SAP ADDENDUM FOR SITE 1 SOILS

PCB INVESTIGATION AT SITE 1 - FORMER DRUM MARSHALLING AREA

Naval Weapons Industrial Reserve Plant
Bethpage, New York

**Naval Facilities Engineering Command
Mid-Atlantic**

**CONTRACT NUMBER N62470-08-D-1001
Contract Task Order WE44**

May 2012

TETRA TECH

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NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

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ACRONYMS

AOC	Area of Concern
AS/SVE	Air Sparge/Soil Vapor Extraction
AST	above ground storage tanks
bgs	below ground surface
CLEAN	Comprehensive Long-Term Environmental Action Navy
CSM	conceptual site model
CTO	Contract Task Order
DPT	direct push technology
GOCO	Government-owned contractor-operated
HNUS	Halliburton NUS
HSA	hollow stem auger
IAS	Initial Assessment Study
IRM	Interim Remedial Measure
mg/kg	milligrams per kilogram
MS/MSD	matrix spike/matrix spike duplicate
NAVFAC	Naval Facilities Engineering Command Mid-Atlantic
NGC	Northrop Grumman Corporation
NWIRP	Naval Weapons Industrial Reserve Plant
PCB	Polychlorinated biphenyl
ppm	parts per million
PRAP	Proposed Remedial Action Plan
QC	Quality Control
RAO	Remedial Action Objective
RI	Remedial Investigation
ROD	Record of Decision
SAP	Sampling and Analysis Plan
SCG	Soil Cleanup Goal
VOC	volatile organic compound
µg/L	microgram per liter

1.0 INTRODUCTION

This Sampling and Analysis Plan (SAP) Addendum was prepared by Tetra Tech Inc. for the Naval Facilities Engineering Command (NAVFAC) - Mid-Atlantic under the U.S. Navy's Comprehensive Long-Term Environmental Action Navy (CLEAN) Contract number N62470-08-D-1001, Task Order (CTO) WE44. This document is an addendum to the May 2010 SAP for Polychlorinated Biphenyls (PCBs) Investigation at Site 1 – Former Drum Marshalling Area at the Naval Weapons Industrial Reserve Plant (NWIRP) located in Bethpage, New York (Figures 1-1 and 1-2). This SAP Addendum summarizes the investigative history, conceptual site model (CSM), the estimated distribution of PCB contaminated-soils, and provides the rationale and proposed soil sampling needed to adequately define PCB-contaminated soils to allow development of a remedial evaluation at Site 1. Site 1 soils are the focus of this SAP Addendum and groundwater will be addressed under a separate cover.

1.1 SCOPE AND OBJECTIVES

This SAP Addendum summarizes the historical analytical data for PCBs at Site 1 and presents an evaluation of the compiled soil data and revised isoconcentration contours to determine if the vertical and horizontal extent of PCB-contaminated soils has been sufficiently defined. The primary objective is to determine if and where data gaps exist and propose the additional soil sampling needed to adequately delineate PCB-contaminated soils to support future source area remedial evaluations. The remedial alternatives to consider include limited to full excavation, capping, and in-situ treatment. The source areas include Site 1 and Dry Wells 20-08 and 34-07.

The investigation history for PCBs at Site 1 includes several soil sampling events from 1991 through present. Analytical data collected during these historical investigations determined the vertical extent of PCB-contaminated soils from the ground surface to below the water table (approximately 50 feet below ground surface [bgs]) and identified "hot spot" areas (elevated PCB concentrations in soil). The known vertical extent of PCB-contaminated soil was to depths of approximately 65 feet bgs. PCB concentrations above 100 parts per million (ppm) were found in soil samples at depths below 50 feet bgs, with concentrations as high as 310 ppm at 62 feet bgs.

The following objective for Site 1 soils was presented in the May 2010 SAP:

- Determine the vertical extent of PCB-contaminated soils in the source areas.

Six soil borings were advanced to approximate depths of 208 to 250 feet bgs in the Site 1 source areas. This investigation did not find evidence of PCBs at depths below 65 feet. The highest detections of Aroclor-1242 found during the 2010 investigation were observed from 54.5 to 55.0 and 57.5 to 58.0 feet bgs (160 and 110 milligrams per kilogram [mg/kg] respectively). The previous highest detection of PCBs at depth was at 62 feet bgs (310 mg/kg). However, re-evaluation of the historical analytical data for PCBs identified additional vertical and horizontal data gaps.

As a result, the objective for Site 1 soils is revised as follows:

- Determine the vertical and horizontal extent of PCB-contaminated soils to adequately delineate PCBs to support future source area remedial evaluations.

1.2 REPORT ORGANIZATION

This SAP Addendum provides a summary of the approach used in compiling and evaluating historical soil data to produce the estimated extent of PCB-contaminated soils at Site 1 and presents the proposed additional soil sampling necessary to address observed data gaps to adequately define the extent of PCBs in soil. The report consists of four sections. Section 1.0 provides an introduction. Section 2.0 provides the facility description, investigative history, and the CSM. Section 3.0 summarizes the soil evaluation for PCBs at Site 1 and identifies current data gaps. Section 4.0 presents the conclusions and recommendations that detail the soil investigation and sampling needed to address the identified data gaps in the Site 1 soil evaluation.

2.0 BACKGROUND AND CONCEPTUAL SITE MODEL

2.1 SITE LOCATION AND DESCRIPTION

The Navy's Bethpage facility is located in east-central Nassau County, Long Island, New York, approximately 30 miles east of New York City (Figure 1-1). Established in 1943, the property known as NWIRP Bethpage was originally situated on 109 acres entirely within the Northrop Grumman Aerospace complex. NWIRP Bethpage was a Government-Owned Contractor Operated (GOCO) facility that was operated by the Northrop Grumman Corporation (NGC) until September 1998. Since 1998, the Navy transferred 100 acres to Nassau County. The remaining 9-acre parcel is being retained by the Navy for environmental investigations and remediation. Other than environmental investigation and cleanup work, there are no operations conducted on the Navy's property that generate hazardous waste.

Site 1 - Former Drum Marshalling Area is located in the eastern portion of the Navy's 9-acre parcel. Site 1 is mostly an open area, which in the past included above ground storage tanks (Areas of Concern [AOC] 23), a sanitary settling tank, and sludge drying beds (AOC 35). All these structures were located in the northern portion of the site, as well as a few scattered metal storage buildings. In general this area is relatively flat except for a 4-foot vegetated windrow located along the eastern end of the site, and a mounded area which partially buries the abandoned sanitary settling tank. The site is enclosed by a site perimeter fence along the north, west and south, with an eastern facility perimeter fence bounding the site from a residential neighborhood to the east. Figure 2-1 provides a site layout and aerial view of Site 1.

Site 1 originally consisted of two former drum marshalling pads located in the center of the site that were used to store drums containing waste materials from operations at Plant No. 3 and potentially other wastes from operations at the facility. Transformers and a PCB-filled autoclave were also stored at the site. Underlying most of Site 1 is approximately 120 abandoned cesspools that were designed to discharge sanitary waste waters from Plant No. 3. These cesspools were approximately 10 feet in diameter and 16 feet deep. Based on field observations, the cesspools are currently filled with soil. It is possible that non-sanitary wastes may have been discharged into this system. The drum marshalling areas and extent of the leach field were the original extent of Site 1.

In addition to the original extent of Site 1, due to proximity, similar contamination, and potential need for remedial actions, AOC 23, AOC 35, and dry-wells 20-08 and 34-07 were subsequently included as a part of Site 1.

2.2 SITE HISTORY

NWIRP Bethpage was established in 1943. Since its inception, the plant's primary mission has been the research prototyping, testing, design engineering, fabrication, and primary assembly of military aircraft. The facility included four plants used for assembly and prototype testing, a group of quality control laboratories, two warehouse complexes (north and south), a salvage storage area, groundwater recharge basins, the Industrial Wastewater Treatment Plant, and several smaller support buildings.

Starting in 1969, hazardous waste management practices for Grumman facilities on Long Island included the management of drummed wastes on the Navy property at NWIRP Bethpage. This storage first took place on a cinder-covered surface over the cesspool field east of Plant 3. From the early 1950s through about 1978, drums containing waste were stored here. In 1978, the drum marshalling area was moved a few yards south of the original unpaved site, to a 100-by-100 foot concrete pad. This pad had no cover and no berms for containment of spills. In 1982, the waste was transferred to a Drum Marshalling facility located in the Salvage Storage Area (Site 3).

In 1985, an Initial Assessment Study (IAS) was conducted that identified materials stored at the Former Drum Marshaling Area to include waste halogenated and non-halogenated solvents (Rogers, Golden & Halpern, 1986). Cadmium and cyanide wastes were also stored in this area from the early 1950s through 1974. Reportedly, 200 to 300 drums were stored at each area at any one time. Based on the data presented in the IAS, it was determined that there was a potential for volatile organic, semivolatile organic, and inorganic contamination at each of the three sites (Site 1, 2, and 3). Based on site observations in the early 1990s, there was the potential that transformers (possibly containing PCBs) and other high temperature devices (autoclaves) may have also been stored at these sites. However, there are no historic records to substantiate these observations and it is unknown whether or not the transformers were properly drained prior to storage.

Reportedly, there was no direct evidence of hazardous waste spills at Site 1 and all drums of waste at the Former Drum Marshalling Areas were reportedly taken off-site by a private contractor for treatment or disposal. There are no reports of leaks or spills from the drums. Underlying most of Site 1 is approximately 120 abandoned cesspools that were designed to discharge sanitary waste waters from Plant No. 3. These cesspools were approximately 10 feet in diameter and 16 feet deep. Based on field observations, the cesspools are currently filled with soil. It is possible that non-sanitary wastes may have been discharged into this system.

In 1998, Grumman ceased its operations at NWIRP Bethpage. Since 1998, activities at the facility have included facility maintenance (security and mowing), storage of Nassau County impounded vehicles, and environmental investigations and/or remediation of soil, groundwater, and soil vapor. In 2008, a portion of the property (approximately 100 acres) was transferred to Nassau County and in 2009; demolition of the remaining buildings at Site 1 was completed. More recently, in October 2011, Steel Equities purchased a portion of the 100 acres from Nassau County for re-development.

2.3 SUMMARY OF SITE 1 HISTORY

A list of important Site 1 historical events and relevant dates in the site chronology through 2011 is shown below. The identified events are illustrative, not comprehensive. The paragraphs following the table below summarize some details of the historical environmental work conducted at Site 1.

DATE	EVENT
1943	NWIRP Bethpage established
1950s-1982	Cyanide and cadmium reportedly stored onsite at Site 1
1986	IAS completed
1991	Remedial Investigation (RI) began
1994	Feasibility Study (FS) completed
1995 May	Record of Decision (ROD) signed
1997 -2002	Installation and operation of onsite Air Sparge/Soil Vapor Extraction (AS/SVE) system
2003	Remediation of Former Drywells 20-08 & 34-07
2003 - 2007	Navy re-evaluates implementation for Site 1 PCBs/metal remedy
2008	Soil Gas investigations performed
2009 -present	Soil Vapor Intrusion sampling and mitigation
2010 - 2011	Soil and Groundwater investigations (PCBs)
2011	Additional Groundwater investigation (PCBs)

The 1995 ROD summarized what was at the time believed to be the nature and extent of contamination and identified where more data was needed to further delineate the extent of contamination. The ROD also identified the Remedial Action Objective (RAOs) and the selected remedy for Site 1. The RAOs included:

- Comply with contaminant-specific, location-specific, and action-specific ARARs and SCGs (i.e, subsurface SCG of 10 mg/kg for PCBs).
- Reduce, control, or eliminate the contamination within site soils.
- Prevent human exposure to contaminated soils at concentrations greater than the remedial action goals.
- Prevent leaching of contaminants in soil which could result in groundwater contamination in excess of groundwater remediation goals.
- Prevent offsite migration of contamination.

The selected remedy included:

- Collection of additional samples to verify and provide data necessary for a soil excavation and disposal to remediate the inorganic and PCB contamination and the installation of an AS/SVE system to remediate volatile organic compound (VOC) contamination.
- Excavation of arsenic-contaminated (600 cubic yards) and PCB-contaminated soil (1,400 cubic yards) for treatment and disposal (volumes reported in the ROD were based on sampling that extended 5-feet bgs).
- Remediation of VOC-contaminated soils using the AS/SVE system.
- Remediation of VOC-contaminated groundwater using AS/SVE system.
- Implementation of institutional controls. Institutional controls included a gravel or vegetative cover over residual contamination (permeable cover to encourage natural attenuation of residual VOCs) and deed restrictions to limit the use of and exposure to the Site 1 area.
- Provision for an Interim Remedial Measure (IRM).

2.4 GEOLOGY AND HYDROGEOLOGY

NWIRP Bethpage is underlain by approximately 1,100 feet of unconsolidated sediments that overlie crystalline bedrock (Isbister, 1966). The unconsolidated sediments consist of four distinct geologic units: (in descending order) Upper Glacial Formation, Magothy Formation, Raritan Clay, and Lloyd Sand Formation. The 30- to 45-foot thick Upper Glacial Formation consists chiefly of coarse sands and gravels. The Upper Magothy Formation consists chiefly of coarse sands to a depth of approximately 100 feet, below which finer sands, silts, and clay predominate. The clay is common but laterally discontinuous; no individual shallow clay horizon of regional extent underlies the facility. The 100- to 150-foot-thick Raritan Clay underlies the Magothy Formation at a depth of approximately 700 feet. The underlying Lloyd Sand Formation is approximately 300 feet thick.

Most of Long Island is bisected by an east-west-trending regional groundwater divide. NWIRP Bethpage occupies an area of recharge, lying to the south of the divide. Groundwater is in communication between the Upper Glacial and Upper Magothy Formations beneath the facility, and may be considered a common unconfined aquifer, which is encountered at approximately 50 feet below ground surface (bgs). The glacial deposits are characterized by a high primary porosity (exceeding 30 percent) and high permeability. The high permeability of the glacial deposits allows for the rapid recharge of precipitation to the underlying Magothy (Isbister, 1966; McClymonds and Franke, 1972). The number and thickness of clay lenses increase with depth in the Magothy Formation; however, the horizontally discontinuous nature of these units prevents any one of them from functioning as an aquitard or semi-confining unit.

In May 2009, three soil borings were advanced via mud rotary drilling at Site 1 to provide deeper lithological information. All three borings were advanced to approximately 310 feet bgs and gamma logging was conducted at each location.

In 2009 and 2010, nine soil borings were advanced in known deep areas of PCB contamination in the source areas. Figure 2-2 shows the location of five geologic cross sections across Site 1. Figures 2-3 to 2-7 are cross sections A-A', B-B', C-C', D-D', and E-E'. As shown in the cross sections, the top 20 to 30 feet of soils are predominantly sands and gravel. Below 30 feet bgs, primarily fine sand and silty sand is encountered with generally small thin discontinuous clay lenses down to 100 feet bgs.

Groundwater beneath the site flows in a general southward direction toward the Atlantic Ocean. The horizontal hydraulic gradient and groundwater velocity in the unconfined common aquifer across the facility average 5.3 feet per mile and 0.3 foot per day, respectively [Halliburton NUS (HNUS), 1993]. Subtle vertical hydraulic gradients occur in a downward direction. Groundwater in the deeper portion of the Magothy is the primary source of potable water in Nassau County. Former NWIRP production wells (now abandoned) set in the Magothy yielded 1,200 gallons per minute. NGC operates production wells (as well as a groundwater containment system) south of NWIRP Bethpage. The production wells and groundwater containment system operates with a combined flow rate of 3,800 gallons per minute.

2.5 CONCEPTUAL SITE MODEL

The basic components of the existing CSM representing a current understanding of PCB- contamination at Site 1 is presented below.

<u>Contaminant Sources</u>

Based on the historical investigations conducted at Site 1, PCBs and VOCs represent the primary contaminants of concern. Contamination likely resulted from releases during surface storage and maintenance activities historically conducted at the site. Inorganic contamination, primarily cadmium and chromium, has also been observed in Site 1 soils. Contamination has also been found in several of the leach pits and likely resulted from the placement of contaminated soil and/or wastes into these pits, or potential surficial releases of wastes over the leach field area at Site 1.

Specifically, the PCB soil source areas include the Site 1 drum marshalling and leach field area, and the two dry wells (20-08 and 34-07) as depicted on Figure 2-1.

Migration Pathways

PCBs are normally considered immobile. In the presence of organic solvents, PCBs can dissolve and migrate with a mobile solvent. A carrier fluid (i.e., fuels or solvents) may have caused PCBs to migrate downward from surficial releases through the vadose zone to the water table, and/or continued to migrate below the water table unattenuated (i.e., surface soil concentrations at or similar to concentrations at the water table). Soil sampling completed in 2009 and 2010 did not provide evidence to support this carrier fluid theory, VOCs were present at concentrations that were less than 0.01% of the solubility limit.

PCBs can also migrate via groundwater transport, in either a dissolved or colloidal form. The theoretical solubility of PCBs (aroclor 1242 and 1248) can range from 43 to 100 micrograms per liter (µg/L), depending on the type of aroclor. Therefore, it is possible to find dissolved phase PCBs in groundwater. PCBs can also adsorb onto colloidal size particles and/or oils, which would allow PCBs to migrate without interacting with or adhering to soil particles.

Exposure Pathways

Currently, the primary media at the site through which receptors can be exposed to PCBs include groundwater and soils. Exposure routes include dermal contact, ingestion, and inhalation. Potential exposure pathways at Site 1 include the following:

- Dermal contact with subsurface soils and groundwater;
- Inhalation of fugitive dust; and
- Ingestion of site soils and groundwater.

Potential Receptors

The potential receptors that may be exposed to contaminated media at Site 1 include site workers, trespassers, and future residents via ingestion, inhalation, or dermal contact with contaminated soils or groundwater.

Most of the VOCs in soil and shallow groundwater at Site 1 have been remediated via the historical AS/SVE system that operated from 1998 to 2002. An SVE Containment System was installed in 2009 to address soil vapor contamination related to residual VOCs at Site 1 and remains in operation. Access restrictions at the site limit dermal exposure and ingestion of contaminated surface soils, and also prevent the potential inhalation of fugitive dusts. Currently, there is no exposure to site groundwater via ingestion or dermal contact, as there is no groundwater use at, or immediately downgradient of, Site 1.

Future site use is uncertain, but anticipated to be industrial or commercial after completion of remedial actions and transfer of the remaining nine acres to Nassau County.

3.0 SOIL EVALUATION

3.1 EVALUATION OF HISTORICAL SOIL DATA

The Phase 1 RI conducted in May 1992 (HNUS, 1992) and Phase 2 RI conducted in October 1993 (HNUS, 1993) identified the nature of contamination, but was unable to establish the extent of PCB contamination. The data collected at Site 1 indicated PCBs were present in a limited area to a depth of approximately 8 feet bgs. A FS was conducted in March 1994 (HNUS, 1994). The FS led to the development of the Proposed Remedial Action Plan (PRAP), issued in October 1994, and the development of the Site 1 ROD, that was issued in May 1995 (NAVFAC, 1995).

During the remedial design studies that were completed in 1998, it was determined that the depth of PCB-contaminated soils at Site 1 far exceeded the estimated depth (approximately 8 feet bgs) reported in the ROD. Also, the two former dry well areas (34-07 and 20-08) were added to Site 1. Because the extent of PCB contamination was significantly greater than identified in the 1995 ROD, the Navy started a re-evaluation of remedial alternatives to address the deeper PCB-contaminated soils.

This evaluation included the current understanding regarding the nature and extent of Site 1 contamination, and a CSM that outlined contamination boundaries for PCBs at depth intervals of 0 to 2 feet bgs, 2 to 15 feet bgs, 15 to 25 feet bgs, and greater than 25 feet bgs (Tetra Tech, 2008). These boundaries were produced with the available data set and mapping software that projected the isoconcentration boundaries for PCBs in Site 1 soils. Where limited or no data existed, dashed lines were used to present the extrapolated or inferred isoconcentration boundaries at those depth intervals. This graphically produced the areas of the known PCB contamination and where analytical data gaps existed.

The current data set was compiled by searching through historical documents for relevant soil sampling for PCBs and analytical results from the historical sampling events at Site 1. This current data set was compared with the data set used to complete the isoconcentration boundaries presented in the Technical Memorandum produced by the “Tiger Team” in September 2008. A list of relevant documents that provided additional analytical data or confirmed previous data for PCBs in the new current data set are listed below.

DATE	REPORT
1993	Phase 2 Remedial Investigation
1995 December	Site 1 Pre-Excavation Sampling Results Draft Report
1996	Pre-Excavation Sampling Results and an Estimate on Construction
2000 September	Plant 3 Drywells 20-08 and 34-07 Site Characterization Report

DATE	REPORT
2008 September	Technical Memorandum for Evaluating Soil Remediation Technologies Site 1 (Summary of pre-existing data)
2011 July	Interim Data Summary Report and SAP Addendum PCB Investigation Site 1

3.2 REVISED ISOCONCENTRATION CONTOURS

Sampling activities conducted in 2009 and 2010 were used to refine the vertical extent of PCB-contaminated soils in the Site 1 source areas. Isoconcentration contours for surficial soils (0 to 2 feet bgs) were bounded at 1 mg/kg (1 ppm), and for subsurface soils (greater than 2 feet bgs) were bounded at 10 mg/kg (10 ppm).

Figures 3-1 through 3-4 make up the current isoconcentration contours for PCB-contaminated soils at Site 1. Figure 3-1 shows the revised isoconcentration contours for PCB concentrations for depths of 0 to 2 feet bgs (surficial soils). The dashed isoconcentration lines on these figures indicate the identified data gaps in the isoconcentration contours due to insufficient or lack of analytical data at that depth interval. The highest area of known PCB contamination (concentrations of PCBs exceeding 500 mg/kg) is around boring BPFWS1SB004 (near center of Site 1). Soil boring BPS13006 was advanced in 2010 to confirm the vertical extent of PCBs in this area. There were two other areas of high PCB concentrations in surficial soils located around borings BPFWS1SB024 and BPFWS1SB006 (located in the northern portion of Site 1). These areas had PCB concentrations ranging from 50 mg/kg to 500 mg/kg. Data gaps mainly exist between 1 mg/kg to 10 mg/kg for the surficial soils, along the eastern boundary and west boundary. A total of 25 sampling locations are proposed to address the observed data gaps as presented on Figure 3-1.

Figure 3-2 shows the current isoconcentration contours for PCB concentrations above 10 mg/kg for depths of 2 to 15 feet bgs. Again, the dashed contour lines indicate data gaps at this depth. PCB contamination exceeding 500 mg/kg are located around borings BPFWS1SB014 (just north of the center of Site 1) and BPFWS1SB1034 (north of boring BPFWS1SB014). PCB concentrations ranging from 50 mg/kg to 500 mg/kg surround these two borings. PCBs present between 50 mg/kg to 500 mg/kg are bounded by soil boring BPFWS1SB030 in the southeast corner of Site 1, soil boring BPFWS1SB004 near the center of Site 1, soil boring BPFWS1SB023 in the northwest corner of Site 1, and soil borings BPFWS1SB073, BPFWS1SB1039 and BPFWS1SB1016 in the north and northeast portions of Site 1. Data gaps have been identified in the 10 mg/kg to 25 mg/kg isoconcentration boundaries in the center and northern portion of Site 1, along with the south and eastern site boundaries. A total of 17 sampling locations are proposed to address the observed data gaps as presented on Figure 3-2.

Figure 3-3 shows the current isoconcentration contours for PCB above 10 mg/kg for depths ranging from 15 to 25 feet bgs. PCB contamination exceeding 500 mg/kg are located around soil borings BPFWS1SB015 (northwest of the center of Site 1) and BPFWS1SB012A (south of soil boring BPFWS1SB015). PCB contamination in the range of 50 mg/kg to 500 mg/kg surround both of these areas, as well as around soil boring BPFWS1SB008 (just north of the center of Site 1). PCB contamination around boring BPFWS1SB008 stretches from southeast of this boring to BPFWS1SB073 and BPFWS1SB1033 and to the northwest to soil boring BPFWS1SB1002. A data gap area around soil boring BPFWS1SB1015 in the northeast corner of Site 1 was also observed. Soil Boring BPS13006 was advanced in 2010 to confirm the vertical extent of the high PCB contamination near boring BPFWS1SB012A. PCBs were not detected in soil boring BPS13006 below 50 to 52 feet bgs, where PCBs were identified in BPFWS1SB012A at 48 mg/kg below 50 to 52 feet bgs. A total of 5 sampling locations are proposed to address the observed data gaps as presented on Figure 3-3.

Figure 3-4 shows the revised isoconcentration contours for PCB concentrations above 10 mg/kg for depths greater than 25 feet bgs. PCB contamination exceeding concentrations of 500 mg/kg are located around borings BPFWS1SB012A (center of Site 1) and Dry Well 20-08 (northwest corner of Site 1). Soil borings BPS13006 and BPS13008 were completed in 2010 to confirm the vertical extent of PCBs in these areas of deeper PCB contamination and confirmed the vertical extent of PCB contamination in this area. PCB contamination ranging between 50 mg/kg to 500 mg/kg surround these areas of deeper contamination, as well as a large band spanning from near the center of Site 1 (around boring BPFWS1SB008A) to north of Site 1 (around boring BPFWS1SB1040). Soil boring BPS13005 was located within the area of PCB contamination ranging from 50 mg/kg to 500 mg/kg, and confirmed this contour boundary with a maximum detected concentration of 160 mg/kg at a depth of 55 feet bgs. Soil boring BPS13004 was advanced outside the 10 mg/kg contour due to limited rig access. Therefore, the vertical extent of PCBs in this area could not be confirmed or defined. A total of 8 sampling locations are proposed to address the observed data gaps as presented on Figure 3-4.

PCB contamination was identified below the water table to an approximate maximum depth of 62 feet bgs. The table below summarizes the maximum PCB concentrations detected in soils at or below the water table (depths of 50 feet bgs or greater).

Soil Boring	Sample Depth (feet bgs)	Detected Concentration (mg/kg)
BPFWS1SB1040	50	72
BPFWS1SB006A	52	252
BPFWS1SB008A	52	57
BPFWS1SB017A	52	82
BPFWS1SB1002	54	240

BPS13005	55	160
BPS13005	58	110
BPFWS1SB1034	60	130
BPFWS1SB1013	62	310

Based on the current data set, a total of 162 samples have been collected and analyzed for PCBs from depths of 50 to 250 feet bgs around the PCB source areas. PCBs were not detected at concentrations above 10 mg/kg in 150 of these samples.

Figures 3-5 and 3-6 present the isoconcentration contours for the existing PCB-contaminated soils at Dry Well 34-07. Figure 3-5 details the PCB contamination around Dry Well 34-07 at depths of 2 to 15 feet bgs for concentrations ranging from 10 to 500 mg/kg. PCB concentrations ranging from 50 mg/kg to 500 mg/kg are found between soil borings BPDW34SB03 and BPDW34SB10. PCB concentrations greater than 10 mg/kg extend from the newly installed soil boring BPS13009 to borings BPDW34SB09 and BPDW34SB12. One soil boring is proposed to address the observed data gap near Dry Well 34-07 from 2 to 15 feet bgs (Figure 3-5).

Figure 3-6 depicts the PCB isoconcentration contours around Dry Well 34-07 at depths greater than 25 feet bgs. PCB-contaminated soils greater than 500 mg/kg are located around soil borings BPDW34SB10, BPDW34SB04, and BPDW34SB12. PCB concentrations greater than 10 mg/kg surround this higher area of contamination, which is bound by soil borings BPDW34SB15, BPDW34SB16, and BPDW34SB17. The dashed lines shown on the east and west contours indicate data gaps in these areas. Two soil borings are proposed to address the data gaps observed near Dry Well 34-07 deeper than 25 bgs (Figure 3-6).

Figure 3-7 shows the PCB isoconcentration contours around Dry-Well 20-08 at depths greater than 25 feet bgs. PCB-contaminated soils greater than 500 mg/kg (ppm) surround soil borings BPDW20SB01, BPDW20SB05, and BPDW20SB08. PCB concentrations greater than 10 mg/kg surround this area of contamination, but data gaps exist in this boundary as indicated by the dashed contour lines. Soil boring BPS13008 was installed in 2010 to confirm the vertical extent of PCBs in this area; however, PCBs were not found below 52 to 54 feet bgs. Two soil borings are proposed to address the deeper data gaps observed near Dry Well 28-08 (Figure 3-7).

4.0 CONCLUSIONS AND RECOMMENDATIONS

Based on the evaluation of PCB-contaminated soils at Site 1 presented in Section 3, additional soil samples are needed in select areas to address the identified data gaps observed in the evaluation. Data gaps were observed both vertically and horizontally in and around the PCB source areas. This additional delineation of PCB-contaminated soils is needed to support remedial alternative evaluations for Site 1.

4.1 RECOMMENDATIONS

Based on the revised isoconcentration contours for PCB-contaminated soils at intervals of 0 to 2 feet bgs, 2 to 15 feet bgs, 15 to 25 feet bgs, and greater than 25 feet bgs, the proposed soil borings for PCB delineation are provided in Table 4-1 and presented on Figures 4-1, 4-2, and 4-3. Approximately 25 surface soil samples will be collected by hand auguring to further define the surficial concentrations of PCBs in soil. Twenty-three soil borings will also be advanced via direct push technology (DPT), hollow stem auger (HSA), or rotary drilling methods to address the deeper data gaps observed in Site 1 soils. Soil samples will be collected and analyzed for PCBs at the designated sample intervals presented on Table 4-1. The primary objective of this soil investigation is to fill the observed data gaps and adequately delineate the extent of PCB-contaminated soils to support source area remedial evaluations.

The soil sampling will be conducted in accordance with the original SAP (Tetra Tech, 2010) which provides all references, methods, procedures, and SOPs. Additional soil samples may be collected if analytical results indicate additional step out locations are required to adequately define the extent of PCB-contaminated soils at Site 1.

PCB Soil Investigation

The soil investigation will include three phases of fieldwork. The first phase will include hand auguring to collect surficial soil samples at all data gap locations from 0 to 2 feet bgs. The second phase will include soil borings advanced via DPT to collect samples deeper than 2 feet bgs and if required, step out surficial soil samples will also be collected based on the first phase results. The third phase (if required) will include a second round of DPT borings or other appropriate drilling technique (i.e., hollow stem auger) if DPT cannot obtain the deeper samples needed for PCB delineation.

On-site field PCB screening and laboratory analysis will be used for PCB delineation. Table 4-1 presents the soil borings and sampling summary including depths and sample nomenclature for each of the proposed samples. Subsurface soil samples will be collected in five-foot intervals at the designated depths determined at each of the boring locations. If the PCB field screening or laboratory results indicate PCBs are greater than 1 mg/kg for surficial soils or greater than 10 mg/kg for subsurface soils, step out locations may be collected to adequately define the PCB-impacted soils.

Field Quality Control Samples

Field Quality Control (QC) samples will be collected during the soil investigation, including field duplicates, trip blanks, source blanks, and equipment rinsate blanks. The field QC samples will be collected in accordance with the final SAP (Tetra Tech, 2010). Also, additional sample volume will be collected as necessary for the laboratory QC analysis of matrix spike/matrix spike duplicate (MS/MSD) analyses.

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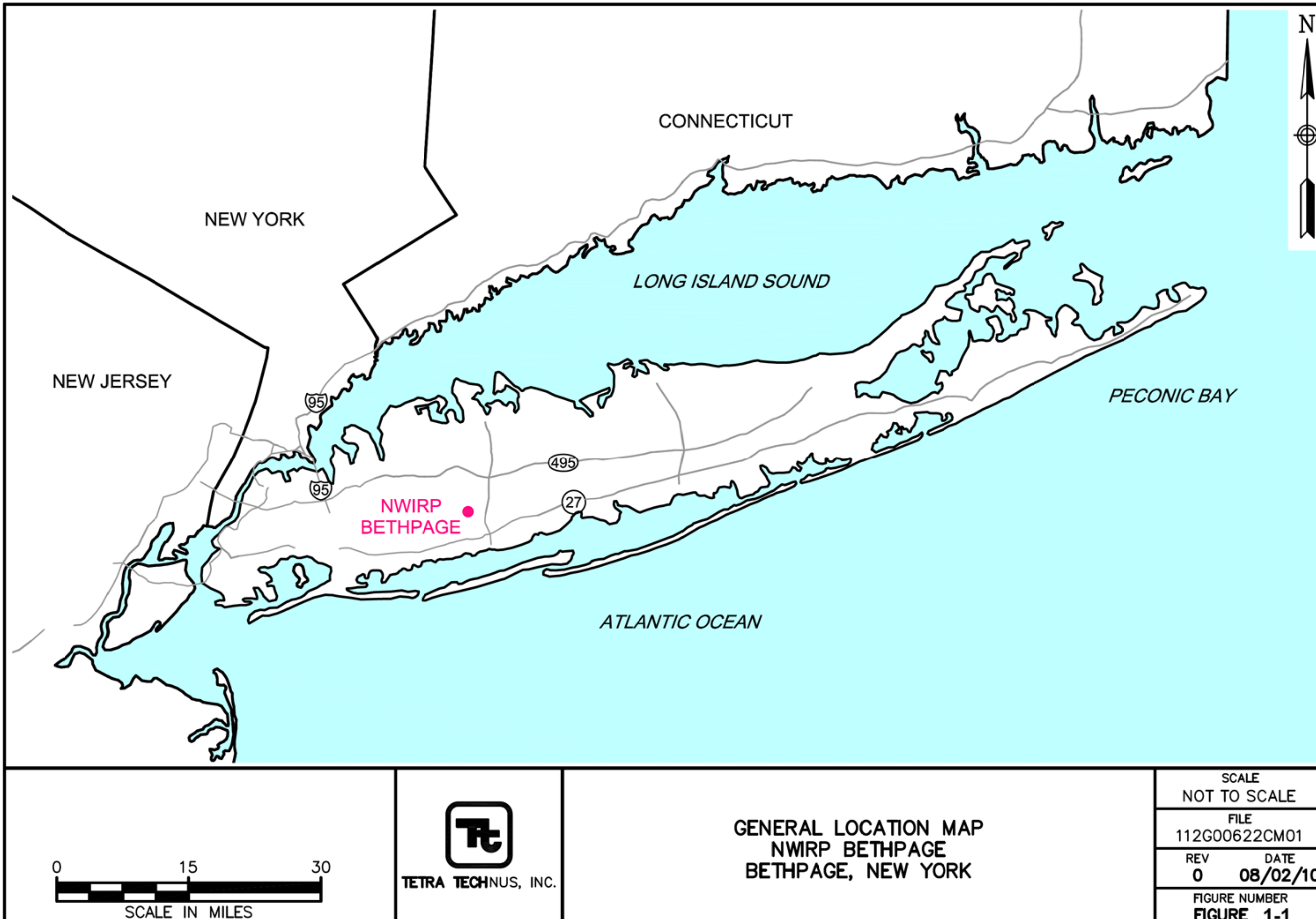
FIGURES

112G00622\0510\112G00622CM01.DWG 08/02/10 MKB



TETRA TECH NUS, INC.

GENERAL LOCATION MAP
NWIRP BETHPAGE
BETHPAGE, NEW YORK

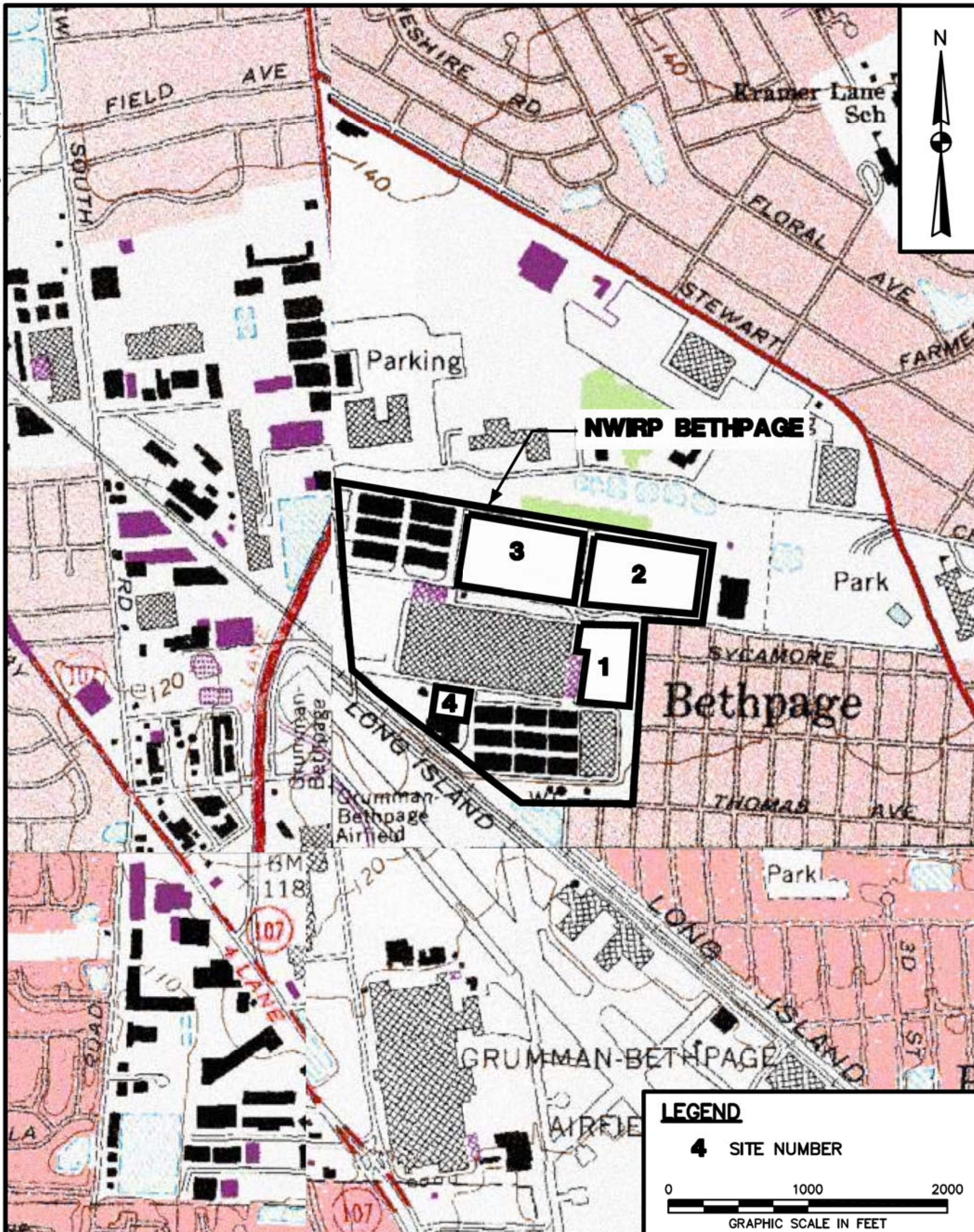
SCALE
NOT TO SCALE

FILE
112G00622CM01

REV	DATE
0	08/02/10

FIGURE NUMBER
FIGURE 1-1

ACAD: 0804CM02.dwg 06/13/07 MF PIT



DRAWN BY MF / DATE 6/13/07	Tetra Tech NUS, Inc.	SITE LOCATION MAP SITE 1 NWIRP BETHPAGE BETHPAGE, NEW YORK	CONTRACT NO. 0804
CHECKED BY / DATE			OWNER NO.
REVISED BY / DATE			APPROVED BY / DATE
SCALE AS NOTED			DRAWING NO. FIGURE 1-2 / REV. 0

FORM CADD NO. TTNUS-AV.DWG - REV 1 -9/10/98

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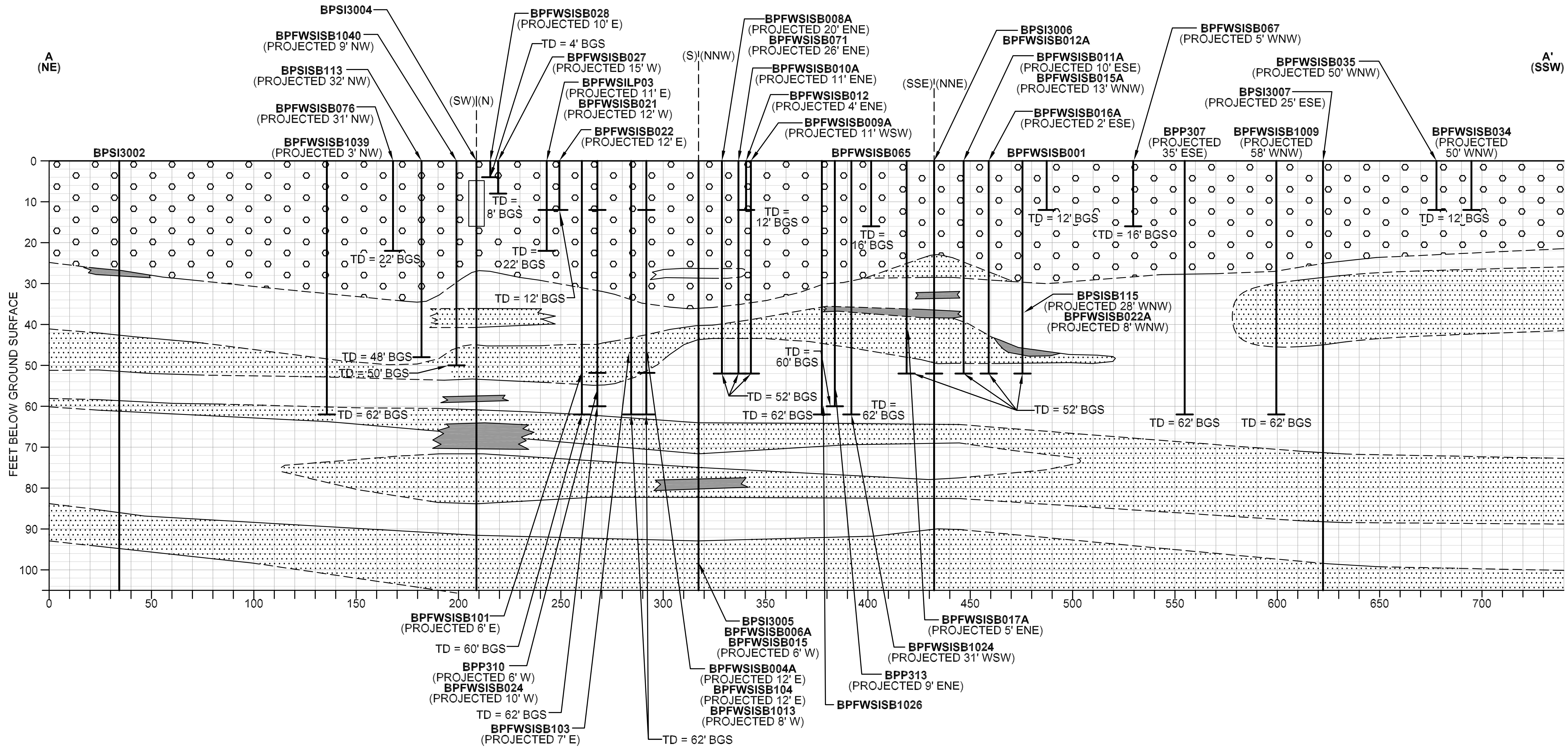
P:\GIS files\Bethpage\MAP DOCS\MXD\Bethpage Site1 pcb site1 pcb 0-2 plan feb202012.mxd MMC 05082012
N
Dry Well 20-08
A
A'
B
B'
C
C'
D
D'
E
E'
BPS13004
BPS13005
BPS13006
BPS13007
BPS13008
BPS13001
BPDW20SB01
BPDW20SB05
BPDW20SB06
BPDW20SB07
BPDW20SB08
BPDW20SB13
BPDW20SB14
BPDW20SB02
BPFWS1SB1030
BPFWS1SB1005
BPFWS1SB1039
BPFWS1SB1040
BPFWS1SB1015
BPFWS1SB1025
BPS1SB111
BPS1SB112
BPS1SB103
BPS1SB104
BPS1SB123
BPP305
BPP306
BPP307
BPP308
BPP309
BPP310
BPP311
BPP312
BPP313
Legend
Dry Well
2010 Soil Boring
Soil Boring
Site Boundary
Fence Line
0
50
100
Feet
TETRA TECH
CROSS SECTION
LOCATION MAP
NWIRP BETHPAGE
BETHPAGE, NEW YORK
FILE
112G02230
SCALE
AS NOTED
FIGURE NO.
2-2
REV
DATE
5/8/12



LEGEND

	SAND AND GRAVEL
	F-C SAND
	SILTY VF-F SAND
	CLAY, CLAYEY SILT, OR SANDY CLAY
BPFWSISB027	SOIL BORING
(PROJECTED 19' W)	PROJECTED DISTANCE AND DIRECTION
	GROUND SURFACE (APPROXIMATED TO BE FLAT)
	CLAY LENS (FEW INCHES)
TD = 12' BGS	TOTAL DEPTH (BGS) BELOW GROUND SURFACE

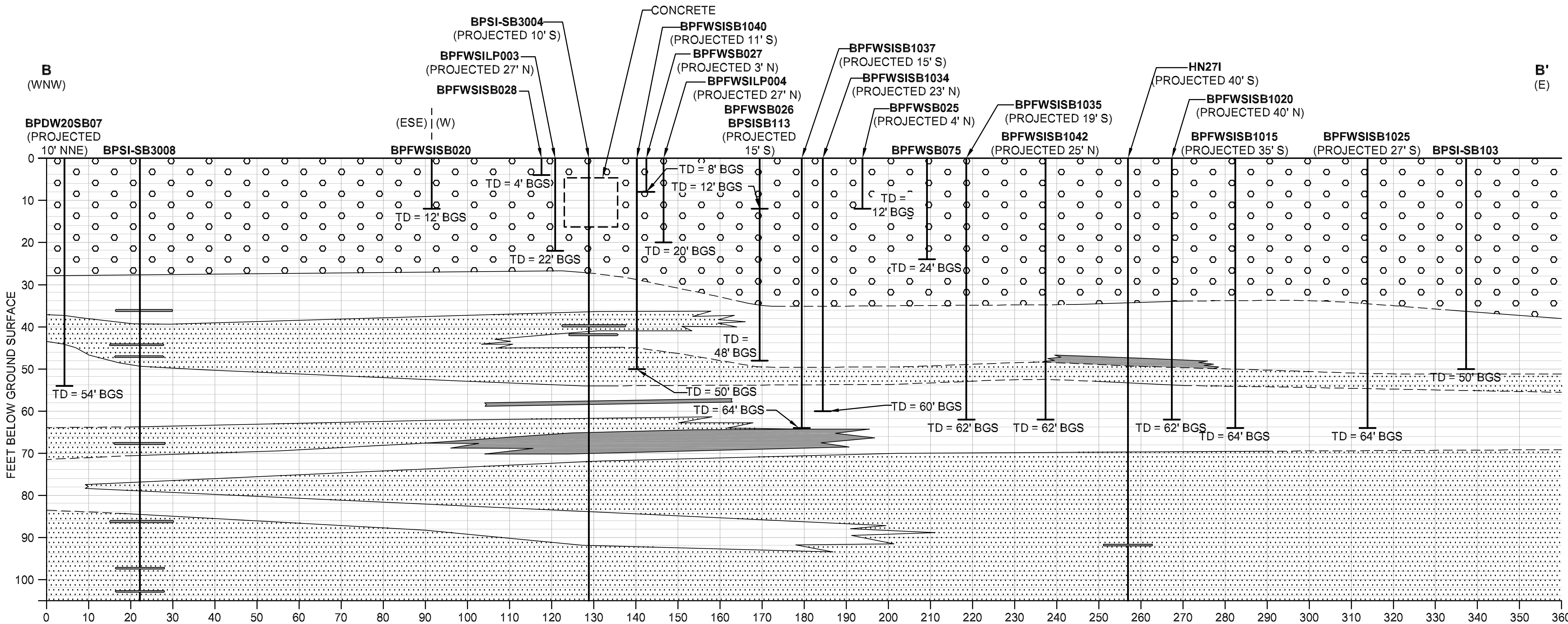
50 25 0
VERTICAL SCALE IN FEET

0 50 100
SCALE IN FEET

TETRA TECH

GEOLOGIC CROSS SECTION A – A'
SITE 1 – FORMER DRUM MARSHALLING AREA
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

FILE	SCALE
112G01041GS11-1	AS NOTED
FIGURE NUMBER: FIGURE 2-3	REV 0 / DATE 04/26/12



LEGEND

SAND AND GRAVEL

F-C SAND

SILTY VF-F SAND

CLAY, CLAYEY SILT, OR SANDY CLAY

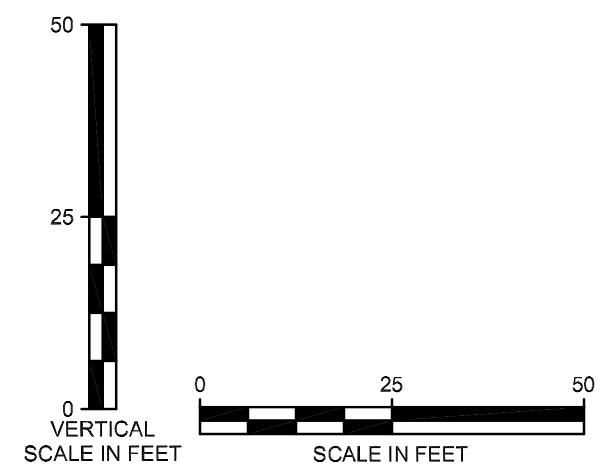
BPSISB113 SOIL BORING

(PROJECTED 25' N) PROJECTED DISTANCE AND DIRECTION

GROUND SURFACE (APPROXIMATED TO BE FLAT)

CLAY LENS (FEW INCHES)

TD = 48' BGS TOTAL DEPTH (BGS) BELOW GROUND SURFACE

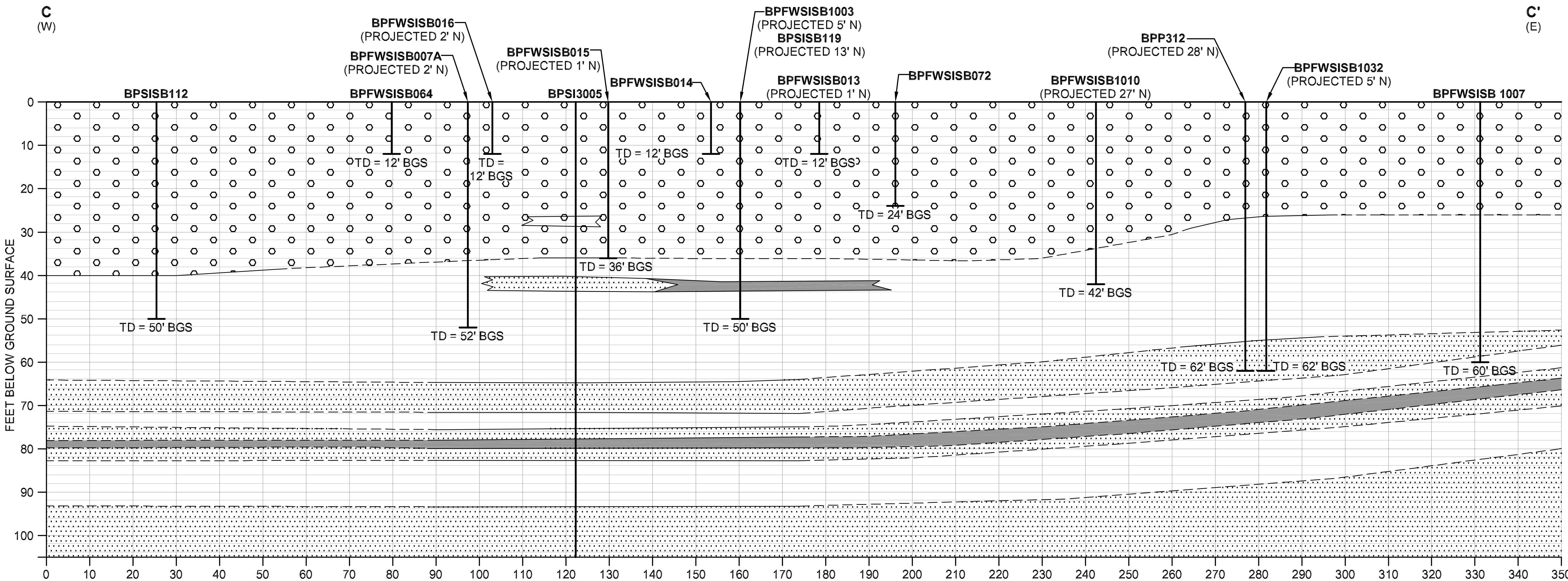


TETRA TECH

GEOLOGIC CROSS SECTION B – B'
SITE 1 – FORMER DRUM
MARSHALLING AREA
NAVAL WEAPONS INDUSTRIAL
RESERVE PLANT
BETHPAGE, NEW YORK

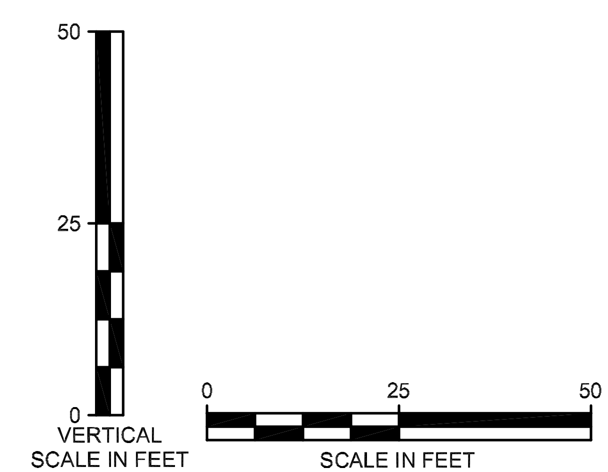
FILE 112G01041GS07–1	SCALE AS NOTED
FIGURE NUMBER FIGURE 2–4	REV 0 DATE 05/04/12

112G01041/0275/112G01041GS08-1.DWG 05/04/12 MKB



LEGEND

	SAND AND GRAVEL
	F-C SAND
	SILTY VF-F SAND
	CLAY, CLAYEY SILT, OR SANDY CLAY
BPFWSISB015	SOIL BORING
(PROJECTED 1' N)	PROJECTED DISTANCE AND DIRECTION
	GROUND SURFACE (APPROXIMATED TO BE FLAT)
	CLAY LENS (FEW INCHES)
TD = 12' BGS	TOTAL DEPTH (BGS) BELOW GROUND SURFACE

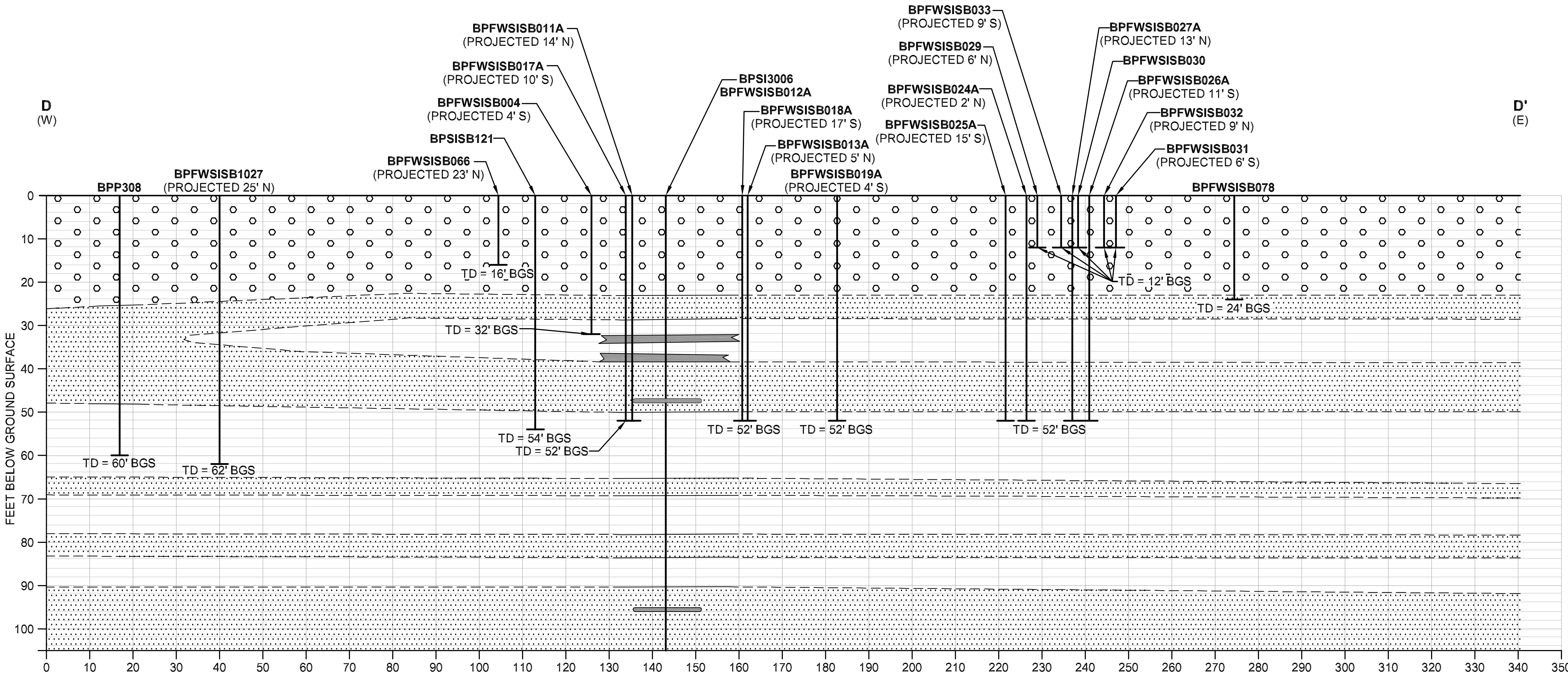


TETRA TECH

GEOLOGIC CROSS SECTION C – C'
SITE 1 – FORMER DRUM MARSHALLING AREA
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

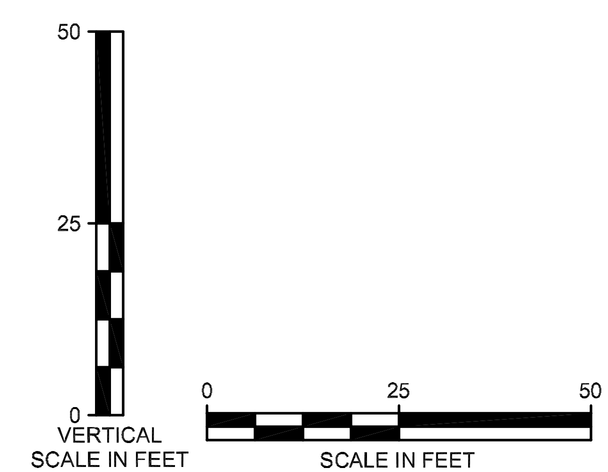
FILE	SCALE
112G01041GS08–1	AS NOTED
FIGURE NUMBER: FIGURE 2–5	REV: 0 DATE: 05/04/12

112G01041/0275/112G01041GS09-1.DWG 05/04/12 MKB



LEGEND

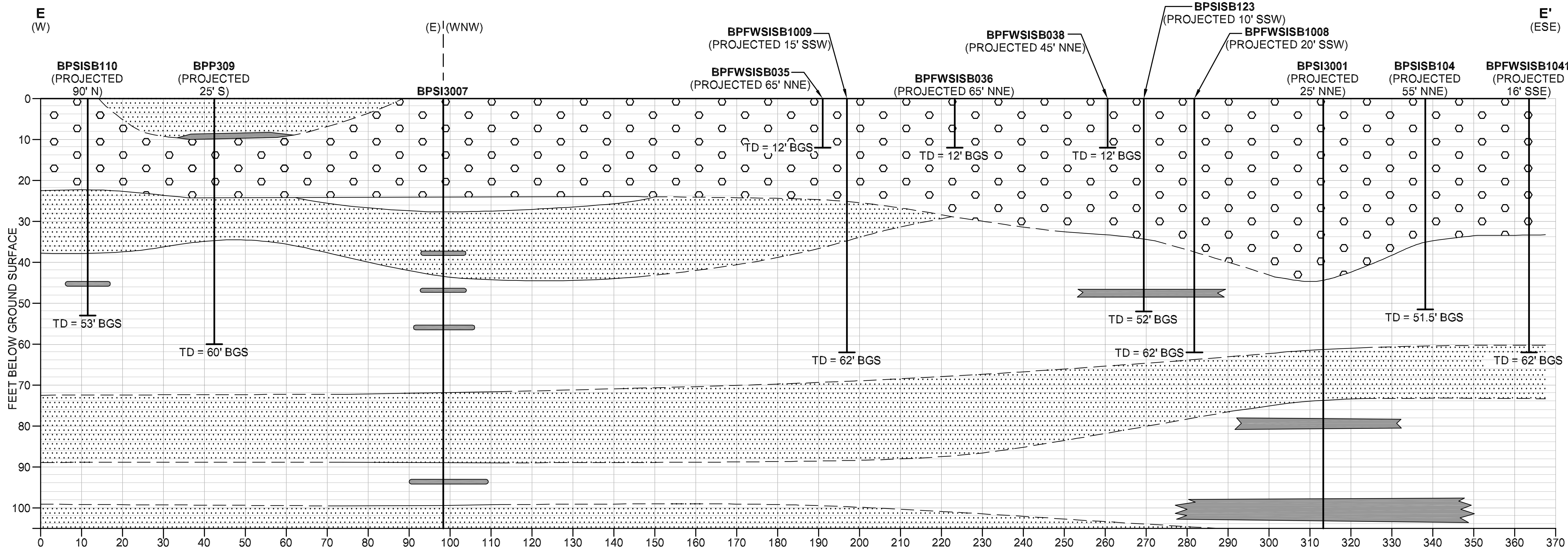
- SAND AND GRAVEL
- F-C SAND
- SILTY VF-F SAND
- CLAY, CLAYEY SILT, OR SANDY CLAY
- **BPFWSISB011A** SOIL BORING
- (PROJECTED 14' N) PROJECTED DISTANCE AND DIRECTION
- GROUND SURFACE (APPROXIMATED TO BE FLAT)
- CLAY LENS (FEW INCHES)
- TD = 12' BGS TOTAL DEPTH (BGS) BELOW GROUND SURFACE



TETRA TECH

GEOLOGIC CROSS SECTION D – D'
SITE 1 – FORMER DRUM MARSHALLING AREA
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

FILE	SCALE
112G01041GS09-1	AS NOTED
FIGURE NUMBER: FIGURE 2-6	REV: 0 DATE: 05/04/12



LEGEND

SAND AND GRAVEL

F-C SAND

SILTY VF-F SAND

CLAY, CLAYEY SILT, OR SANDY CLAY

BPFWSISB035 SOIL BORING

(PROJECTED 41' N) PROJECTED DISTANCE AND DIRECTION

GROUND SURFACE (APPROXIMATED TO BE FLAT)

CLAY LENS (FEW INCHES)

TD = 52' BGS TOTAL DEPTH (BGS) BELOW GROUND SURFACE

50 25 0
VERTICAL SCALE IN FEET

0 25 50
SCALE IN FEET

TETRA TECH

GEOLOGIC CROSS SECTION E – E'
SITE 1 – FORMER DRUM MARSHALLING AREA
NAVAL WEAPONS INDUSTRIAL RESERVE PLANT
BETHPAGE, NEW YORK

FILE	SCALE
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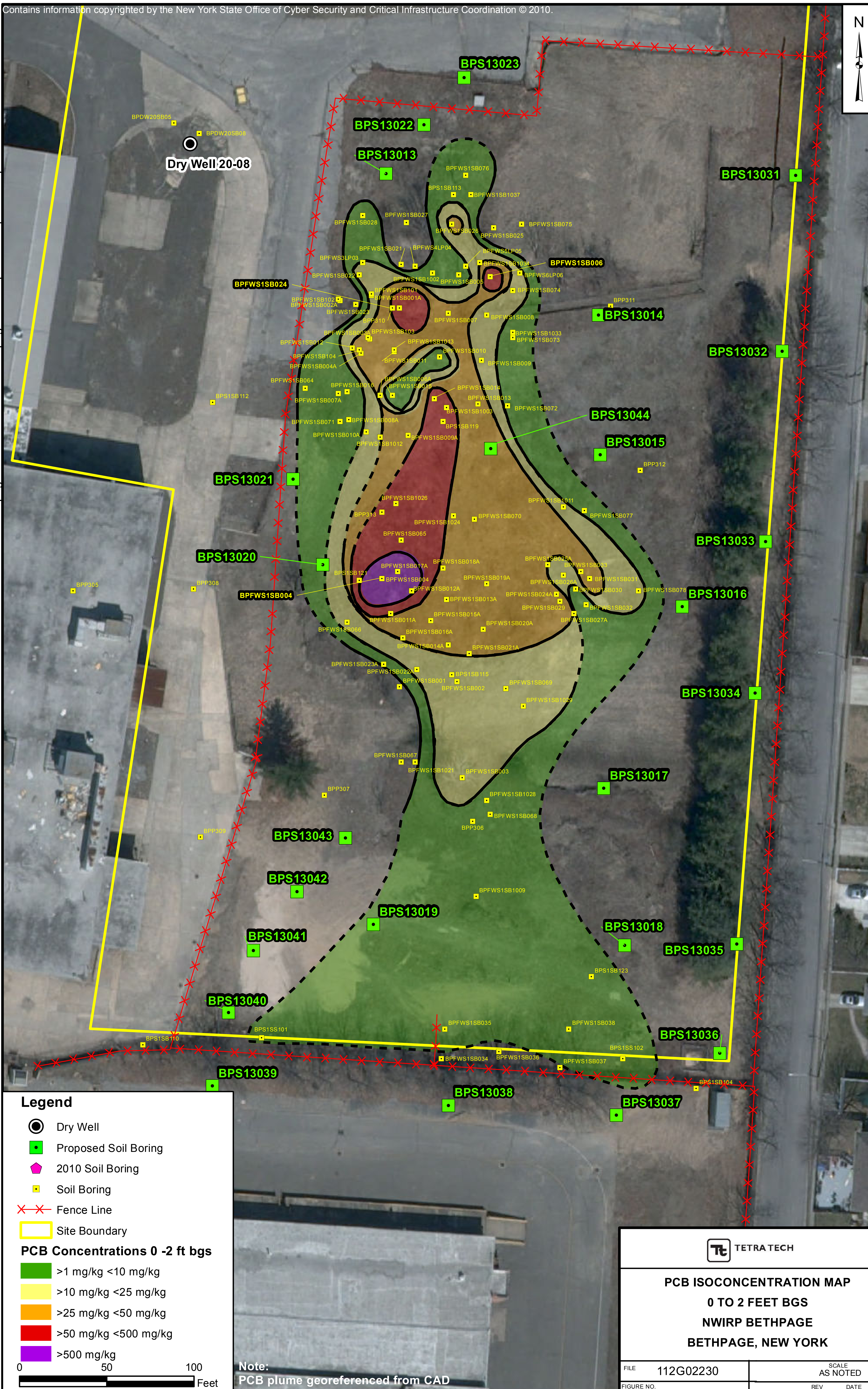
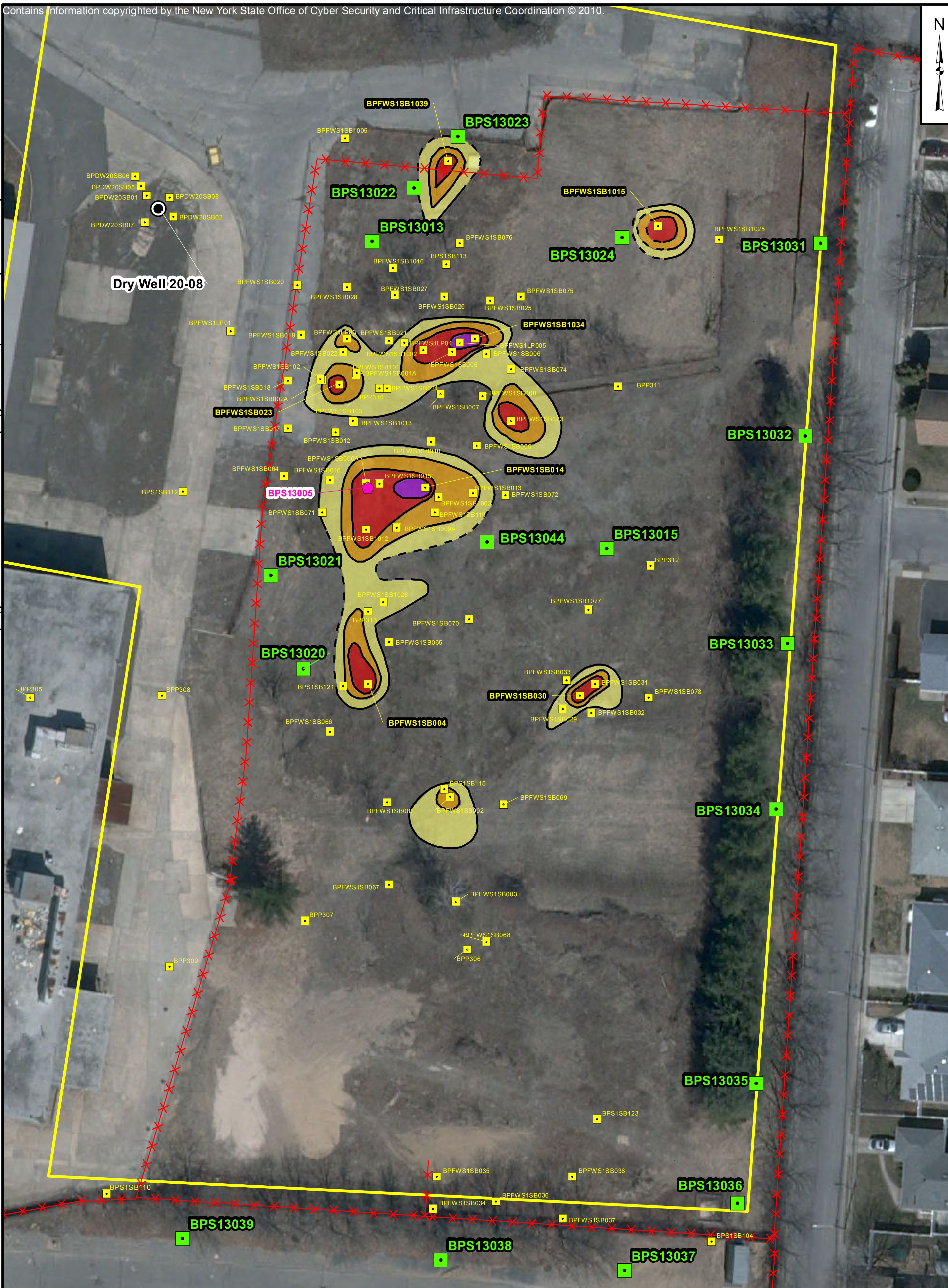
FIGURE NUMBER: FIGURE 2-7	REV 0 / DATE 05/04/12



PCB ISOCONCENTRATION MAP
0 TO 2 FEET BGS
NWIRP BETHPAGE
BETHPAGE, NEW YORK

FILE 112G02230	SCALE AS NOTED
FIGURE NO. 3-1	REV / DATE 5/9/12



Legend

Dry Well		**PCB Concentrations 2 to 15 ft bgs**	
Proposed Soil Boring		>10 mg/kg <25 mg/kg	
2010 Soil Boring		>25 mg/kg <50 mg/kg	
Soil Boring		>50 mg/kg <500 mg/kg	
Fence Line		>500 mg/kg	
Site Boundary			

0 50 100 Feet

TETRA TECH

PCB ISOCONCENTRATION MAP
2 TO 15 FEET BGS
NWIRP BETHPAGE
BETHPAGE, NEW YORK

FILE	112G02230	SCALE	AS NOTED
FIGURE NO.	3-2	REV	DATE 5/9/12

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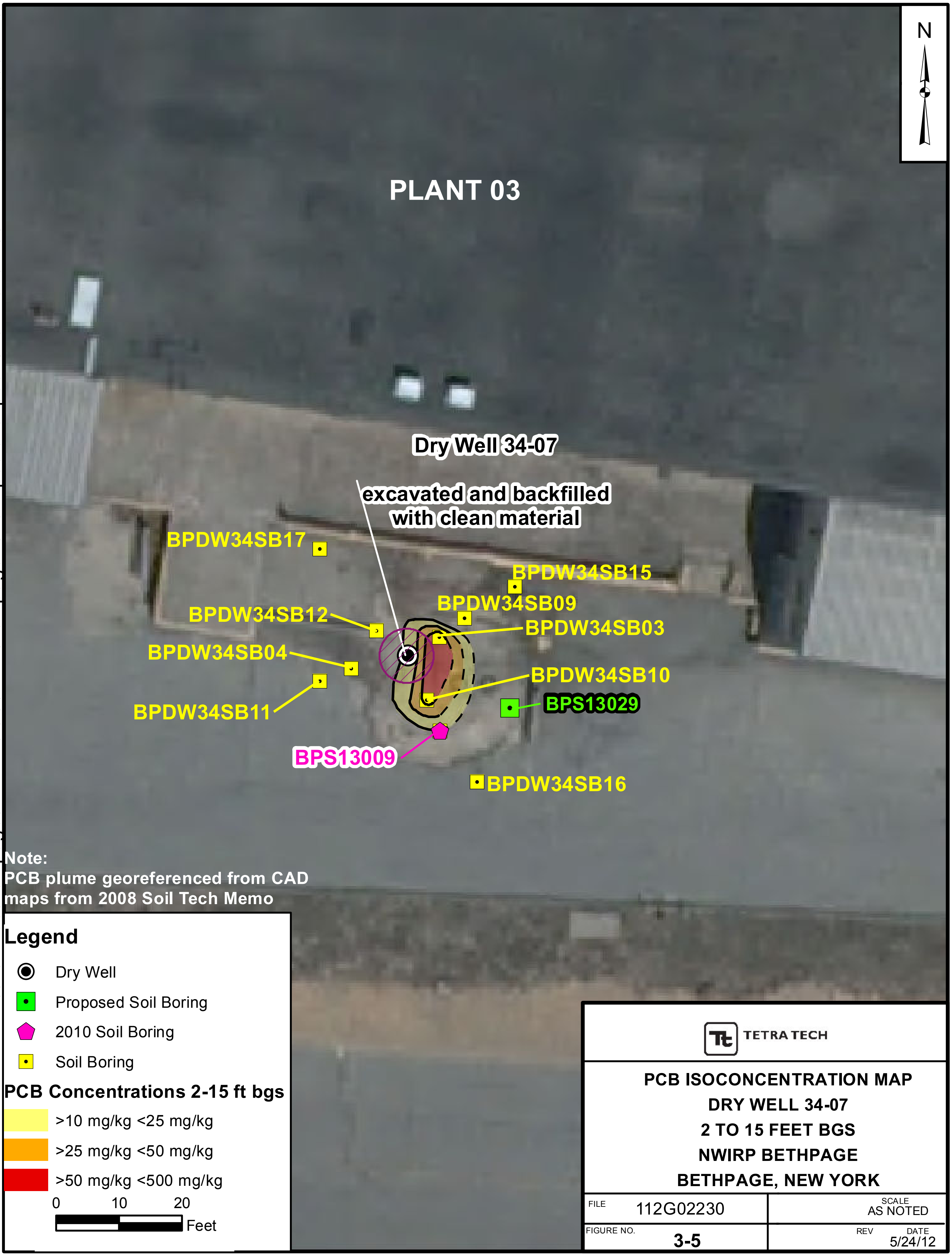
TETRA TECH

PCB ISOCONCENTRATION MAP
GREATER THAN 25 FEET BGS
NWIRP BETHPAGE
BETHPAGE, NEW YORK

FILE	112G02230	SCALE	AS NOTED
FIGURE NO.	3-4	REV	DATE 5/3/12



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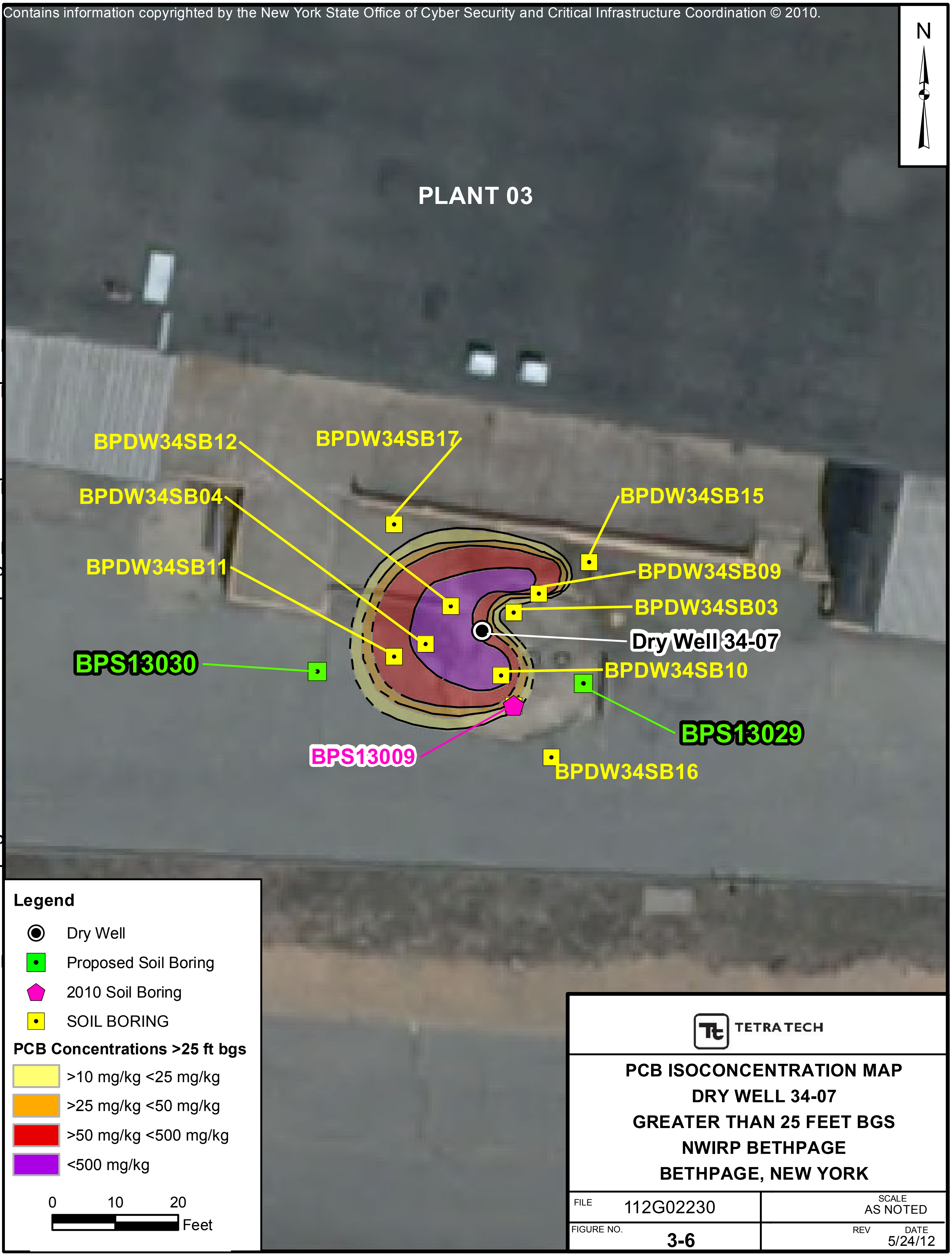

TETRA TECH

PCB ISOCONCENTRATION MAP
DRY WELL 34-07
GREATER THAN 25 FEET BGS
NWIRP BETHPAGE
BETHPAGE, NEW YORK

FILE	112G02230	SCALE	AS NOTED
FIGURE NO.	3-6	REV	DATE 5/24/12

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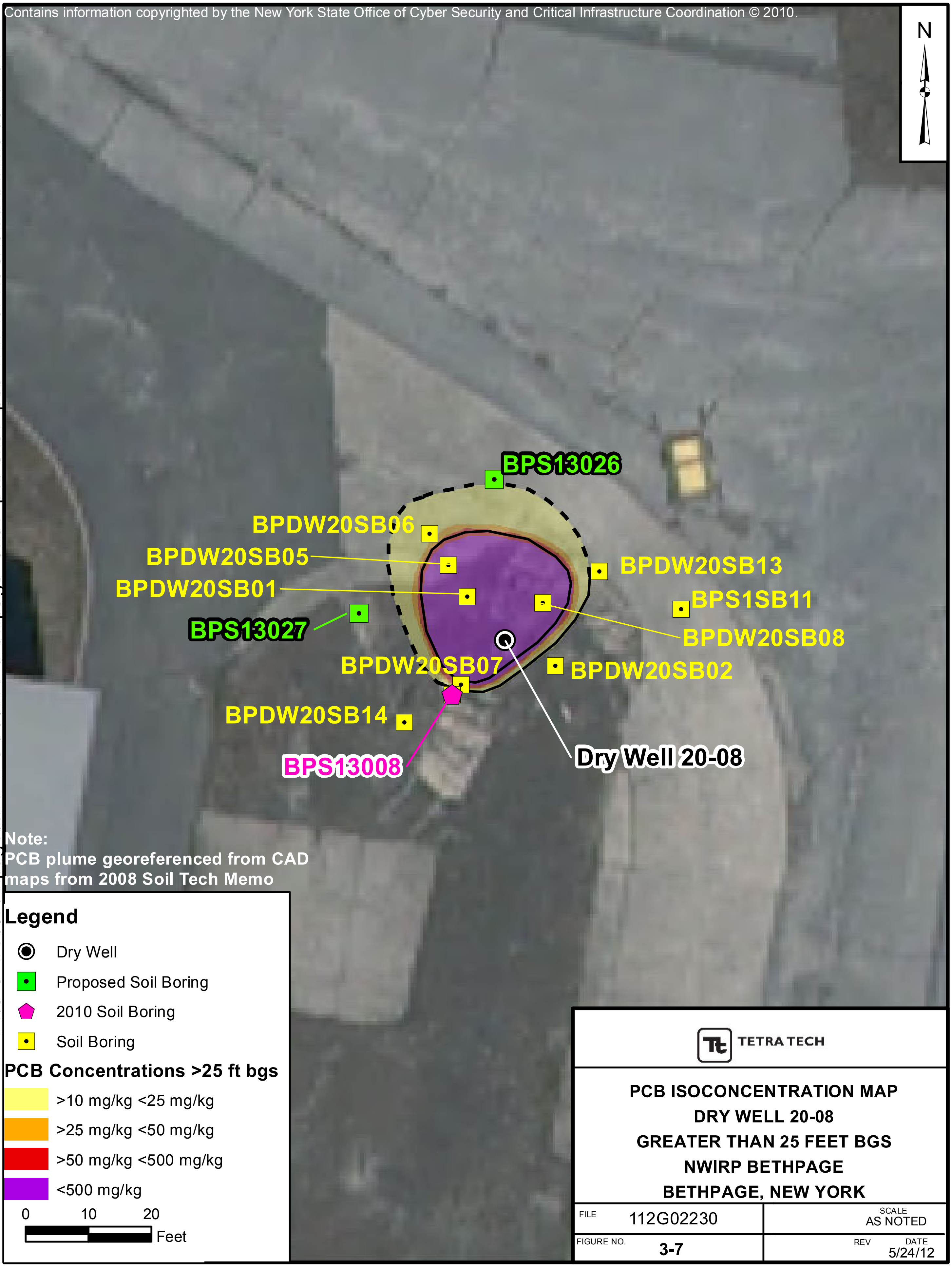
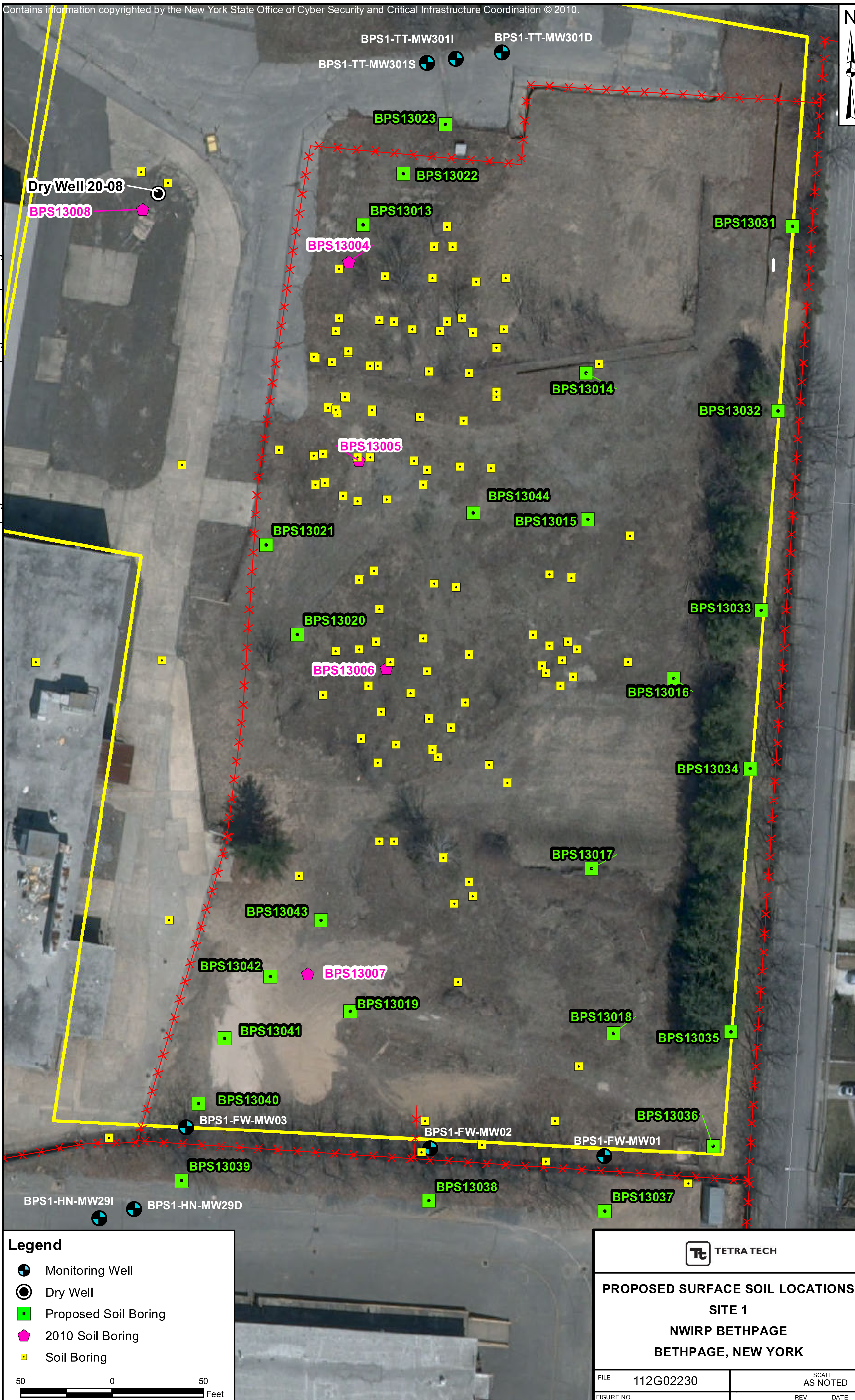


TETRA TECH

PCB ISOCONCENTRATION MAP
DRY WELL 20-08
GREATER THAN 25 FEET BGS
NWIRP BETHPAGE
BETHPAGE, NEW YORK

FILE 112G02230	SCALE AS NOTED
FIGURE NO. 3-7	REV DATE 5/24/12



TETRA TECH

PROPOSED SURFACE SOIL LOCATIONS
SITE 1
NWIRP BETHPAGE
BETHPAGE, NEW YORK

FILE 112G02230	SCALE AS NOTED
FIGURE NO. 4-1	REV DATE 5/24/12

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TETRA TECH

PROPOSED SOIL BORING LOCATIONS
SITE 1
NWIRP BETHPAGE
BETHPAGE, NEW YORK

FILE	112G02230	SCALE	AS NOTED
FIGURE NO.	4-2	REV / DATE	5/24/12

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TETRA TECH

DRY WELL 34-07
PROPOSED SOIL BORING LOCATIONS
NWIRP BETHPAGE
BETHPAGE, NEW YORK

FILE	112G02230	SCALE	AS NOTED
FIGURE NO.	4-3	REV	DATE 5/3/12

P:\GIS files\Bethpage\MAP DOCS\MXD\Bethpage Site1 pcb site1pcb 3407 letter.mxd mmc 05242012

TABLES

TABLE 4-1
PROPOSED SOIL BORINGS AND SAMPLING SUMMARY
SITE 1 - FORMER DRUM MARSHALLING AREA
NWIRP BETHPAGE, NEW YORK

Sampling Location	Sample ID	Depth (feet bgs)	Analysis	Sampling Rational
BPS1-SB3013	BPS1-SB3013-0002	0 – 2	PCBs	Surficial soils - boundary data gap location
	BPS1-SB3013-0205	2 - 5		2-15 feet zone data gap location
	BPS1-SB3013-0510	5 - 10		2-15 feet zone data gap location
	BPS1-SB3013-1015	10 - 15		2-15 feet zone data gap location
	BPS1-SB3013-2535	25 - 35		Site 1 deeper data gap location
	BPS1-SB3013-3545	35 - 45		Site 1 deeper data gap location
	BPS1-SB3013-4555	45 - 55		Site 1 deeper data gap location
	BPS1-SB3013-5565	55 - 65		Site 1 deeper data gap location
	BPS1-SB3013-6575	65 - 75		Site 1 deeper data gap location
BPS1-SB3014	BPS1-SB3014-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
BPS1-SB3015	BPS1-SB3015-0002	0 - 2	PCBs	2-15 feet zone data gap location
	BPS1-SB3015-0205	2 - 5		2-15 feet zone data gap location
	BPS1-SB3015-0510	5 - 10		2-15 feet zone data gap location
	BPS1-SB3015-1015	10 - 15		2-15 feet zone data gap location
BPS1-SB3016	BPS1-SB3016-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
BPS1-SB3017	BPS1-SB3017-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
BPS1-SB3018	BPS1-SB3018-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
BPS1-SB3019	BPS1-SB3019-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
BPS1-SB3020	BPS1-SB3021-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
	BPS1-SB3021-0205	2 - 5		2-15 feet zone data gap location
	BPS1-SB3021-0510	5 - 10		2-15 feet zone data gap location
	BPS1-SB3021-1015	10 - 15		2-15 feet zone data gap location
	BPS1-SB3021-1520	15 - 20		Site 1 deeper data gap location
	BPS1-SB3021-2025	20 - 25		Site 1 deeper data gap location
	BPS1-SB3021-2535	25 - 35		Site 1 deeper data gap location
	BPS1-SB3021-3545	35 - 45		Site 1 deeper data gap location
	BPS1-SB3021-4555	45 - 55		Site 1 deeper data gap location
	BPS1-SB3021-5565	55 - 65		Site 1 deeper data gap location
	BPS1-SB3021-6575	65 - 75		Site 1 deeper data gap location
BPS1-SB3021	BPS1-SB3021-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
	BPS1-SB3021-0205	2 - 5		2-15 feet zone data gap location
	BPS1-SB3021-0510	5 - 10		2-15 feet zone data gap location
	BPS1-SB3021-1015	10 - 15		2-15 feet zone data gap location
	BPS1-SB3021-1520	15 - 20		Site 1 deeper data gap location
	BPS1-SB3021-2025	20 - 25		Site 1 deeper data gap location
	BPS1-SB3021-2535	25 - 35		Site 1 deeper data gap location
	BPS1-SB3021-3545	35 - 45		Site 1 deeper data gap location
	BPS1-SB3021-4555	45 - 55		Site 1 deeper data gap location
	BPS1-SB3021-5565	55 - 65		Site 1 deeper data gap location
	BPS1-SB3021-6575	65 - 75		Site 1 deeper data gap location
BPS1-SB3022	BPS1-SB3022-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
	BPS1-SB3022-0205	2 - 5		2-15 feet zone data gap location
	BPS1-SB3022-0510	5 - 10		2-15 feet zone data gap location
	BPS1-SB3022-1015	10 - 15		2-15 feet zone data gap location
	BPS1-SB3022-1520	15 - 20		Site 1 deeper data gap location
	BPS1-SB3022-2025	20 - 25		Site 1 deeper data gap location
	BPS1-SB3022-2535	25 - 35		Site 1 deeper data gap location
	BPS1-SB3022-3545	35 - 45		Site 1 deeper data gap location
	BPS1-SB3022-4555	45 - 55		Site 1 deeper data gap location
	BPS1-SB3022-5565	55 - 65		Site 1 deeper data gap location
	BPS1-SB3022-6575	65 - 75		Site 1 deeper data gap location
BPS1-SB3023	BPS1-SB3023-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
	BPS1-SB3023-0205	2 - 5		2-15 feet zone data gap location
	BPS1-SB3023-0510	5 - 10		2-15 feet zone data gap location
	BPS1-SB3023-1015	10 - 15		2-15 feet zone data gap location
BPS1-SB3024	BPS1-SB3024-0205	2 - 5	PCBs	2-25 feet zone data gap location
	BPS1-SB3024-0510	5 - 10		2-25 feet zone data gap location
	BPS1-SB3024-1015	10 - 15		2-25 feet zone data gap location
	BPS1-SB3024-1520	15 - 20		2-25 feet zone data gap location
	BPS1-SB3024-2025	20 - 25		2-25 feet zone data gap location
BPS1-SB3025	BPS1-SB3025-2535	25 - 35	PCBs	Site 1 deeper data gap location
	BPS1-SB3025-3545	35 - 45		Site 1 deeper data gap location
	BPS1-SB3025-4555	45 - 55		Site 1 deeper data gap location
	BPS1-SB3025-5565	55 - 65		Site 1 deeper data gap location
	BPS1-SB3025-6575	65 - 75		Site 1 deeper data gap location
BPS1-SB3026	BPS1-SB3026-2535	25 - 35	PCBs	Data gaps near Dry Well 28-08
	BPS1-SB3026-3545	35 - 45		Data gaps near Dry Well 28-08
	BPS1-SB3026-4555	45 - 55		Data gaps near Dry Well 28-08
	BPS1-SB3026-5565	55 - 65		Data gaps near Dry Well 28-08
	BPS1-SB3026-6575	65 - 75		Data gaps near Dry Well 28-08

TABLE 4-1
PROPOSED SOIL BORINGS AND SAMPLING SUMMARY
SITE 1 - FORMER DRUM MARSHALLING AREA
NWIRP BETHPAGE, NEW YORK

Sampling Location	Sample ID	Depth (feet bgs)	Analysis	Sampling Rational
BPS1-SB3027	BPS1-SB3027-2535	25 - 35	PCBs	Data gaps near Dry Well 28-08
	BPS1-SB3027-3545	35 - 45		Data gaps near Dry Well 28-08
	BPS1-SB3027-4555	45 - 55		Data gaps near Dry Well 28-08
	BPS1-SB3027-5565	55 - 65		Data gaps near Dry Well 28-08
	BPS1-SB3027-6575	65 - 75		Data gaps near Dry Well 28-08
BPS1-SB3028	BPS1-SB3028-2535	25 - 35	PCBs	Site 1 deeper data gap location
	BPS1-SB3028-3545	35 - 45		Site 1 deeper data gap location
	BPS1-SB3028-4555	45 - 55		Site 1 deeper data gap location
	BPS1-SB3028-5565	55 - 65		Site 1 deeper data gap location
	BPS1-SB3028-6575	65 - 75		Site 1 deeper data gap location
BPS1-SB3029	BPS1-SB3029-0205	2 - 5	PCBs	Data gaps near Dry Well 34-07
	BPS1-SB3029-0510	5 - 10		Data gaps near Dry Well 34-07
	BPS1-SB3029-1015	10 - 15		Data gaps near Dry Well 34-07
	BPS1-SB3029-1520	15 - 20		Data gaps near Dry Well 34-07
	BPS1-SB3029-2025	20 - 25		Data gaps near Dry Well 34-07
	BPS1-SB3029-2535	25 - 35		Data gaps near Dry Well 34-07
	BPS1-SB3029-3545	35 - 45		Data gaps near Dry Well 34-07
	BPS1-SB3029-4555	45 - 55		Data gaps near Dry Well 34-07
	BPS1-SB3029-5565	55 - 65		Data gaps near Dry Well 34-07
	BPS1-SB3029-6575	65 - 75		Data gaps near Dry Well 34-07
BPS1-SB3030	BPS1-SB3030-2535	25 - 35	PCBs	Data gaps near Dry Well 34-07
	BPS1-SB3030-3545	35 - 45		Data gaps near Dry Well 34-07
	BPS1-SB3030-4555	45 - 55		Data gaps near Dry Well 34-07
	BPS1-SB3030-5565	55 - 65		Data gaps near Dry Well 34-07
	BPS1-SB3030-6575	65 - 75		Data gaps near Dry Well 34-07
BPS1-SB3031	BPS1-SB3031-0002	0 - 2	PCBs	Eastern fenceline data gap location
	BPS1-SB3031-0205	2 - 5		Eastern fenceline data gap location
	BPS1-SB3031-0510	5 - 10		Eastern fenceline data gap location
	BPS1-SB3031-1015	10 - 15		Eastern fenceline data gap location
BPS1-SB3032	BPS1-SB3032-0002	0 - 2	PCBs	Eastern fenceline data gap location
	BPS1-SB3032-0205	2 - 5		Eastern fenceline data gap location
	BPS1-SB3032-0510	5 - 10		Eastern fenceline data gap location
	BPS1-SB3032-1015	10 - 15		Eastern fenceline data gap location
BPS1-SB3033	BPS1-SB3033-0002	0 - 2	PCBs	Eastern fenceline data gap location
	BPS1-SB3033-0205	2 - 5		Eastern fenceline data gap location
	BPS1-SB3033-0510	5 - 10		Eastern fenceline data gap location
	BPS1-SB3033-1015	10 - 15		Eastern fenceline data gap location
BPS1-SB3034	BPS1-SB3034-0002	0 - 2	PCBs	Eastern fenceline data gap location
	BPS1-SB3034-0205	2 - 5		Eastern fenceline data gap location
	BPS1-SB3034-0510	5 - 10		Eastern fenceline data gap location
	BPS1-SB3034-1015	10 - 15		Eastern fenceline data gap location
BPS1-SB3035	BPS1-SB3035-0002	0 - 2	PCBs	Eastern fenceline data gap location
	BPS1-SB3035-0205	2 - 5		Eastern fenceline data gap location
	BPS1-SB3035-0510	5 - 10		Eastern fenceline data gap location
	BPS1-SB3035-1015	10 - 15		Eastern fenceline data gap location
BPS1-SB3036	BPS1-SB3036-0002	0 - 2	PCBs	Eastern fenceline data gap location
	BPS1-SB3036-0205	2 - 5		Eastern fenceline data gap location
	BPS1-SB3036-0510	5 - 10		Eastern fenceline data gap location
	BPS1-SB3036-1015	10 - 15		Eastern fenceline data gap location
BPS1-SB3037	BPS1-SB3037-0002	0 - 2	PCBs	Site 1 southern boundary location
	BPS1-SB3037-0205	2 - 5		Site 1 southern boundary location
	BPS1-SB3037-0510	5 - 10		Site 1 southern boundary location
	BPS1-SB3037-1015	10 - 15		Site 1 southern boundary location
BPS1-SB3038	BPS1-SB3038-0002	0 - 2	PCBs	Site 1 southern boundary location
	BPS1-SB3038-0205	2 - 5		Site 1 southern boundary location
	BPS1-SB3038-0510	5 - 10		Site 1 southern boundary location
	BPS1-SB3038-1015	10 - 15		Site 1 southern boundary location
BPS1-SB3039	BPS1-SB3039-0002	0 - 2	PCBs	Site 1 southern boundary location
	BPS1-SB3039-0205	2 - 5		Site 1 southern boundary location
	BPS1-SB3039-0510	5 - 10		Site 1 southern boundary location
	BPS1-SB3039-1015	10 - 15		Site 1 southern boundary location
BPS1-SB3040	BPS1-SB3040-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
BPS1-SB3041	BPS1-SB3041-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
BPS1-SB3042	BPS1-SB3042-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
BPS1-SB3043	BPS1-SB3043-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
BPS1-SB3044	BPS1-SB3044-0002	0 - 2	PCBs	Surficial soils - boundary data gap location
	BPS1-SB3044-0205	2 - 5		2-15 feet zone data gap location
	BPS1-SB3044-0510	5 - 10		2-15 feet zone data gap location
	BPS1-SB3044-1015	10 - 15		2-15 feet zone data gap location

Notes:
bgs - below ground surface
PCBs - Polychlorinated biphenyls
Primarily disposable equipment will be used for soil sampling. Equipment rinsate blanks will only be collected if and when non-disposable or non-dedicated equipment is used for sampling.
Field duplicates will be collected at rate of 1 per 10 samples (or 10%)