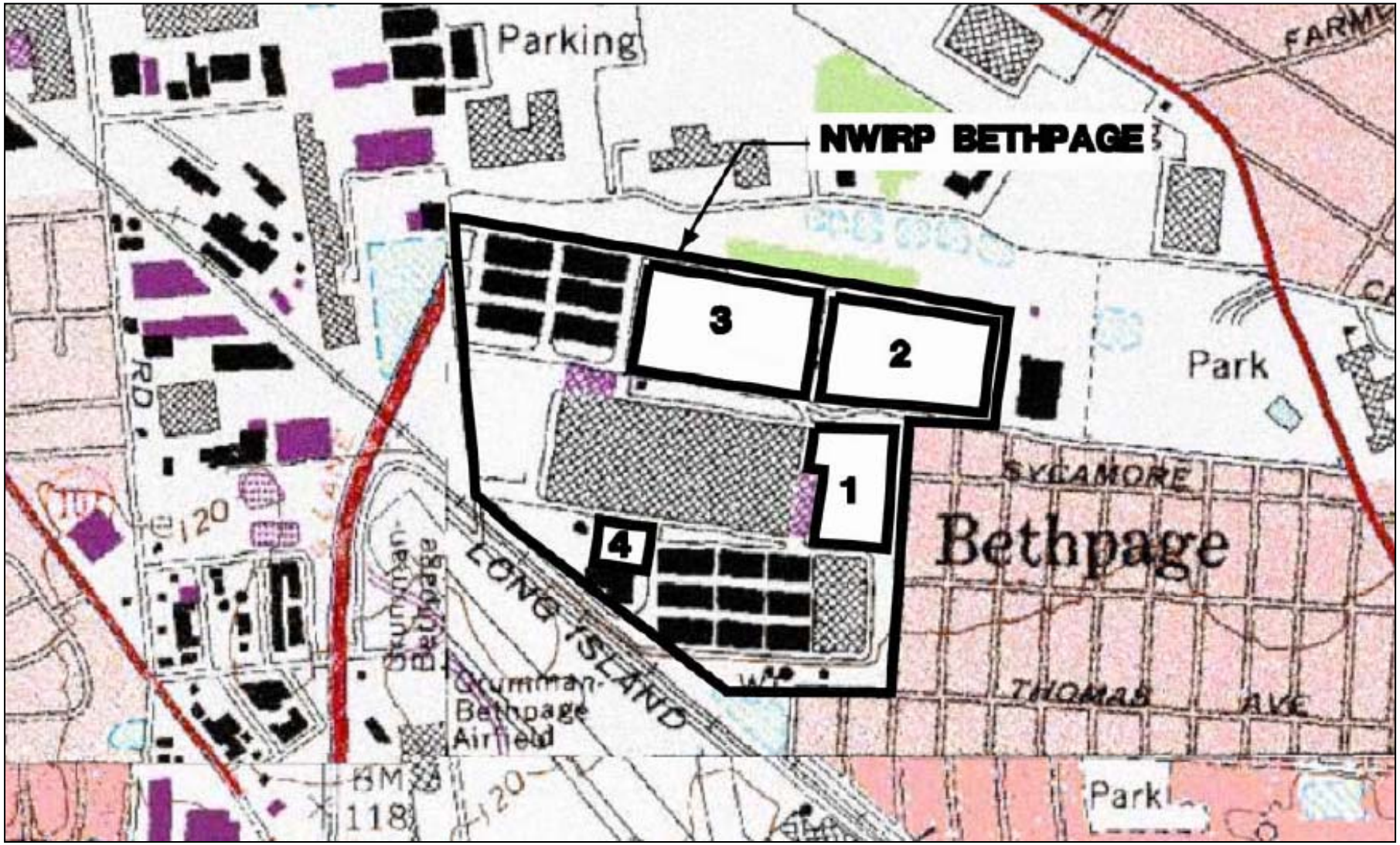
## Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage

## December 5, 2012

# PRESENTATION OUTLINE

- Operable Unit 1 (OU1)
  - Site 1 Soil Investigations
  - Site 1 Groundwater Investigation (PCBs and metals)
  - Remedial Investigation (RI)/Feasibility Study (FS) Addendums
- Site 4 (AOC 22) Activities
  - FS Addendum
  - Proposed Remedial Action Plan (PRAP)/Record of Decision (ROD)
- AOC 32 Tanks
- OU2 – Offsite Groundwater
  - Groundwater Plume Delineation
  - GM-38 Capture Zone Analysis
  - Well Head Treatment

# SITE LOCATION MAP



# SITE 1 - SOIL AND GROUNDWATER INVESTIGATION

- Objective: Complete the delineation of soil and groundwater contamination in and around Site 1
- Investigation focused on polychlorinated biphenyls (PCBs) and metals (chromium), and to a lesser extent VOCs
- Soil borings and monitoring wells were installed
- The soil boring will be used to better delineate the extent of PCB-contaminated soil at Site 1 to support an RI and FS Addendum
- The monitoring wells will be used to identify the source and significance of chemicals in groundwater

# SITE 1 - SOIL AND GROUNDWATER INVESTIGATION

- Subsurface soil sample locations at Site 1
- Borings installed between 1992 and November 2012
- Soil samples collected at depths of 2 to 75 feet below ground surface
- Investigations also included two dry wells: 20-08 and 34-07


# SITE 1 - SOIL AND GROUNDWATER INVESTIGATION

- Surface soil sample locations at Site 1 (0 to 2 feet)
- Samples collected between 1993 and August 2012
- Results will be presented in upcoming data report (March 2013)

# SITE 1 - SOIL AND GROUNDWATER INVESTIGATION

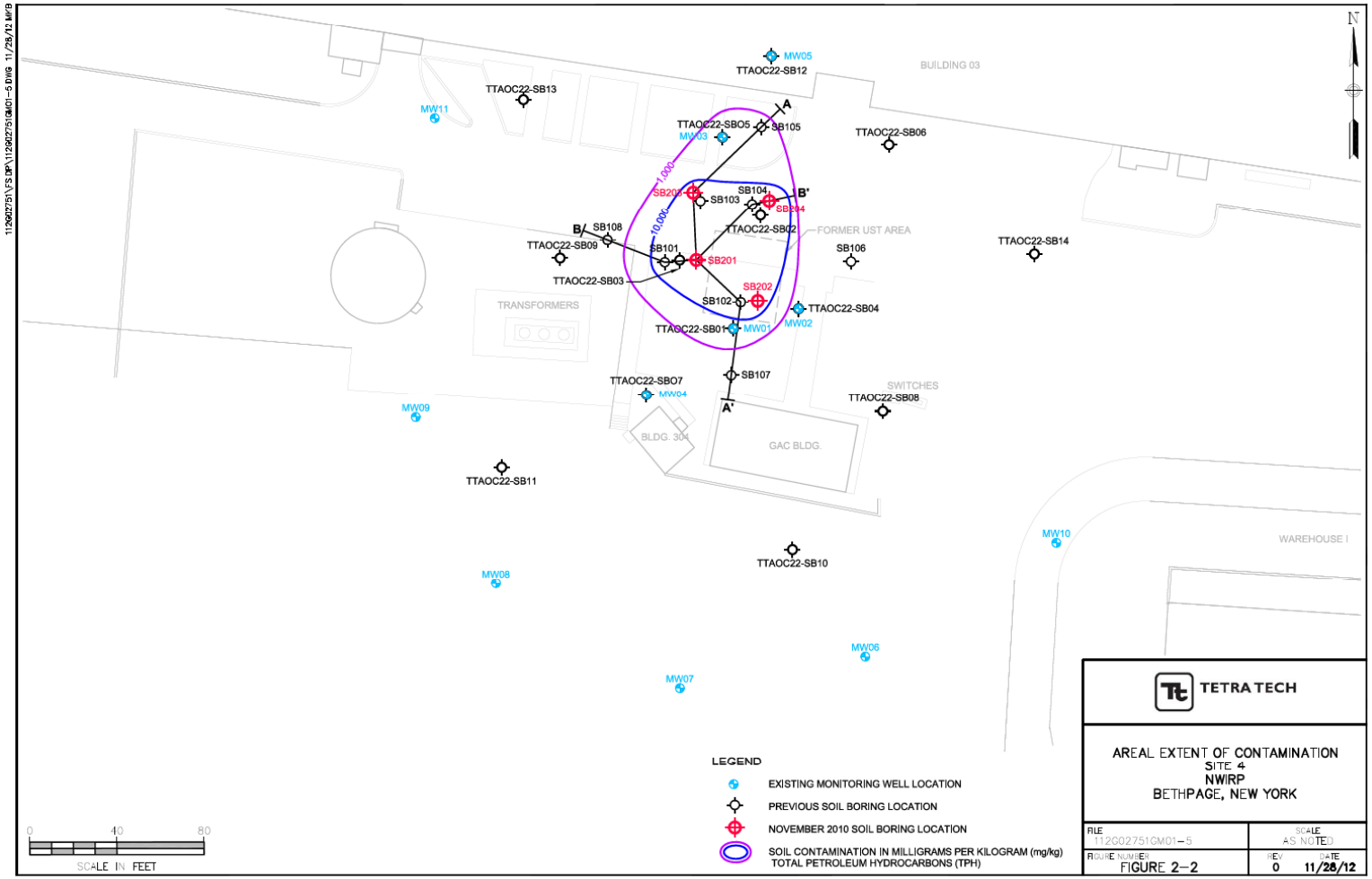
- Groundwater investigations are being conducted to determine whether Site 1 soil is affecting groundwater
- Monitoring wells were installed at depths of 53 to 296 feet below ground surface
- Latest round of samples collected in November 2012
- An RI/FS Addendum is planned for 2013

# SITE 4 (AOC 22) ACTIVITIES

- Former Underground Storage Tanks (USTs) for No. 6 Fuel Oil
- Tar-like material found in the soils near the water table
- Navy is preparing an FS Addendum to develop and evaluate potential remedial alternatives (Jan/Feb 13)
- Alternatives consist of:
  - No Action, Land Use Controls, Groundwater Monitoring, Steam Injection, Solvent Extraction, Biosparging, and Free Product Recovery

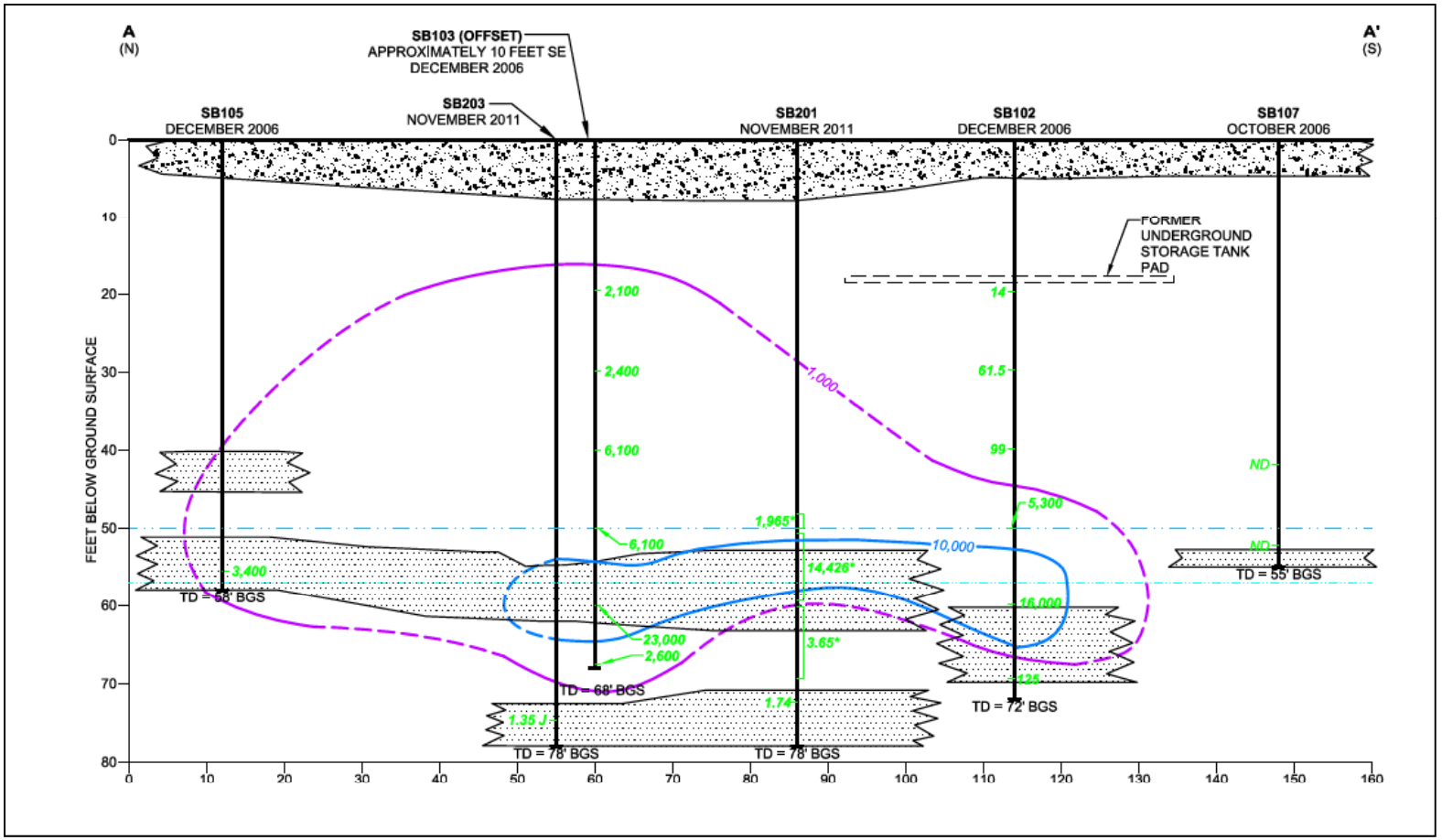
# SITE 4 (AOC 22) ACTIVITIES

## Layout



# SITE 4 (AOC 22) ACTIVITIES

## Cross-Section

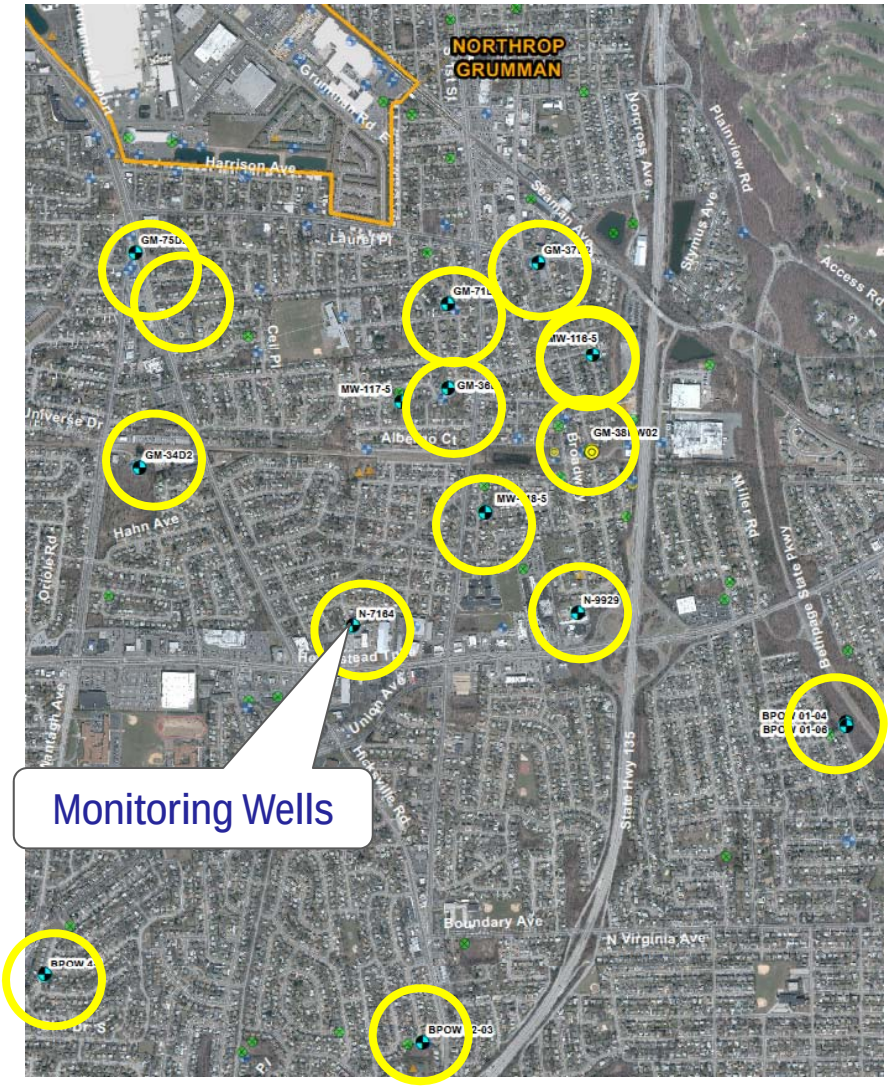


# SITE 1 AND SITE 4 (AOC 22)

Questions?

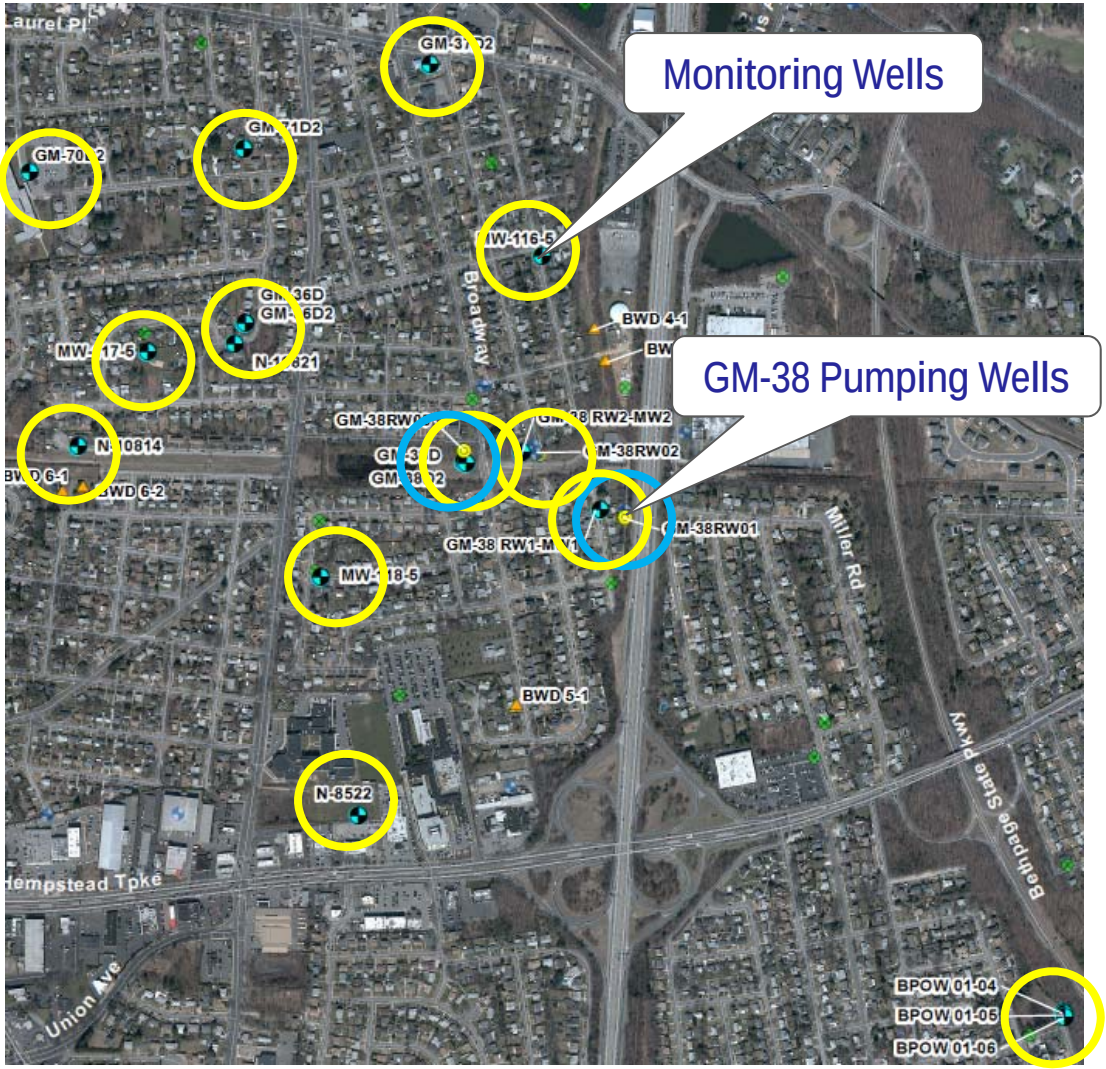
# GM-38 CAPTURE ZONE ANALYSIS

- Water level measurement wells to be conducted over 12 months
- Data will be used to evaluate seasonal variations in water levels from weather and pumping



# GM-38 CAPTURE ZONE ANALYSIS

- GM-38 Pumping Test
- Controlled pumping of wells to evaluate capture zone for specific wells
- Data will be used to calibrate a model



# OU2 PUBLIC WATER SUPPLY DESIGN

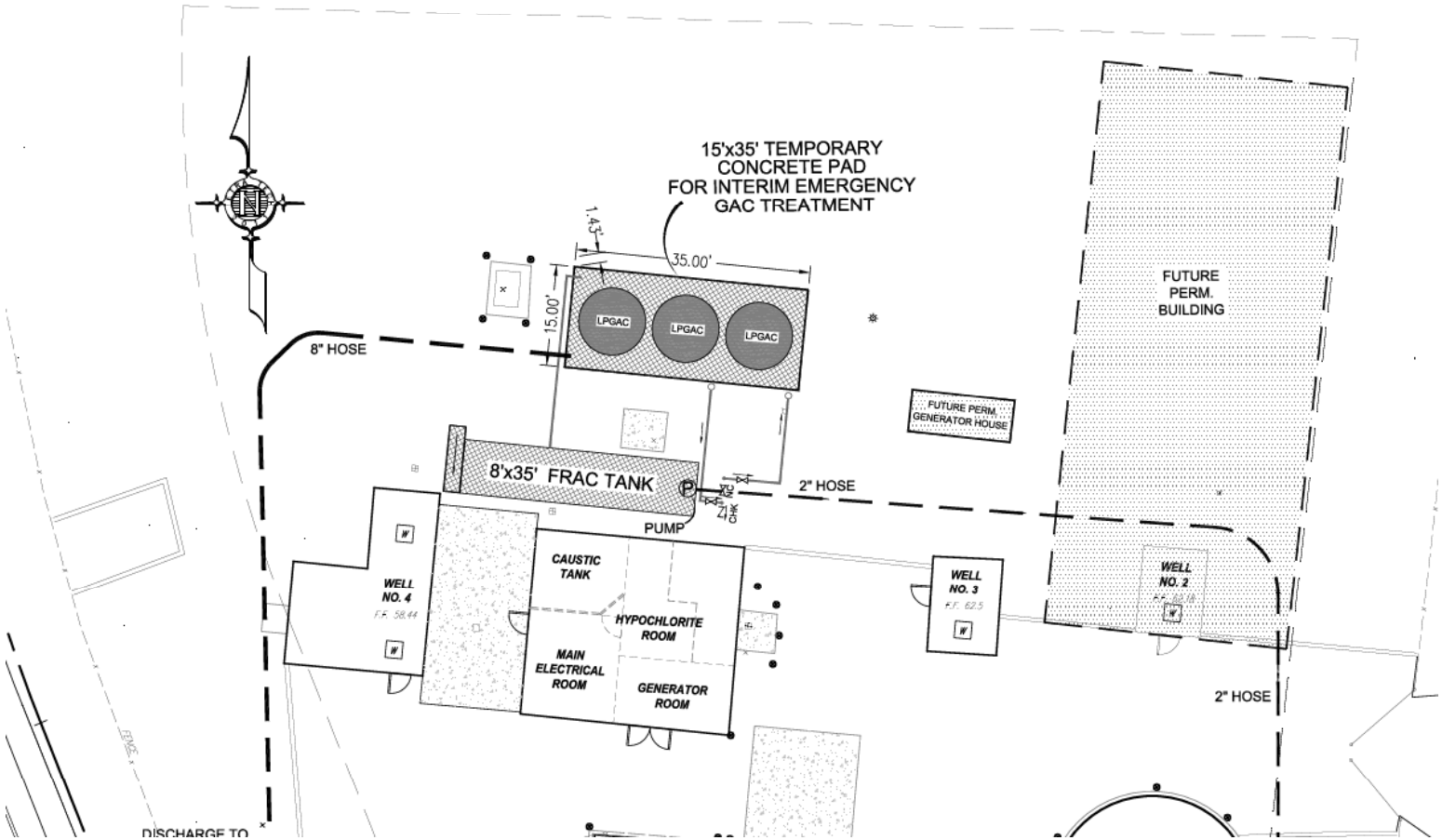
- Navy is currently designing a full-scale Granular Activated Carbon treatment system for an offsite Public Water Supply
  - Design completed in 2012
  - Working with TOH and DOH
  - Construction is anticipated to start in 2013
- Navy also designed, constructed, and operated an interim treatment system
  - System operated from May to December 2012
  - Treated approximately 160,000,000 gallons (through Oct 12)
  - System will be shut down and winterized, with a planned restart in spring 2013

# OU2 PUBLIC WATER SUPPLY DESIGN

## Full Scale Liquid Phase Granular Activated Carbon System

# OU2 PUBLIC WATER SUPPLY DESIGN

## Interim Liquid Phase Granular Activated Carbon System



# OU2 PUBLIC WATER SUPPLY DESIGN

## Interim Liquid Phase Granular Activated Carbon System

# OU2 GROUNDWATER INVESTIGATION - PURPOSE

- Delineate groundwater contamination in areas south of NWIRP Bethpage
- Program consists of:
  - Vertical profile borings - used to quickly screen areas for the presence, depth, and concentration of contamination
  - Permanent monitoring wells - to confirm presence/absence of contamination and develop trends
  - Support capture zone analysis for wells

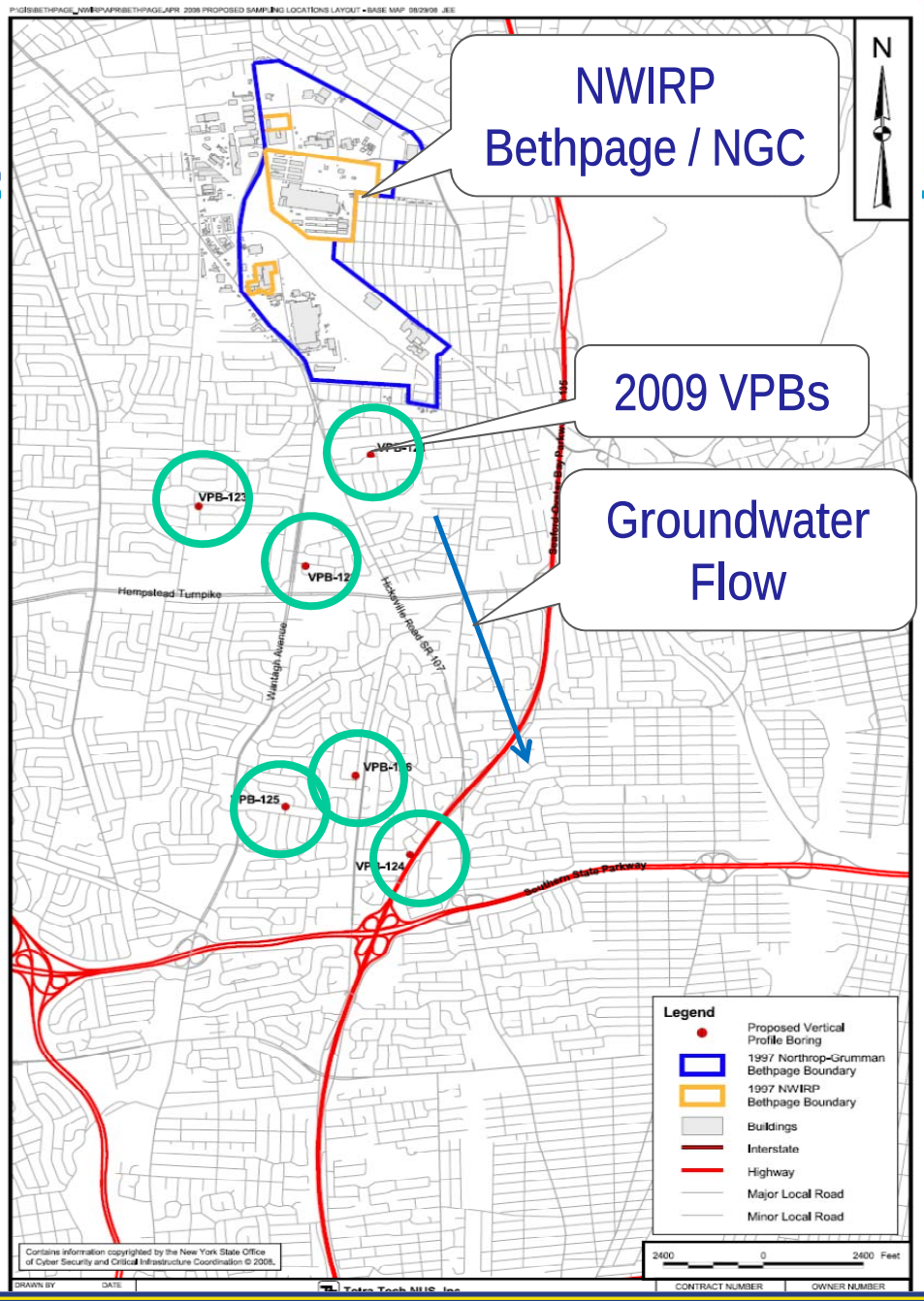
# OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM

- A vertical profile boring is a 12-inch diameter hole drilled into the ground. At select depths, the drilling is stopped, a device is lowered to depth, and a sample of the water is collected
- The borings will extend to the Raritan Clay Layer at a depth up to 860 to 1000 feet below ground surface
- 36 groundwater samples are collected per boring and analyzed for VOCs

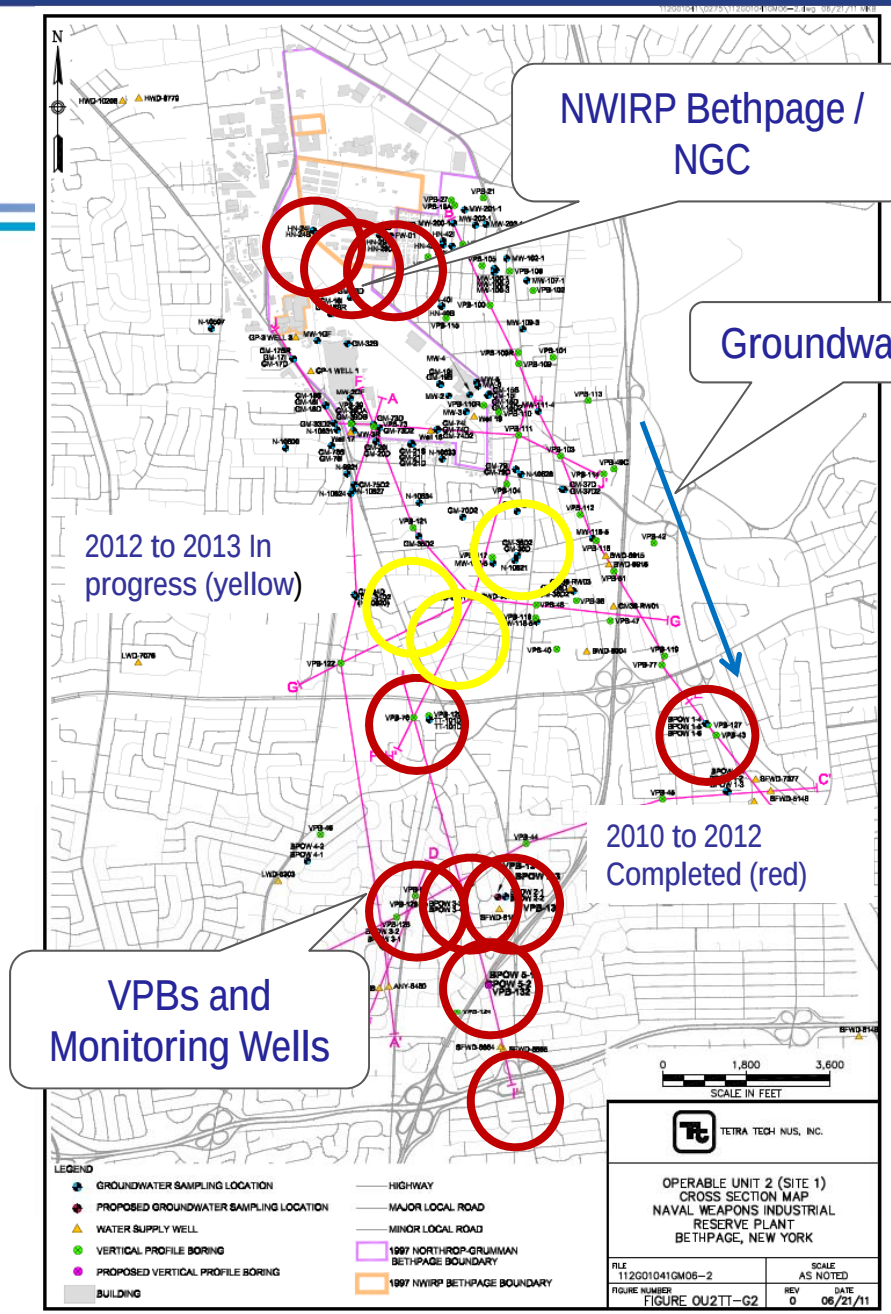
# OU2 INVESTIGATION - VERTICAL PROFILE BORING PROGRAM (Cont.)

- Each  boring requires 4 to 6 weeks to complete
- In November 2012, two reports were issued, one for the offsite vertical profile borings and monitoring wells and the second one for three onsite vertical profile borings
- Additional investigation are being planned and implemented

# 2009 Vertical Profile Borings



# 2010 to 2013 Vertical Profile Borings (VPBs) and Monitoring Wells

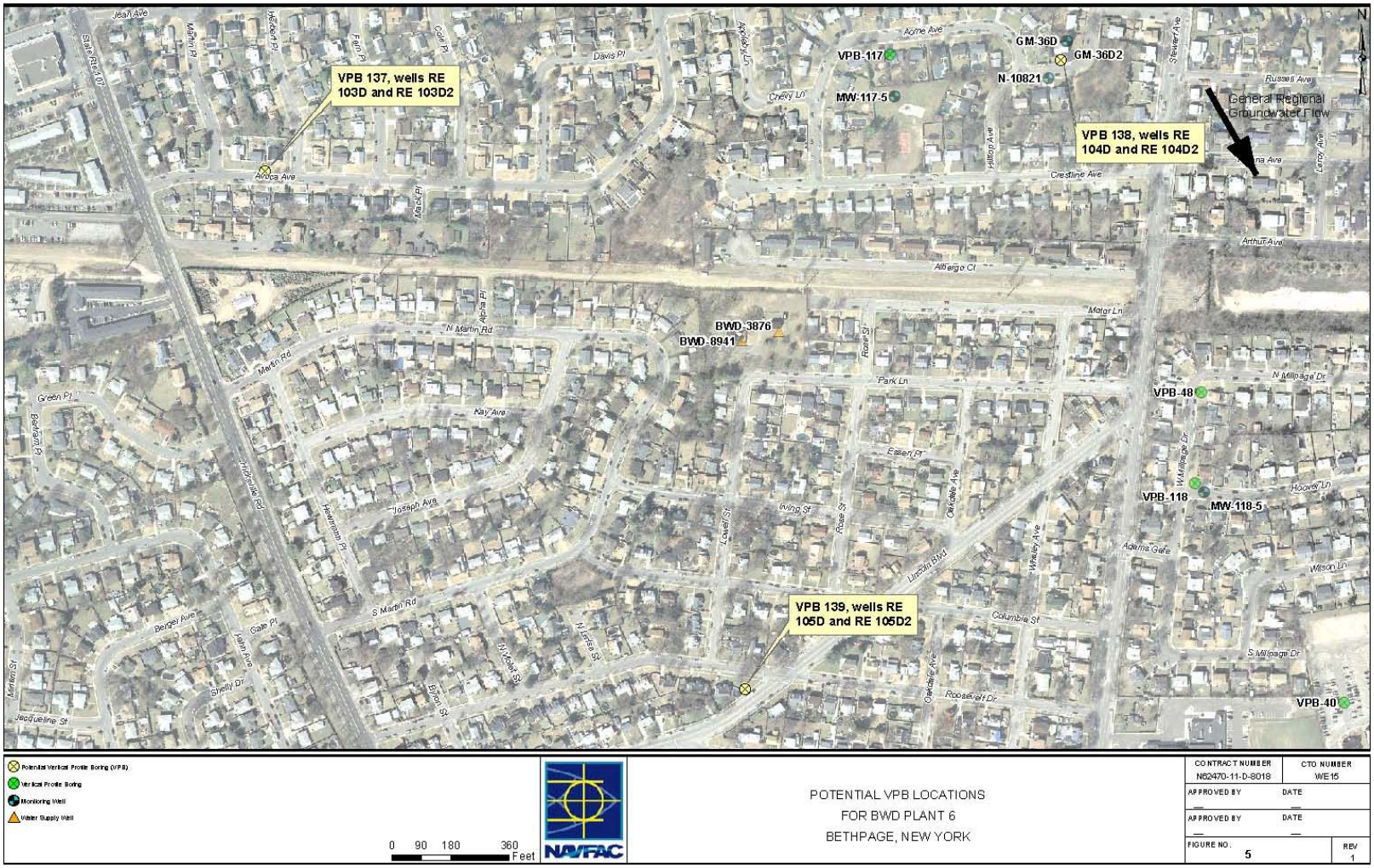


# OU2 – CURRENT AND FUTURE VPB AND MONITORING WELLS

- Work performed 2012
  - –Installation of Vertical Profile Borings (VPB) 134, 135, and 136
  - –VPB 137 currently being installed.
  - –Two monitoring wells will also be installed at this location.

- Future work:
  - – VPB 138 and 139 installation scheduled for early 2013 as well as four monitoring wells

# OU2 – CURRENT AND FUTURE VPB AND MONITORING WELLS



# AOC 32 TANKS SUMMARY

- Two approximately 6,000 gallon USTs were identified during site grading activities
- Historic documentation was very limited, but suggested the tanks were used to store tetrachloroethene (PCE)
- Tanks were removed in Sept 2012
- Some of the contents were identified as hazardous
- Soil testing found no evidence of a release


# OU2 ACTIVITIES

Questions?