

**MARCH 2012 LETTER WORK PLAN ADDENDUM
TT-102D/TT-102D2 (VPB-133)
PRE-DESIGN FIELD INVESTIGATION
OU 2 OFF-SITE GROUNDWATER INVESTIGATION
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT (NWIRP)
BETHPAGE, NEW YORK**

This Letter Work Plan Addendum has been prepared by Tetra Tech, Inc. (Tetra Tech) for the Naval Facilities Engineering Command Mid-Atlantic under Contract Task Order (CTO) WE62 of the Comprehensive Long-Term Environmental Action Navy (CLEAN) contract number N62470-08-D-1001. This Work Plan is a supplement to the 2010 Letter Work Plan, Pre-Design Field Investigation, OU 2 Off-Site Groundwater Investigation, NWIRP Bethpage, New York (Tetra Tech NUS, 2010) and VPB-133 Work Plan Addendum – December 2011 (Tetra Tech NUS, 2011). This groundwater investigation is being conducted off site of the Naval Weapons Industrial Reserve Plant (NWIRP) Bethpage, Long Island, New York (Figure 1). Regional groundwater flow is south southeast, but is locally affected by the operation of recharge basins and public water supply wells.

This work plan finalizes monitoring well construction requirements for proposed monitoring wells TT-102D and TT-102D2. These wells are to be installed in the area of vertical profile boring (VPB)-133 (Figure 2) and will be used to assess groundwater conditions north of Massapequa Water District supply wells MWD-6442 and MWD-6443. The monitoring well screen intervals were determined from soil boring lithology and groundwater analytical data collected during the installation of VPB-133 and well screen intervals of Massapequa Water District supply wells MWD-6442 and MWD-6443. A cross section illustrating the anticipated screen intervals of the proposed monitoring wells is presented in Figures 3. Table 1 provides the proposed wells and screen intervals. The monitoring wells will be installed using mud rotary drilling methods and be constructed of 4-inch diameter, schedule 80 National Sanitation Foundation (NSF)-grade Polyvinyl Chloride (PVC) well casing and screen. Additional details providing the requirements for monitoring well drilling, monitoring development, sampling pump installation, investigation derived waste (IDW) handling, and reporting are provided in the VPB-133 Work Plan Addendum – December 2011.

REFERENCES

Tetra Tech NUS, Inc. 2010. 2010 Letter Work Plan, Pre-Design Field Investigation, OU 2 Off-Site Groundwater Investigation, NWIRP Bethpage, New York. September.

Tetra Tech NUS, Inc., 2011. VPB-133 Work Plan Addendum – December 2011, OU-2 Off-Site Groundwater Investigation, NWIRP Bethpage, New York. December.

TABLE

TABLE 1
MONITORING WELLS TT-102D AND 102D2
CONSTRUCTION DETAILS
OU 2 OFF-SITE GROUNDWATER INVESTIGATION
NWIRP BETHPAGE, NEW YORK
Page (1 of 1)

Monitoring Well Designation	Screen Interval (ft bgs) ⁽¹⁾	Total Well Depth (ft bgs) ⁽¹⁾	Height Gravel Pack (ft bgs) ⁽²⁾	Height Fine Sand (ft bgs) ⁽²⁾	Purpose
TT-102D	560 to 600	605	535	520	Monitor groundwater north of Massapequa Water District Supply Well N-06442 (531 to 618 ft bgs)
TT-102D2	740 to 770	775	715	700	Monitor groundwater north of Massapequa Water District Supply Well N-06443 (770 to 850 ft bgs), proposed screen depth correspondance to a gravel zone.

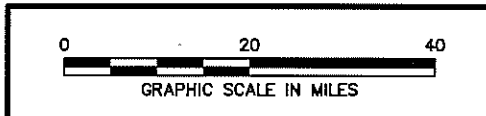
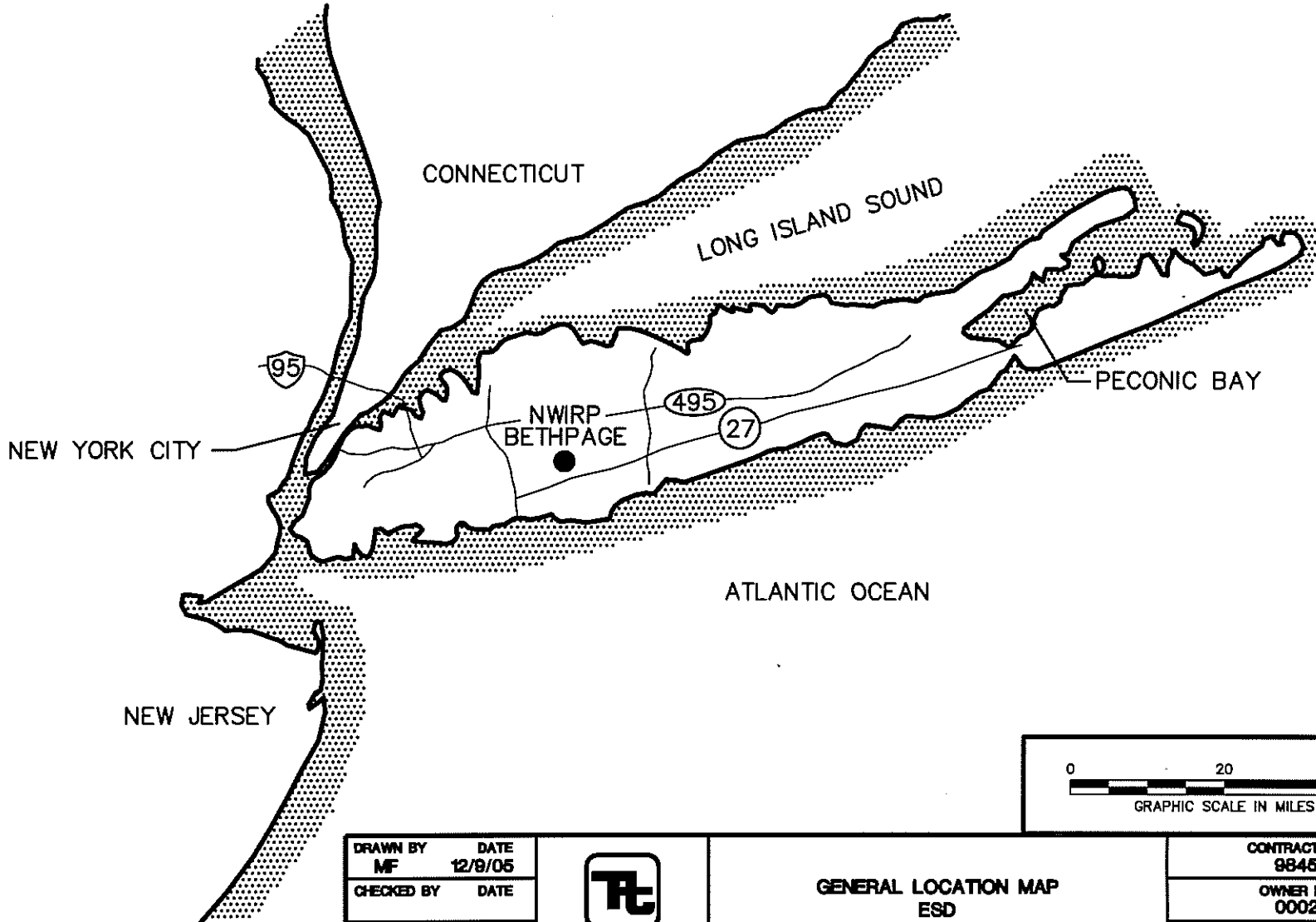
bgs - below ground surface

ft - feet

⁽¹⁾ Based on the local USGS quad sheet, ground surface is assumed to be 30 feet above mean sea level. Depth presented are based on lithology and groundwater data collected from vertical profile boring (VPB) - 133 and screen intervals from Massapequa Water District water supply wells MWD-6442 and MWD-6443.

⁽²⁾ Height of gravel pack and fine sand layer are determined by total well depth. Details are provided in Section 2.2 of the VPB-133 Work Plan Addendum – December 2011, OU-2 Off-Site Groundwater Investigation, NWIRP Bethpage, New York.

FIGURES

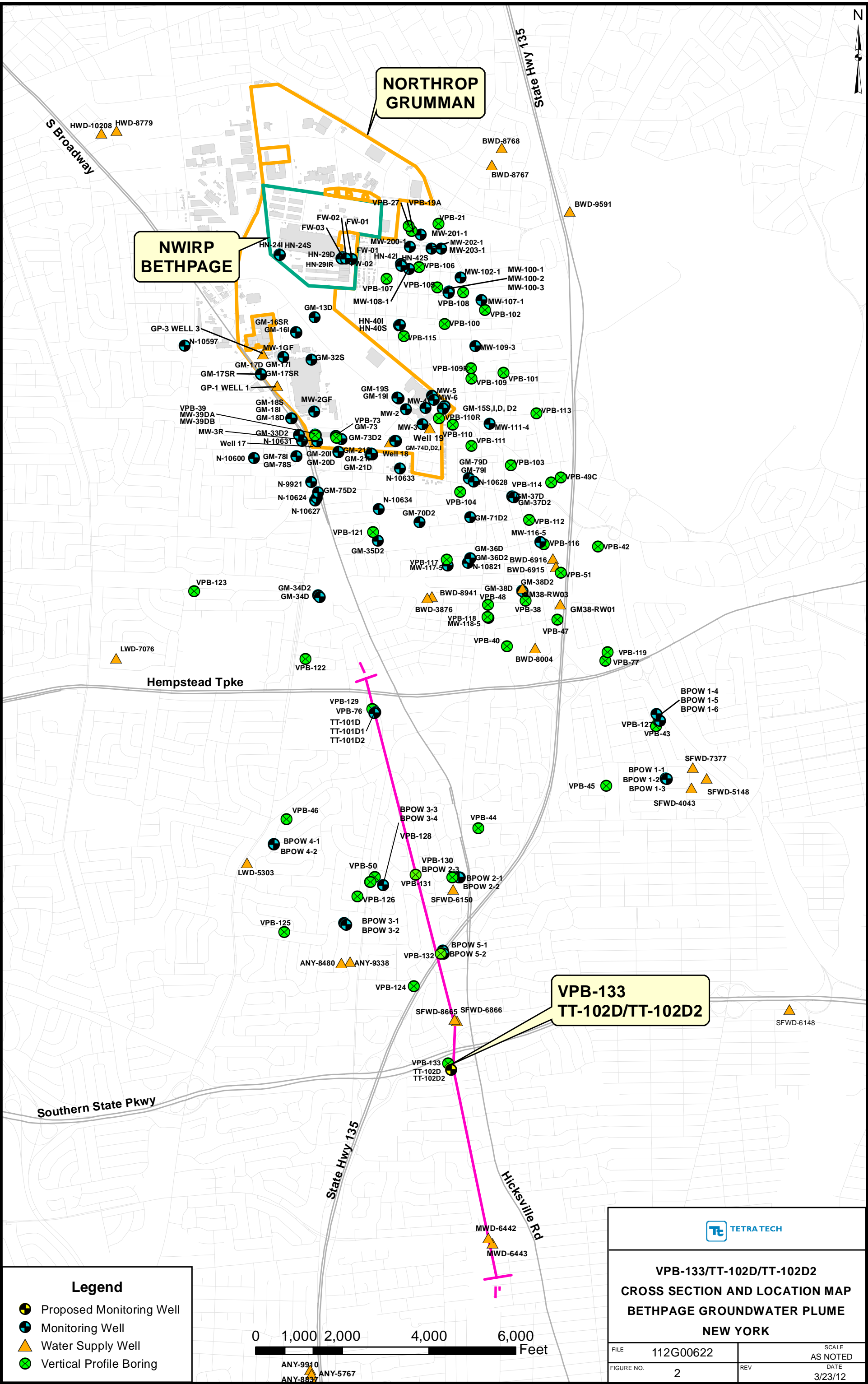


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MF	12/8/05
CHECKED BY	DATE
REVISED BY	DATE
SCALE AS NOTED	



GENERAL LOCATION MAP
ESD
NWIRP BETHPAGE
BETHPAGE, NEW YORK

CONTRACT NO. 9845	
OWNER NO. 0002	
APPROVED BY	DATE
DRAWING NO. FIGURE 1	REV. 0



**NWIRP
BETHPAGE**

**NORTHROP
GRUMMAN**

**VPB-133
TT-102D/TT-102D2**

Legend

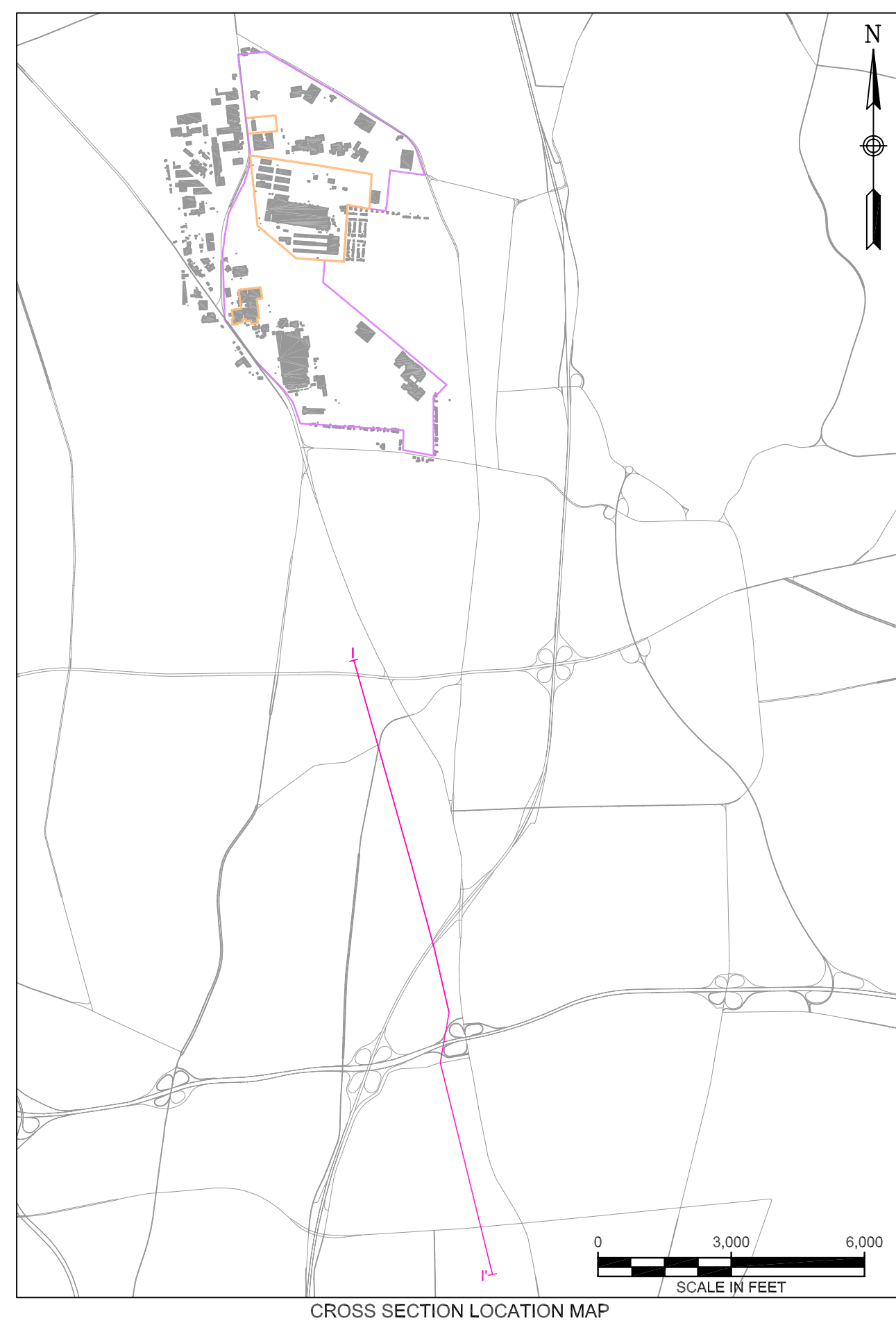
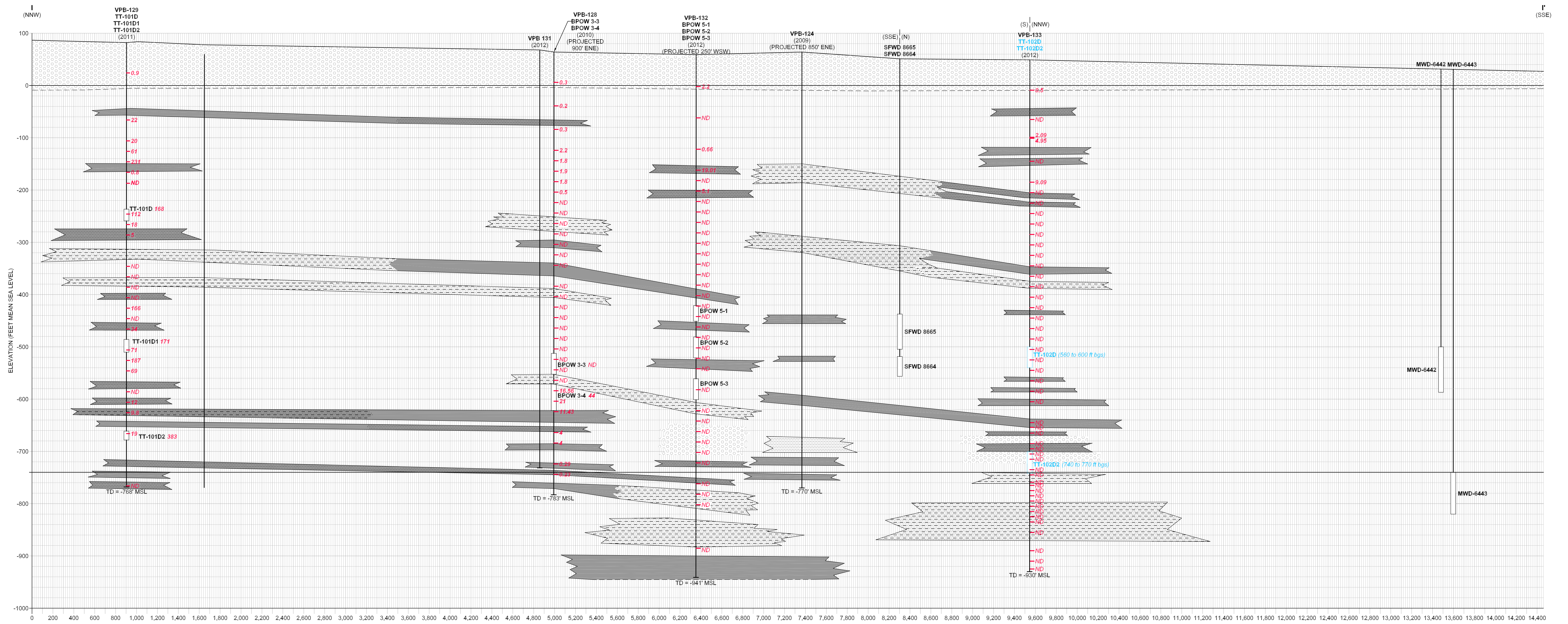
- Proposed Monitoring Well
- Monitoring Well
- Water Supply Well
- Vertical Profile Boring

0 1,000 2,000 4,000 6,000 Feet

TETRATECH

**VPB-133/TT-102D/TT-102D2
CROSS SECTION AND LOCATION MAP
BETHPAGE GROUNDWATER PLUME
NEW YORK**

FILE	112G00622	SCALE	AS NOTED
FIGURE NO.	2	REV	DATE
			3/23/12



LEGEND

- SAND AND GRAVEL
- F.M. SAND WITH VARYING AMOUNTS OF SILT CLAY AND G. SAND
- CONFINING UNITS
- INTERBEDDED CLAY AND SAND
- SANDY CLAY
- CLAY

TT-101D (2000) (PROJECTED 300' WSW) PROJECTION
 MONITORING WELL ID
 INSTALLATION YEAR
 GROUND SURFACE (APPROXIMATED TO BE FLAT)
 CONFINING UNIT (DASHED WHERE INFERRED)
 MONITORING WELL SCREEN
 VERTICAL PROFILE BORING VOC RESULTS IN µg/L
 NOT DETECTED
 TOTAL DEPTH FEET MEAN SEA LEVEL
 µg/L MICROGRAMS PER LITER

TT-102D2 (710 to 740 ft bgs)
 PROPOSED MONITORING WELL ID
 PROPOSED MONITORING WELL SCREEN
 PROPOSED MONITORING WELL DEPTH FEET BELOW GROUND SURFACE

TT-101D1 181.5
 TD = -730' MSL

TT-101D2 19
 TD = -768' MSL

TT-101D1 177
 TD = -768' MSL

TT-101D1 168
 TD = -768' MSL

TT-102D2 (580 to 600 ft bgs)
 TD = -930' MSL

TT-102D2 (740 to 770 ft bgs)
 TD = -930' MSL

VPB-129 (NNW)
 TT-101D1
 TT-101D2
 (2011)

VPB-131 (2012)
 (PROJECTED 900' ENE)

VPB-132 (2010)
 BPOW 3-3
 BPOW 3-4
 (PROJECTED 900' ENE)

VPB-134 (2009)
 BPOW 5-1
 BPOW 5-2
 BPOW 5-3
 (PROJECTED 250' WSW)

VPB-133 (S) (NNW)
 TT-102D2
 (2012)

SFWD 8665 (SSE) (N)
 SFWD 8664

MWD-6442
MWD-6443

TETRA TECH

CROSS SECTION I - I'
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

FILE 112G01041GS47
 SCALE AS NOTED

FIGURE NUMBER 3
 DATE 04/02/12