



3855 North Ocoee Street, Suite 200
Cleveland, TN 37312

SENT BY FEDERAL EXPRESS

October 7, 2011

Mr. Patrick Bowe
Director
Remediation Division
Bureau of Water Protection and Land Reuse
Connecticut Department of Energy and Environmental Protection
79 Elm Street
Hartford, CT 06106

Re: Property-Specific Remedial Action Report
Newhall Street Neighborhood
26 Edwards Street, Block H
Hamden, Connecticut 06517

Dear Mr. Bowe:

Enclosed please find the Property-Specific Remedial Action Report (RAR) prepared for the property located at 26 Edwards Street in Hamden, Connecticut. The Property-Specific RAR summarizes the remediation and restoration activities conducted at the property as required by Consent Order No. SRD-128. Remediation and restoration of this property are complete and were implemented in compliance with the Remedy Selection Plan, the Generic RAP, and the Property-Specific Remedial Action Plan (RAP) approved by the Connecticut Department of Energy and Environmental Protection (DEEP).

Section 2.0 of the enclosed report documents property-specific construction activities, as well as any adjustments to the Property-Specific RAP that were required due to the extent of fill encountered or other field conditions. Please note that any field adjustments made were pursuant to the approved Generic RAP and/or with DEEP oversight and approval. Olin hereby submits this Property-Specific RAR for DEEP approval. As noted below and as required by the Remedy Selection Plan, a copy of the enclosed report has also been provided to the property owner.

Please contact me at (423) 336-4540 if you have any questions regarding this matter.

Sincerely,
OLIN CORPORATION

A handwritten signature in black ink, appearing to read "David M. Share".

David M. Share
Director, Environmental Remediation

Enclosure

cc: Ms. Deborah Lyons – PO Box 6422, Hamden, CT 06517 (w/enclosure)
Robert Bell – DEEP (w/enclosure)
Ray Frigon – DEEP (w/enclosure)
Curt Richards – Olin (w/o enclosure)
Carrie Hunt – Olin (w/o enclosure)
Nelson Walter – AMEC (w/o enclosure)
Richard Pearce – Newhall Street Neighborhood Community Liaison (w/enclosure)
Robert Labulis – Town of Hamden Building Department (w/enclosure)

**PROPERTY-SPECIFIC REMEDIAL ACTION REPORT
26 EDWARDS STREET, 16 EDWARDS STREET &
21 SAINT MARY STREET**

**NON-PUBLIC PROPERTIES
NEWHALL STREET NEIGHBORHOOD
HAMDEN, CONNECTICUT**

Prepared for:



Olin Corporation
3855 North Ocoee Street, Suite 200
Cleveland, TN 37312

Prepared by:



AMEC Environment & Infrastructure, Inc.
511 Congress Street, Suite 200
Portland, Maine 04101

October 7, 2011

AMEC Project Number: 6107110004/75

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A handwritten signature in black ink, appearing to read "Nelson Walter".

Nelson Walter, P.E.
Project Manager

A handwritten signature in black ink, appearing to read "J. Rod Pendleton".

Rod Pendleton, P.G
Principal Scientist

DOCUMENT CERTIFICATION

I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, that the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information is punishable as a criminal offense under §53a-157b of the Connecticut General Statutes and any other applicable law.

David M. Share, Director, Environmental Remediation



Chief Executive Officer (or duly authorized representative)
Olin Corporation

DOCUMENT CERTIFICATION

I have personally examined and am familiar with the information submitted in this document and all attachments thereto, and I certify, based on reasonable investigation, including my inquiry of those individuals responsible for obtaining the information, that the submitted information is true, accurate and complete to the best of my knowledge and belief. I understand that any false statement made in the submitted information is punishable as a criminal offense under §53a-157b of the Connecticut General Statutes and any other applicable law.

Nelson Walter, Project Manager



MACTEC Engineering and Consulting, Inc.

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ATTACHMENTS

1 Photographs

ACRONYMS AND ABBREVIATION

AMEC	AMEC Environment & Infrastructure, Inc.
bgs	below ground surface
DEEP	Connecticut Department of Energy and Environmental Protection
MACTEC	MACTEC Engineering and Consulting, Inc.
NPP	Non-Public Properties
Olin	Olin Corporation
RAP	Remedial Action Plan
RAR	Remedial Action Report
RSP	Remedy Selection Plan
XRF	X-ray fluorescence

1.0 INTRODUCTION

This Property-Specific Remedial Action Report (RAR) was prepared by AMEC Environment & Infrastructure, Inc. (AMEC) on behalf of Olin Corporation (Olin) for the property located at 26 Edwards Street in Hamden, Connecticut. Although this property also includes parcels identified as 16 Edwards Street and 21 Saint Mary Street in the Town of Hamden's assessor's records, the property will be referred to as 26 Edwards Street throughout this document. This Property-Specific RAR was prepared based on information obtained during remediation activities conducted at the property during the 2011 construction season. This document provides information about the remediation activities completed for the property, which are required by Consent Order SRD-128 entered into by Olin, the Town of Hamden, the Regional Water Authority, the State Board of Education, and the State of Connecticut Department of Energy and Environmental Protection (DEEP). The Consent Order requires Olin to excavate and remove fill material up to 4 feet below ground surface (bgs) from approximately 230 residential properties within the Consent Order boundary.

Section 1 of this report provides a summary of site history and a general description of the remedy process for the Newhall Street Neighborhood. Section 2 of this report describes the construction activities conducted at 26 Edwards Street.

1.1 Regulatory Status

In April 2003, the DEEP issued a Consent Order to Olin, the Town of Hamden, South Central Connecticut Regional Water Authority, and the State Board of Education (CTDEP, 2003). The Consent Order requires Olin to investigate and remediate the Non-Public Properties (NPP) within the Consent Order boundary of the Newhall Street Neighborhood.

1.2 Description of Remedy Process

In October 2007, a Final Remedy Selection Plan (RSP) was approved and issued by the Commissioner of the DEEP (CTDEP, 2007). The remedy for the NPP within the Consent Order boundary is summarized below:

- Excavation of fill within the top 4 feet;
- Disposition of excavated material at authorized off-site facilities;
- Backfilling of excavated areas with clean soil; and
- Restoration of existing features including landscaping, patios, fencing, driveways, etc. that are disturbed during construction activities.

The Final Design - Generic Remedial Action Plan (RAP) (MACTEC, 2008), was approved by the DEEP and serves as the basis for remedial action activities within the NPP. The Final Design - Generic RAP details remedial construction activities including excavation of fill to a depth of up to four feet, backfilling excavations, disposition of fill and debris, and restoration of disturbed areas.

Detailed plans and specifications regarding the remediation are contained in the Generic RAP and other project plans which have been approved by the DEEP. The Final Design - Generic RAP and other plans are available at the Town of Hamden Miller Public Library located at 290 Dixwell Avenue, and on the DEEP website at: <http://www.newhallinfo.org>.

Prior to implementing the approved remedial solution, a Property-Specific RAP was prepared for each property owner and submitted to the DEEP for approval. The purpose of the Property-Specific RAP was to provide the homeowner with information regarding the planned construction activities, temporary relocation requirements (if necessary), access provisions, an estimated time table to complete the planned work, and a description of plans to restore the property to existing conditions.

2.0 PROPERTY-SPECIFIC CONSTRUCTION ACTIVITIES

During the 2011 construction season, Olin completed the excavation of fill material to a depth of 4 feet bgs, backfill, and restoration of the property in accordance with the Final Design - Generic RAP and the Property-Specific RAP. Figure 2-1 shows the areas where excavation occurred on the property and the locations of excavation confirmation samples. Excavation confirmation samples were collected in accordance with Section 3.2.3 - Confirmatory Sampling of the Final Design - Generic RAP, including adherence to the sampling frequency requirements. X-ray fluorescence (XRF) excavation confirmation sampling results are presented in Table 2-1. As indicated in Table 2-1, all confirmation sampling results except for one sample indicated total lead concentrations less than the criteria of 400 mg/kg approved by CTDEP in the Final Design - Generic RAP. Sample H0026ES-SON0202EX, collected from a soil wedge adjacent to the church building at a depth of 2 feet, indicated a total lead concentration of 479 mg/kg. Additional soil could not be removed from this location without jeopardizing the integrity of the building's foundation.

The following is a description of changes from the Property-Specific RAP that were necessitated because of field conditions and/or details regarding the marker barrier installed following excavation activities:

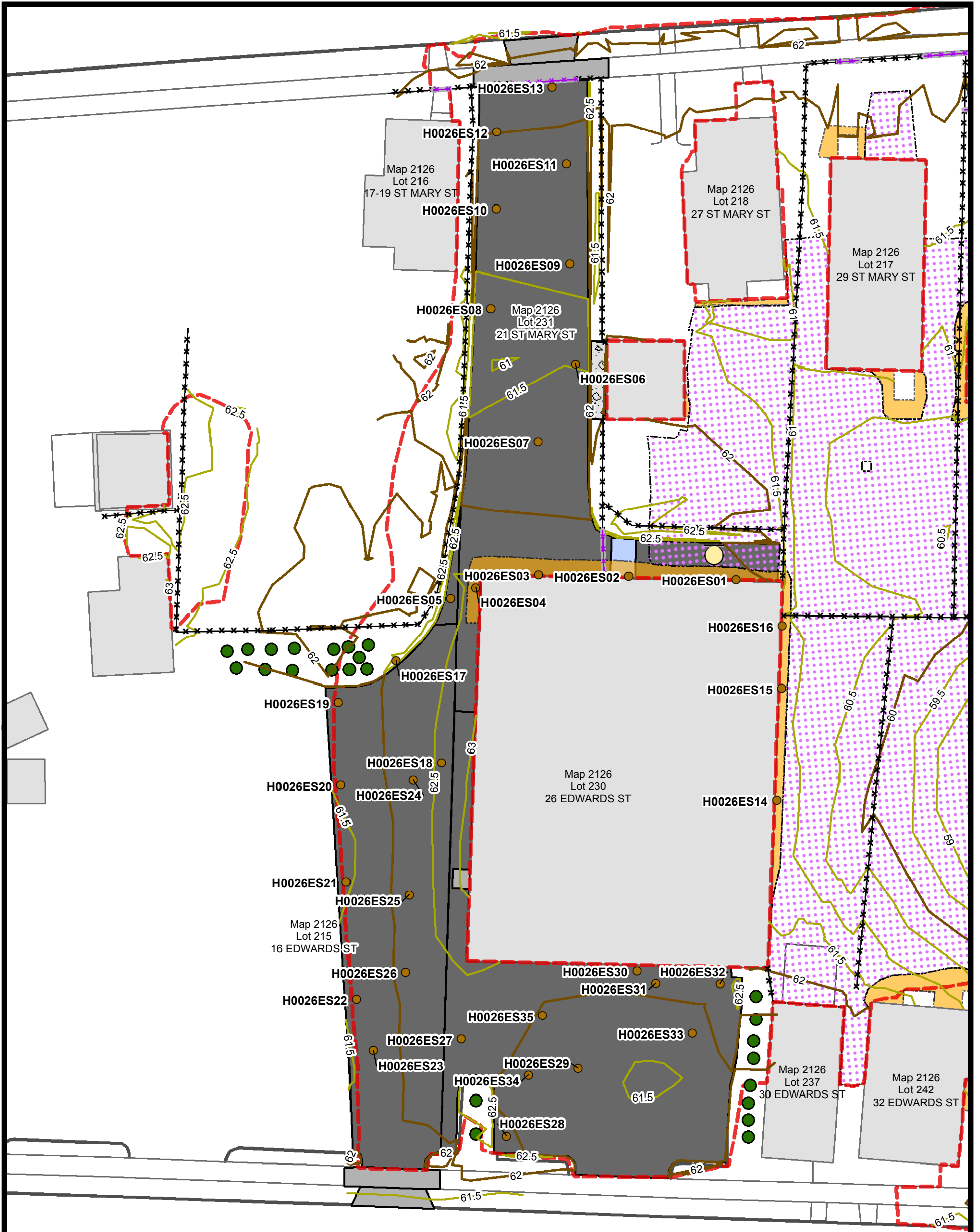
- In some locations, fill material was encountered at greater than 4 feet in depth below ground surface (bgs). This fill material was left in place, covered by an orange geotextile fabric, and backfilled with clean soil in accordance with the Final Design - Generic RAP. Figure 2-1 shows the approximate area of geotextile fabric identifying the presence of fill at a depth greater than 4 feet bgs.
- In some locations, it was necessary to leave fill material in place at depths less than 4 feet bgs in order to avoid jeopardizing the integrity of a structure. This fill material was left in place, covered by an orange geotextile fabric and/or shotcrete, and backfilled with clean soil in accordance with the Final Design - Generic RAP. Figure 2-1 shows the approximate area of geotextile fabric/shotcrete identifying the presence of fill at a depth less than 4 feet bgs.
- An inactive fuel oil underground storage tank (UST) was identified in the excavation area. The property owner and the DEEP were informed and the UST was removed in accordance with the proper protocols and local approvals.

Photographs of construction activities and the restored property are presented in Attachment A.

3.0 REFERENCES

- CTDEP, 2003. Order No. SRD-128, State Of Connecticut vs. Town Of Hamden, South Central Connecticut Regional Water Authority, State Board Of Education, and Olin Corporation. State of Connecticut Department of Environmental Protection, April 16, 2003.
- CTDEP, 2007. Remedy Selection Plan, Newhall Street, Neighborhood Remediation Project. State of Connecticut Department of Environmental Protection, October 2007
- MACTEC, 2008. Final Design - Generic Remedial Action Plan, Non-Public Properties, Newhall Street Neighborhood, Hamden, Connecticut. MACTEC Engineering and Consulting, Inc., August 19, 2008.

FIGURES



Edwards Street

Legend

- | | | | |
|--|--|---|--|
| <ul style="list-style-type: none"> Approximate Extent of Orange Marker Barrier Covering Fill < 4 ft bgs Remaining on Property Approximate Extent of Orange Marker Barrier Covering Fill > 4 ft bgs Remaining on Property | <ul style="list-style-type: none"> Excavation Confirmation Sample Limits of Excavation Final Elevation Contour (2-ft interval) Final Elevation Contour (0.5-ft interval) | <ul style="list-style-type: none"> New Shrub New Fence New Fence Gate Former Underground Storage Tank (Removed) | <ul style="list-style-type: none"> New Asphalt Driveway/Sidewalk New Concrete Driveway/Sidewalk New Crushed Stone New Shed |
|--|--|---|--|



Note: All grass areas disturbed by excavation were restored with sod and/or seed/mulch.

Prepared/Date: BRP 10/06/11
Checked/Date: DRP 10/06/11

TABLES

**TABLE 2-1
EXCAVATION CONFIRMATION XRF SAMPLING RESULTS**

**26 EDWARDS STREET, 16 EDWARDS STREET AND 21 SAINT MARY STREET
NEWHALL STREET NEIGHBORHOOD
HAMDEN, CONNECTICUT**

Location ID	Location Type	Field Sample ID	Sample Date	Top Depth (ft,bgs)	Bottom Depth (ft,bgs)	Parameter	Result	Final Qualifier	Unit of Measure
H0026ES01EX	PES	H0026ES-SON0102EX	07-Apr-11	2	2	Lead	142		MG/KG
H0026ES02EX	PES	H0026ES-SON0202EX	07-Apr-11	2	2	Lead	479		MG/KG
H0026ES03EX	PES	H0026ES-SON0302EX	07-Apr-11	2	2	Lead	352		MG/KG
H0026ES04EX	PES	H0026ES-SON0402EX	07-Apr-11	2	2	Lead	364		MG/KG
H0026ES05EX	PEB	H0026ES-SON0503EX	07-Apr-11	3	3	Lead	50	U	MG/KG
H0026ES06EX	PEB	H0026ES-SON0603EX	11-Apr-11	3	3	Lead	50	U	MG/KG
H0026ES06EX	PEB	H0026ES-SON0603EX	11-Apr-11	3	3	Lead	6.7		MG/KG
H0026ES07EX	PEB	H0026ES-SON0703EX	08-Apr-11	3	3	Lead	50	U	MG/KG
H0026ES08EX	PEB	H0026ES-SON0803EX	11-Apr-11	3	3	Lead	50	U	MG/KG
H0026ES09EX	PEB	H0026ES-SON0903EX	11-Apr-11	3	3	Lead	50	U	MG/KG
H0026ES10EX	PEB	H0026ES-SON1003EX	11-Apr-11	3	3	Lead	194		MG/KG
H0026ES11EX	PEB	H0026ES-SON1103EX	11-Apr-11	3	3	Lead	50	U	MG/KG
H0026ES12EX	PEB	H0026ES-SON1203EX	11-Apr-11	3	3	Lead	50	U	MG/KG
H0026ES13EX	PEB	H0026ES-SON1303EX	11-Apr-11	3	3	Lead	50	U	MG/KG
H0026ES14EX	PES	H0026ES-SON1402EX	11-Apr-11	2	2	Lead	72		MG/KG
H0026ES15EX	PES	H0026ES-SON1502EX	11-Apr-11	2	2	Lead	205		MG/KG
H0026ES16EX	PES	H0026ES-SON1602EX	11-Apr-11	2	2	Lead	222		MG/KG
H0026ES17EX	PEB	H0026ES-SON1703EX	23-May-11	3	3	Lead	141		MG/KG
H0026ES18EX	PEB	H0026ES-SON1803EX	23-May-11	3	3	Lead	50	U	MG/KG
H0026ES19EX	PES	H0026ES-SON1901EX	23-May-11	1	1	Lead	167		MG/KG
H0026ES20EX	PES	H0026ES-SON2001EX	23-May-11	1	1	Lead	205		MG/KG
H0026ES21EX	PES	H0026ES-SON2101EX	23-May-11	1	1	Lead	319		MG/KG
H0026ES22EX	PES	H0026ES-SON2201EX	23-May-11	1	1	Lead	374		MG/KG
H0026ES23EX	PES	H0026ES-SON2301EX	23-May-11	1	1	Lead	267		MG/KG
H0026ES24EX	PEB	H0026ES-SON2403EX	23-May-11	3	3	Lead	50	U	MG/KG
H0026ES25EX	PEB	H0026ES-SON2503EX	23-May-11	3	3	Lead	115		MG/KG
H0026ES26EX	PEB	H0026ES-SON2603EX	23-May-11	3	3	Lead	66		MG/KG
H0026ES26EX	PEB	H0026ES-SON2603EX	23-May-11	3	3	Lead	100		MG/KG
H0026ES27EX	PEB	H0026ES-SON2702EX	24-May-11	2	2	Lead	50	U	MG/KG
H0026ES28EX	PES	H0026ES-SON2801EX	24-May-11	1	1	Lead	50	U	MG/KG
H0026ES29EX	PES	H0026ES-SON2901EX	24-May-11	1	1	Lead	50	U	MG/KG

**TABLE 2-1
EXCAVATION CONFIRMATION XRF SAMPLING RESULTS**

**26 EDWARDS STREET, 16 EDWARDS STREET AND 21 SAINT MARY STREET
NEWHALL STREET NEIGHBORHOOD
HAMDEN, CONNECTICUT**

Location ID	Location Type	Field Sample ID	Sample Date	Top Depth (ft,bgs)	Bottom Depth (ft,bgs)	Parameter	Result	Final Qualifier	Unit of Measure
H0026ES30EX	PEB	H0026ES-SON3001EX	24-May-11	1	1	Lead	85		MG/KG
H0026ES31EX	PES	H0026ES-SON3101EX	24-May-11	1	1	Lead	50	U	MG/KG
H0026ES32EX	PEB	H0026ES-SON3202EX	24-May-11	2	2	Lead	54		MG/KG
H0026ES33EX	PES	H0026ES-SON3301EX	24-May-11	1	1	Lead	50	U	MG/KG
H0026ES34EX	PES	H0026ES-SON3401EX	24-May-11	1	1	Lead	193		MG/KG
H0026ES35EX	PEB	H0026ES-SON3503EX	24-May-11	3	3	Lead	50	U	MG/KG

Notes: bgs - below ground surface
ft - feet
KG - kilograms
MG - milligrams
PEB - sample from bottom of excavation
PES - sample from perimeter of excavation
U - not detected at a concentration above the reporting limit
XRF - x-ray fluorescence

**ATTACHMENT 1
PHOTOGRAPHS**



View looking northeast at abandoned UST identified behind the Church building



View looking Northeast at partially backfilled property as marker barrier is placed



View looking Southeast at excavated catchbasin



View looking West at restored parking area



View looking South at restored parking area



View looking Northeast at restored features