

planning, permitting,
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design/build, & equipment

Weston&Sampson®

**478-480 Union Street
Weston & Sampson Job Number 2100451.C**

March 13, 2012

Dr. Nora J. Conlon, Ph.D., EPA QA Chemist
Quality Assurance Unit
USEPA Region 1 – Office of Environmental Measurement & Evaluation
11 Technology Drive
North Chelmsford, MA 01863-2431


Re: Follow-Up QAPP Addendum Revision 1
478-480 Union Street, New Bedford, MA – QAPP Site Specific Addendum
QA Tracking # RFA 09058 Add2 478-480

Dear Dr. Conlon:

Weston & Sampson Engineers, Inc. recently submitted a Follow-Up QAPP Addendum Revision 1 for the 478-480 Union Street, New Bedford, MA project. However, we were notified by the City of New Bedford that they had recently contracted with a new analytical laboratory, which was brought to our attention after we submitted the Follow-Up QAPP Addendum for the Site. Therefore, we have revised the Follow-Up QAPP Addendum Revision 1 to reflect only the changes associated with the new analytical laboratory being used for this project. Please find attached the revised Follow-Up QAPP Addendum Revision 1.

If you have any questions concerning this project, please do not hesitate to contact us at (978) 532-1900.

Very Truly Yours
WESTON & SAMPSON



Loren McGrath

cc: Joe Ferrari, EPA Project Officer
Cheryl Henlin, City of New Bedford
File

Report

CITY OF NEW BEDFORD Department of Environmental Stewardship

Site Specific Addendum to Quality
Assurance Plan

478-480 Union Street
New Bedford, Massachusetts

March 2012

Weston&Sampson

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977-0100

Site Name: 478 – 480 Union Street

Title: Site Specific Addendum to Generic QAPP

Revision Number: 1

Site Location: 478 - 480 Union St, New Bedford, MA

Revision Date: March 13, 2012

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**PROJECT MANAGEMENT
Forms (A-G, K)**

FORM A – TITLE AND APPROVAL PAGE

**MASSACHUSETTS BROWNFIELDS QUALITY ASSURANCE PROJECT PLAN (QAPP)
EPA ASSESSMENT GRANT NUMBER: BF 97193601**

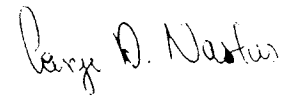
Prepared For: City of New Bedford Department of Environmental Stewardship

Prepared By: Loren McGrath / George Naslas – Weston & Sampson Engineers, Inc.

Address: Five Centennial Drive, Peabody, MA 01960-7985

Telephone Number: (978) 532-1900, ext. 2259/2279

Day/Month/Year: March 13, 2012



Weston & Sampson Project Manager: _____

Signature

George D. Naslas, P.G., LSP

03/13/2012

Printed Name/Date



Weston & Sampson Project QA Officer: _____

Signature

Loren E. McGrath

03/13/2012

Printed Name/Date

U.S. EPA Project Officer Approval: _____

Joe Ferrari

Signature

Printed Name/Date

U.S. EPA QA Officer Approval: _____

Nora J. Conlon

Signature

Printed Name/Date

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INTRODUCTION

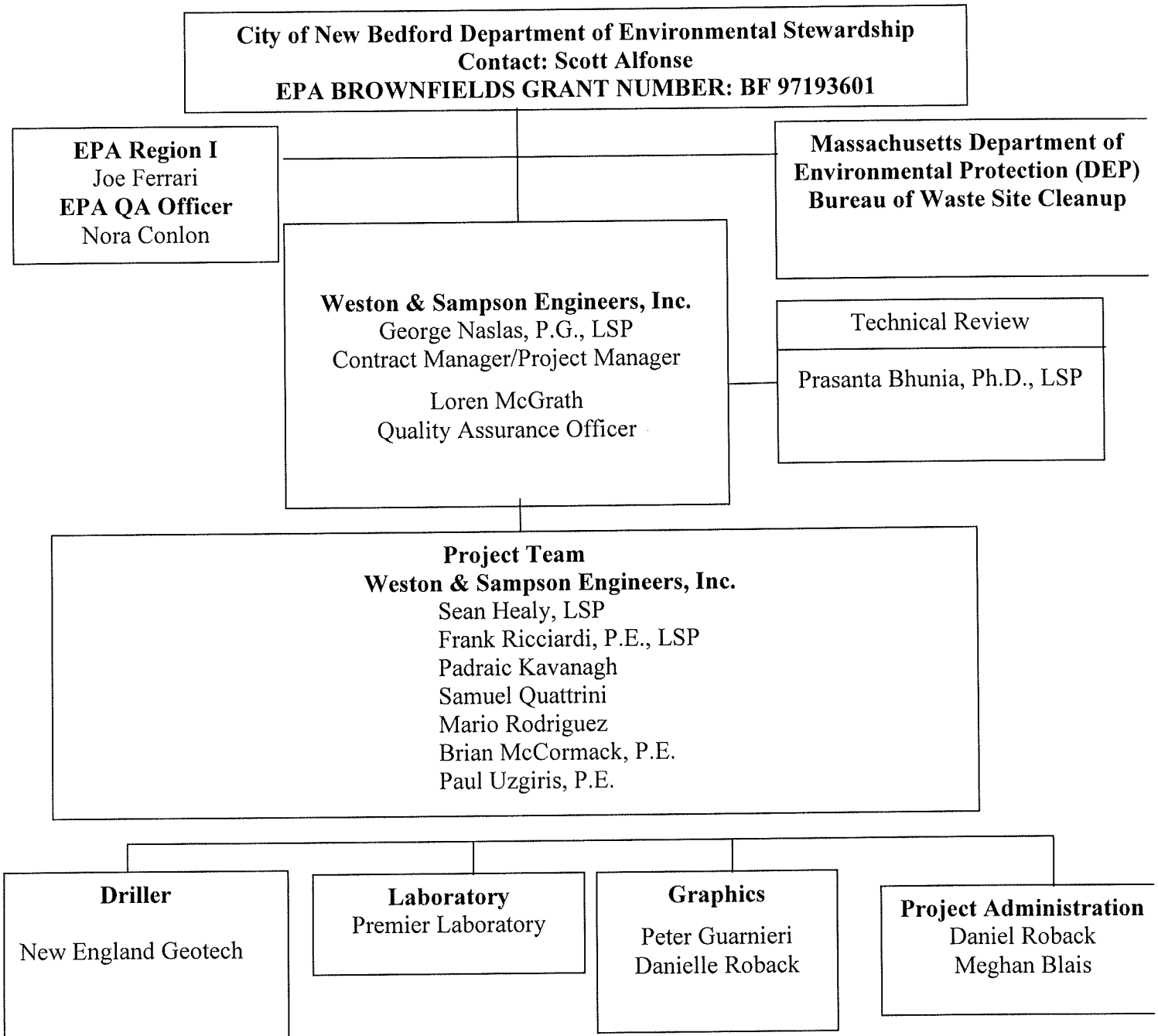
Weston & Sampson has prepared this Revision No. 1 to the Initial QAPP Addendum for 478-480 Union Street, New Bedford, Massachusetts (the “Site”), March 9, 2011. The Initial QAPP Addendum was a Site Specific Addendum to our Massachusetts Generic Quality Assurance Project Plan (QAPP) [dated December 18, 2008, Revision 1, EPA QA Tacking Number RFA # 09058]. The Initial QAPP Addendum detailed Phase II Environmental Site Assessment (ESA) activities at the Site which were performed in the spring of 2011. This Revision No. 1 to the Initial QAPP Addendum is for additional Phase II ESA activities to be performed at the Site in an effort to delineate the nature and extent of petroleum and lead impacted soils identified during initial Phase II ESA activities. This report has been prepared on behalf of the City of New Bedford Department of Environmental Stewardship and Environmental Assessment and Remediation Planning Services.

The Site was identified by the City of New Bedford as part of their Brownfields redevelopment initiative focusing on returning vacant or underutilized commercial and industrial properties back into useful and viable facilities. The City has facilitated the redevelopment of the Site by contracting Phase I and II ESA services through its United States Environmental Protection Agency’s (US EPA) Brownfield’s Assessment Grant. The City is the project manager for this project and Weston & Sampson is providing technical services, including Licensed Site Professional (LSP) Services to the City of New Bedford.

Weston & Sampson performed an initial Phase II ESA at the Site in the spring of 2011 which included the performance of a geophysical survey, excavation of 9 test pits, advancement of 11 soil borings, installation of 8 groundwater monitoring wells, and soil/groundwater sampling and analysis. Results of the Phase II ESA revealed petroleum impacts in exceedance of applicable Massachusetts Department of Environmental Protection (MADEP) reportable concentration (RC) S-1 standards at the Site. The impacted soils were identified on the northwestern and northern portion of the Site in the area of former gasoline underground storage tanks (USTs) and on the western portion of the Site in the area of former fuel oil USTs. Additionally, a concentration of lead was identified in fill material soils on the northern portion of the Site above the RCS-1 standard.

Additional Phase II ESA activities are planned at the Site to further define the nature and extent of impacted soil and/or groundwater at the Site. The assessment will meet the performance standards of the Massachusetts Contingency Plan (MCP); 310 CMR 40.0000. The purpose of this Revision No. 1 to the Initial QAPP Addendum is to detail planned Phase II ESA activities and present the QAPP for these activities.

FORM B - PROJECT ORGANIZATION AND RESPONSIBILITY



FORM C - PROBLEM DEFINITION

Introduction

Weston & Sampson performed a Phase I ESA at the Site in the fall of 2010. The Phase I ESA identified potential Recognized Environmental Conditions (RECs) at the Site including potential impacts from historic Site use as an automobile service garage with multiple USTs and previously identified impacted soil and groundwater at the Site. A Phase II ESA was performed at the Site in the spring of 2011 to assess potential RECs identified during the Phase I ESA. The Phase II ESA included the performance of a geophysical survey, excavation of 9 test pits (TP-1 through 9), advancement of 11 soil borings (WS-1 through 11), installation of 8 groundwater monitoring wells (WS-1 through 8), and soil/groundwater sampling and analysis. See Figure 1 Site Locus for the Site location and Figure 2 for sample locations. A copy of the Phase I and II ESA Report is included in Appendix A. The following is a summary of the results of the investigation:

- Results of the geophysical and test pit investigation did not identify any abandoned USTs at the Site.
- Field screening of soil samples collected from the test pits and borings identified significantly impacted soil at numerous locations including: TP-1, TP-3, TP-4, TP-8, WS-2 and WS-6.
- Photoionization detector (PID) field screening of soil samples identified concentrations of total volatile organics (TVOCs) ranging from 25 to 564 parts per million by volume (ppmv). The impacted soils were located in multiple UST source areas.
- Laboratory analysis identified petroleum constituents above RCS-1 standards in soil samples TP-1 (10-12'), TP-8 (7-9'), WS-2 (15-19') and WS-6 (8-10'). Additionally lead was detected in soil sample TP-4 (2-5') above applicable RCS-1 standards. The detected lead concentration may be associated with fill material with ash observed in the sample.
- Analysis of groundwater samples collected throughout the Site did not identify concentrations of targeted analytes above applicable MADEP GW-2/3 standards.

In summary, the Weston & Sampson investigation identified petroleum impacted soil in exceedance of RCS-1 standards in areas not assessed as part of historic investigations. Additionally, the impacts identified are more significant than what was identified during the historic investigations and appear to be from separate UST releases at the Site. The identification of soil impacts above RCS-1 standards represented a 120-day reportable release condition to the MADEP. On October 3, 2011, Weston & Sampson reported the release condition to the MADEP on behalf of the City of New Bedford. At that time the MADEP assigned release tracking number (RTN) 4-23596 to the Site. An Additional Phase II ESA will be performed at the Site to further define the nature and extent of impacted soil and/or groundwater at the Site. The Additional Phase II ESA will include the advancement of additional soil borings, installation of one groundwater monitoring well, and collection of soil and groundwater samples at the Site.

Site Description and Background

The Site consists of a vacant 18,329 square foot (0.42 acre) irregular-shaped lot located south of the intersection of Union and Newton Streets in New Bedford, Massachusetts. The Site was previously developed with a vacant single story building that occupied a footprint of approximately 11,980 square feet. The building was removed in the spring of 2011 prior to initial Phase II ESA activities.

The geographical coordinates for the property are as follows:

| | |
|---------------------|--------------------------------|
| UTM Coordinates: | 4,610,604 m N 338,479 m E |
| Latitude/Longitude: | 41° 37' 58" N 70° 56' 21" W |

The Site abutters consist of:

- Union Street to the north;
- Residential properties to the south, east, and west.

As shown in Figure 3 Area Receptors Map, with the exception of one area of protected open space located within 500 feet to the northwest of the Site there are no natural resource areas as described in 310 CMR 40.0483 (1)(a)(8) within 500 feet of the Site. Specifically, none of the following natural resource areas are located within 500 feet of the Site:

1. Mapped surface waters, including wetlands, vernal pools, ponds, lakes, streams, rivers and reservoirs;
2. Public drinking water supplies consisting of Zone II areas, Interim Wellhead Protection areas, Zone A areas, or Potentially Productive Aquifers; or
3. Areas of Critical Environmental Concern, Sole Source Aquifers, fish habitats and habitats of Species of Special Concern or Threatened or Endangered Species.

Site History

Historical atlas maps indicate that the Site was developed with two residential structures in 1906. A gasoline filling station and automobile service garage existed at the Site between 1915 and the late 1950's. Five gasoline tanks are depicted in a 1924 atlas map on the northern portion of the Site. A 1950 atlas map indicated that three gasoline tanks were located on the northwestern portion of the Site. The Site was reportedly utilized by a restaurant supply company between the late 1950's and 1989 and a dance studio in the 1990's.

Municipal records and historic atlas maps indicated that numerous USTs were historically located at the Site. As indicated above, historic atlas maps indicate that 8 separate gasoline tanks were located on the northern portion of the Site. Municipal records indicate that two 1,000-gallon #2 fuel oil USTs were removed from the Site in 1984 and 1992 and a 550-gallon waste oil UST was removed from the Site in 1989. Tank installation and/or removal permits also exist for numerous other USTs including one 3,000-gallon gasoline UST, one 500-gallon gasoline UST, and two 1,000-gallon gasoline USTs. Figure 2 (attached) depicts the location of some of

the historic on-Site USTs. However, additional UST information, including reports detailing the removal of the historic USTs at the Site, was not identified during the Phase I ESA.

Summary of Historical Data

A historic subsurface investigation was performed at the Site by Harborline Engineering in 1992. The investigation included the installation of 3 soils borings completed as groundwater monitoring wells (MW-1 through MW-3). Field screening of soil samples collected from the borings identified concentrations of TVOCs ranging from 7 to 65 ppmv. Soil samples were not submitted for laboratory analysis. Groundwater sampling identified a concentration of total petroleum hydrocarbons (TPH) in MW-1 and 1,2 Dichlorobenzene in MW-3 above applicable MADEP reportable standards, which represented a reportable release condition. The release was reported to the MADEP in 1993 and the MADEP issued RTN 4-1265 to the Site.

Prime Engineering performed an additional investigation at the Site in 1997. The investigation included the installation of two soil borings (P-1 and P-2). Field screening of soil samples identified concentrations of TVOCs ranging from 3.5 to 121 ppmv. Analysis of one composite soil sample collected from each boring did not identify concentrations of petroleum compounds above applicable MADEP RCS-1 standards. Analysis of groundwater samples collected by Prime from the previously installed monitoring wells at the Site did not identify concentrations above applicable MADEP GW-2/3 standards. In 1997, following the investigation, Prime submitted a Response Action Outcome (RAO) Statement to the MADEP in support of regulatory closure of RTN 4-1265. However, soil and groundwater sampling performed in support of the RAO did not include sampling in the area of many of the historic UST locations.

State Regulatory Information

The Site was originally listed with the MADEP under RTN 4-1265 for the detection of Total Petroleum Hydrocarbons (TPH) and 1,2-dichlorobenzene during a Phase I Site Investigation conducted by Harborline Engineering in 1992. An RAO Statement was submitted by Prime Engineering on October 15, 1997 for RTN 4-1265. The Site is also listed with the MADEP for a release of petroleum constituents and lead to Site soils identified during Weston & Sampson's Phase II ESA in the spring of 2011. The release was reported to the MADEP on October 3, 2011 and RTN 4-23596 was assigned to the Site.

Future Intended Use

The future intended use for the Site is residential.

FORM D - PROJECT DESCRIPTION/PROJECT TIMELINE

Objective

In an effort to further delineate the nature and extent of impacted soil and groundwater at the Site, the following tasks will be conducted as part of Additional Phase II ESA activities:

- Advancement of a total of 13 soil borings (WS-12 through WS-24) at the Site via Geoprobe drilling techniques. The borings will be advanced in an effort to delineate the vertical and/or horizontal extent of petroleum and/or lead impacted soil in the area or TP-1, TP-4/WS-2, and TP-8/WS-6. Proposed boring locations are shown in Figure 2.
- Installation of 1 groundwater monitoring well (WS-12) in the area of former test pit TP-1 in order to obtain groundwater data in this area of the Site.
- Soil samples will be collected at continuous intervals throughout each boring and will be field screened with a PID for TVOCs. Based on field screening and visual observations, one soil sample will be collected from each soil boring for laboratory analysis, with the exception of soil boring/monitoring well WS-12. A soil sample will not be collected from WS-12 because analytical data has already been obtained from this area during the initial Phase II ESA.

Applicable Standards

The applicable standards for the Site, in accordance with the MCP for soil and groundwater, are as follows:

- Soil – Soil sample results will be compared to MADEP Method 1 S-1, S-2, and S-3 soil standards for risk characterization purposes. Soil categories S-1, S-2 and S-3 are applicable to current conditions at the Site since soils are accessible and adults and/or children could be present at low frequency with moderate intensity of use.
- Groundwater – Groundwater analytical results will be compared to MADEP Method 1 GW-2 and GW-3 standards. GW-1 is not applicable because groundwater is not a current or potential drinking water source. GW-2 is applicable because the Site is within 30 feet of an existing building and groundwater is located less than 15 feet from grade surface. GW-3 is a default category that applies to all groundwater and is associated with its impact on a receiving surface water body.

Project Timeline

Upon approval of this QAPP Addendum, Weston & Sampson anticipates commencing field activities within one week of approval, weather permitting. It is anticipated that the drilling and soil sampling will be completed in one day, and groundwater sampling will be completed in one day. Soil and groundwater samples will be submitted for analysis under a standard laboratory turn around time (TAT) of 10 business days.

FORM E - SAMPLING DESIGN AND SITE FIGURES

Our approach is to conduct an Additional Phase II ESA that includes the advancement of soil borings, installation of one groundwater monitoring well, and collection of soil and groundwater samples. Each of the activities is detailed below.

Soil Borings and Monitoring Wells

Weston & Sampson will oversee the advancement of 13 soil borings (WS-12 through 24) using hydraulic push Geoprobe technology. One (1) of the borings advanced in the area of former test pit TP-1 will be completed as a groundwater monitoring well (WS-12). The monitoring well will be installed to a depth of approximately 20 feet bgs. The monitoring well will be constructed with Schedule 40, threaded, flush-jointed, 2-inch ID PVC riser pipe. The well will be completed with a 10-foot long 0.01-inch (10 slot) factory slotted well screen and will be screened across the water table. The monitoring well will be developed to remove silt and fines following well installation. Well development will be performed utilizing a peristaltic pump or dedicated polyethylene bailer and will continue until the turbidity of the water has sufficiently been reduced. If grossly impacted water is identified, it will be containerized on-Site a steel 55-gallon drum for future off-Site disposal. If there is no evidence of contamination based on odor or visual evidence then purge water will be discharged to ground adjacent to the well.

The proposed location of the soil borings and monitoring well are shown on Figure 2. Note, the intention of the investigation is to delineate the extent of impacted soil above applicable standards. If field screening indicates that additional borings are required for delineation purposes, additional borings may be advanced at the Site. If field screening indicates that additional soil borings are needed to complete the delineation, the project team will be notified via email correspondence. The correspondence will include details relative to the number and location of the borings. Additional borings will not be advanced without appropriate approvals from project team representatives.

As shown in Figure 2, four (4) of the borings (WS-12 through WS-15) will be installed on the northwestern portion of the Site in the location of former test pit TP-1. Four borings (WS-16 through WS-19) will be installed on the northern portion of the Site in the location of former test pit TP-4 and former boring WS-2. Five soil borings (WS-20 through WS-24) will be installed on the western portion of the Site in the area of former test pit TP-8 and former boring WS-6.

Weston & Sampson will collect soil samples throughout the borings at continuous intervals. The soil samples will be logged in the field for texture and grain size classification using the Burmiester Soil Classification system. Each sample will be field screened with a PID for TVOCs. As the objective of the assessment is to delineate the extent of impacted soil within each area, soil samples that exhibit significant impacts will not be submitted for analysis unless more significant impacts are identified than the previous investigation at the Site. The intention of the soil borings is to delineate the extent of impacted soil above applicable standards. Therefore soil samples that exhibit field screening results that are less than 10 ppmv TVOCs will be selected for analysis.

During the previous assessment, in the area of former test pit TP-1, the most significantly impacted soil was identified between 10-12 feet below grade surface. Soil boring WS-12 will be advanced in the center of this area to determine the vertical extent of impacts. Soil borings WS-13, 14 and 15 will then be advanced in an attempt to determine the horizontal extent of impacts. Soil samples will be selected from these borings at the depth of the most significant impacts observed in soil boring WS-12, based on visual and olfactory evidence as well as field screening data using a PID. If impacts are not identified in soil boring WS-12, soil samples will be collected from WS-13, 14, and 15 at 10-12 feet below grade surface, the depth of the most significantly impacted soil identified in this area during the previous assessment.

During the previous assessment, in the area of former boring WS-2, the most significantly impacted soil was identified between 15-19 feet below grade surface. Soil borings WS-16, 17, 18 and 19 will be advanced in an attempt to determine the horizontal extent of impacts in this area. Soil samples collected from 15-19 feet below grade surface from these borings will be selected for analysis.

During the previous assessment, in the area of former test pit TP-8 and boring WS-6, the most significantly impacted soil was identified between 8-10 feet below grade surface. Soil boring WS-24 will be advanced in the center of this area to determine the vertical extent of impacts. Soil borings WS-20, 21, 22 and 23 will then be advanced in an attempt to determine the horizontal extent of impacts. Soil samples will be selected from these borings at the depth of the most significant impacts observed in soil boring WS-24. If impacts are not identified in soil boring WS-24, soil samples will be collected from WS-20, 21, 22 and 23 at 8-10 feet below grade surface, the depth of the most significant impacts identified in this area during the previous assessment.

In areas where significantly impacted soils are not identified, soil borings will be backfilled with any excess material. If grossly impacted soils are identified, the contaminated soil will be stored in 55-gallon drums for future disposal.

With the intention of delineating the vertical and horizontal extent of impacted soil above standards at the Site, Weston & Sampson will collect one soil sample from each of the soil borings for the following analyses:

Area of TP-1

- VPH with targeted VOCs via MADEP Methodology (3 soil samples)

Area of TP-4/WS-2

- VPH with targeted VOCs via MADEP Methodology (4 soil samples)
- Lead via EPA Method 6010 (4 soil samples)

Area of TP-8/WS-6

- EPH with targeted Polynuclear Aromatic Hydrocarbons (PAHs) via MADEP Methodology (5 soil samples)
- VPH with targeted VOCs via MADEP Methodology (5 soil samples)

For Quality Assurance/Quality Control (QA/QC) purposes, Weston & Sampson will collect one field duplicate for all parameters and one matrix spike and matrix spike duplicate for lead only. A laboratory supplied trip blank will accompany all soil samples at a frequency of 1 trip blank per cooler for VOC analysis by EPA Method 8260.

Groundwater Sampling

Approximately one week following installation, Weston & Sampson will gauge the depth to groundwater and collect a groundwater sample from the newly installed groundwater monitoring well (WS-12) in the area of TP-1. The groundwater sample will be collected using the Environmental Protection Agency's (EPA) low flow groundwater sampling methodology. Groundwater samples will be submitted for the following analyses:

Area of TP-1

- VPH with targeted VOCs via MADEP Methodology (1 groundwater sample)

For Quality Assurance/Quality Control (QA/QC) purposes, Weston & Sampson will collect one field duplicate for all parameters. A laboratory supplied trip blank will accompany all samples at a frequency of 1 trip blank per cooler for the analysis of VOCs by EPA Method 8260.

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Revision Date: March 13, 2012

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FORM F - SAMPLING AND ANALYTICAL METHODS REQUIREMENTS

The actual parameters and number of samples associated with each analysis are presented below. The laboratory SOPs from Premier Laboratory are included in Appendix B.

| Parameter | Matrix | Number of Samples | Sampling SOP (Generic QAPP-APP A) | Analytical Method (Generic QAPP – APP B) | Containers | Preservation Requirements | Maximum Holding Time |
|--|--------|---|-----------------------------------|---|---|--|---|
| Lead | Soil | 4 samples plus 1 Field Duplicate plus 1 Matrix Spike/Duplicate Total=6 | 2.01, 5.01 | SW-846 Method 6010B ICP/ Lab SOP ICP Metals Method 6010B (Premier), Rev. 3.3 Effective Date: 9/23/11 | (1) 4-oz glass jar with a Teflon-lined screw cap | Cool to ≤6°C | 180 days |
| Extractable Petroleum Hydrocarbon (EPH) ranges with target polycyclic aromatic hydrocarbons (PAHs) | Soil | 5 samples, plus 1 Field Duplicate Total=6 | 2.01, 5.01 | MADEP / Lab SOP Method MAEPH (Premier), Rev. 1.0, Effective Date: 02/29/12 | (1)-4-ounce (oz) amber glass jar with Teflon-lined screw cap | Cool to ≤6°C but not frozen | Extracted within 14 days; extract analyzed within 40 days |
| Volatile Petroleum Hydrocarbon (VPH) ranges with target volatile organic compounds | Soil | 12 samples, plus 1 Field Duplicate Plus | 2.01, 5.01 | MADEP / Lab SOP Method VPH (Premier), Rev. 1.0, Effective Date: 02/29/12 | (1)-40-millimeter (mL) or (1)-60 mL methanol vial with Teflon-lined septa | 1 mL methanol for every gram soil/sediment; add before or at time of sampling; | 28 days |

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Site Location: 478-480 Union Street, New Bedford, MA

| | | | | | |
|--------|---|--|--|--|----------------------------------|
| (VOCs) | 1 trip blank Plus 1 Sample for Percent Moisture Total=15 | | | screw cap; (1) 4-oz glass jar with a Teflon- lined screw cap for % Moisture | Cool to $\leq 6^{\circ}\text{C}$ |
|--------|---|--|--|--|----------------------------------|

| Parameter | Matrix | Number of Samples | Sampling SOP (Generic QAPP-APP A) | Analytical Method (Generic QAPP – APP B) | Containers | Preservation Requirements | Maximum Holding Time |
|---|-------------|---|-----------------------------------|--|---|---|----------------------|
| Volatile Petroleum Hydrocarbon (VPH) ranges with target volatile organic compounds (VOCs) | Groundwater | 1 sample, plus 1 Field Duplicate, 1 trip blank Total=3 | 4.01, 6.01 | MADEP / Lab SOP Method VPH (Premier), Rev. 1.0, Effective Date: 02/29/12 | (2) 40-mL VOC vials with Teflon-lined septa screw caps and protect from light | Adjust pH to <2.0 by addition of HCL to container before sampling. Cool to ≤6°C but not frozen | 14 days |

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FORM G - METHOD AND SOP REFERENCE TABLE

| Analytical Method Reference: Include document title, method name/no., revision number, date | Project Analytical SOPs (see Appendices B and C): Include document title, date, revision number, and originator name |
|---|--|
| 1a. SW-846 Method 6010C; Trace Metals by Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES), Revision No. 1, July 1, 2010. | 1b. ICP, Metals Method 6010B, Date 09/23/11, Revision No. 3.3, Premier Laboratory. |
| 2a. SW-846 Method 6010C; Trace Metals by Inductively Coupled Plasma-Atomic Emission Spectrometry (ICP-AES), Revision No. 1, July 1, 2010. | 2b. Acid Digestion of Soils, Sediments, and Sludges for ICP-MS, ICP, GFAA and FLAA, Method 3050B, Date 08/02/10, Revision No. 2.2, Premier Laboratory. |
| 3a. MADEP EPH Method, Analysis of Extractable Petroleum Hydrocarbons (EPH), Revision No. 1, July 1, 2010. | 3b. Extractable Petroleum Hydrocarbons GC/FID MADEP EPH: Method MAEPH, Date 02/29/12, Revision No. 1.0, Premier Laboratory. |
| 4a. MADEP VPH Method, Analysis of Volatile Petroleum Hydrocarbons (VPH), Revision No. 1, July 1, 2010. | 4b. Volatile Petroleum Hydrocarbons by GC/PID/FID Method VPH, Date 02/29/12, Revision No. 1.0, Premier Laboratory. |

Site Name: 478-480 Union Street

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FORM K - ANALYTICAL SENSITIVITY, PRECISION AND ACCURACY

The specific analytical sensitivity, precision and accuracy requirements for each analytical method are included in the SOPs in Appendix B.

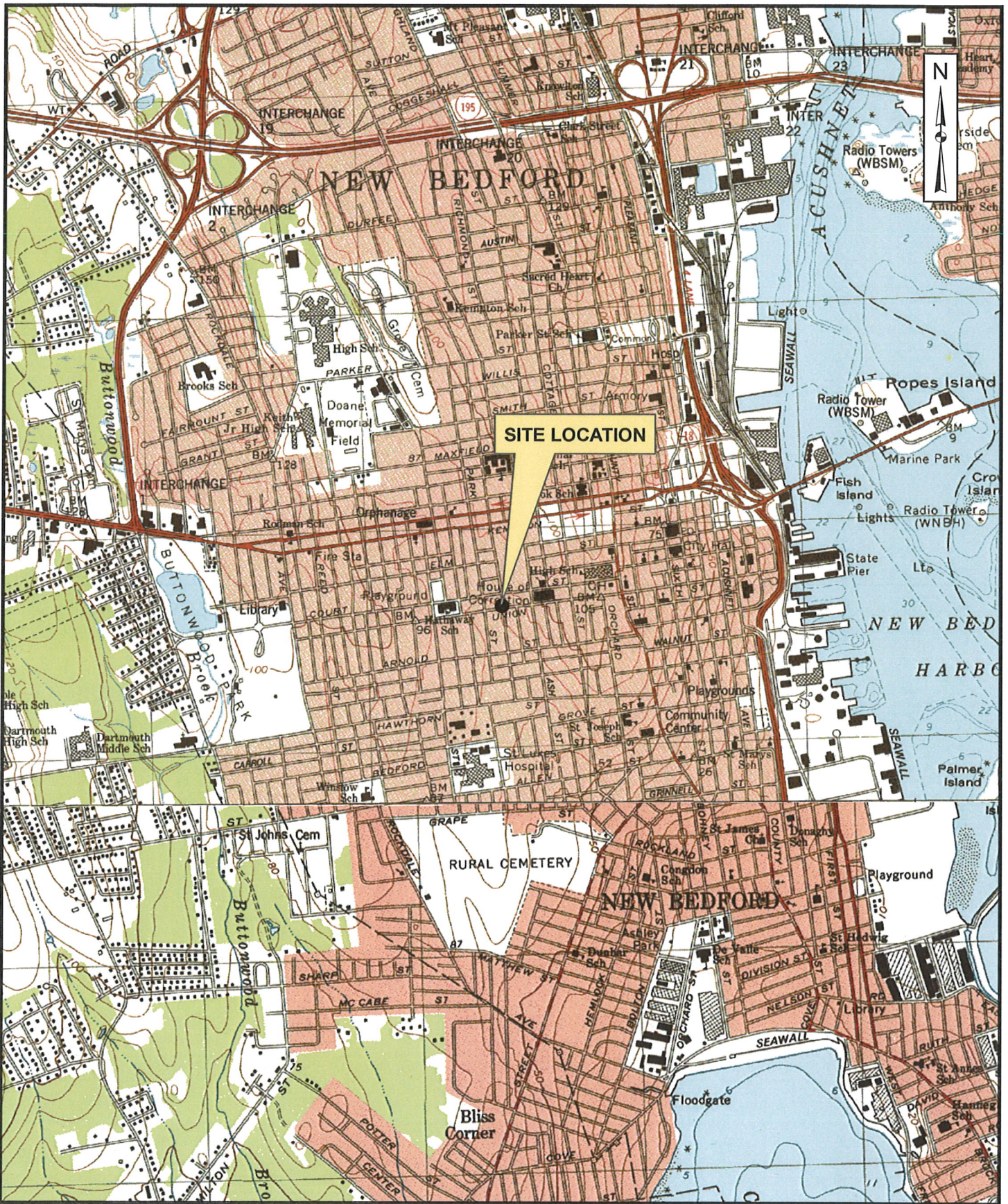
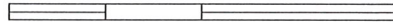


FIGURE 1
 NEW BEDFORD, MASSACHUSETTS
 478-480 UNION STREET

LOCUS MAP

0 2,000 4,000 Feet



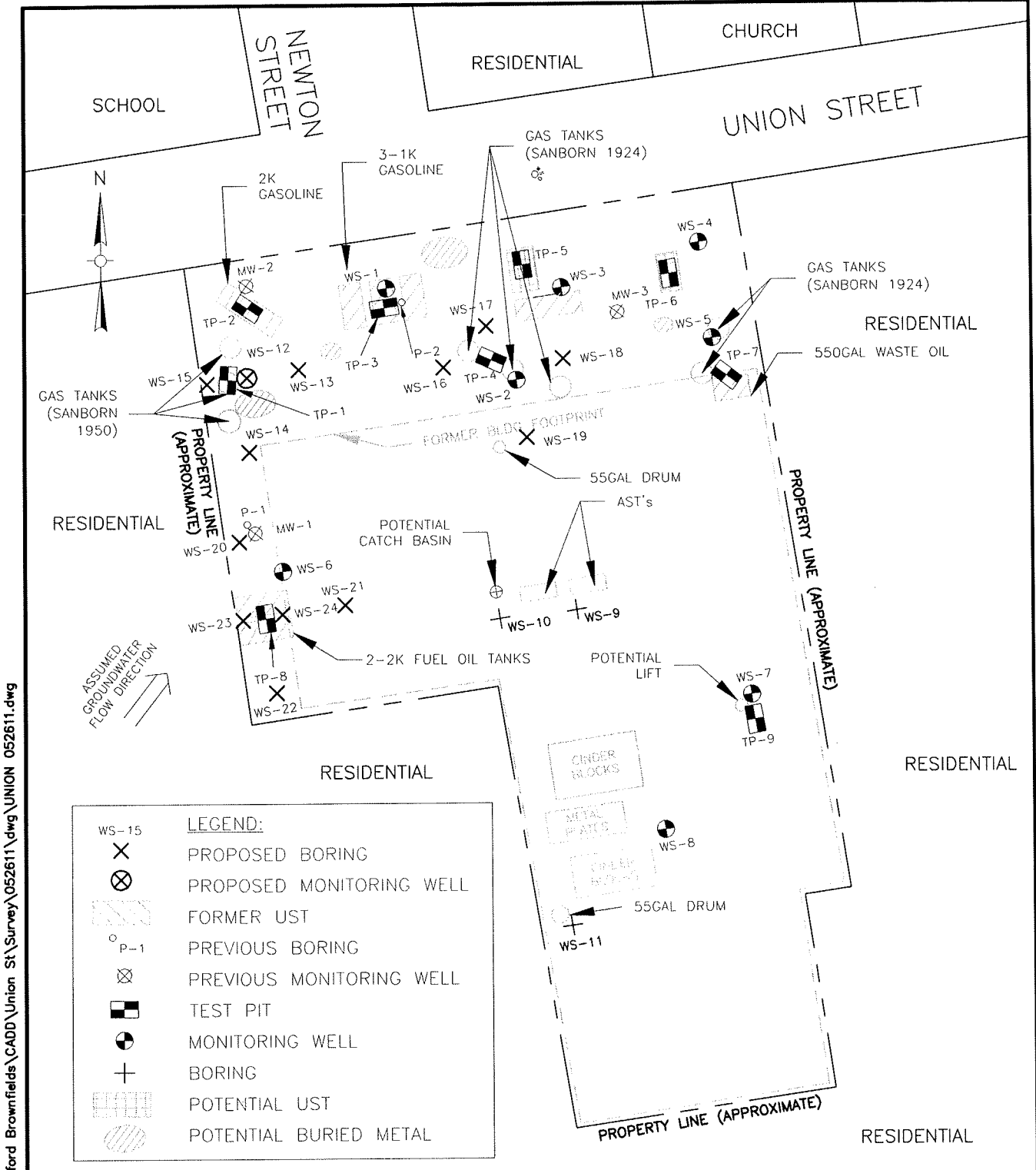
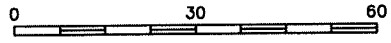


FIGURE 2
 478-480 UNION STREET
 NEW BEDFORD, MASSACHUSETTS
 SITE PLAN
 SCALE: 1"=30'



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- Legend**
- Town Boundaries
 - State Boundary
 - Ground Water
 - Surface Water
 - Non-Community
 - NHESP Certified Vernal Pools
 - Railroads by Ownership
 - Pipeline
 - Pipeline Arbitrary Extension
 - Powerline
 - Powerline Arbitrary Extension
 - SKL Light/Ramway
 - Substation
 - Landing Strip/Airport
 - Highway Exit Locations
 - All Roads
 - Road Classification
 - Limited Access Highway
 - Multi-lane Hwy, not limited access
 - Other Numbered Highway
 - Major Road, Collector
 - Minor Road, Arterial
 - Sub-basins
 - Major Basins
 - Solid Waste Facilities
 - Protected Open Space
 - ACECs
 - Zone A
 - IMPAs
 - DEP Approved Zone IIs
 - River, Stream, Shoreline
 - Water
 - Wetland
 - Sole Source Aquifers
 - NHESP Estimated Habitats of Rare Wildlife
 - NHESP Priority Habitats of Rare Species
 - Non Potential Drinking Water Source Area
 - High Yield
 - Medium Yield
 - Aquifers
 - High Yield
 - Medium Yield
 - MA Towns (from Survey Points)
 - MA Towns (from Survey Points)



FIGURE 3

Area Receptors Map
478-480 Union Street
New Bedford, MA



Data Source: Office of Geographic and Environmental Information (MassGIS), Commonwealth of Massachusetts Executive Office of Environmental Affairs

Radii shown are approximately 500 feet and 1/2-mile from center of Site.

1,000 500 0 1,000 Feet

0.25 0 0.125 0.25 Miles