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NAS BRUNSWICK
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LETTER OF TRANSMITTAL AND PROPOSED DIRECT PUSH INVESTIGATION LETTER REPORT FOR OLD NAVY FUEL FARM NAS BRUNSWICK ME
5/13/2010
ECC

LETTER OF TRANSMITTAL

ECC
33 Boston Post Road West
Suite 340
Marlborough, MA 01752
Tel: (508) 229-2270
Fax: (508) 229-7737

TO: U.S. Department of Navy

BRAC PMO Northeast

4911 South Broad Street

Philiadephia, PA 19112-1303

DATE: 13 MAY 2010	JOB NO.: 5561.004
ATTENTION: Todd Bober, RPM and Paul Burgio, BEC	
RE: Proposed Direct-Push Investigation	
Old Navy Fuel Farm	
Naval Air Station Brunswick, Maine	

WE ARE SENDING YOU [X] Attached [ ] Under separate cover via _____ the following items:

[ ] Shop drawings [ ] Prints [ ] Plans [ ] Samples [ ] Specifications

[ ] Copy of letter [ ] Change order [ ] _____

COPIES	DATE	DESCRIPTION
1	May 2010	PROPOSED DIRECT-PUSH INVESTIGATION OLD NAVY FUEL FARM NAVAL AIR STATION BRUNSWICK, MAINE

THESE ARE TRANSMITTED as checked below:

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REMARKS: For review and comment.

COPY TO: C. Sait and C. Evans, MEDEP (2)
M. Daly, EPA (1)
C. Lepage, Lepage Environmental (1)
D. McTigue, Gannet Flemming (1)
L. Joy and M. Fagan, NASB (1)
D. Barclift, B. Capito NAVFAC (2)
L. Klink, J. Orient, TtNUS (2)
C. Race, TtNUS (1)
C. Guido, ECC (1)
J. Good, ECOR (1)

SIGNED Gina Calderone CPG, PG
Titles Project Manager/Hydrogeologist

Al Easterday, PG
Sr. Project Manager

If enclosures are not as noted, kindly notify us at once.

DEPARTMENT OF THE NAVY
BASE REALIGNMENT AND CLOSURE
PROGRAM MANAGEMENT OFFICE, NORTHEAST
4911 SOUTH BROAD STREET
PHILADELPHIA, PA 19112-1303

BPMO NE/TB
Ser 10-121
May 11, 2010

Ms. Claudia Sait
Remedial Project Manager
Maine Department of Environmental Protection (MEDEP)
Bureau of Remediation and Waste Management
17 State House Station
Augusta, ME 04333-0017

Dear Ms. Sait:

Enclosed you will find the Proposed Direct-Push Investigation, Old Navy Fuel Farm, Naval Air Station Brunswick, Maine. This proposal is provided for your review and comment.

If you have any questions or comments, please contact the Navy's Remedial Project Manager, Todd Bober at (215) 897-4911.

Sincerely,

David Drozd
Director

Enclosure:
Proposed Direct-Push Investigation, Old Navy Fuel Farm, NAS Brunswick, ME

Copy to:
USEPA (M. Daly)
MEDEP (C. Evans)
Gannet-Fleming (D. McTigue)
NASB (L. Joy, M. Fagan)
Lepage Environmental (C. Lepage)
NAVFAC MIDLANT (T. Bober)
NAVFAC ATLANTIC (J. Wright, B. Capito)
TtNUS (L. Klink, C. Race, J. Orient)
ECC (A. Easterday, G. Calderone, C. Guido)
ECOR (J. Good)

Copy to: (w/o encl)
BRAC PMO NE (P. Burgio)
NAVFAC ATLANTIC (D. Barclift)
BACSE (E. Benedikt, C. Warren)
CO NASB (CAPT Fitzgerald)
RAB Brunswick Representative (S. Johnson)
RAB Harpswell Representative (D. Chipman)
RAB Topsham Representative (S. Libby)
MRRA (V. Boundy)

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13 May 2010

Ms. Claudia Sait
Remedial Project Manager
Maine Department of Environmental Protection
Bureau of Remediation and Waste Management
17 State House Station
Augusta, ME 04333-0017

SUBJECT: Proposed Direct-Push Investigation
Old Navy Fuel Farm
Naval Air Station Brunswick, Maine

Dear Ms. Sait:

This letter provides the proposed scope of work for a direct-push investigation at the Old Navy Fuel Farm, Naval Air Station Brunswick, Maine. The goals of the proposed direct-push investigation include:

1. Assess residual soil and groundwater conditions at petroleum release areas approximately ten years after the Foster Wheeler Environmental Corporation (FWEC) remedial excavation (Fall 2000);

2. Compare petroleum impacts to Maine Department of Environmental Protection (MEDEP) remedial guidelines using the Massachusetts Department of Environmental Protection's (MADEP) petroleum hydrocarbon fraction analytical methods for Volatile Petroleum Hydrocarbons (VPH) and Extractable Petroleum Hydrocarbons (EPH); and,

3. Determine if a shallow groundwater divide is present at the north side of the Old Navy Fuel Farm near monitoring well MW-NASB-062.

To provide specific target areas for the direct-push investigation, ECC, with input from MEDEP, evaluated historic petroleum bulk storage features and environmental data for the Old Navy Fuel Farm.

Background

Prior to decommissioning in 1993, the Old Navy Fuel Farm consisted of two separate petroleum bulk storage tank farms that, together, included nine mounded underground storage tanks (USTs). The UST areas were enclosed within six-inch concrete secondary containment barriers. The locations of historic petroleum bulk storage USTs and appurtenances relative to historic groundwater impacts are shown on Figure 1.

The older, western tank farm included five USTs, previously identified as Tank 101 (T-101) through Tank 105 (T-105). USTs T-101 through Tank 103 (T-103) were 100,000-gallon (gal) capacity tanks used for storage of petroleum sludge, unleaded gasoline, and aviation gasoline, respectively. These USTs were taken out of service prior to April

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1990. USTs Tank 104 (T-104) and Tank 105 (T-105) were 25,000-gal capacity tanks used for ethylene glycol storage.

The newer, eastern fuel farm included four USTs, previously identified as Tank 202 (T-202) through Tank 205 (T-205). USTs T-202 through T-205 were 567,000-gal capacity tanks used for storage of JP-5, a jet fuel. JP-5 is a low-volatility, kerosene based (C_{10}-C_{19} range) jet fuel with a relatively high flash point designed for safety during marine (naval) use. Anti-icing, anti-oxidant, and anti-corrosion additives are required in the formulation of JP-5. The eastern tank farm USTs, piping, and associated appurtenances were removed during facility decommissioning in 1993.

Utilizing the available environmental site investigation and groundwater monitoring data, ECC prepared figures showing interpreted sorbed-phase and dissolved-phase total petroleum hydrocarbon (TPH) concentration isopleths. Figure 2 shows the pre-excavation sorbed-phase TPH isopleths based on a direct-push investigation completed by EA Engineering, Science, & Technology (EA) in January 2000 and supplemental test-pit investigations completed by Foster Wheeler Energy Corporation in August 2000.

Figure 3 provides interpreted dissolved-phase TPH concentration isopleths based on groundwater samples collected from well points installed by EA in 1996 and from both existing and decommissioned monitoring wells. The concentrations shown on Figure 3 include total petroleum hydrocarbons-diesel range organics (TPH-DRO) and total petroleum hydrocarbons-gasoline range organics (TPH-GRO) reported by MEDEP Methods 4.1.25 and 4.2.17, respectively. It should be noted that the dissolved-phase isopleths shown on Figure 3 represent conditions prior to remedial excavation in 2000. There is insufficient sampling data to evaluate present groundwater conditions within the Old Navy Fuel Farm. Detailed descriptions of the historic site investigation and groundwater monitoring data used to develop Figures 2 and 3 were provided in a letter submitted to MEDEP on 16 September 2008.

It is apparent that the TPH impacts shown on Figures 2 and 3 were most likely associated with multiple release areas at the Old Navy Fuel Farm. Figure 1 provides an overview of the dissolved-phase TPH isopleths relative to the historic petroleum bulk storage features. The two most significant release areas appear to be related to operations at the fueling islands near former Building 206 and to suspected product line leaks between historic USTs T-202 and T-203. Due to the high organic content of the overburden soils and relatively flat potentiometric surface it appears that the majority of the petroleum impacts remained near the historic release areas and have not migrated to any significant extent. This observation is supported by historic groundwater monitoring data collected from downgradient wells.

Direct-Push Investigation

To evaluate present day soil and groundwater conditions at the Old Navy Fuel Farm, it is proposed that 42 Geoprobe borings would be advanced to the top of the marine clay layer at approximately 10 feet below ground surface (bgs). The proposed Geoprobe boring locations are shown on Figure 4, together with the FWEC remedial excavation areas and pre-remedial dissolved-phase and sorbed-phase isopleths. The proposed scope allows for several additional borings, if necessary. A licensed surveyor would be utilized to locate the Geoprobe boring areas based on historic drawing files and existing site features. The final Geoprobe boring locations would be surveyed relative to existing monitoring wells.

At each boring, soil cuttings would be recovered in acetate liners and screened with a photo-ionization detector (PID) as well as by visual and olfactory inspection. Soil samples would be collected from the most impacted depth interval to evaluate residual sorbed-phase petroleum impacts at locations where field screening indicates potential contamination. Shallow groundwater samples would be collected at each boring location to provide data for development of dissolved-phase contaminant isopleths. The soil and groundwater samples would be submitted to an off-site laboratory for the following analyses:

- Volatile Petroleum Hydrocarbons (VPH) by MADEP VPH Method; and,
- Extractable Petroleum Hydrocarbons (EPH) by MADEP EPH Method.

In addition to the Geoprobe borings discussed above, the direct-push investigation would include installation, gauging, and sampling of three piezometers (identified as PZ-FF-1, PZ-FF-2, and PZ-FF-3) on Figure 4 north of the Old Navy Fuel Farm. Gauging measurements from the piezometers and nearby shallow monitoring wells would be used to evaluate the potential presence of a shallow groundwater divide in the vicinity of monitoring well MW-NASB-62. In addition, groundwater samples would be collected from the piezometers and analyzed for VPH and EPH by the MADEP methods.

Soil and groundwater sampling would be conducted in accordance with the standard procedures detailed in the MADEP VPH and EPH Methods, Revision 1.1 (MADEP, May 2004).

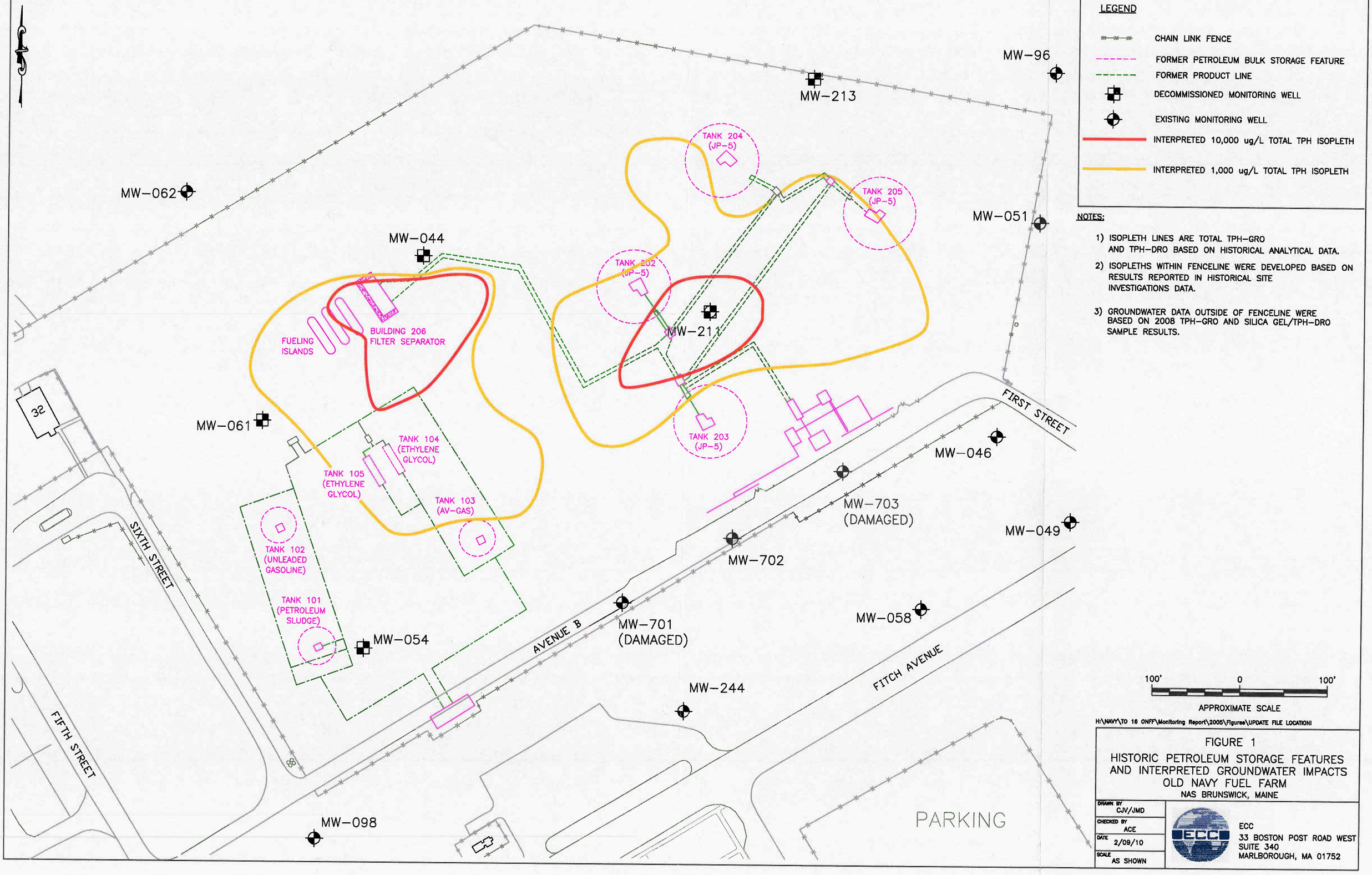
Following receipt of the analytical results, the Navy would prepare a site investigation report, including soil and groundwater data summary tables, an updated potentiometric surface map; VPH and EPH concentration isopleths, and an evaluation of residual petroleum impacts at the Old Navy Fuel Farm.

If you have any questions or comments, please do not hesitate to contact the Navy's Remedial Project Manager, Mr. Todd Bober at (215) 897-4911, or me at (508) 229-2270, Ext. 109.

Sincerely,
ECC

Alexander Easterday
Senior Project Manager

Copy to:
M. Daly, EPA
C. Evans, MEDEP
L. Joy, M. Fagan, NASB
D. Barclift, Atlantic NAVFAC
T. Bober, NAVFAC MIDLANT
P. Burgio, Navy BRAC PMO Northeast
C. Varner, ECC
J. Good, ECOR



LEGEND

- CHAIN LINK FENCE
- FORMER PETROLEUM BULK STORAGE FEATURE
- FORMER PRODUCT LINE
- DECOMMISSIONED MONITORING WELL
- EXISTING MONITORING WELL
- INTERPRETED 10,000 ug/L TOTAL TPH ISOPLETH
- INTERPRETED 1,000 ug/L TOTAL TPH ISOPLETH

NOTES:

1) ISOPLETH LINES ARE TOTAL TPH-GRO AND TPH-DRO BASED ON HISTORICAL ANALYTICAL DATA.
2) ISOPLETHS WITHIN FENCELINE WERE DEVELOPED BASED ON RESULTS REPORTED IN HISTORICAL SITE INVESTIGATIONS DATA.
3) GROUNDWATER DATA OUTSIDE OF FENCELINE WERE BASED ON 2008 TPH-GRO AND SILICA GEL/TPH-DRO SAMPLE RESULTS.

100' 0 100'

APPROXIMATE SCALE

H:\NAVY\TO 16 ONFF\Monitoring Report\2005\Figures\UPDATE FILE LOCATION\

FIGURE 1

HISTORIC PETROLEUM STORAGE FEATURES AND INTERPRETED GROUNDWATER IMPACTS OLD NAVY FUEL FARM

NAS BRUNSWICK, MAINE

DRAWN BY	CJV/JMD
CHECKED BY	ACE
DATE	2/09/10
SCALE	AS SHOWN

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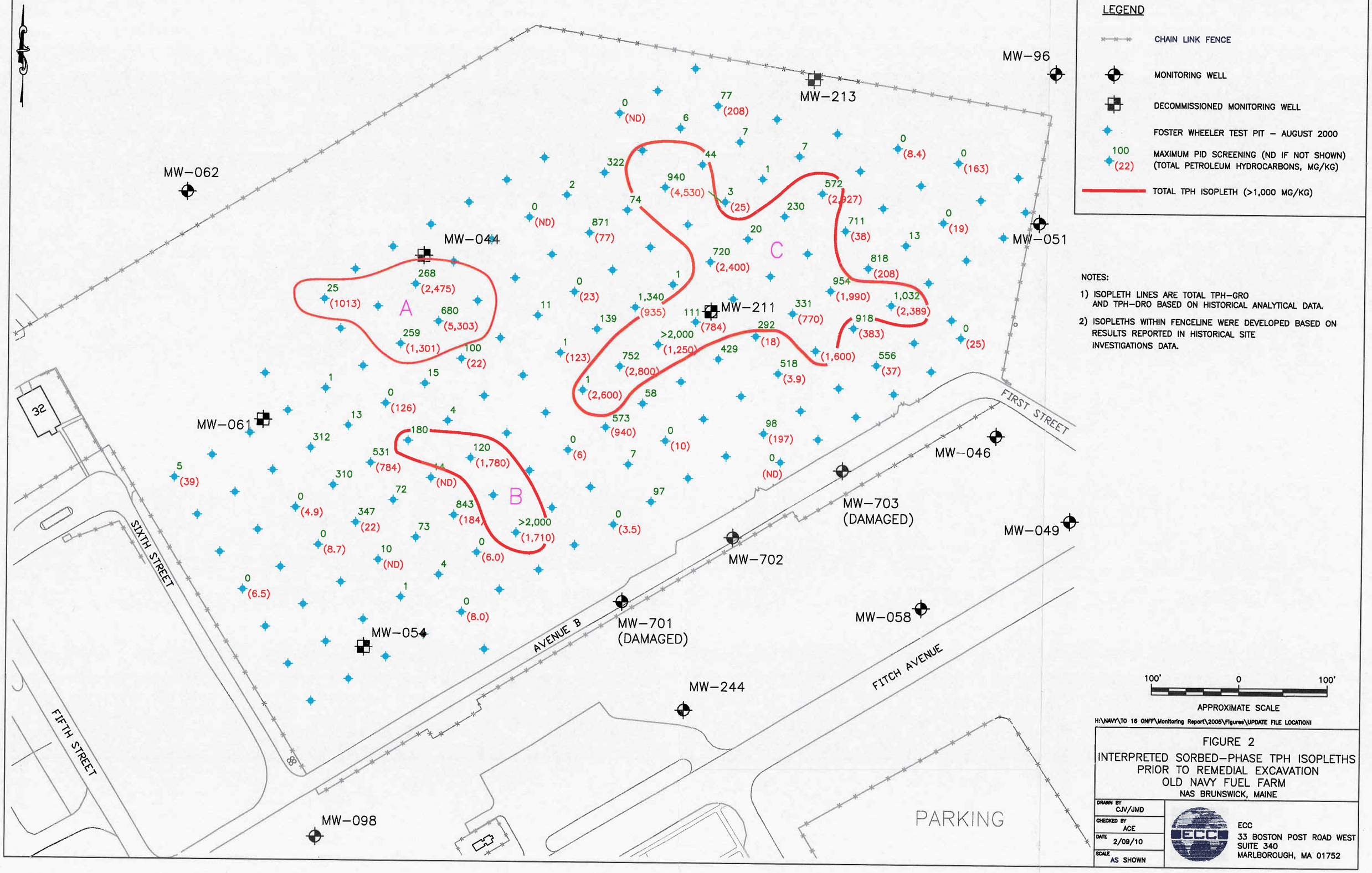
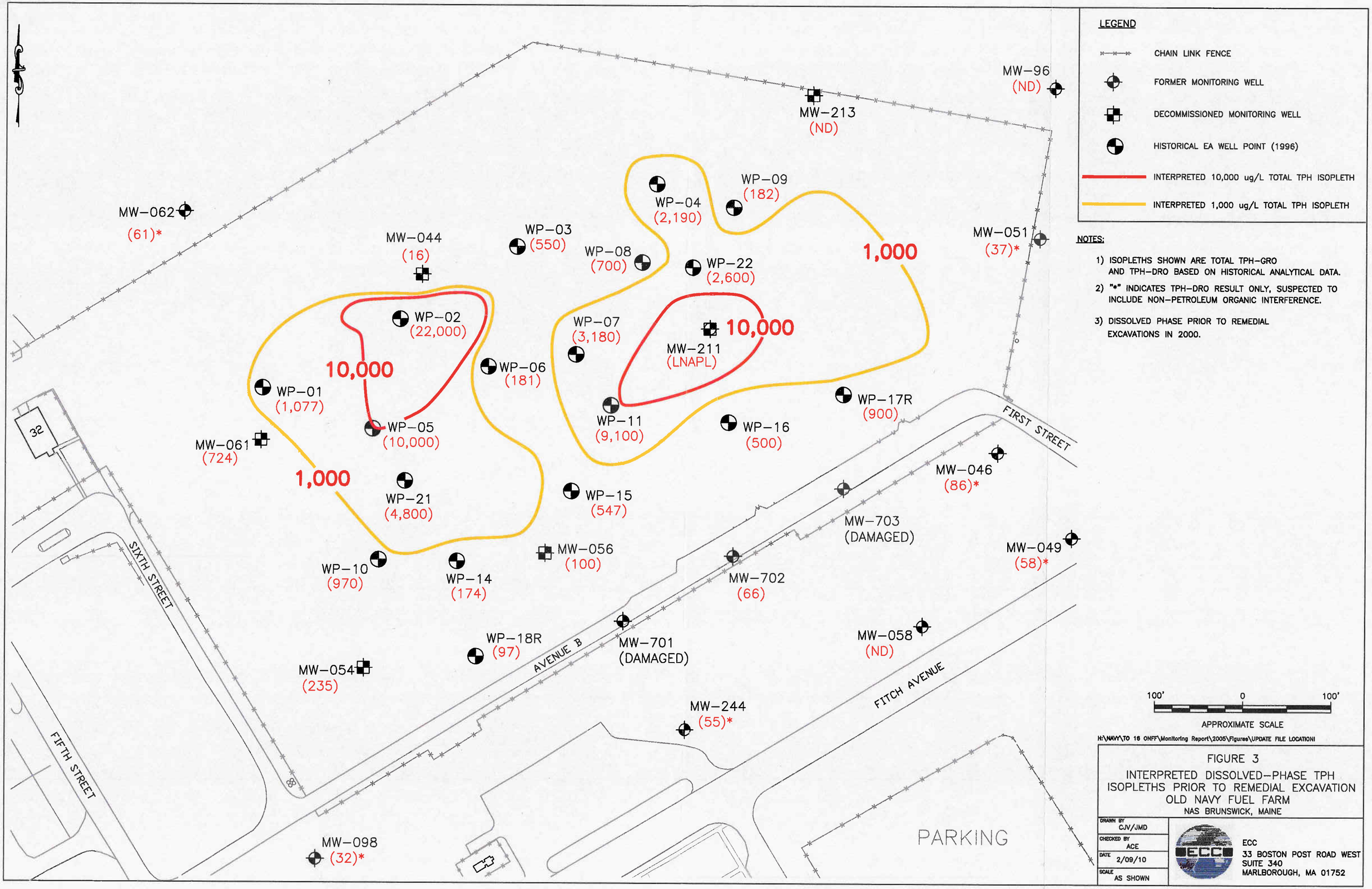
33 BOSTON POST ROAD WEST
SUITE 340
MARLBOROUGH, MA 01752


LEGEND
CHAIN LINK FENCE
MONITORING WELL
DECOMMISSIONED MONITORING WELL
FOSTER WHEELER TEST PIT – AUGUST 2000
100 (22) MAXIMUM PID SCREENING (ND IF NOT SHOWN) (TOTAL PETROLEUM HYDROCARBONS, MG/KG)
TOTAL TPH ISOPLETH (>1,000 MG/KG)
NOTES:
1) ISOPLETH LINES ARE TOTAL TPH-GRO AND TPH-DRO BASED ON HISTORICAL ANALYTICAL DATA.
2) ISOPLETHS WITHIN FENCELINE WERE DEVELOPED BASED ON RESULTS REPORTED IN HISTORICAL SITE INVESTIGATIONS DATA.
MW-062
MW-044
MW-213
MW-96
MW-051
MW-211
MW-061
MW-046
MW-703 (DAMAGED)
MW-049
MW-702
MW-701 (DAMAGED)
MW-058
MW-054
MW-244
MW-098
A
B
C
32
SIXTH STREET
FIFTH STREET
AVENUE B
FIRST STREET
FITCH AVENUE
PARKING
100' 0 100'
APPROXIMATE SCALE
H:\NAVY\TO 16 ONFF\Monitoring Report\2005\Figures\UPDATE FILE LOCATION
FIGURE 2
INTERPRETED SORBED-PHASE TPH ISOPLETHS
PRIOR TO REMEDIAL EXCAVATION
OLD NAVY FUEL FARM
NAS BRUNSWICK, MAINE
DRAWN BY CJV/JMD
CHECKED BY ACE
DATE 2/09/10
SCALE AS SHOWN
ECC
33 BOSTON POST ROAD WEST
SUITE 340
MARLBOROUGH, MA 01752


LEGEND
CHAIN LINK FENCE
FORMER MONITORING WELL
DECOMMISSIONED MONITORING WELL
HISTORICAL EA WELL POINT (1996)
INTERPRETED 10,000 ug/L TOTAL TPH ISOPLETH
INTERPRETED 1,000 ug/L TOTAL TPH ISOPLETH
NOTES:
1) ISOPLETHS SHOWN ARE TOTAL TPH-GRO AND TPH-DRO BASED ON HISTORICAL ANALYTICAL DATA.
2) "*" INDICATES TPH-DRO RESULT ONLY, SUSPECTED TO INCLUDE NON-PETROLEUM ORGANIC INTERFERENCE.
3) DISSOLVED PHASE PRIOR TO REMEDIAL EXCAVATIONS IN 2000.
MW-062 (61)*
MW-044 (16)
MW-061 (724)
MW-213 (ND)
MW-96 (ND)
MW-051 (37)*
WP-04 (2,190)
WP-09 (182)
WP-03 (550)
WP-08 (700)
WP-22 (2,600)
WP-02 (22,000)
WP-07 (3,180)
MW-211 (LNAPL)
WP-01 (1,077)
WP-06 (181)
WP-05 (10,000)
WP-11 (9,100)
WP-16 (500)
WP-17R (900)
WP-21 (4,800)
WP-15 (547)
MW-046 (86)*
MW-703 (DAMAGED)
MW-056 (100)
MW-049 (58)*
WP-10 (970)
WP-14 (174)
MW-702 (66)
WP-18R (97)
MW-701 (DAMAGED)
MW-058 (ND)
MW-054 (235)
MW-244 (55)*
MW-098 (32)*
10,000
1,000
1,000
10,000
32
88
SIXTH STREET
FIFTH STREET
AVENUE B
FIRST STREET
FITCH AVENUE
PARKING
100' 0 100'
APPROXIMATE SCALE
H:\NAVY\TO 18 ONFF\Monitoring Report\2005\Figures\UPDATE FILE LOCATION\
FIGURE 3
INTERPRETED DISSOLVED-PHASE TPH ISOPLETHS PRIOR TO REMEDIAL EXCAVATION
OLD NAVY FUEL FARM
NAS BRUNSWICK, MAINE
DRAWN BY CJV/JMD
CHECKED BY ACE
DATE 2/09/10
SCALE AS SHOWN
ECC
33 BOSTON POST ROAD WEST
SUITE 340
MARLBOROUGH, MA 01752

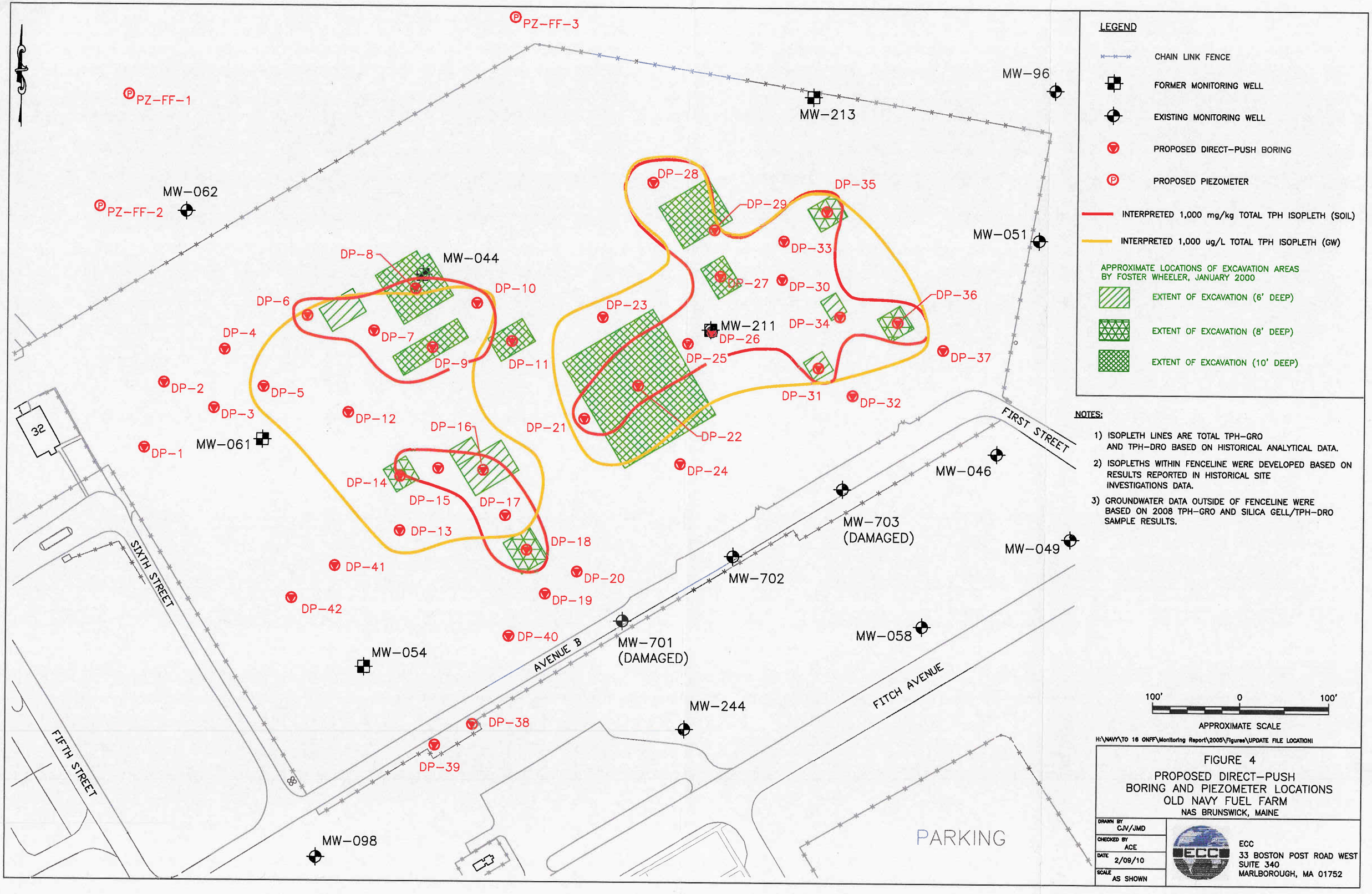


FIGURE 4

PROPOSED DIRECT-PUSH BORING AND PIEZOMETER LOCATIONS
OLD NAVY FUEL FARM
NAS BRUNSWICK, MAINE

DRAWN BY	CJV/JMD
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DATE	2/09/10
SCALE	AS SHOWN

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SUITE 340
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