



3855 North Ocoee Street, Suite 200
Cleveland, TN 37312

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November 16, 2011

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

Re: Property-Specific Remedial Action Report
Newhall Street Neighborhood
21-23 Edwards Street, Block J
Hamden, Connecticut 06517

Dear Mr. Bowe:

Enclosed please find the Property-Specific Remedial Action Report (RAR) prepared for the property located at 21-23 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

cc: Sayeed Suraju, 21-23 Edwards Street, Hamden, Connecticut 06517
Curt Richards – Olin
Carrie Hunt – Olin
Nelson Walter – AMEC
Robert Bell – DEEP
Ray Frigon – DEEP
Richard Pearce – Newhall Street Neighborhood Community Liaison
Robert Labulis – Town of Hamden Building Department

**PROPERTY-SPECIFIC REMEDIAL ACTION REPORT
21-23 EDWARDS 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.
1090 Elm Street, Suite 201
Rocky Hill, Connecticut 06067

November 16, 2011

AMEC Project Number: 6107110004/65

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A handwritten signature in black ink that reads "Nelson Walter".

Nelson Walter, P.E.
Project Manager

A handwritten signature in black ink that reads "Rod Pendleton".

Rod Pendleton, P.G
Principal Scientist

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A 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 21-23 Edwards Street in Hamden, Connecticut. 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 21-23 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 (DEEP, 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 (DEEP, 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

Olin Corporation
Newhall Street Neighborhood Site, Hamden CT
Property-Specific Remedial Action Report – 21-23 Edwards Street

Dixwell Avenue, and on the DEEP website at: 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, 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, some confirmation sampling results indicate total lead concentrations less than the criteria of 400 milligrams per kilogram (mg/kg) approved by DEEP in the Final Design - Generic RAP. Several samples collected from the perimeter of the excavated area indicated total lead concentrations that exceeded 400 mg/kg. Additional soil could not be removed from these locations because continued excavation could jeopardize the integrity of the structure.

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.

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

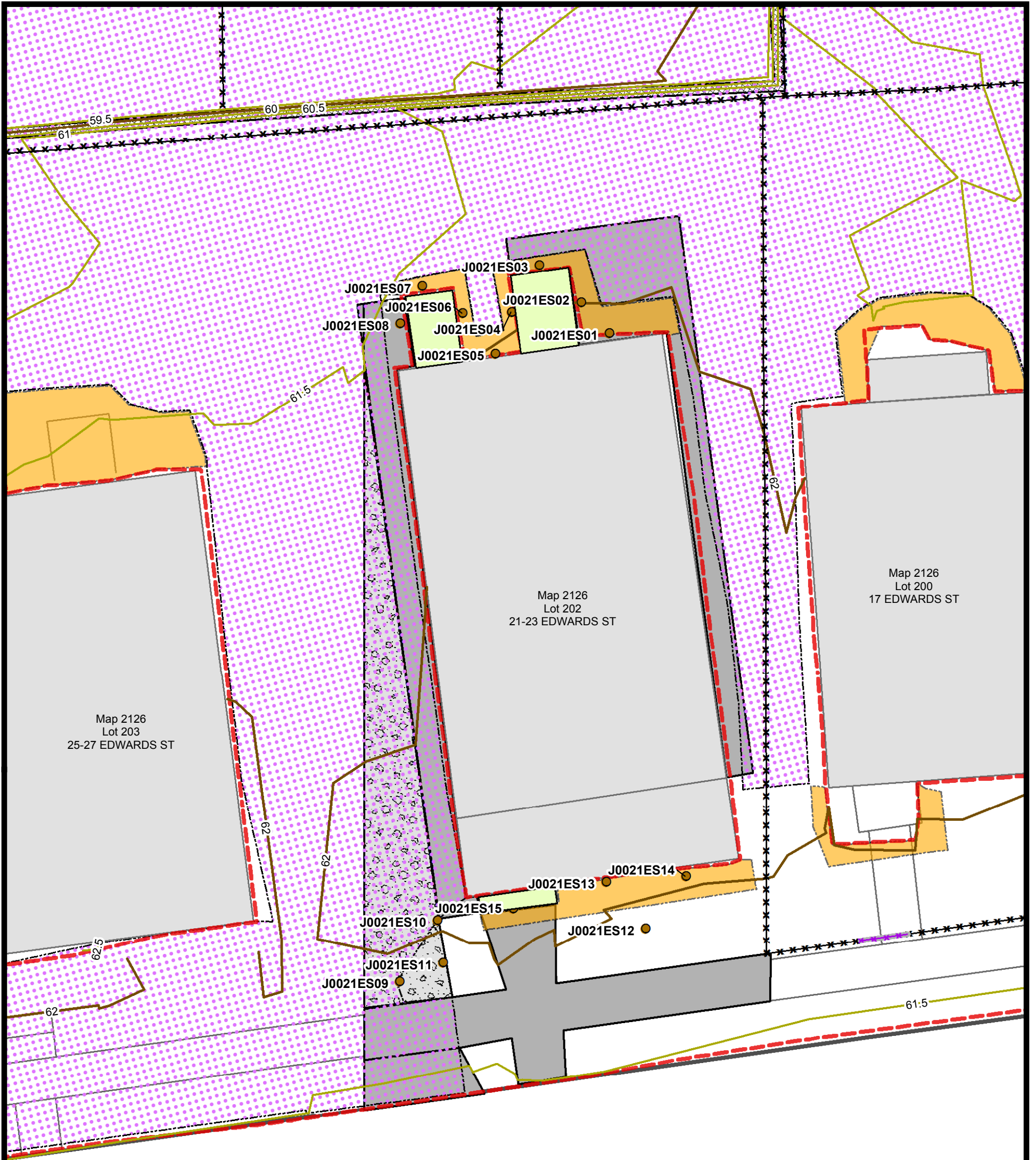
3.0 REFERENCES

DEEP, 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 Energy and Environmental Protection, April 16, 2003.

DEEP, 2007. Remedy Selection Plan, Newhall Street, Neighborhood Remediation Project. State of Connecticut Department of Energy and 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

- | | | | |
|--|---|--------------------------------|-------|
| Approximate Extent of Marker Barrier Covering Fill < 4 ft bgs Remaining on Property | Excavation Confirmation Sample | New Fence | Porch |
| Approximate Extent of Orange Marker Barrier Covering Fill > 4 ft bgs Remaining on Property | Limits of Excavation | New Fence Gate | |
| | Final Elevation Contour (2-ft interval) | New Asphalt Driveway/Sidewalk | |
| | Final Elevation Contour (0.5-ft interval) | New Concrete Driveway/Sidewalk | |
| | | New Crushed Stone | |

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

Prepared/Date: BRP 10/27/11
Checked/Date: DRP 10/27/11

TABLES

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

**21 - 23 EDWARDS 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
J0021ES01EX	PES	J0021ES-SON0103EX	09-May-11	3	3	Lead	1081		MG/KG
J0021ES02EX	PES	J0021ES-SON0203EX	09-May-11	3	3	Lead	1051		MG/KG
J0021ES03EX	PES	J0021ES-SON0303EX	09-May-11	3	3	Lead	1934		MG/KG
J0021ES04EX	PES	J0021ES-SON0402EX	09-May-11	2	2	Lead	1036		MG/KG
J0021ES05EX	PES	J0021ES-SON0502EX	09-May-11	2	2	Lead	1442		MG/KG
J0021ES06EX	PES	J0021ES-SON0602EX	09-May-11	2	2	Lead	1311		MG/KG
J0021ES07EX	PES	J0021ES-SON0703EX	09-May-11	3	3	Lead	1423		MG/KG
J0021ES08EX	PES	J0021ES-SON0803EX	09-May-11	3	3	Lead	1180		MG/KG
J0021ES09EX	PES	J0021ES-SON0903EX	10-May-11	3	3	Lead	50	U	MG/KG
J0021ES10EX	PES	J0021ES-SON1003EX	10-May-11	3	3	Lead	50	U	MG/KG
J0021ES11EX	PEB	J0021ES-SON1102EX	10-May-11	2	2	Lead	104		MG/KG
J0021ES12EX	PEB	J0021ES-SON1202EX	10-May-11	2	2	Lead	384		MG/KG
J0021ES13EX	PES	J0021ES-SON1301EX	10-May-11	1	1	Lead	647		MG/KG
J0021ES14EX	PES	J0021ES-SON1401EX	10-May-11	1	1	Lead	1116		MG/KG
J0021ES15EX	PES	J0021ES-SON1502EX	12-May-11	2	2	Lead	182		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 A
PHOTOGRAPHS



View looking West at excavated back yard following placement of marker barrier



View looking North at excavated front yard



View looking East at excavation of side yard on North side of house



View looking Northwest at restored back yard



View looking Southeast at restored front yard



View looking West at restored side yard on South side of house