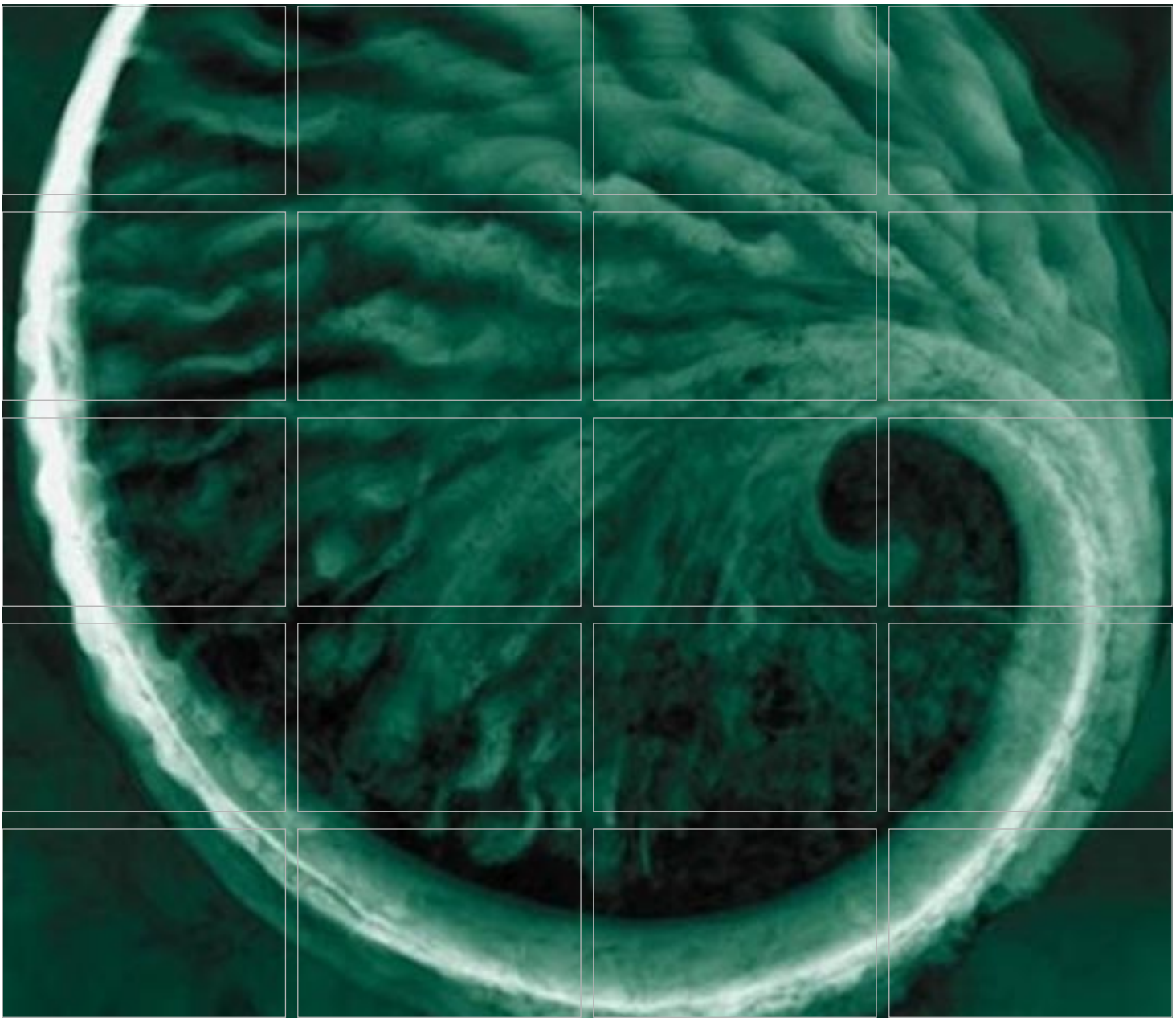


**Raytheon Company**

# Public Comment Draft

# Partial Permanent Solution With Conditions

**433 Boston Post Road, Wayland, MA**
**Release Tracking No: 3-13302**

3 November 2016

ERM Project No. 0321744

www.erm.com

ERM

*The business of sustainability*

**Raytheon Company**

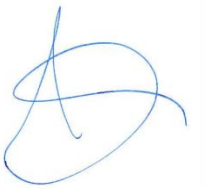
# Public Comment Draft

# Partial Permanent Solution With Conditions

Former Hamlen Property
433 Boston Post Road, Wayland, MA
Release Tracking Number 3-13302

3 November 2016

ERM Project No. 0321744



John C. Drobinski, P.G., LSP
*Partner in Charge*

Lyndsey Colburn, P.G.
*Principal Consultant*

**Environmental Resources Management**
One Beacon Street, 5th Floor
Boston, MA 02108
T: 617-646-7800
F: 617-267-6447

*TABLE OF CONTENTS*

## *LIST OF FIGURES*



## *LIST OF TABLES*



## *LIST OF APPENDICES*

## *ACRONYM AND ABBREVIATION LIST*

| | |
|---|---|
| ACOE | Army Corps of Engineers |
| amsl | above mean sea level |
| ARAH | Area of Readily Apparent Harm |
| AUL | activity and use limitation |
| AWQC | Ambient Water Quality Criteria |
| CAC | Continental Assurance Company |
| CFR | Code of Federal Regulations |
| CMO | Code of Massachusetts Regulation |
| COC | contaminants of concern |
| CSA | Comprehensive Site Assessment |
| $yd^3$ | cubic yards |
| DO | dissolved oxygen |
| ERM | Environmental Resources Management |
| $ft^2$ | square feet |
| GMNWR | Great Meadows National Wildlife Refuge |
| GIS | Geographic Information System |
| LSP | Licensed Site Professional |
| MassDEP | Massachusetts Department of Environmental Protection |
| Mass GIS | Massachusetts Geographic Information System |
| MCP | Massachusetts Contingency Plan |
| MEPA | Massachusetts Environmental Protection Act |
| NAPL | non-aqueous phase liquid |
| NOI | Notice of Intent |
| NPDES | National Pollutant Discharge Elimination System |
| OHM | oil and/or hazardous material |
| ORP | oxidation-reduction potential |
| PAH | polycyclic aromatic hydrocarbon |
| PCB | polychlorinated biphenyl |
| ppm | parts per million |
| QA/QC | quality assurance / quality control |
| REDUA | Representativeness Evaluations and Data Usability Assessments Guidance |
| RIP | Remedy Implementation Plan |
| RTN | Release Tracking Number |
| TSCA | Toxic Substances Control Act |
| TSS | total suspended solids |
| UCL | Upper Concentration Limits |
| U.S./US | United States |
| USEPA | U.S. Environmental Protection Agency |
| USFWS | United States Fish and Wildlife Service |
| WBC | Wayland Business Center, LLC |

## 1.0 INTRODUCTION

On behalf of Raytheon Company (Raytheon), Environmental Resources Management (ERM) has prepared this Partial Permanent Solution With Conditions report for a 5.5-acre parcel located at 433 Boston Post Road in Wayland, Massachusetts (herein referred to as the "Site") (see Figure 1). The property is the Former Hamlen property. Figure 2 shows the Disposal Site Boundary. Figure 3 shows the Disposal Site Area relative to the adjacent former Raytheon facility, which is the source of impacts to the Site.

This Partial Permanent Solution With Conditions report documents the presence and potential current and future risks of polychlorinated biphenyls (PCBs), polycyclic aromatic hydrocarbons (PAHs), and metals in wetland soil/sediment at the Site where concentrations were detected above the applicable Reportable Concentrations.

This report has been prepared in accordance with the provisions set forth in 310 CMR 40.1056, which present the requirements for content of a Permanent Solution. In accordance with 310 CMR 40.1403, the Chief Municipal Officer and Board of Health Commission were notified of the submission of this Partial Permanent Solution With Conditions report. Copies of the letter that was sent to these officials are provided in Appendix A.

The descriptions in this report of the comprehensive response actions taken at the Site include the entire impacted wetland area, not solely the area(s) within the Disposal Site Boundary, which is the subject of this Partial Permanent Solution With Conditions.

## 1.1 PROPERTY LOCATION AND DESCRIPTION

The former Hamlen property is located at 433 Boston Post Road in Wayland, Massachusetts. The Site location is shown in Figure 1. For purposes of this document, the Site is defined as a portion (western portion) of the Former Raytheon Property covered under Release Tracking Number (RTN) 3-13302, related RTN 3-22408, and Tier IB Permit Number 133939. The portion of the property that is the subject of this Partial Permanent Solution With Conditions report is a 5.5-acre parcel of Limited Commercial zoned land located off of Route 20, abutting the Sudbury River. The parcel is approximately 90 percent wetlands and floodplain. The property is bounded to the west by the Sudbury River, to north by

undeveloped land including the Great Meadows National Wildlife Refuge (GMNWR), to the east by the former Raytheon facility, and to the south by Route 20.

An activity and use limitation (AUL) was placed on the land in 2006 following remediation of a corner of the property. The AUL limits the use of the site to passive recreation and open space. Section 3.6 describes the AUL in more detail.

A detailed description of the Site topography, hydrogeology, geology, and hydrogeology is provided in Section 3.1.

## *1.2 PERSON UNDERTAKING THE PARTIAL PERMANENT SOLUTION WITH CONDITIONS*

Responsible Party: Raytheon Company

50 Apple Hill Drive
Tewksbury, Massachusetts 01876

Attn: Louis J. Burkhardt
978-858-1885

Licensed Site Professional: John C. Drobinski, P.G., LSP
LSP Registration No. 2196
Environmental Resources Management
One Beacon Street
Boston, Massachusetts 02108
617-646-7800

## *1.3 OBJECTIVE*

ERM completed this Partial Permanent Solution With Conditions report per 310 CMR 40.1000 to document the comprehensive actions taken to determine that a Condition of No Significant Risk exists at the Site and that the requirements of a Partial Permanent Solution With Conditions have been met.

## *2.0 BACKGROUND*

### *2.1 SITE DESCRIPTION*

The general location of the Site and the physiographic features of the surrounding area are shown on Figure 1. Prior to 1955, the Site was a wetland and floodplain. Subsequent to 1955, the Site remained the same but was bordered by an engineering research and development facility that was decommissioned in 1995.

The Site is currently a wetland and floodplain subject to the restrictions of the Wetlands Protection Act. The Site is located within a Massachusetts Department of Environmental Protection (MassDEP)-Approved Zone II Wellhead Protection Area. Groundwater is therefore considered as a potential current and future source of drinking water. However, there is no current use of groundwater as a source of drinking water on or surrounding the Site. Groundwater is not subject to this Partial Permanent Solution With Conditions report.

The Sudbury River abuts the Site and is classified as a Class B Surface Water Body. Predominant use of the river is recreational. The river has been posted with signage prohibiting consumption of fish due to mercury impacts associated with the Nyanza Superfund site located approximately six miles (straight-line distance) upstream of the Site.

The adjacent property was owned by Continental Assurance Company (CAC) between 1968 and 1997 and leased to Raytheon. Wayland Meadows Limited Partnership (Wayland Meadows) purchased the property from CAC on 1 October 1997 and subsequently sold the Site to Wayland Business Center, LLC (WBC) on 1 December 1997.

Raytheon utilized their property from 1955 to 1995 for electronic testing and chemical process research to support in-house prototype manufacturing. In 1995, Raytheon ceased operations and decommissioned the facility. All research, design, and light manufacturing equipment was removed from the Site. Remaining buildings and structures were evaluated by Raytheon's Environmental Health & Safety Division and decontaminated, if necessary. In 1998, WBC redeveloped the building complex and grounds into commercial office space. In 2005, the property was redeveloped by Koeffler Group, Inc. and Brendon Homes. However, none of the Raytheon operations, buildings, or current development is within the area subject to this Partial Permanent Solution With Conditions report.

## 2.2 *SURROUNDING LAND USE*

The Site is bounded to the west by the Sudbury River, to north by undeveloped land including the GMNWR, to the east by the former Raytheon Facility (currently Wayland Town Center), and to the south by Route 20.

The Site and surrounding area are shown on Figure 3.

## 2.3 *CONCEPTUAL SITE MODEL*

Historical data suggest that inadvertent releases of PCBs, PAHs, and metals may have occurred via the stormwater and sanitary conveyance system, resulting in a discharge to the wetland at outfall OF-1. The organic contaminants were deposited in the wetland sediments near the outfall, and were immobilized as a result of high organic content in the sediment. The metals are more widely dispersed within the wetland, and the highest levels are detected near the outfall.

## 2.4 *RELEASE BACKGROUND*

Releases of oil and/or hazardous materials (OHMs) to soil and groundwater were discovered on the abutting Raytheon property during decommissioning of the former manufacturing facility. Concentrations of OHM were also discovered on the Site subsequent to the above investigation. The primary source of impact to the wetland soil/sediment at the Site is believed to be historic releases of OHM to the stormwater conveyance system on the former Raytheon facility, discharging at the stormwater outfall OF-1 (Figure 2). The primary contaminants of concern (COCs) identified in source structures (e.g., dry wells and manholes) connected to the stormwater conveyance system included PAHs, PCBs, and heavy metals (i.e., chromium, copper, silver, arsenic, and lead).

Evaluation of the average concentrations of primary COCs versus distance from the outfall indicated that concentrations were highest near the outfall, decreasing sharply within 200 feet from the outfall, and then approaching background near the Sudbury River. The vertical extent of impact appeared to be largely limited to the top 18 inches of sediment,

although local variations were noted. The sediment layer is confined by an underlying, silt/clay unit beneath the wetland.

The descriptions in this report of the comprehensive response actions that were taken at the Site include the entire impacted wetland area – not solely the area(s) within the Disposal Site Boundary, which is the subject of this Partial Permanent Solution With Conditions.

An inclusive list of supporting information regarding the release and subsequent response actions is included below.

- Phase I, Initial Site Investigation, May 1996
- Environmental Risk Characterization of the Wetlands Adjacent to the Former Raytheon Facility, Wayland, Massachusetts 09 November 2001
- Phase II, Comprehensive Site Assessment, Vol I, 28 November 2001
- Phase II, Comprehensive Site Assessment, Vol II – Appendix 27 November 2001 " Phase II, Comprehensive Site Assessment, Vol III - Appendix F-G, 27 November 2001
- Phase II, Comprehensive Site Assessment, Vol IV – Appendix H, 27 November 2001
- Phase II, Comprehensive Site Assessment, Vol V – Appendix H, 27 November 2001
- Phase II, Comprehensive Site Assessment, Vol VI – Appendix H, 27 November 2001
- Phase III, Remedial Action Plan, 28 November 2001
- Phase IV, Remedy Implementation Plan, Vol 1, 30 December 2002
- Phase IV, Remedy Implementation Plan, Vol 2 – Appendix A-F, 30 December 2002
- Phase IV, Remedy Implementation Plan, Vol 3 – Appendix G-L, 30 December 2002
- Response to Public Comment, 19 December 2002
- Application for Risk-Based Disposal Approval, 23 December 2002
- Information Supplement - Application for Risk-Based Disposal Approval, 3 April 2003
- Response to Comments, 25 July 2003

- Response to Comments, 31 July 2003, and Revised Application for Risk-Based Disposal Approval, July 2003
- Response to Comments #4, 6 August 2003
- Response to USEPA Comment – 13 August 2003 Letter, 25 August 2003
- Response to USEPA Comment - August 13, 2003 Letter, 28 August 2003
- Revised Application for Risk-Based Disposal Approval, September 2003
- Revised QA/QC Plan, 4 September 2003
- Response to Comments, 26 September 2003
- Phase IV Completion Report, 24 November 2004
- Notice of Activity and Use Limitation, Recorded 8 February 2006
- Toxics Substances Control Act Risk-Based Polychlorinated Biphenyls Remediation Final Report, 14 May 2008
- Remedy Operation Status Reports
    - May 2005 through May 2016

### *2.4.1 Wetland Soil/Sediment*

The correlation of areas of COCs in sediment with the results of vegetative mapping and analysis of plant tissue defined an area of stunted vegetation approximately 0.6-acre in size. This condition constituted an Area of Readily Apparent Harm (ARAH)[1] (Figure 4).

This quantitative evaluation of the potential risk posed by COCs in wetland soil/sediment indicated that PCBs, PAHs, and metals in wetland soil/sediment posed a condition of "significant risk" to human health and the environment which required abatement. The condition of "significant risk" was attributed to the 0.6-acre ARAH and an estimated 0.9 acres of adjacent wetland where COC concentrations were similar to those within the ARAH. Therefore, to achieve a condition of "no significant risk" consistent with Massachusetts Contingency Plan (MCP) performance

[1] ARAH is defined by 310 CMR 40.0955(3) as "stressed vegetation attributable to Site OHM" and is interpreted to reflect the toxicity of heavy metals (e.g., chromium) to plants.

standards for a Permanent Solution, abatement of an estimated 1.5 acres of wetland soil/sediment was required.

### *2.4.2 Surface Water*

No evidence of adverse impact to the Sudbury River has been detected. The Phase II Comprehensive Site Assessment (CSA) (ERM, 2001a-e) provided a detailed description of the surface water assessments that were completed at the Site. The Phase II concluded that the extent of surface water impact within the wetland appears to be largely associated with areas of residual impact to wetland sediments near the outfall, and is reduced to levels protective of the environment before migrating to the Sudbury River.

Surface water analyses indicate that the only metal that maintains a potential to impact aquatic receptors in surface water during periods of flooding is copper at locations within 200 feet of the outfall. Dissolved concentrations of copper drop below both acute and chronic Ambient Water Quality Criteria (AWQC) at greater distances to the Sudbury River.

Review of available data obtained from the Town of Wayland Water Commission as part of the Phase II work (ERM, 2001a-e) indicated that the low pH of the town water supply (less than 6.5) resulted in widespread leaching of copper from the distribution supply lines. Based on these findings, a portion of the copper in surface water and possibly sediment appears to be related to background or "local conditions" as defined in MassDEP guidance.

## *2.5 REMEDIATION OF RELEASE*

Excavation and off-site disposal of wetland soil/sediment was selected as the preferred remedial action for abatement of the impacted wetlands. Remedial activities included:

- Excavation of wetland soil/sediment;
- Off-site transport and disposal of excavated wetland soil/sediment at an appropriately permitted disposal facility; and
- Habitat restoration, which included:
    - Re-soiling and grading to pre-construction contours,
    - Replanting with similar species, and
    - Ecological monitoring.

### *2.5.1 Permitting and Regulatory Approvals*

Prior to initiating remediation, regulatory and permitting approvals were secured. The reach of the Sudbury River adjacent to the wetland remediation area is designated Wild and Scenic under the Wild and Scenic Rivers Act approved 2 October 1968. The wetland remediation area is adjacent to part of the GMNWR, owned and operated by the U.S. Fish and Wildlife Service (USFWS). Because the remediation area is a wetland and is located in a regulated area, a rigorous permitting process was required to satisfy the various governing regulatory agencies. The following regulations and corresponding permits and approvals were obtained for the Site, and maintained on-site throughout the remediation activities:

- The Wetlands Protection Act (310 CMR 10.000) – An Order of Conditions (Order), dated 26 September 2003 and an addendum dated 10 February 2004, was issued by the Town of Wayland Conservation Commission (Commission) in response to the Notice of Intent (NOI) submitted on 15 May 2003 (revisions and addendums to the NOI sent 2 June 2003, 26 June 2003, 9 July 2003, 18 July 2003, and 23 September 2003);
- The Clean Waters Act, Section 401 (Water Quality Criteria) and Section 404 (Wetlands Regulations) – A Water Quality Certification, dated 15 September 2003, was issued by the Department in response to the Major Project Certification - 401 Water Quality Certification Application submitted on 7 February 2003;
- Army Corps of Engineers (ACOE) Regulations (33 CFR 200-399) – A Department of the Army Permit, dated 19 September 2003, was issued by the ACOE in response to an Application for the Department of the Army Permit submitted 7 February 2003;
- The Massachusetts Environmental Protection Act (MEPA) (301 CMR 11.00) – A Certificate of the Secretary of Environmental Affairs on the Single Environmental Impact Report, dated 17 July 2003, was issued by the Office of Environmental Affairs in response to the Single Environmental Impact Report submitted on 19 May 2003;
- The Toxic Substance Control Act (TSCA) (40 CFR 750 and 761) – An Approval for Risk-Based PCB Remediation, dated 2 October 2003, was issued by the USEPA in response to an Application for Risk-Based Disposal Approval submitted on 23 December 2002 (revision and additional information submitted on 3 April 2003, 8 May 2003, and 28 August 2003); and

- National Pollution Discharge Elimination System (NPDES) Permit – A NPDES Letter of Approval (Authorization # MA 03I-123), dated 27 October 2003, was issued by the USEPA in response to a Request for a NPDES Permit Exclusion submitted on 23 October 2003.

Copies of the permits filed for the wetland remedial activities have been provided to the Department and the Commission in previous submittals.

### *2.5.2 Target Cleanup Goals for Wetland Soil/Sediment*

Results of the human health and environmental risk characterizations presented in the Phase II indicated that PAHs, PCBs, and metals in wetland soil/sediment pose a potential risk of harm to human health and the environment. Development of target cleanup goals for wetland soil and sediment were developed and were based on consideration of the estimated potential risk posed by PAHs, PCBs and metals to human health and the environment, applicable state and federal regulations governing wetlands remediation, applicable state and federal regulations governing the management of remediation wastes and consideration of the feasibility of abatement to background.

An ARAH was identified during Phase II activities as an area that would likely require remedial abatement. Results of the human health risk characterization indicated that OHM in areas of the wetland outside of the ARAH did not pose a condition of "significant risk" to human health. Therefore, abatement of the ARAH met MassDEP risk management criteria for protection of human health for "reasonably foreseeable" future uses of the wetland.

Similarly, results of the Stage II indicated that OHM in areas of the wetland outside of ARAH do not pose a condition of "significant risk" to the environment. Therefore, abatement of the ARAH would meet MassDEP risk management criteria for protection of the environment.

Development of target cleanup goals for wetland soil/sediment presented in the Risk-Based Plan and approved by the United States (U.S.) Environmental Protection Agency (USEPA) were based on the following criteria:

- Consideration of the estimated potential risk posed by PAHs, PCBs and metals to human health and the environment;
- Applicable state and federal regulations governing wetlands remediation;

- Applicable state and federal regulations governing the management of remediation wastes;
- Consideration of net benefits to the environment to be gained by various remedial scenarios; and
- Consideration of the feasibility of abatement to background.

Target cleanup goals presented in the following table represent the arithmetic average residual concentration of each compound allowed in the remediation area following excavation.

| **Compound** | **Cleanup Goal Arithmetic Average Concentration** (mg/kg) |
|---|---|
| Total PCBs | 2.0 |
| Total PAHs | 9.0 |
| Arsenic | 11 |
| Chromium (trivalent) | 332 |
| Copper | 372 |
| Lead | 210 |
| Silver | 13 |

### *2.5.3 Wetland Soil/Sediment Excavation*

Comprehensive Remedial Actions were completed from October 2003 through September 2008 on the property. Wetland soil/sediment excavation activities were conducted in three areas as shown on Figure 5. Each area was excavated to an average depth of 2.4 feet, totaling approximately 8,076 cubic yards ($yd^3$) of wetland soil/sediment removed. According to the final excavation area survey, the square footage of each excavated area was as follows:

- Area A = 3,151.5 $ft^2$
- Area B = 9,623.9 $ft^2$
- Area C = 76,052.6 $ft^2$

The total area excavated is 88,828 $ft^2$, which is 2.04 acres. As shown in Figure 4, Area A is outside of the Disposal Site Boundary and a portion of Areas B and C are outside of the Disposal Site Boundary. This section

describes the remediation of the Site COCs in the entire wetland area, not solely the portion of the area within the Disposal Site Boundary.

### *2.5.4 Verification Sampling*

Wetland verification sampling focused on satisfying TSCA cleanup requirements in accordance with 40 CFR 761, Subpart O for PCBs and MCP risk management criteria for PAHs and metals. The Risk-Based Plan to meet TSCA requirements was approved on 2 October 2003.

Two types of verification samples were collected:

- Grid samples – five-point composite samples taken within 20-foot by 20-foot grid cells from the pattern surveyed onto the remediation areas (Figure 2); and
- Perimeter samples – grab samples collected along the sidewall boundaries of the three excavation areas (Figure 2).

The analytical results for the wetland soil/sediment samples were compared to the applicable cleanup goals, as stated in the USEPA approved Risk-Based Remediation Plan and are presented in Tables 1a through 1f. If composite verification samples indicated that cleanup goals were not achieved, an additional 6 inches was removed and the cell re-sampled. If perimeter verification samples indicated that cleanup goals were not achieved, the cell to the outside of the sample location was excavated and both the newly excavated grid cell and the perimeter location were re-sampled. As grid cells were re-sampled, the sampling round number of the sample identification was changed (i.e., –01 to –02 to –03). Sample results for the verification samples, which were in compliance with the cleanup goals, are presented in Tables 1a through 1f. Table 2 details which contaminants were in exceedance and which cells were re-sampled.

Post-excavation total PCB minimum and maximum concentrations in the wetland were 0.116 and 3.1 parts per million (ppm), respectively. The total PCB concentration was calculated by summing analytical detections of PCBs and one-half the method detection limit for non-detect PCBs.

### *2.5.5 Surface Water*

#### 2.5.5.1 *Surface Water Monitoring During Remediation*

At the request of the Conservation Commission, ERM prepared and instituted a surface water monitoring plan in December 2003. Four surface water monitoring locations were established along the Sudbury

River and monitored on a weekly basis during excavation activities. The surface water monitoring locations are shown on Figure 4.

Surface water was monitored for temperature, specific conductance, dissolved oxygen (DO), pH, oxidation-reduction potential (ORP), and turbidity using a YSI 6820 multi-parameter sensor.

Surface water monitoring results are tabulated in Table 3. Surface water locations were monitored on 31 December 2003 and 6 January 2004. Subsequent surface water monitoring was not conducted due to a frozen Sudbury River resulting from cold weather conditions.

2.5.5.2 *NDPES Monitoring*

During remedial activities, surface water and precipitation in the wetland excavation and staging area were managed using a collection sump and dewatering. Dewatering was performed in accordance with the Phase IV Remedy Implementation Plan (RIP) (ERM, 2002a-c) and subsequent planning. ERM submitted a request for a NPDES Permit Exclusion to the USEPA on 23 October 2003. The NPDES Letter of Approval (Permit Authorization #MA 03I-123) was issued on 27 October 2003, allowing conditional discharge of treated water into the Sudbury River.

In accordance with the NPDES Permit application, influent and effluent samples were collected on the first, third, and fifth day of the first week of operation and then weekly thereafter. This sampling protocol was followed until January 2004, when samples were collected on a monthly basis in accordance with written notification to the USEPA. Flow was monitored daily and water samples were collected for the following monitoring parameters:

- PAHs;
- PCBs;
- Arsenic, copper, chromium, lead, silver;
- pH; and
- Total suspended solids (TSS).

A summary and discussion of monitoring results are presented in the Phase IV Completion Report (ERM, 2004). No permit exceedances of the Site COCs were detected in the treatment system effluent during the discharge to the Sudbury River. Infrequent exceedances of TSS and pH were noted.

### *2.5.6 Waste Management*

Off-site transportation of wetland soil/sediment occurred from October 2003 to January 2004 and June 2004 to July 2004. Details regarding waste disposal are included in the Phase IV Completion Report (ERM, 2004).

### *2.5.7 Restoration*

Restoration of wetland areas and upland access roads was completed by October 2004. Five years of ecological monitoring concluded in September 2008. The results of the last required monitoring in 2008 indicated that the restoration area was stable, and provides valuable habitat and flood storage capacity in the Sudbury River floodplain (ERM, 2008b). The goal of the restoration was to restore the area to an emergent marsh community with native herbaceous species consistent with the conditions historically found in the Sudbury River floodplain. This goal was achieved.

## *3.0 PERMANENT SOLUTION MINIMUM CONTENT INFORMATION – 310 CMR 40.1056(1)*

## *3.1 DISPOSAL SITE INFORMATION – 310 CMR 40.1056(1)(A)*

### *3.1.1 Location*

The former Hamlen property is located at 433 Boston Post Road in Wayland, Massachusetts. The Site location is shown in Figure 1. For purposes of this document, the Site is defined as a portion (western portion) of the Former Raytheon Property covered under Release Tracking Number (RTN) 3-13302, related RTN 3-22408, and Tier IB Permit Number 133939. The portion of the property that is the subject of this Partial Permanent Solution With Conditions report is a 5.5-acre parcel of Limited Commercial zoned land located off of Route 20, abutting the Sudbury River.

### *3.1.2 Physical Background*

3.1.2.1 *Topography and Hydrology*

The Sudbury River abuts the western boundary of the Site and is classified as a Class B Surface Water Body. The stream gradient adjacent to the Site is estimated at approximately 1 foot per 12 miles (Bickford and Dymon, 1990). Based on review of Massachusetts Geographic Information System (Mass GIS) map (Mass GIS, 2000) no Zone A areas for a reservoir are currently located within 500 feet of the Site. The Sudbury River has been posted with signage prohibiting consumption of fish due to mercury impacts associated with the Nyanza Superfund site located approximately 6 miles (straight-line distance) upstream of the Site.

On 9 April 1999, a 14.9-mile segment of the Sudbury River, including the reach adjacent to the Site, was added to the national list of Wild and Scenic Rivers and designated as "scenic" status. As such, a conservation plan that relies on local and private initiatives is being implemented by the SuAsCo River Stewardship Council to ensure long-term protection of this portion of the Sudbury River.

Based on the results of the Zone II delineation, the Sudbury River represents the main discharge zone for groundwater beneath, and in the vicinity of, the Site. Site well gauging results also suggests that the majority of groundwater flow beneath the Site discharges directly to the Sudbury River. The portion of the Site groundwater flow regime located

to the east of the inferred groundwater flow divide may discharge to the unnamed brook/drainage swale located along the eastern boundary of the Site. This unnamed brook/swale flows south to a confluence with Pine Brook, located approximately 1,000 feet to the south of the Site. Pine Brook in turn flows southwest to a confluence with the Sudbury River, approximately 0.5 mile to the southwest of the Site (Figure 1).

3.1.2.2 *Geology and Hydrogeology*

Bedrock beneath the Site was mapped by the United States Geologic Survey (USGS, 1975) as crystalline metamorphic rock, primarily gneiss, of the Claypit Hill formation. The area to the northeast of the Site is underlain by undifferentiated gabbro and diabase of Carboniferous to Precambrian age.

The Bloody Bluff Fault is the closest mapped fault to the Site, located within one mile, trending southwest-northeast and dipping to the west. Northwest of the Bloody Bluff Fault lies the Dedham Granodiorite formation.

Bedrock mapping by Fortin (January 1981), shows that bedrock elevations range from 20 feet above mean sea level (ASL) at the Sudbury River west of the Site and along the Boston and Maine rail line to 70 feet ASL at the northwestern edge of the Site. Bedrock was encountered in Site borings at a depth of 60 feet to 80 feet bgs.

The Site is located in a zone of Wisconsin-aged glaciolacustrine (i.e., lake bottom) deposits. Field observations indicate that the deposits are primarily stratified fine sands and silt. Recent swamp and alluvial deposits occur west and south of the Site, along the Sudbury River. The Site itself, a wetland, is underlain by a silty-clay layer.

3.1.2.3 *Wetland and Habitats*

The area that is the subject of this Partial Permanent Solution With Conditions is occupied by a wetland (Figure 3). This wetland is part of a large floodplain encompassing approximately 3,000 acres that are part of the GMNWR. The GMNWR includes federally protected woodlands, fields, and freshwater wetlands, and is designated as a high-density area for nesting wood ducks.

The Site wetland/floodplain is primarily influenced by the water levels of the Sudbury River. Regular inundation of the wetland prevents it from developing into forested or scrub-shrub wetland.

According to the Mass GIS Map (Figure 5), the Site wetland is classified under the National Heritage Endangered Species Program as Estimated Habitats of Rare Wetlands Wildlife. Additional details regarding Site wetland communities and characteristics are documented in a report entitled, *Raytheon Project Area Ecological Characterization*, prepared by Woodlot dated December 2000 and included in the Phase IV RIP (ERM, 2002a-c).

## *3.2 PERMANENT SOLUTION WITH OR WITHOUT CONDITIONS – 310 CMR 40.1056(1)(B)*

As a result of assessment and remediation activities conducted at the Site, ERM determined that with the existing AUL, a Condition of No Significant Risk exists and, therefore, no further response actions are necessary. A Partial Permanent Solution With Conditions is appropriate to the portion of the Site which this document addresses.

## *3.3 RISK CHARACTERIZATION METHOD EMPLOYED – 310 CMR 40.1056(1)(C)*

In December 2002, on behalf of Raytheon, ERM submitted an application for Risk-Based Disposal Approval to the United States Environmental Protection Agency (USEPA), Region I, in accordance with the requirements of 40 CFR 761.61(a)(3) of the Toxic Substance Control Act (TSCA). The application was submitted to obtain USEPA approval of risk-based remedial actions involving the management of remediation waste, specifically wetland soil/sediment, containing PCBs and thereby classified under 40 CFR 40.761.3 as "PCB remediation waste". As described in Section 2.5.1, target cleanup goals were developed for wetland soil/sediment and presented in the Risk-Based Plan, approved by USEPA.

To meet the requirements of CFR 761.61(a)(3), a Method 3 Risk Characterization was prepared, in accordance with 310 CMR 40.0991, to evaluate the risk of harm to human health, safety, public welfare, and the environment. The risk characterization was prepared consistent with available MassDEP and USEPA guidance.

The risk characterization considered current and reasonably foreseeable Site activities and uses, excluding consideration of the existing deed restrictions on the Site (i.e., Notice of Activity & Use Limitation (AULs)). The risk characterization considered all available soil, groundwater, sediment, surface water and biota analytical data generated during the course of Phase II - CSA investigation activities as well as previous Site investigations and remedial activities.

Results of the Stage II indicated that OHM, in areas of the wetland outside of the Expanded ARAH, do not pose a condition of "significant risk" to the environment. Therefore, abatement of the Expanded ARAH would meet MassDEP risk management criteria for protection of the environment.

Details regarding the Method 3 Risk Characterization are included in Section 4.6.

## 3.4 *RELATIONSHIP TO OTHER PERMANENT OR TEMPORARY SOLUTION STATEMENTS – 310 CMR 40.1056(1) (D)*

A summary of MassDEP RTNs for the Site is presented below.

| RTN | Release Condition | Date Issued | Status |
|---|---|---|---|
| 3-1783 | MA DEP lists Site on LTBI (List of Locations to be Investigated) per USEPA referral. Also included a historic release of butyl cellusolve due to a cross-connection of wastewater treatment lines. | 15 January 1987 | Closed 31 July 1995 LSP Evaluation Opinion Filed |
| 3-13302 | Chlorinated hydrocarbons and petroleum hydrocarbons (No. 6 fuel oil) to soil and groundwater. | 2 January 1996 | Open - ROS (Partial Class A-3 RAO Statement Filed 14 May 1999 for Petroleum Hydrocarbons) |
| 3-13574 | Release of chlorinated hydrocarbons (TCE, PCE) to groundwater. | 28 March 1996 | Open – Linked to 3-13302 |
| 3-14042 | Release of PCBs to soil and at TP-3. RAM completed to abate impact. | 25 July 1996 | Open – Linked to 3-13302 |
| 3-19482 | Release of PCBs and metals to wetland sediments. | 9 May 2000 | Open – Linked to 3-13302 |
| 3-22408 | Release of chlorinated hydrocarbons to soil and groundwater (Northern Site) | 17 December 2002 | Open – Linked to 3-13302 |

## 3.5 *ACTIVITY AND USE LIMITATION SUMMARY – 310 CMR 40.1056(1) (E)*

An AUL was recorded for the parcel in January 2006. Figure 6 shows the boundaries of the AUL. The AUL is required to ensure the existence or maintenance of a Condition of No Significant Risk at the Site and was required under Condition 13 of the Approval for Risked-Based Remediation dated 2 October 2003. A copy of the AUL is included in Appendix B.

The following activities and uses are permitted on the property:

1. Passive recreation such as fishing, boating, etc.;
2. Such other activities or uses that, in the Opinion of the Licensed Site Professional (LSP), shall present no greater risk of harm to health, safety, public welfare, and the environment than the activities and uses set forth in this paragraph; and
3. All activities and uses consistent with those set forth in this paragraph and not expressly prohibited by this notice.

The following activities and uses are inconsistent with the AUL Opinion:

1. Residential, childcare, daycare, commercial, industrial, agricultural, horticultural, or gardening activities, unless previously approved by the LSP in accordance with the obligations and conditions set forth in the AUL Opinion;
2. Groundwater use except for assessment or remedial purposes;
3. Other activities or uses that, in the Opinion of the LSP, would likely result in significant risk from exposures to OHM if site activities or uses were to take place on the property.

## *3.6 ASSUMPTIONS OF CURRENT OR FUTURE SITE ACTIVITIES, USES OR CONDTIONS NOT REQUIRING AUL – 310 CMR 40.1056(1) (F)*

An AUL is required at the Site to ensure the existence or maintenance of a Condition of No Significant Risk at the Site.

## *3.7 ACTIVE EXPOSURE PATHWAY MITIGATION MEASURES – 310 CMR 40.1056(1) (G)*

No Active Exposure Pathway Mitigation Measures are required to achieve or maintain the Partial Permanent Solution With Conditions for this Site.

## *3.8 LICENSED SITE PROFESSIONAL (LSP) OPINION – 310 CMR 40.1056(1) (H)*

The LSP Opinion provided on Form BWSC-104, the Permanent and Temporary Solution Statement Transmittal Form, accompanies this submittal (Appendix C).

## *3.9 CERTIFICATION OF SUBMITTAL – 310 CMR 40.1056(1) (I)*

The Certification of Submittal on Form BWSC-104, the Permanent and Temporary Solution Statement Transmittal Form, accompanies this submittal (Appendix C).

## *3.10 UPPER CONCENTRATION LIMITS – 310 CMR 40.1056(1) (J)*

No constituent concentrations detected at the Site were above the MCP Upper Concentration Limits (UCLs).

## *3.11 ANALYTICAL DATA AND COMPENDIUM OF ANALYTICAL METHODS – 310 CMR 40.1056(1) (K)*

The MCP requires that all Permanent Solutions include a Representative Evaluation and a Data Usability Assessment. Section 5.0 of this report includes a description and details of the activities completed to comply with this requirement.

## *4.0 PERMANENT SOLUTION SUPPORTING DOCUMENTATION INFORMATION – 310 CMR 40.1056(2)*

### *4.1 DISPOSAL SITE LOCATION DESCRIPTION – 310 CMR 40.1056(2) (A)*

In accordance with 310 CMR 40.0006, the Site is defined to include areas where OHM has come to be located. The former Hamlen property is located at 433 Boston Post Road in Wayland, Massachusetts. The Site location is shown in Figure 1. For purposes of this document, the Site is defined as a portion (western portion) of the Former Raytheon Property covered under Release Tracking Number (RTN) 3-13302, related RTN 3-22408, and Tier IB Permit Number 133939. The portion of the property that is the subject of this Partial Permanent Solution With Conditions report is a 5.5-acre parcel of Limited Commercial zoned land located off of Route 20, abutting the Sudbury River. The Site boundary is shown in Figure 2. More information regarding the property boundaries is included in the AUL provided in Appendix B.

The Phase II Comprehensive Site Assessment (ERM, 2001a) provided a detailed description of Background conditions at the Site. Site-specific background concentrations of COCs were developed using river samples collected upstream of the Site and compared the results to local conditions and MassDEP guidance.

### *4.2 CONCEPTUAL SITE MODEL - 310 CMR 40.1056 (2) (B)*

Historical data suggest that inadvertent releases of PCBs, PAHs, and metals may have occurred via the stormwater and sanitary conveyance system resulting in a discharge to the wetland at outfall OF-1. The organic contaminants were deposited in the wetland sediments near the outfall, and were immobilized as a result of high organic content in the sediment. The metals are more widely dispersed within the wetland, and the highest levels are detected near the outfall.

### *4.3 ELIMINATION OR CONTROL OF UNCONTROLLED SOURCES – 310 CMR 40.1056(2) (C)*

There are no known uncontrolled sources of impacts at the Site that are resulting or are likely to result in an increase in constituent concentrations in an environmental medium. The stormwater and sanitary conveyance

system that discharged to the wetland was removed and the impacted wetland soil/sediment was adequately remediated.

### *4.4 CONTROL MIGRATION OF OHM - 310 CMR 40.1056(2) (D)*

Response actions were completed that adequately assessed and controlled the migration of OHM remaining at the Site. Wetland soil/sediment containing OHM above the risk-based target cleanup objectives was removed as part of remedial response actions. Migration, through erosion by wind or water, of remaining OHM above background levels in wetland soil/sediment was minimized due to the full restoration of the wetland area.

### *4.5 CONTROL OF NON-AQUEOUS PHASE LIQUIDS (NAPLS) – 310 CMR 40.1056(2) (E)*

No NAPLs were detected at the Site.

### *4.6 LEVEL OF NO SIGNIFICANT RISK – 310 CMR 40.1056(2) (F)*

A Method 3 Risk Characterization was completed in accordance with 310 CMR 40.0991 and was presented in the application for risk-based disposal approval submitted to USEPA in October 2003. Results of the human health risk characterization indicated that OHM in areas of the wetland outside of the ARAH do not pose a condition of "significant risk" to human health. Similarly, results of the Stage II indicated that OHM, in areas of the wetland outside of the ARAH, do not pose a condition of "significant risk" to the environment. Impacted wetland soil/sediment from within the ARAH was removed and the risk-based target cleanup goals were achieved, as presented in the Phase IV Completion Report (ERM, 2004).

The risk-based target cleanup goals were developed as part of the Phase II (ERM, 2001a-e). Based on a 2016 review, direct contact toxicity values for PAHs and PCBs for effects on human health have not changed since the target cleanup concentrations were derived in 2000. The target cleanup goals for chromium and copper were developed using scientific literature that is still regarded as valid.

Therefore, ERM will rely on the previously completed Method 3 Risk Characterization to conclude that a level of No Significant Risk to health,

safety, public welfare, and the environment exists for all current and foreseeable future use of the Site, relying on an AUL both inside and outside of the previous ARAH.

## *4.7 ACHIEVEMENT OF BACKGROUND – 310 CMR 40.1056(2) (G)*

The MCP (310 CMR 40.0860(6) (a)) states that achieving background should be considered feasible unless "the incremental cost of conducting the remedial alternative is substantial and disproportionate to the incremental benefit of risk reduction, environmental restoration, and monetary and non-pecuniary values." Using a benchmark comparison approach, ERM evaluated the cost of additional remediation to approach or achieve background to the cost of achieving a condition of "no significant risk" at the Site.

Based on the results of the detailed cost evaluation provided in the Phase III (ERM, 2001f), the cost to complete wetland soil/sediment excavation and off-site disposal was estimated at $4.2 million to achieve a condition of "no significant risk." The volume of soil/sediment requiring removal and disposal was estimated at 3,700 $yd^3$ (actual volume removed was 8,076 $yd^3$). Abatement of wetland soil/sediment to background would require removal of soil/sediment at all sample locations where the concentration of total PCBs are greater than 1.8 ppm (i.e., the maximum background concentration detected). Using a target cleanup goal of 2 ppm total PCBs to "achieve or approach" background, the volume of remediation waste was estimated, as part of the Phase III evaluation, to increase from 3,700 $yd^3$ to approximately 12,000 $yd^3$. Assuming that the previous estimate of the volume of soil that would require removal to achieve or approach background remains the same, this represents an approximately 30 percent increase in volume and cost from the work already completed. Available MassDEP guidance regarding the use of benchmark comparisons in determining the feasibility of abatement to background indicates that if the additional costs to remediate beyond a condition of "no significant risk" to levels that approach background exceed 20 percent of the cost to remediate to a condition of "no significant risk", then remediation to approach background should be considered infeasible. Therefore, based on the above benchmark comparison, remediation of wetland soil/sediment to approach or achieve background is considered infeasible.

In addition, the Massachusetts Wetland Protection Act, 310 CMR 10.53, prohibits approval of remedial measures that would abate OHM in a wetland below a level necessary to achieve a condition of "no significant

risk." Therefore, abatement to background would not be possible under current state regulations.

### *4.8 ACTIVITY AND USE LIMITATION – 310 CMR 40.1056(2)(H)*

Section 3.5 includes a description of the AUL placed on the Site. A copy of the AUL is included in Appendix B.

### *4.9 UPPER CONCENTRATION LIMITS – 310 CMR 40.1056(2)(I)*

No constituent concentrations detected at the Site were above the MCP UCLs.

### *4.10 ASSUMPTIONS OF CURRENT OR FUTURE SITE ACTIVITIES, USES OR CONDTIONS NOT REQUIRING AUL – 310 CMR 40.1056(2)(J)*

An AUL was implemented at the Site; therefore, this Section does not apply to this Site.

### *4.11 DATA USABILITY ASSESSMENT – 310 CMR 40.1056(2)(K)*

The Data Usability Assessment is provided in Section 5.0.

### *4.12 DESCRIPTION OF OPERATION, MAINTENANCE, AND/OR MONITORING – 310 CMR 40.1056(2)(L)*

No operation, maintenance, and/or monitoring is required to maintain this Partial Permanent Solution With Conditions. Remedial activities at the Site involved wetland soil/sediment removal and off-site disposal and wetland restoration. Remedial activities and restoration were completed in 2008.

## *5.0 DATA REPRESENTATIVENESS EVALUATION AND USABILITY ASSESSMENT*

Pursuant to 310 CMR 40.1056(2)(k) and in accordance with the MassDEP Policy #WSC-07-350 MCP Representativeness Evaluations and Data Usability Assessments Guidance (REDUA) (MassDEP, September 2007), an evaluation of representativeness and an assessment of the data quality shall be conducted for the data collected at this Site.

The Representativeness Evaluation determines whether the data set in total sufficiently characterizes conditions at the disposal site and supports a coherent Conceptual Site Model. An Analytical Data Usability Assessment is used to evaluate whether analytical data points are scientifically valid and defensible and of a sufficient level of precision, accuracy and sensitivity to support this Partial Permanent Solution With Conditions. A Data Usability Assessment has both a laboratory analytical component and a field sampling component.

Prior to implementation of remedial actions, ERM prepared a Quality Assurance/Quality Control (QA/QC) Plan using USEPA Region 1 Quality Assurance Project Plan (QAPP) Guidance and was included in the Risk Based Disposal Application (ERM, 2002d). The QA/QC Plan described project Data Quality Objectives, Analytical Methods and Performance Criteria for cleanup verification data, data quality control and quality assurance measures and data validation methods. A detailed discussion of the sampling design and the type, number, location, and depth of proposed samples was included in the Risk Based Disposal Application (ERM, 2002d). USEPA approved the Risk Based Disposal Application and associated QA/QC Plan in 2003. Development of and compliance with this QA/QC Plan supports REDUA.

## *5.1 CONCLUSION OF REPRESENTATIVENESS EVALUATION*

The TSCA Risk-Based PCB Remediation Final Report (ERM, 2008a) documented that sampling collection procedures were performed in accordance with the QA/QC Plan, as provided to the USEPA in the Application for Risk-Based Disposal Approval. The Sampling locations and analytical parameters were appropriate to support Site decisions and provided a representative dataset to support this Partial Permanent Solution With Conditions.

## *5.2 CONCLUSION OF THE USABILITY ASSESSMENT*

The TSCA Risk-Based PCB Remediation Final Report (ERM, 2008a) provided details of the assessment of data usability and documents that procedures followed were in accordance with the QA/QC Plan, as provided to the USEPA in the Application for Risk-Based Disposal Approval. The Final Report also includes a copy of the Tier II data validation performed by ERM.

ERM performed a Tier II review of the laboratory data packages consistent with USEPA Region 1 requirements for organic and inorganic parameters. The data were validated according to the protocols and quality control requirements of the analytical methods and the New England Data Validation Functional Guidelines for Evaluating Environmental Analysis (December 1996).

The data verification reports indicated which lab results were considered non-compliant when compared to the requirements set form in the relevant documents. The majority of these non-compliant results represented minor quality control problems and do not affect data usability. In most cases, these problems were typical analytical difficulties or were the result of sample matrix problems. A full discussion of the data usability evaluation is included as Appendix B of the TSCA Final Report (ERM, 2008a).

In accordance with the MCP requirements, the data were scientifically valid and defensible and of a sufficient level of accuracy, precision, and completeness to support this Partial Permanent Solution With Conditions report.

## *6.0 PARTIAL PERMANENT SOLUTION WITH CONDITIONS SUMMARY*

The following summarizes the findings of this Partial Permanent Solution With Conditions:

- A level of No Significant Risk to health, safety, public welfare, and the environment will be maintained for all current and foreseeable future use of the Site, relying on an AUL;
- All sources of OHM have been eliminated;
- All threats of release have been eliminated;
- OHM concentrations do not exceed an applicable UCL; and
- The level of OHM concentrations in the environment have been reduced to as close to background levels as feasible.

The only media subject to this Partial Permanent Solution With Conditions is wetland soil/sediment.

The response actions described in this report have been performed in accordance with the MCP. Based on analytical results from samples collected during site investigation activities and remediation activities, ERM concludes that the Site meets the requirements for a Partial Permanent Solution per 310 CMR 40.1040 of the MCP. The Partial Permanent Solution Statement Transmittal Form (BWSC-104) was submitted concurrently with this report through eDEP.

## *7.0 PUBLIC INVOLVEMENT*

Public involvement documentation, as required by 310 CMR 40.1403(3), is included as Appendix A.

## *8.0 REFERENCES*


Bickford, W.E. and U.J. Dymon, "An atlas of Massachusetts river systems: environmental designs for the future," University of Massachusetts, Amherst, MA, 1990.

Environmental Resources Management (ERM). 2001a. *Phase II, Comprehensive Site Assessment, Vol I*. 28 November 2001.

ERM. 2001b. *Phase II, Comprehensive Site Assessment, Vol II – Appendix 27 November 2001 " Phase II, Comprehensive Site Assessment, Vol III - Appendix F-G*. 27 November 2001.

ERM. 2001c. *Phase II, Comprehensive Site Assessment, Vol IV – Appendix H*. 27 November 2001.

ERM. 2001d. *Phase II, Comprehensive Site Assessment, Vol V – Appendix H*. 27 November 2001.

ERM. 2001e. *Phase II, Comprehensive Site Assessment, Vol VI – Appendix H*. 27 November 2001.

ERM. 2001f. *Phase III, Remedial Action Plan*. 28 November 2001.

ERM. 2002a. *Phase IV, Remedy Implementation Plan, Vol 1*. 30 December 2002.

ERM. 2002b. *Phase IV, Remedy Implementation Plan, Vol 2 – Appendix A-F*. 30 December 2002.

ERM. 2002c. *Phase IV, Remedy Implementation Plan, Vol 3 – Appendix G-L*. 30 December 2002.

ERM. 2002d. *Application for Risk-Based Disposal Approval*. 23 December 2002.

ERM. 2003a. *Revised Application for Risk-Based Disposal Approval*. September 2003.

ERM. 2003b. *Revised QA/QC Plan*. 4 September 2003.

ERM. 2004. *Phase IV Completion Report*. 24 November 2004.

Raytheon Company. 2006. *Notice of Activity and Use Limitation*. Recorded 8 February 2006.

ERM. 2008a. *Toxics Substances Control Act Risk-Based Polychlorinated Biphenyls Remediation Final Report*. 14 May 2008.

ERM. 2008b. *Remedy Operation Status Report June through October 2008*. 9 December 2008.

Mass GIS, "Solid Waste Assessment Priority Resource Map, Town of Wayland," 9 January 2000.

USGS. 1975, "Bedrock Geologic Map of the Framingham Quadrangle, Middlesex and Worcester Counties, Massachusetts," by Arthur E. Nelson, GQ-1274, 1975.

USGS. 1975, "Bedrock Geologic Map of the Natick Quadrangle, Middlesex and Norfolk Counties, Massachusetts," by Arthur E. Nelson, GQ-1208, 1975.

*Tables*

**Table 1a**
**Summary of Wetland Soil/Sediment Analytical Results - Area A Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | Upper Concentration Limit | BC-C113-01 | BC-C114-01 | BC-C117-01 | BC-C118-01 | BC-C121-01 | BC-C122-01 | Average |
|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | | 29-Jan-04 | 29-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | |
| **Total Metals (mg/kg)** | | | | | | | | | |
| Arsenic | 11 | 500 | **2.3** | **2.3** | **2.1** | **2.6** | **2.2** | **1.9** | 2.2 |
| Chromium | 332 | 2,000 | **7.6** | **7.5** | **6.0** | **7.4** | **6.7** | **7.3** | 7.1 |
| Copper | 372 | - | **9.7** | **13** | **9.9** | **10** | **10** | **11** | 11 |
| Lead | 210 | 6,000 | **2.9** | **2.7** | **2.8** | **3.0** | **2.5** | **2.5** | 2.7 |
| Silver | 13 | 2,000 | 0.17 | 0.17 | 0.16 | 0.16 | 0.17 | 0.17 | 0.16 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | |
| 1-Methyl phenanthrene | | - | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| 1-Methylnaphthalene | | - | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| 2-Methylnaphthalene | | 5,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Acenaphthene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Acenaphthylene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Anthracene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Benz[a]anthracene | | 3,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Benzo[a]pyrene | | 300,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Benzo[b]fluoranthene | | 3,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Benzo[ghi]perylene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Benzo[k]fluoranthene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Biphenyl | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Chrysene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Dibenzo[a,h]anthracene | | 300,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Fluoranthene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Fluorene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Indeno[1,2,3-cd]pyrene | | 3,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Naphthalene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Perylene | | - | 65 | 65 | **180** | **200** | **160** | **260** | 155 |
| Phenanthrene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Pyrene | | 10,000,000 | 65 | 65 | 60 | 65 | 65 | 65 | 64 |
| Total SVOC/PAHs | 9,000 | - | 1,365 | 1,365 | 1,380 | 1,500 | 1,460 | 1,560 | 1,438 |
| **PCBs (µg/kg)** | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | - | 41.7 | 41.7 | 39.1 | 40.3 | 41.7 | 41.7 | 41.0 |
| Aroclor® 1221 | | - | 41.7 | 41.7 | 39.1 | 40.3 | 41.7 | 41.7 | 41.0 |
| Aroclor® 1232 | | - | 41.7 | 41.7 | 39.1 | 40.3 | 41.7 | 41.7 | 41.0 |
| Aroclor® 1248 | | - | 41.7 | 41.7 | 39.1 | 40.3 | 41.7 | 41.7 | 41.0 |
| Aroclor® 1254 | | - | 41.7 | 41.7 | 39.1 | 40.3 | 41.7 | 41.7 | 41.0 |
| Aroclor® 1260 | | - | 41.7 | 41.7 | 39.1 | 40.3 | 41.7 | 41.7 | 41.0 |
| Aroclor® 1262 | | - | 41.7 | 41.7 | 39.1 | 40.3 | 41.7 | 41.7 | 41.0 |
| Aroclor® 1268 | | - | 41.7 | 41.7 | 39.1 | 40.3 | 41.7 | 41.7 | 41.0 |
| Total PCBs | 2,000 | 100,000 | 333.2 | 333.2 | 312.4 | 322.4 | 333.2 | 333.2 | 327.9 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limit.
- no UCL

**Table 1b**
**Summary of Wetland Soil/Sediment Analytical Results - Area A Perimeters**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | Upper Concentration Limit | BC-P121-01 | BC-P118-01 | BC-P113-01 | Average |
|---|---|---|---|---|---|---|
| Date Sampled | | | 28-Jan-04 | 28-Jan-04 | 29-Jan-04 | |
| **Total Metals (mg/kg)** | | | | | | |
| Arsenic | 11 | 500 | **3.7** | **1.7** | **4.0** | 3.1 |
| Chromium | 332 | 2,000 | **11** | **6.2** | **23** | 13 |
| Copper | 372 | - | **17** | **7.4** | **34** | 19 |
| Lead | 210 | 6,000 | **6.2** | **2.1** | **13** | 7.1 |
| Silver | 13 | 2,000 | 0.19 | 0.17 | **0.99** | 0.45 |
| **SVOC/PAHs (µg/kg)** | | | | | | |
| 1-Methyl phenanthrene | | - | 75 | 65 | 70 | 70 |
| 1-Methylnaphthalene | | - | 75 | 65 | 70 | 70 |
| 2-Methylnaphthalene | | 5,000,000 | 75 | 65 | 70 | 70 |
| Acenaphthene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Acenaphthylene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Anthracene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Benz[a]anthracene | | 3,000,000 | 75 | 65 | 70 | 70 |
| Benzo[a]pyrene | | 300,000 | 75 | 65 | 70 | 70 |
| Benzo[b]fluoranthene | | 3,000,000 | 75 | 65 | 70 | 70 |
| Benzo[ghi]perylene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Benzo[k]fluoranthene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Biphenyl | | 10,000,000 | 75 | 65 | 70 | 70 |
| Chrysene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Dibenzo[a,h]anthracene | | 300,000 | 75 | 65 | 70 | 70 |
| Fluoranthene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Fluorene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Indeno[1,2,3-cd]pyrene | | 3,000,000 | 75 | 65 | 70 | 70 |
| Naphthalene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Perylene | | - | 75 | 65 | 70 | 70 |
| Phenanthrene | | 10,000,000 | 75 | 65 | 70 | 70 |
| Pyrene | | 10,000,000 | **190** | 65 | 70 | 108 |
| Total SVOC/PAHs | 9,000 | - | 1,690 | 1,365 | 1,470 | 1,508 |
| **PCBs (µg/kg)** | | | | | | |
| Aroclor® 1016 and 1242 - combination | | - | 48.1 | 41.7 | 44.7 | 44.8 |
| Aroclor® 1221 | | - | 48.1 | 41.7 | 44.7 | 44.8 |
| Aroclor® 1232 | | - | 48.1 | 41.7 | 44.7 | 44.8 |
| Aroclor® 1248 | | - | 48.1 | 41.7 | 44.7 | 44.8 |
| Aroclor® 1254 | | - | 48.1 | 41.7 | 44.7 | 44.8 |
| Aroclor® 1260 | | - | 48.1 | 41.7 | 44.7 | 44.8 |
| Aroclor® 1262 | | - | 48.1 | 41.7 | 44.7 | 44.8 |
| Aroclor® 1268 | | - | 48.1 | 41.7 | 44.7 | 44.8 |
| Total PCBs | 2,000 | 100,000 | 384.8 | 333.2 | 357.2 | 358.4 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limit.
- no UCL

**Table 1c**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area B Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-Up Goals | Upper Concentration Limit | BC-C092-01 | BC-C093-01 | BC-C094-01 | BC-C096-01 | BC-C097-01 | BC-C098-01 | BC-C100-01 | BC-C101-01 | BC-C102-01 | BD-C085-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 |
| **Total Metals - Inorganics (mg/kg)** | | | | | | | | | | | | |
| Arsenic | 11 | 500 | **5.1** | **3.0** | **5.1** | **4.6** | **2.4** | **5.8** | **9.9** | **3.9** | **7.8** | **2.2** |
| Chromium | 332 | 2,000 | **120** | **6.7** | **54** | **120** | **6.9** | **62** | **710** | **87** | **360** | **8.5** |
| Copper | 372 | - | **170** | **8.9** | **110** | **170** | **5.7** | **120** | **730** | **98** | **330** | **9.2** |
| Lead | 210 | 6,000 | **45** | **2.3** | **77** | **49** | **2.1** | **90** | **150** | **53** | **150** | **2.4** |
| Silver | 13 | 2,000 | **7.6** | 0.15 | **3.7** | **5.4** | 0.16 | **4.2** | **26** | **3.9** | **33** | 0.16 |
| **PAHs - Organics (µg/kg)** | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | - | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| 1-Methylnaphthalene | | - | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| 2-Methylnaphthalene | | 5,000,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Acenaphthene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Acenaphthylene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Anthracene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Benz[a]anthracene | | 3,000,000 | 70 | 60 | 70 | 70 | 65 | **180** | 90 | 70 | 75 | 65 |
| Benzo[a]pyrene | | 300,000 | 70 | 60 | 70 | 70 | 65 | **200** | **180** | 70 | 75 | 65 |
| Benzo[b]fluoranthene | | 3,000,000 | 70 | 60 | 70 | 70 | 65 | **340** | **300** | 70 | **220** | 65 |
| Benzo[ghi]perylene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Benzo[k]fluoranthene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | **340** | **280** | 70 | **190** | 65 |
| Biphenyl | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Chrysene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | **350** | **350** | 70 | **220** | 65 |
| Dibenzo[a,h]anthracene | | 300,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Fluoranthene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | **430** | **370** | 70 | **260** | 65 |
| Fluorene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Indeno[1,2,3-cd]pyrene | | 3,000,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Naphthalene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Perylene | | - | 70 | 60 | 70 | 70 | 65 | 70 | 90 | 70 | 75 | 65 |
| Phenanthrene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | **190** | 90 | 70 | 75 | 65 |
| Pyrene | | 10,000,000 | 70 | 60 | 70 | 70 | 65 | **460** | **420** | 70 | **300** | 65 |
| Total PAHs | 9,000 | - | 1,470 | 1,260 | 1,470 | 1,470 | 1,365 | 3,400 | 3,250 | 1,470 | 2,390 | 1,365 |
| **PCBs - Organics (µg/kg)** | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | - | 44.7 | 36.8 | 43.1 | 44.7 | 40.3 | 44.7 | 57.0 | 43.1 | 48.1 | 40.3 |
| Aroclor® 1221 | | - | 44.7 | 36.8 | 43.1 | 44.7 | 40.3 | 44.7 | 57.0 | 43.1 | 48.1 | 40.3 |
| Aroclor® 1232 | | - | 44.7 | 36.8 | 43.1 | 44.7 | 40.3 | 44.7 | 57.0 | 43.1 | 48.1 | 40.3 |
| Aroclor® 1248 | | - | 44.7 | 36.8 | 43.1 | 44.7 | 40.3 | 44.7 | 57.0 | 43.1 | 48.1 | 40.3 |
| Aroclor® 1254 | | - | **425** | 36.8 | **129** | **251** | 40.3 | **195** | **585** | **129** | **950** | 40.3 |
| Aroclor® 1260 | | - | **102** | 36.8 | 43.1 | **126** | 40.3 | 44.7 | **583** | **124** | **293** | 40.3 |
| Aroclor® 1262 | | - | 44.7 | 36.8 | 43.1 | 44.7 | 40.3 | 44.7 | 57.0 | 43.1 | 48.1 | 40.3 |
| Aroclor® 1268 | | - | 44.7 | 36.8 | 43.1 | 44.7 | 40.3 | 44.7 | 57.0 | 43.1 | 48.1 | 40.3 |
| Total PCBs | 2,000 | 100,000 | 794.9 | 294.0 | 430.7 | 644.9 | 322.4 | 507.6 | 1,510 | 511.6 | 1,532 | 322.4 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limit
- no UCL

**Table 1c**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area B Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-Up Goals | BD-C086-01 | BD-C087-01 | BD-C089-01 | BD-C090-01 | BD-C091-01 | BD-C093-01 | BD-C094-01 | BD-C095-01 | BD-C097-01 | BD-C098-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 21-Oct-03 | 22-Oct-03 |
| **Total Metals - Inorganics (mg/kg)** | | | | | | | | | | | |
| Arsenic | 11 | **2.4** | **3.2** | **2.6** | **2.4** | **2.7** | **2.5** | **2.9** | **2.7** | **4.9** | **3.1** |
| Chromium | 332 | **9.5** | **8.7** | **17** | **7.8** | **8.4** | **7.3** | **6.9** | **7.2** | **12** | **8.5** |
| Copper | 372 | **10** | **13** | **18** | **8.8** | **7.7** | **7.1** | **6.4** | **6.8** | **14** | **6.4** |
| Lead | 210 | **2.7** | **3.6** | **4.2** | **2.8** | **3.0** | **2.2** | **2.4** | **2.3** | **4.5** | **2.9** |
| Silver | 13 | 0.16 | 0.2 | **0.54** | 0.15 | 0.15 | 0.15 | 0.15 | 0.16 | 0.14 | 0.15 |
| **PAHs - Organics (µg/kg)** | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| 1-Methylnaphthalene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| 2-Methylnaphthalene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Acenaphthene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Acenaphthylene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Anthracene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Benz[a]anthracene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Benzo[a]pyrene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Benzo[b]fluoranthene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Benzo[ghi]perylene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Benzo[k]fluoranthene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Biphenyl | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Chrysene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Dibenzo[a,h]anthracene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Fluoranthene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Fluorene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Indeno[1,2,3-cd]pyrene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Naphthalene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Perylene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | **150** | 60 |
| Phenanthrene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Pyrene | | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 60 | 55 | 60 |
| Total PAHs | 9,000 | 1,260 | 1,260 | 1,260 | 1,260 | 1,260 | 1,260 | 1,260 | 1,260 | 1,250 | 1,260 |
| **PCBs - Organics (µg/kg)** | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 39.1 | 37.9 | 37.9 | 36.8 | 37.9 | 36.8 | 37.9 | 39.1 | 35.7 | 36.8 |
| Aroclor® 1221 | | 39.1 | 37.9 | 37.9 | 36.8 | 37.9 | 36.8 | 37.9 | 39.1 | 35.7 | 36.8 |
| Aroclor® 1232 | | 39.1 | 37.9 | 37.9 | 36.8 | 37.9 | 36.8 | 37.9 | 39.1 | 35.7 | 36.8 |
| Aroclor® 1248 | | 39.1 | 37.9 | 37.9 | 36.8 | 37.9 | 36.8 | 37.9 | 39.1 | 35.7 | 36.8 |
| Aroclor® 1254 | | 39.1 | 37.9 | 37.9 | 36.8 | 37.9 | 36.8 | 37.9 | 39.1 | 35.7 | 36.8 |
| Aroclor® 1260 | | 39.1 | 37.9 | 37.9 | 36.8 | 37.9 | 36.8 | 37.9 | 39.1 | 35.7 | 36.8 |
| Aroclor® 1262 | | 39.1 | 37.9 | 37.9 | 36.8 | 37.9 | 36.8 | 37.9 | 39.1 | 35.7 | 36.8 |
| Aroclor® 1268 | | 39.1 | 37.9 | 37.9 | 36.8 | 37.9 | 36.8 | 37.9 | 39.1 | 35.7 | 36.8 |
| Total PCBs | 2,000 | 312.4 | 303.2 | 303.2 | 294.0 | 303.2 | 294.0 | 303.2 | 312.4 | 285.6 | 294.0 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limit
- no UCL

**Table 1c**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area B Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-Up Goals | BD-C099-01 | BD-C101-01 | BD-C102-01 | BD-C103-01 | BD-C105-01 | BD-C106-01 | BD-C107-01 | BD-C109-01 | BD-C110-01 | BD-C111-01 | BD-C113-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 22-Oct-03 | 21-Oct-03 | 21-Oct-03 | 22-Oct-03 | 21-Oct-03 | 21-Oct-03 | 21-Oct-03 | 21-Oct-03 | 21-Oct-03 | 21-Oct-03 | 21-Oct-03 |
| **Total Metals - Inorganics (mg/kg)** | | | | | | | | | | | | |
| Arsenic | 11 | **3.7** | **6.0** | **4.3** | **5.4** | **7.6** | **6.4** | **4.4** | **19** | **7.0** | **6.0** | **8.7** |
| Chromium | 332 | **8.5** | **20** | **7.7** | **9.1** | **10** | **7.2** | **8.8** | **160** | **8.8** | **21** | **130** |
| Copper | 372 | **8.7** | **24** | **6.9** | **7.0** | **4.5** | **3.3** | **4.1** | **190** | **2.3** | **33** | **130** |
| Lead | 210 | **3.4** | **5.3** | **3.3** | **3.6** | **3.6** | **2.9** | **2.6** | **100** | **3.0** | **27** | **110** |
| Silver | 13 | 0.16 | **0.39** | 0.14 | 0.16 | 0.13 | 0.13 | 0.13 | **6.0** | 0.12 | **0.28** | **2.5** |
| **PAHs - Organics (µg/kg)** | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| 1-Methylnaphthalene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| 2-Methylnaphthalene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Acenaphthene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Acenaphthylene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Anthracene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Benz[a]anthracene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Benzo[a]pyrene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Benzo[b]fluoranthene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | **190** | 49 | 55 | **210** |
| Benzo[ghi]perylene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Benzo[k]fluoranthene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | **170** | 49 | 55 | **190** |
| Biphenyl | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Chrysene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | **190** | 49 | 55 | **190** |
| Dibenzo[a,h]anthracene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Fluoranthene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | **250** | 49 | 55 | **240** |
| Fluorene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Indeno[1,2,3-cd]pyrene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Naphthalene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Perylene | | 60 | **130** | 55 | 60 | **150** | 50 | **110** | 75 | **100** | 55 | 65 |
| Phenanthrene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | 75 | 49 | 55 | 65 |
| Pyrene | | 60 | 55 | 55 | 60 | 50 | 50 | 50 | **270** | 49 | 55 | **250** |
| Total PAHs | 9,000 | 1,260 | 1,230 | 1,155 | 1,260 | 1,150 | 1,050 | 1,110 | 2,270 | 1,080 | 1,155 | 2,120 |
| **PCBs - Organics (µg/kg)** | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 39.1 | 34.7 | 35.7 | 39.1 | 32.9 | 32.9 | 32.9 | 46.3 | 30.5 | 35.7 | 40.3 |
| Aroclor® 1221 | | 39.1 | 34.7 | 35.7 | 39.1 | 32.9 | 32.9 | 32.9 | 46.3 | 30.5 | 35.7 | 40.3 |
| Aroclor® 1232 | | 39.1 | 34.7 | 35.7 | 39.1 | 32.9 | 32.9 | 32.9 | 46.3 | 30.5 | 35.7 | 40.3 |
| Aroclor® 1248 | | 39.1 | 34.7 | 35.7 | 39.1 | 32.9 | 32.9 | 32.9 | 46.3 | 30.5 | 35.7 | 40.3 |
| Aroclor® 1254 | | 39.1 | 34.7 | 35.7 | 39.1 | 32.9 | 32.9 | 32.9 | **172** | 30.5 | 35.7 | **231** |
| Aroclor® 1260 | | 39.1 | 34.7 | 35.7 | 39.1 | 32.9 | 32.9 | 32.9 | 46.3 | 30.5 | 35.7 | **108** |
| Aroclor® 1262 | | 39.1 | 34.7 | 35.7 | 39.1 | 32.9 | 32.9 | 32.9 | 46.3 | 30.5 | 35.7 | 40.3 |
| Aroclor® 1268 | | 39.1 | 34.7 | 35.7 | 39.1 | 32.9 | 32.9 | 32.9 | 46.3 | 30.5 | 35.7 | 40.3 |
| Total PCBs | 2,000 | 312.4 | 277.6 | 285.6 | 312.4 | 263.2 | 263.2 | 263.2 | 496.1 | 244.0 | 285.6 | 580.8 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limit
- no UCL

**Table 1c**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area B Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-Up Goals | BD-C114-01 | BD-C115-01 | Average |
|---|---|---|---|---|
| Date Sampled | | 21-Oct-03 | 21-Oct-03 | |
| **Total Metals - Inorganics (mg/kg)** | | | | |
| Arsenic | 11 | **16** | **8.3** | 5.5 |
| Chromium | 332 | **340** | **30** | 72 |
| Copper | 372 | **150** | **31** | 74 |
| Lead | 210 | **80** | **66** | 32 |
| Silver | 13 | **3.2** | **0.4** | 3.0 |
| **PAHs - Organics (µg/kg)** | | | | |
| 1-Methyl phenanthrene | | 65 | 60 | 62 |
| 1-Methylnaphthalene | | 65 | 60 | 62 |
| 2-Methylnaphthalene | | 65 | 60 | 62 |
| Acenaphthene | | 65 | 60 | 62 |
| Acenaphthylene | | 65 | 60 | 62 |
| Anthracene | | 65 | 60 | 62 |
| Benz[a]anthracene | | 65 | 60 | 65 |
| Benzo[a]pyrene | | 65 | 60 | 69 |
| Benzo[b]fluoranthene | | **260** | 60 | 95 |
| Benzo[ghi]perylene | | 65 | 60 | 62 |
| Benzo[k]fluoranthene | | **190** | 60 | 90 |
| Biphenyl | | 65 | 60 | 62 |
| Chrysene | | **220** | 60 | 95 |
| Dibenzo[a,h]anthracene | | 65 | 60 | 62 |
| Fluoranthene | | **240** | 60 | 103 |
| Fluorene | | 65 | 60 | 62 |
| Indeno[1,2,3-cd]pyrene | | 65 | 60 | 62 |
| Naphthalene | | 65 | 60 | 62 |
| Perylene | | 65 | 60 | 74 |
| Phenanthrene | | 65 | 60 | 66 |
| Pyrene | | **260** | 60 | 108 |
| Total PAHs | 9,000 | 2,210 | 1,260 | 1509 |
| **PCBs - Organics (µg/kg)** | | | | |
| Aroclor® 1016 and 1242 - combination | | 41.7 | 37.9 | 39.3 |
| Aroclor® 1221 | | 41.7 | 37.9 | 39.3 |
| Aroclor® 1232 | | 41.7 | 37.9 | 39.3 |
| Aroclor® 1248 | | 41.7 | 37.9 | 39.3 |
| Aroclor® 1254 | | **556** | 37.9 | 135 |
| Aroclor® 1260 | | **347** | 37.9 | 80.6 |
| Aroclor® 1262 | | 41.7 | 37.9 | 39.3 |
| Aroclor® 1268 | | 41.7 | 37.9 | 39.3 |
| Total PCBs | 2,000 | 1,152.9 | 303.2 | 452 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limit
- no UCL

**Table 1d**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area B Perimeters**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-Up Goals | Upper Concentration Limit | BC-P092-01 | BC-P094-01 | BC-P100-01 | BC-P102-01 | BD-P087-01 | BD-P089-01 | BD-P095-01 | BD-P097-01 | BD-P103-01 | BD-P105-01 | BD-P111-01 | BD-P114-01 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | | 21-Oct-03 | 21-Oct-03 | 21-Oct-03 | 21-Oct-03 | 22-Oct-03 | 22-Oct-03 | 22-Oct-03 | 20-Oct-03 | 22-Oct-03 | 20-Oct-03 | 17-Oct-03 | 17-Oct-03 | |
| **Total Metals - Inorganics (mg/kg)** | | | | | | | | | | | | | | | |
| Arsenic | 11 | 500 | **5.7** | **5.1** | **4.4** | **5.4** | **3.4** | **6.5** | **7.1** | **6.2** | **6.6** | **12** | **6.5** | **65** | 11 |
| Chromium | 332 | 2,000 | **210** | **16** | **32** | **10** | **12** | **15** | **64** | **16** | **12** | **15** | **21** | **9.1** | 21 |
| Copper | 372 | - | **390** | **38** | **42** | **10** | **18** | **27** | **67** | **25** | **14** | **12** | **31** | **4.0** | 25 |
| Lead | 210 | 6,000 | **70** | **28** | **18** | **6.7** | **5.8** | **11** | **36** | **7.5** | **12** | **8.8** | **54** | **6.8** | 18 |
| Silver | 13 | 2,000 | **7** | **0.79** | **0.88** | 0.15 | 0.16 | **0.34** | **2.4** | 0.17 | 0.15 | 0.15 | 0.16 | 0.13 | 0.5 |
| **PAHs - Organics (µg/kg)** | | | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | - | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| 1-Methylnaphthalene | | - | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| 2-Methylnaphthalene | | 5,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Acenaphthene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Acenaphthylene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Anthracene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Benz[a]anthracene | | 3,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Benzo[a]pyrene | | 300,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Benzo[b]fluoranthene | | 3,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Benzo[ghi]perylene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Benzo[k]fluoranthene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Biphenyl | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Chrysene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Dibenzo[a,h]anthracene | | 300,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Fluoranthene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Fluorene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Indeno[1,2,3-cd]pyrene | | 3,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Naphthalene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Perylene | | - | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Phenanthrene | | 10,000,000 | 75 | 70 | 70 | 60 | 60 | 60 | 75 | 70 | 60 | 60 | 65 | 50 | 62.5 |
| Pyrene | | 10,000,000 | **160** | 70 | 70 | 60 | 60 | 60 | 75 | **140** | 60 | 60 | 65 | 50 | 71.3 |
| Total PAHs | 9,000 | - | 1,660 | 1,470 | 1,470 | 1,260 | 1,260 | 1,260 | 1,575 | 1,540 | 1,260 | 1,260 | 1,365 | 1,050 | 1,321.3 |
| **PCBs - Organics (µg/kg)** | | | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | - | 46.3 | 43.1 | 43.1 | 37.9 | 39.1 | 37.9 | 46.3 | 43.1 | 37.9 | 37.9 | 40.3 | 32.9 | 39.4 |
| Aroclor® 1221 | | - | 46.3 | 43.1 | 43.1 | 37.9 | 39.1 | 37.9 | 46.3 | 43.1 | 37.9 | 37.9 | 40.3 | 32.9 | 39.4 |
| Aroclor® 1232 | | - | 46.3 | 43.1 | 43.1 | 37.9 | 39.1 | 37.9 | 46.3 | 43.1 | 37.9 | 37.9 | 40.3 | 32.9 | 39.4 |
| Aroclor® 1248 | | - | 46.3 | 43.1 | 43.1 | 37.9 | 39.1 | 37.9 | 46.3 | 43.1 | 37.9 | 37.9 | 40.3 | 32.9 | 39.4 |
| Aroclor® 1254 | | - | **171** | 43.1 | 43.1 | 37.9 | 39.1 | 37.9 | 46.3 | 43.1 | 37.9 | 37.9 | 40.3 | 32.9 | 39.4 |
| Aroclor® 1260 | | - | **276** | 43.1 | 43.1 | 37.9 | 39.1 | 37.9 | 46.3 | 43.1 | 37.9 | 37.9 | 40.3 | 32.9 | 39.4 |
| Aroclor® 1262 | | - | 46.3 | 43.1 | 43.1 | 37.9 | 39.1 | 37.9 | 46.3 | 43.1 | 37.9 | 37.9 | 40.3 | 32.9 | 39.4 |
| Aroclor® 1268 | | - | 46.3 | 43.1 | 43.1 | 37.9 | 39.1 | 37.9 | 46.3 | 43.1 | 37.9 | 37.9 | 40.3 | 32.9 | 39.4 |
| Total PCBs | 2,000 | 100,000 | 724.8 | 344.8 | 344.8 | 303.2 | 312.4 | 303.2 | 370.4 | 344.8 | 303.2 | 303.2 | 322.4 | 263.2 | 315.4 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limit.
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | Upper Concentration Limit | AC-C001-01 | AC-C002-01 | AC-C003-01 | AC-C004-01 | AC-C005-01 | AC-C006-01 | AC-C008-01 | AC-C009-01 | AC-C010-01 | AC-C011-01 | AC-C012-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | | 28-Jan-04 | 30-Jan-04 | 30-Jan-04 | 30-Jan-04 | 30-Jan-04 | 30-Jan-04 | 28-Jan-04 | 30-Jan-04 | 30-Jan-04 | 30-Jan-04 | 30-Jan-04 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | 500 | **7.8** | **7.5** | **9.2** | **8.3** | **11** | **4.2** | **6.4** | **6.2** | **11** | **22** | **10** |
| Chromium | 332 | 2,000 | **7.2** | **8.2** | **11** | **9.1** | **6.9** | **4.4** | **31** | **44** | **27** | **67** | **17** |
| Copper | 372 | - | **11** | **11** | **13** | **12** | **13** | **6.9** | **31** | **81** | **39** | **70** | **21** |
| Lead | 210 | 6,000 | **2.8** | **3.7** | **4.8** | **10** | **13** | **3.8** | **6.7** | **8** | **16** | **18** | **9.9** |
| Silver | 13 | 2,000 | 0.14 | 0.13 | 0.15 | 0.08 | 0.07 | 0.06 | **1.4** | **4.6** | **1.2** | **2.7** | **0.36** |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | - | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| 1-Methylnaphthalene | | - | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| 2-Methylnaphthalene | | 5,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Acenaphthene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Acenaphthylene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Anthracene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Benz[a]anthracene | | 3,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Benzo[a]pyrene | | 300,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Benzo[b]fluoranthene | | 3,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | **200** | 50 | **78** |
| Benzo[ghi]perylene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Benzo[k]fluoranthene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | **160** | 50 | **59** |
| Biphenyl | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Chrysene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | **150** | 50 | **62** |
| Dibenzo[a,h]anthracene | | 300,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Fluoranthene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | **140** | 60 | **210** | 50 | **100** |
| Fluorene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Indeno[1,2,3-cd]pyrene | | 3,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Naphthalene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Perylene | | - | 55 | 50 | **180** | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Phenanthrene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | 60 | 60 | 60 | 50 | 28 |
| Pyrene | | 10,000,000 | 55 | 50 | 60 | 34 | 27 | 25 | **150** | **120** | **210** | 50 | **97** |
| Total SVOC/PAHs | 9,000 | - | 1,155 | 1,050 | 1,380 | 703.5 | 556.5 | 514.5 | 1,430 | 1,320 | 1,890 | 1,050 | 844 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | - | 33.8 | 32.9 | 151.5 | 20.85 | 66 | 15.25 | 36.75 | 37.9 | 36.75 | 32.05 | 17.6 |
| Aroclor® 1221 | | - | 33.8 | 32.9 | 151.5 | 20.85 | 66 | 15.25 | 36.75 | 37.9 | 36.75 | 32.05 | 17.6 |
| Aroclor® 1232 | | - | 33.8 | 32.9 | 151.5 | 20.85 | 66 | 15.25 | 36.75 | 37.9 | 36.75 | 32.05 | 17.6 |
| Aroclor® 1248 | | - | 33.8 | 32.9 | 151.5 | 20.85 | 66 | 15.25 | 36.75 | 37.9 | 36.75 | 32.05 | 17.6 |
| Aroclor® 1254 | | - | 33.8 | 32.9 | 151.5 | 20.85 | 66 | 15.25 | 36.75 | 37.9 | 36.75 | 32.05 | 17.6 |
| Aroclor® 1260 | | - | 33.8 | 32.9 | 151.5 | 20.85 | 66 | 15.25 | 36.75 | 37.9 | **92.2** | **95** | **59.4** |
| Aroclor® 1262 | | - | 33.8 | 32.9 | 151.5 | 20.85 | 66 | 15.25 | 36.75 | 37.9 | 36.75 | 32.05 | 17.6 |
| Aroclor® 1268 | | - | 33.8 | 32.9 | 151.5 | 20.85 | 66 | 15.25 | 36.75 | 37.9 | 36.75 | 32.05 | 17.6 |
| Total PCBs | 2,000 | 100,000 | 270.4 | 263.2 | 1212 | 166.8 | 528 | 122 | 294 | 303.2 | 349.45 | 319.35 | 182.6 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limit.
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | AC-C015-01 | AC-C016-01 | AC-C017-01 | AC-C018-01 | AC-C019-01 | AC-C022-01 | AC-C023-01 | AC-C024-01 | AC-C025-01 | AC-C026-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 28-Jan-04 | 30-Jan-04 | 30-Jan-04 | 30-Jan-04 | 30-Jan-04 | 28-Jan-04 | 28-Jan-04 | 30-Jan-04 | 30-Jan-04 | 30-Jan-04 |
| **Total Metals (mg/kg)** | | | | | | | | | | | |
| Arsenic | 11 | **1.9** | **5.4** | **9.7** | **19** | **12** | **5.8** | **3.8** | **9.3** | **31** | **7** |
| Chromium | 332 | **2.7** | **10** | **20** | **95** | **28** | **4.6** | **5.2** | **16** | **53** | **11** |
| Copper | 372 | **2** | **7.7** | **21** | **90** | **39** | **2.1** | **1.5** | **14** | **64** | **22** |
| Lead | 210 | **1.2** | **4** | **8** | **19** | **16** | **1.5** | **2.5** | **6.1** | **18** | **9.4** |
| Silver | 13 | 0.06 | **0.23** | **0.75** | **3.8** | **2** | 0.07 | 0.07 | **0.45** | **2.1** | **0.21** |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| 1-Methylnaphthalene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| 2-Methylnaphthalene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Acenaphthene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Acenaphthylene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Anthracene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Benz[a]anthracene | | 25 | 34 | 41 | 29 | **69** | 27 | 28 | 29 | 35 | 28 |
| Benzo[a]pyrene | | 25 | 34 | 41 | 29 | **64** | 27 | 28 | 29 | 35 | 28 |
| Benzo[b]fluoranthene | | 25 | 34 | 41 | **78** | **120** | 27 | 28 | 29 | 35 | 28 |
| Benzo[ghi]perylene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Benzo[k]fluoranthene | | 25 | 34 | 41 | **59** | **90** | 27 | 28 | 29 | 35 | 28 |
| Biphenyl | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Chrysene | | 25 | 34 | 41 | **58** | **96** | 27 | 28 | 29 | 35 | 28 |
| Dibenzo[a,h]anthracene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Fluoranthene | | 25 | 34 | 41 | **94** | **160** | 27 | 28 | 29 | **88** | 28 |
| Fluorene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Indeno[1,2,3-cd]pyrene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Naphthalene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Perylene | | 25 | **130** | **250** | 29 | 28 | 27 | **190** | **150** | 35 | 28 |
| Phenanthrene | | 25 | 34 | 41 | 29 | 28 | 27 | 28 | 29 | 35 | 28 |
| Pyrene | | 25 | 34 | 41 | **83** | **150** | 27 | 28 | 29 | **81** | 28 |
| Total SVOC/PAHs | 9,000 | 514.5 | 800 | 1,070 | 828 | 1141 | 556.5 | 750 | 730 | 834 | 588 |
| **PCBs (µg/kg)** | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 15.45 | 20.85 | 102 | 17.85 | 17.6 | 16.45 | 17.6 | 18.1 | 21.9 | 69.5 |
| Aroclor® 1221 | | 15.45 | 20.85 | 102 | 17.85 | 17.6 | 16.45 | 17.6 | 18.1 | 21.9 | 69.5 |
| Aroclor® 1232 | | 15.45 | 20.85 | 102 | 17.85 | 17.6 | 16.45 | 17.6 | 18.1 | 21.9 | 69.5 |
| Aroclor® 1248 | | 15.45 | 20.85 | 102 | 17.85 | 17.6 | 16.45 | 17.6 | 18.1 | 21.9 | 69.5 |
| Aroclor® 1254 | | 15.45 | 20.85 | 102 | **61.3** | **106** | 16.45 | 17.6 | 18.1 | **56.1** | 69.5 |
| Aroclor® 1260 | | 15.45 | 20.85 | **233** | **183** | **112** | 16.45 | 17.6 | **39.9** | **102** | 69.5 |
| Aroclor® 1262 | | 15.45 | 20.85 | 102 | 17.85 | 17.6 | 16.45 | 17.6 | 18.1 | 21.9 | 69.5 |
| Aroclor® 1268 | | 15.45 | 20.85 | 102 | 17.85 | 17.6 | 16.45 | 17.6 | 18.1 | 21.9 | 69.5 |
| Total PCBs | 2,000 | 123.6 | 166.8 | 947 | 351.4 | 323.6 | 131.6 | 140.8 | 166.6 | 289.5 | 556 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | AC-C029-01 | AC-C030-01 | AC-C031-01 | AC-C032-01 | AC-C036-01 | AC-C043-01 | AD-C001-01 | AD-C002-01 | AD-C003-01 | AD-C004-01 | AD-C005-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 28-Jan-04 | 30-Jan-04 | 30-Jan-04 | 30-Jan-04 | 28-Jan-04 | 23-Jan-04 | 05-Dec-03 | 05-Dec-03 | 05-Dec-03 | 05-Dec-03 | 05-Dec-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | |
| Arsenic | 11 | **5** | **7.2** | **13** | **9.5** | **16** | **20** | **17** | **4** | **7.8** | **10** | **2.8** |
| Chromium | 332 | **3.5** | **6.6** | **17** | **9.8** | **24** | **11** | **300** | **8.2** | **6** | **17** | **9.3** |
| Copper | 372 | **1.7** | **2.9** | **14** | **6.4** | **24** | **16** | **800** | **9.6** | **8.9** | **20** | **8.9** |
| Lead | 210 | **1.5** | **3.1** | **4.4** | **3.1** | **5.1** | **3.6** | **250** | **3.4** | **2.8** | **7.8** | **3.1** |
| Silver | 13 | 0.06 | 0.07 | **0.49** | **0.19** | **1** | 0.16 | **22** | 0.14 | 0.14 | 0.08 | 0.06 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 25 | 26 | 27 | 28 | 41 | 60 | 55 | 55 | 55 | 33 | 25 |
| 1-Methylnaphthalene | | 25 | 26 | 27 | 28 | 41 | 60 | 55 | 55 | 55 | 33 | 25 |
| 2-Methylnaphthalene | | 25 | 26 | 27 | 28 | 41 | 60 | 55 | 55 | 55 | 33 | 25 |
| Acenaphthene | | 25 | 26 | 27 | 28 | 41 | 60 | 55 | 55 | 55 | 33 | 25 |
| Acenaphthylene | | 25 | 26 | 27 | 28 | 41 | 60 | 55 | 55 | 55 | 33 | 25 |
| Anthracene | | 25 | 26 | 27 | 28 | 41 | 60 | **250** | 55 | 55 | 33 | 25 |
| Benz[a]anthracene | | 25 | 26 | 27 | 28 | 41 | 60 | **900** | 55 | 55 | 33 | 25 |
| Benzo[a]pyrene | | 25 | 26 | 27 | 28 | 41 | 60 | **1,400** | 55 | 55 | 33 | 25 |
| Benzo[b]fluoranthene | | 25 | 26 | 27 | 28 | 41 | 60 | **2,000** | 55 | 55 | 33 | 25 |
| Benzo[ghi]perylene | | 25 | 26 | 27 | 28 | 41 | 60 | **1,400** | 55 | 55 | 33 | 25 |
| Benzo[k]fluoranthene | | 25 | 26 | 27 | 28 | 41 | 60 | **1,600** | 55 | 55 | 33 | 25 |
| Biphenyl | | 25 | 26 | 27 | 28 | 41 | 60 | 55 | 55 | 55 | 33 | 25 |
| Chrysene | | 25 | 26 | 27 | 28 | 41 | 60 | **1,800** | 55 | 55 | 33 | 25 |
| Dibenzo[a,h]anthracene | | 25 | 26 | 27 | 28 | 41 | 60 | **300** | 55 | 55 | 33 | 25 |
| Fluoranthene | | 25 | 26 | 27 | 28 | 41 | 60 | **2,900** | 55 | 55 | 33 | 25 |
| Fluorene | | 25 | 26 | 27 | 28 | 41 | 60 | 55 | 55 | 55 | 33 | 25 |
| Indeno[1,2,3-cd]pyrene | | 25 | 26 | 27 | 28 | 41 | 60 | **1,300** | 55 | 55 | 33 | 25 |
| Naphthalene | | 25 | 26 | 27 | 28 | 41 | 60 | 55 | 55 | 55 | 33 | 25 |
| Perylene | | 25 | 26 | 27 | 28 | 41 | **290** | **330** | 55 | 55 | 33 | 25 |
| Phenanthrene | | 25 | 26 | 27 | 28 | 41 | 60 | **1,100** | 55 | 55 | 33 | 25 |
| Pyrene | | 25 | 26 | 27 | 28 | 41 | 60 | **2,500** | 55 | 55 | 33 | 25 |
| Total SVOC/PAHs | 9,000 | 514.5 | 546 | 556.5 | 588 | 861 | 1,490 | 18,220 | 1,155 | 1,155 | 693 | 514.5 |
| **PCBs (µg/kg)** | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 15.25 | 16.25 | 16.65 | 17.35 | 25.5 | 39.05 | 35.7 | 35.7 | 35.7 | 20.5 | 15.45 |
| Aroclor® 1221 | | 15.25 | 16.25 | 16.65 | 17.35 | 25.5 | 39.05 | 35.7 | 35.7 | 35.7 | 20.5 | 15.45 |
| Aroclor® 1232 | | 15.25 | 16.25 | 16.65 | 17.35 | 25.5 | 39.05 | 35.7 | 35.7 | 35.7 | 20.5 | 15.45 |
| Aroclor® 1248 | | 15.25 | 16.25 | 16.65 | 17.35 | 25.5 | 39.05 | 35.7 | 35.7 | 35.7 | 20.5 | 15.45 |
| Aroclor® 1254 | | 15.25 | 16.25 | 16.65 | 17.35 | 25.5 | 39.05 | **121** | 35.7 | 35.7 | 20.5 | 15.45 |
| Aroclor® 1260 | | 15.25 | 16.25 | **49.2** | **37.2** | 25.5 | 39.05 | **558** | 35.7 | 35.7 | 20.5 | 15.45 |
| Aroclor® 1262 | | 15.25 | 16.25 | 16.65 | 17.35 | 25.5 | 39.05 | 35.7 | 35.7 | 35.7 | 20.5 | 15.45 |
| Aroclor® 1268 | | 15.25 | 16.25 | 16.65 | 17.35 | 25.5 | 39.05 | 35.7 | 35.7 | 35.7 | 20.5 | 15.45 |
| Total PCBs | 2,000 | 122 | 130 | 165.75 | 158.65 | 204 | 312.4 | 893.2 | 285.6 | 285.6 | 164 | 123.6 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | AD-C006-02 | AD-C008-01 | AD-C009-01 | AD-C010-01 | AD-C011-01 | AD-C012-01 | AD-C013-01 | AD-C015-01 | AD-C016-01 | AD-C017-01 | AD-C018-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 26-Jan-04 | 05-Dec-03 | 04-Dec-03 | 04-Dec-03 | 04-Dec-03 | 04-Dec-03 | 04-Dec-03 | 03-Dec-03 | 03-Dec-03 | 03-Dec-03 | 03-Dec-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | |
| Arsenic | 11 | **2.4** | **6** | **6** | **5** | **16** | **7.9** | **6.8** | **8** | **3.8** | **12** | **9.2** |
| Chromium | 332 | **7.2** | **5.3** | **7.5** | **7.1** | **12** | **9.7** | **10** | **23** | **20** | **24** | **7.1** |
| Copper | 372 | **7.6** | **1.9** | **4.8** | **5.2** | **9.7** | **11** | **13** | **34** | **24** | **25** | **6.8** |
| Lead | 210 | **3.3** | **2.1** | **3.5** | **2.7** | **4.6** | **5.2** | **8.4** | **9.1** | **11** | **9.1** | **2.7** |
| Silver | 13 | 0.06 | 0.07 | 0.11 | 0.09 | 0.12 | 0.07 | 0.06 | **0.75** | **0.82** | **1.1** | 0.14 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 25 | 29 | 46 | 37 | 48 | 27 | **100** | 55 | 37 | 46 | 55 |
| 1-Methylnaphthalene | | 25 | 29 | 46 | 37 | 48 | 27 | 25 | 55 | 37 | 46 | 55 |
| 2-Methylnaphthalene | | 25 | 29 | 46 | 37 | 48 | 27 | 25 | 55 | 37 | 46 | 55 |
| Acenaphthene | | 25 | 29 | 46 | 37 | 48 | 27 | 25 | 55 | 37 | 46 | 55 |
| Acenaphthylene | | 25 | 29 | 46 | 37 | 48 | 27 | **720** | 55 | 37 | 46 | 55 |
| Anthracene | | 25 | 29 | 46 | 37 | 48 | 27 | **490** | 55 | 37 | 46 | 55 |
| Benz[a]anthracene | | 25 | 29 | 46 | 37 | 48 | 27 | **1,700** | 55 | **280** | 46 | 55 |
| Benzo[a]pyrene | | 25 | 29 | 46 | 37 | 48 | 27 | **1,300** | 55 | **290** | **95** | 55 |
| Benzo[b]fluoranthene | | 25 | 29 | 46 | 37 | 48 | 27 | **1,600** | 55 | **340** | **120** | 55 |
| Benzo[ghi]perylene | | 25 | 29 | 46 | 37 | 48 | 27 | **650** | 55 | **270** | **110** | 55 |
| Benzo[k]fluoranthene | | 25 | 29 | 46 | 37 | 48 | 27 | **1,600** | 55 | **370** | **130** | 55 |
| Biphenyl | | 25 | 29 | 46 | 37 | 48 | 27 | 25 | 55 | 37 | 46 | 55 |
| Chrysene | | 25 | 29 | 46 | 37 | 48 | 27 | **1,700** | **130** | **420** | **130** | 55 |
| Dibenzo[a,h]anthracene | | 25 | 29 | 46 | 37 | 48 | 27 | **320** | 55 | 37 | 46 | 55 |
| Fluoranthene | | 25 | 29 | 46 | 37 | 48 | 27 | **3,200** | **220** | **790** | **210** | 55 |
| Fluorene | | 25 | 29 | 46 | 37 | 48 | 27 | 25 | 55 | 37 | 46 | 55 |
| Indeno[1,2,3-cd]pyrene | | 25 | 29 | 46 | 37 | 48 | 27 | **750** | 55 | **240** | **91** | 55 |
| Naphthalene | | 25 | 29 | 46 | 37 | 48 | 27 | 25 | 55 | 37 | 46 | 55 |
| Perylene | | 25 | 29 | 46 | **100** | 48 | 27 | **320** | 55 | **190** | **96** | 55 |
| Phenanthrene | | 25 | 29 | 46 | 37 | 48 | 27 | **270** | 55 | **350** | 46 | 55 |
| Pyrene | | 25 | 29 | 46 | 37 | 48 | 27 | **3,000** | **200** | **680** | **190** | 55 |
| Total SVOC/PAHs | 9,000 | 514.5 | 609 | 955.5 | 830 | 997.5 | 556.5 | 17,867 | 1,540 | 4,590 | 1,718 | 1,155 |
| **PCBs (µg/kg)** | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 15.45 | 18.1 | 28.4 | 22.7 | 29.75 | 16.45 | 15.45 | 35.7 | 23.15 | 28.4 | 34.7 |
| Aroclor® 1221 | | 15.45 | 18.1 | 28.4 | 22.7 | 29.75 | 16.45 | 15.45 | 35.7 | 23.15 | 28.4 | 34.7 |
| Aroclor® 1232 | | 15.45 | 18.1 | 28.4 | 22.7 | 29.75 | 16.45 | 15.45 | 35.7 | 23.15 | 28.4 | 34.7 |
| Aroclor® 1248 | | 15.45 | 18.1 | 28.4 | 22.7 | 29.75 | 16.45 | 15.45 | 35.7 | 23.15 | 28.4 | 34.7 |
| Aroclor® 1254 | | 15.45 | 18.1 | 28.4 | 22.7 | 29.75 | 16.45 | 15.45 | 35.7 | 23.15 | 28.4 | 34.7 |
| Aroclor® 1260 | | 15.45 | 18.1 | 28.4 | 22.7 | 29.75 | 16.45 | 15.45 | **577** | **481** | **115** | 34.7 |
| Aroclor® 1262 | | 15.45 | 18.1 | 28.4 | 22.7 | 29.75 | 16.45 | 15.45 | 35.7 | 23.15 | 28.4 | 34.7 |
| Aroclor® 1268 | | 15.45 | 18.1 | 28.4 | 22.7 | 29.75 | 16.45 | 15.45 | 35.7 | 23.15 | 28.4 | 34.7 |
| Total PCBs | 2,000 | 123.6 | 144.8 | 227.2 | 181.6 | 238 | 131.6 | 123.6 | 826.9 | 643.05 | 313.8 | 277.6 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | AD-C019-01 | AD-C020-01 | AD-C022-01 | AD-C023-01 | AD-C024-01 | AD-C025-01 | AD-C026-02 | AD-C027-02 | AD-C029-01 | AD-C030-01 | AD-C031-01 | AD-C032-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 12-Nov-03 | 12-Nov-03 | 18-Nov-03 | 14-Nov-03 | 14-Nov-03 | 14-Nov-03 | 04-Dec-03 | 04-Dec-03 | 18-Nov-03 | 14-Nov-03 | 14-Nov-03 | 14-Nov-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **6.6** | **5.1** | **7.6** | **11** | **4.8** | **6.6** | **18** | **5.2** | **7.7** | **16** | **5** | **11** |
| Chromium | 332 | **70** | **10** | **9.2** | **30** | **9.4** | **14** | **22** | **11** | **19** | **14** | **44** | **13** |
| Copper | 372 | **74** | **15** | **34** | **23** | **12** | **20** | **38** | **7** | **16** | **5.5** | **30** | **18** |
| Lead | 210 | **24** | **6.4** | **3.8** | **5.8** | **16** | **7.1** | **26** | **4.5** | **5** | **5.5** | **26** | **7.6** |
| Silver | 13 | **5.5** | 0.12 | **0.3** | **0.28** | 0.09 | **0.51** | **0.36** | 0.08 | **0.28** | 0.18 | **0.5** | 0.15 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 35 | **70** | 34 | 55 | 46 | 46 | 49 | 31 | 34 | 36 | **70** | 30 |
| 1-Methylnaphthalene | | 35 | 23 | 34 | 55 | 46 | 46 | 49 | 31 | 34 | 36 | 29 | 30 |
| 2-Methylnaphthalene | | 35 | 23 | 34 | 55 | 46 | 46 | 49 | 31 | 34 | 36 | 29 | 30 |
| Acenaphthene | | 35 | 23 | 34 | 55 | 46 | 46 | 49 | 31 | 34 | 36 | **66** | 30 |
| Acenaphthylene | | 35 | **200** | 34 | 55 | 46 | 46 | 49 | **64** | 34 | 36 | 29 | 30 |
| Anthracene | | **70** | **180** | 34 | 55 | **160** | **180** | 49 | **85** | 34 | 36 | **220** | 30 |
| Benz[a]anthracene | | **260** | **790** | 34 | 55 | **460** | **300** | 49 | **78** | 34 | 36 | **570** | 30 |
| Benzo[a]pyrene | | **280** | **510** | 34 | 55 | **530** | **260** | 49 | 31 | 34 | 36 | **450** | 30 |
| Benzo[b]fluoranthene | | **390** | **740** | 34 | 55 | **620** | **270** | **110** | **88** | 34 | 36 | **360** | 30 |
| Benzo[ghi]perylene | | **260** | **310** | 34 | 55 | **390** | **140** | 49 | 31 | 34 | 36 | **300** | 30 |
| Benzo[k]fluoranthene | | **320** | **620** | 34 | 55 | **500** | **290** | 49 | **80** | 34 | 36 | **450** | 30 |
| Biphenyl | | 35 | 23 | 34 | 55 | 46 | 46 | 49 | 31 | 34 | 36 | 29 | 30 |
| Chrysene | | **400** | **860** | 34 | 55 | **640** | **390** | **100** | **85** | 34 | 36 | **610** | **64** |
| Dibenzo[a,h]anthracene | | **77** | **140** | 34 | 55 | **94** | 46 | 49 | 31 | 34 | 36 | **100** | 30 |
| Fluoranthene | | **680** | **1,700** | 34 | 55 | **1,200** | **780** | **180** | **120** | 34 | 36 | **1,300** | **220** |
| Fluorene | | 35 | 23 | 34 | 55 | **100** | **190** | **99** | **88** | 34 | 36 | **71** | 30 |
| Indeno[1,2,3-cd]pyrene | | **220** | **340** | 34 | 55 | **350** | **130** | 49 | 31 | 34 | 36 | **260** | 30 |
| Naphthalene | | 35 | 23 | 34 | 55 | 46 | 46 | 49 | 31 | 34 | 36 | 29 | 30 |
| Perylene | | **69** | **120** | 34 | 55 | **160** | 46 | 49 | 31 | 34 | 36 | **120** | 30 |
| Phenanthrene | | **230** | **140** | 34 | 55 | **570** | **200** | 49 | **100** | 34 | 36 | **520** | 30 |
| Pyrene | | **590** | **1,200** | 34 | 55 | **1,000** | **700** | **160** | **120** | 34 | 36 | **1,200** | **210** |
| Total SVOC/PAHs | 9,000 | 4,122 | 8,058 | 714 | 1,155 | 7,093 | 4,240 | 1,433 | 1,249 | 703.5 | 745.5 | 6,812 | 1,034 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 21.55 | 14.55 | 21.2 | 35.7 | 28.4 | 28.4 | 30.5 | 19.25 | 20.85 | 22.3 | 18.1 | 18.65 |
| Aroclor® 1221 | | 21.55 | 14.55 | 21.2 | 35.7 | 28.4 | 28.4 | 30.5 | 19.25 | 20.85 | 22.3 | 18.1 | 18.65 |
| Aroclor® 1232 | | 21.55 | 14.55 | 21.2 | 35.7 | 28.4 | 28.4 | 30.5 | 19.25 | 20.85 | 22.3 | 18.1 | 18.65 |
| Aroclor® 1248 | | 21.55 | 14.55 | 21.2 | 35.7 | 28.4 | 28.4 | 30.5 | 19.25 | 20.85 | 22.3 | 18.1 | 18.65 |
| Aroclor® 1254 | | 21.55 | 14.55 | 21.2 | 35.7 | 28.4 | **81.7** | 30.5 | 19.25 | 20.85 | 22.3 | 18.1 | 18.65 |
| Aroclor® 1260 | | **444** | **47.9** | 21.2 | 35.7 | **406** | **174** | **153** | 19.25 | 20.85 | 22.3 | 18.1 | 18.65 |
| Aroclor® 1262 | | 21.55 | 14.55 | 21.2 | 35.7 | 28.4 | 28.4 | 30.5 | 19.25 | 20.85 | 22.3 | 18.1 | 18.65 |
| Aroclor® 1268 | | 21.55 | 14.55 | 21.2 | 35.7 | 28.4 | 28.4 | 30.5 | 19.25 | 20.85 | 22.3 | 18.1 | 18.65 |
| Total PCBs | 2,000 | 594.85 | 149.75 | 169.6 | 285.6 | 604.8 | 426.1 | 366.5 | 154 | 166.8 | 178.4 | 144.8 | 149.2 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | AD-C033-03 | AD-C034-02 | AD-C036-01 | AD-C037-01 | AD-C038-01 | AD-C039-01 | AD-C040-01 | AD-C041-01 | AD-C043-01 | AD-C044-01 | AD-C045-01 | AD-C046-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 26-Jan-04 | 04-Dec-03 | 18-Nov-03 | 14-Nov-03 | 14-Nov-03 | 14-Nov-03 | 14-Nov-03 | 12-Nov-03 | 19-Nov-03 | 19-Nov-03 | 14-Nov-03 | 14-Nov-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **9.2** | **5.3** | **15** | **5.8** | **7.1** | **3.8** | **9.9** | **7.5** | **25** | **15** | **12** | **6.5** |
| Chromium | 332 | **7.6** | **14** | **42** | **13** | **380** | **19** | **30** | **8.6** | **27** | **18** | **15** | **21** |
| Copper | 372 | **1.3** | **12** | **34** | **8** | **540** | **130** | **26** | **14** | **550** | **13** | **42** | **17** |
| Lead | 210 | **2.6** | **5.3** | **8.2** | **3.9** | **110** | **5** | **14** | **7.4** | **18** | **6.4** | **13** | **7.4** |
| Silver | 13 | 0.06 | 0.06 | **0.82** | 0.09 | **9.5** | **0.74** | **0.36** | 0.12 | **0.43** | **0.23** | **0.4** | **0.38** |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 25 | 24 | 60 | 44 | 28 | 24 | 27 | 23 | 60 | 37 | 28 | 27 |
| 1-Methylnaphthalene | | 25 | 24 | 60 | 44 | 28 | 24 | 27 | 23 | 60 | 37 | 28 | 27 |
| 2-Methylnaphthalene | | 25 | 24 | 60 | 44 | 28 | 24 | 27 | 23 | 60 | 37 | 28 | 27 |
| Acenaphthene | | 25 | 24 | 60 | 44 | 28 | 24 | 27 | 23 | 60 | 37 | **59** | 27 |
| Acenaphthylene | | 25 | **110** | 60 | 44 | 28 | 24 | 27 | 23 | 60 | 37 | 28 | 27 |
| Anthracene | | 25 | **120** | 60 | 44 | **180** | **76** | 27 | 23 | 60 | 37 | **160** | 27 |
| Benz[a]anthracene | | 25 | **340** | 60 | 44 | **440** | **170** | 27 | **98** | 60 | 37 | **280** | 27 |
| Benzo[a]pyrene | | 25 | **220** | 60 | 44 | **400** | **140** | 27 | 82 | 60 | 37 | **240** | 27 |
| Benzo[b]fluoranthene | | 25 | **290** | 60 | 44 | **420** | **130** | 27 | **110** | 60 | 37 | **240** | 27 |
| Benzo[ghi]perylene | | 25 | **94** | 60 | 44 | **190** | **85** | 27 | **57** | 60 | 37 | **150** | 27 |
| Benzo[k]fluoranthene | | 25 | **310** | 60 | 44 | **390** | **120** | 27 | **130** | 60 | 37 | **250** | 27 |
| Biphenyl | | 25 | 24 | 60 | 44 | 28 | 24 | 27 | 23 | 60 | 37 | 28 | 27 |
| Chrysene | | 25 | **360** | 60 | 44 | **490** | **170** | **70** | **140** | 60 | 37 | **360** | 27 |
| Dibenzo[a,h]anthracene | | 25 | 24 | 60 | 44 | **62** | 24 | 27 | 23 | 60 | 37 | 28 | 27 |
| Fluoranthene | | 25 | **700** | 60 | 44 | **1,000** | **430** | **100** | **220** | 60 | 37 | **800** | 27 |
| Fluorene | | 25 | 24 | 60 | 44 | **75** | 24 | 27 | 23 | 60 | 37 | **75** | 27 |
| Indeno[1,2,3-cd]pyrene | | 25 | **110** | 60 | 44 | **180** | **76** | 27 | **61** | 60 | 37 | **140** | 27 |
| Naphthalene | | 25 | 24 | 60 | 44 | 28 | 24 | 27 | 23 | 60 | 37 | 28 | 27 |
| Perylene | | 25 | **65** | 60 | 44 | **98** | 24 | 27 | 23 | 60 | 37 | 28 | 27 |
| Phenanthrene | | 25 | **78** | 60 | 44 | **310** | **210** | 27 | 23 | 60 | 37 | **210** | 27 |
| Pyrene | | 25 | **640** | 60 | 44 | **1,000** | **370** | **97** | **200** | 60 | 37 | **710** | 27 |
| Total SVOC/PAHs | 9,000 | 514.5 | 3,629 | 1,260 | 913.5 | 5,428 | 2,217 | 744 | 1,374 | 1,260 | 766.5 | 3,894 | 556.5 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 15.25 | 14.9 | 37.9 | 27.15 | 17.1 | 15.05 | 16.45 | 14.55 | 37.9 | 22.7 | 17.1 | 16.45 |
| Aroclor® 1221 | | 15.25 | 14.9 | 37.9 | 27.15 | 17.1 | 15.05 | 16.45 | 14.55 | 37.9 | 22.7 | 17.1 | 16.45 |
| Aroclor® 1232 | | 15.25 | 14.9 | 37.9 | 27.15 | 17.1 | 15.05 | 16.45 | 14.55 | 37.9 | 22.7 | 17.1 | 16.45 |
| Aroclor® 1248 | | 15.25 | 14.9 | 37.9 | 27.15 | 17.1 | 15.05 | 16.45 | 14.55 | 37.9 | 22.7 | 17.1 | 16.45 |
| Aroclor® 1254 | | 15.25 | 14.9 | 37.9 | 27.15 | **94.3** | 15.05 | 16.45 | 14.55 | 37.9 | 22.7 | 17.1 | 16.45 |
| Aroclor® 1260 | | 15.25 | **70.5** | 37.9 | 27.15 | 17.1 | 15.05 | **210** | 14.55 | 37.9 | 22.7 | **72.2** | 16.45 |
| Aroclor® 1262 | | 15.25 | 14.9 | 37.9 | 27.15 | 17.1 | 15.05 | 16.45 | 14.55 | 37.9 | 22.7 | 17.1 | 16.45 |
| Aroclor® 1268 | | 15.25 | 14.9 | 37.9 | 27.15 | 17.1 | 15.05 | 16.45 | 14.55 | 37.9 | 22.7 | 17.1 | 16.45 |
| Total PCBs | 2,000 | 122 | 174.8 | 303.2 | 217.2 | 214 | 120.4 | 325.15 | 116.4 | 303.2 | 181.6 | 191.9 | 131.6 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | AD-C047-01 | AD-C048-02 | AD-C050-01 | AD-C051-01 | AD-C052-01 | AD-C053-02 | AD-C054-02 | AD-C055-02 | AD-C057-01 | AD-C058-01 | AD-C059-02 | AD-C060-02 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 14-Nov-03 | 03-Dec-03 | 19-Nov-03 | 19-Nov-03 | 14-Nov-03 | 03-Dec-03 | 03-Dec-03 | 26-Jan-04 | 19-Nov-03 | 19-Nov-03 | 26-Jan-04 | 26-Jan-04 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **8.1** | **5.9** | **12** | **11** | **41** | **18** | **20** | **9.8** | **5.8** | **6.9** | **8.2** | **10** |
| Chromium | 332 | **16** | **9** | **7** | **7.1** | **750** | **7.3** | **8.3** | **9.5** | **12** | **10** | **10** | **8.8** |
| Copper | 372 | **23** | **16** | **1.9** | **2** | **850** | **1** | **7.1** | **9** | **4.4** | **5.2** | **2.2** | **2.3** |
| Lead | 210 | **6.1** | **7.5** | **4.1** | **2.5** | **110** | **3.1** | **8.5** | **6** | **3.3** | **3.2** | **2.9** | **3.1** |
| Silver | 13 | **0.45** | **0.14** | 0.07 | 0.06 | **7** | 0.06 | 0.08 | 0.06 | 0.07 | 0.07 | 0.06 | 0.07 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 24 | **86** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| 1-Methylnaphthalene | | 24 | 25 | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| 2-Methylnaphthalene | | 24 | 25 | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Acenaphthene | | 24 | 25 | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Acenaphthylene | | 24 | **540** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Anthracene | | 24 | **370** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Benz[a]anthracene | | 24 | **1,500** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Benzo[a]pyrene | | 24 | **1,200** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Benzo[b]fluoranthene | | 24 | **1,600** | 26 | 25 | **100** | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Benzo[ghi]perylene | | 24 | **760** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Benzo[k]fluoranthene | | 24 | **1,400** | 26 | 25 | **120** | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Biphenyl | | 24 | 25 | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Chrysene | | 24 | **1,600** | 26 | 25 | **130** | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Dibenzo[a,h]anthracene | | 24 | **320** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Fluoranthene | | **82** | **3,000** | 26 | 25 | **190** | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Fluorene | | 24 | 25 | 26 | 25 | **140** | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Indeno[1,2,3-cd]pyrene | | 24 | **830** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Naphthalene | | 24 | 25 | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Perylene | | 24 | **300** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Phenanthrene | | 24 | **260** | 26 | 25 | 47 | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Pyrene | | **70** | **2,900** | 26 | 25 | **160** | 25 | 30 | 25 | 26 | 26 | 25 | 26 |
| Total SVOC/PAHs | 9,000 | 608 | 16,813 | 535.5 | 514.5 | 1,538 | 514.5 | 619.5 | 525 | 535.5 | 535.5 | 525 | 535.5 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 15.05 | 15.45 | 15.8 | 15.45 | 29.05 | 15.45 | 18.4 | 15.6 | 16 | 16 | 15.6 | 15.8 |
| Aroclor® 1221 | | 15.05 | 15.45 | 15.8 | 15.45 | 29.05 | 15.45 | 18.4 | 15.6 | 16 | 16 | 15.6 | 15.8 |
| Aroclor® 1232 | | 15.05 | 15.45 | 15.8 | 15.45 | 29.05 | 15.45 | 18.4 | 15.6 | 16 | 16 | 15.6 | 15.8 |
| Aroclor® 1248 | | 15.05 | 15.45 | 15.8 | 15.45 | 29.05 | 15.45 | 18.4 | 15.6 | 16 | 16 | 15.6 | 15.8 |
| Aroclor® 1254 | | 15.05 | 15.45 | 15.8 | 15.45 | 29.05 | 15.45 | 18.4 | 15.6 | 16 | 16 | 15.6 | 15.8 |
| Aroclor® 1260 | | **46.7** | 15.45 | 15.8 | 15.45 | **174** | 15.45 | 18.4 | 15.6 | 16 | 16 | 15.6 | 15.8 |
| Aroclor® 1262 | | 15.05 | 15.45 | 15.8 | 15.45 | 29.05 | 15.45 | 18.4 | 15.6 | 16 | 16 | 15.6 | 15.8 |
| Aroclor® 1268 | | 15.05 | 15.45 | 15.8 | 15.45 | 29.05 | 15.45 | 18.4 | 15.6 | 16 | 16 | 15.6 | 15.8 |
| Total PCBs | 2,000 | 152.05 | 123.6 | 126.4 | 123.6 | 377.35 | 123.6 | 147.2 | 124.8 | 128 | 128 | 124.8 | 126.4 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | AD-C061-01 | AD-C064-01 | AD-C065-02 | AD-C071-02 | AD-C072-02 | BC-C001-01 | BC-C002-01 | BC-C003-01 | BC-C004-01 | BC-C005-01 | BC-C006-01 | BC-C008-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 03-Dec-03 | 19-Nov-03 | 27-Jan-04 | 27-Jan-04 | 27-Jan-04 | 28-Jan-04 | 05-Dec-03 | 05-Dec-03 | 05-Dec-03 | 05-Dec-03 | 29-Jan-04 | 28-Jan-04 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **16** | **8.1** | **5.6** | **9.4** | **7.1** | **4.8** | **7.6** | **15** | **9.4** | **2.9** | **4** | **3.5** |
| Chromium | 332 | **54** | **13** | **20** | **12** | **11** | **11** | **6.9** | **280** | **20** | **11** | **27** | **5.1** |
| Copper | 372 | **56** | **12** | **9** | **1.8** | **3.6** | **7.9** | **4.2** | **260** | **17** | **9.7** | **25** | **5.3** |
| Lead | 210 | **23** | **3.2** | **5.4** | **3.3** | **3.6** | **4** | **2.1** | **39** | **4.2** | **2.7** | **4.6** | **2** |
| Silver | 13 | **3.1** | 0.07 | 0.07 | 0.07 | 0.07 | **0.16** | 0.08 | **7.7** | **0.47** | 0.15 | **2.4** | 0.1 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| 1-Methylnaphthalene | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| 2-Methylnaphthalene | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Acenaphthene | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Acenaphthylene | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Anthracene | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Benz[a]anthracene | | **180** | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Benzo[a]pyrene | | **230** | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Benzo[b]fluoranthene | | **240** | 27 | 27 | 27 | 26 | 32 | 32 | **150** | 49 | 60 | 65 | 40 |
| Benzo[ghi]perylene | | **290** | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Benzo[k]fluoranthene | | **260** | 27 | 27 | 27 | 26 | 32 | 32 | **120** | 49 | 60 | 65 | 40 |
| Biphenyl | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Chrysene | | **290** | 27 | 27 | 27 | 26 | 32 | 32 | **140** | **100** | 60 | 65 | 40 |
| Dibenzo[a,h]anthracene | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Fluoranthene | | **390** | 27 | 27 | 27 | 26 | 32 | 32 | **210** | **150** | 60 | 65 | 40 |
| Fluorene | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Indeno[1,2,3-cd]pyrene | | **210** | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Naphthalene | | 60 | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Perylene | | 60 | 27 | 27 | 27 | 26 | **430** | 32 | **130** | **140** | 60 | **290** | 40 |
| Phenanthrene | | **150** | 27 | 27 | 27 | 26 | 32 | 32 | 55 | 49 | 60 | 65 | 40 |
| Pyrene | | **350** | 27 | 27 | 27 | 26 | 32 | 32 | **190** | **150** | 60 | 65 | 40 |
| Total SVOC/PAHs | 9,000 | 3,250 | 567 | 556.5 | 556.5 | 535.5 | 1,060 | 672 | 1,765 | 1,373 | 1,260 | 1,590 | 840 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 19.55 | 16.9 | 16.45 | 16.45 | 16 | 19.85 | 20.15 | 34.7 | 30.5 | 36.75 | 41.65 | 25 |
| Aroclor® 1221 | | 19.55 | 16.9 | 16.45 | 16.45 | 16 | 19.85 | 20.15 | 34.7 | 30.5 | 36.75 | 41.65 | 25 |
| Aroclor® 1232 | | 19.55 | 16.9 | 16.45 | 16.45 | 16 | 19.85 | 20.15 | 34.7 | 30.5 | 36.75 | 41.65 | 25 |
| Aroclor® 1248 | | 19.55 | 16.9 | 16.45 | 16.45 | 16 | 19.85 | 20.15 | 34.7 | 30.5 | 36.75 | 41.65 | 25 |
| Aroclor® 1254 | | 19.55 | 16.9 | 16.45 | 16.45 | 16 | 19.85 | 20.15 | 34.7 | 30.5 | 36.75 | 41.65 | 25 |
| Aroclor® 1260 | | 19.55 | 16.9 | 16.45 | 16.45 | 16 | 19.85 | 20.15 | **287** | 30.5 | 36.75 | 41.65 | 25 |
| Aroclor® 1262 | | **57.6** | 16.9 | 16.45 | 16.45 | 16 | 19.85 | 20.15 | 34.7 | 30.5 | 36.75 | 41.65 | 25 |
| Aroclor® 1268 | | 19.55 | 16.9 | 16.45 | 16.45 | 16 | 19.85 | 20.15 | 34.7 | 30.5 | 36.75 | 41.65 | 25 |
| Total PCBs | 2,000 | 194.45 | 135.2 | 131.6 | 131.6 | 128 | 158.8 | 161.2 | 529.9 | 244 | 294 | 333.2 | 200 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BC-C009-01 | BC-C010-01 | BC-C011-01 | BC-C012-01 | BC-C015-01 | BC-C016-01 | BC-C017-01 | BC-C018-01 | BC-C022-01 | BC-C023-01 | BC-C024-01 | BC-C029-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 05-Dec-03 | 05-Dec-03 | 05-Dec-03 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **7.1** | **4.2** | **4.7** | **5** | **4** | **4.8** | **4.4** | **5** | **9.7** | **7.6** | **6.9** | **7.4** |
| Chromium | 332 | **16** | **13** | **34** | **53** | **5.3** | **16** | **13** | **29** | **8.1** | **8.7** | **12** | **5** |
| Copper | 372 | **15** | **14** | **29** | **63** | **4.1** | **19** | **16** | **32** | **8** | **14** | **20** | **4.3** |
| Lead | 210 | **4.4** | **3.6** | **7.1** | **17** | **1.8** | **2.9** | **3.4** | **6.2** | **2.9** | **2.4** | **3.2** | **1.5** |
| Silver | 13 | **0.3** | 0.14 | **0.77** | **1.9** | 0.08 | 0.15 | 0.16 | **0.77** | 0.12 | 0.17 | 0.19 | 0.08 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| 1-Methylnaphthalene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| 2-Methylnaphthalene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Acenaphthene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Acenaphthylene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Anthracene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Benz[a]anthracene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Benzo[a]pyrene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Benzo[b]fluoranthene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Benzo[ghi]perylene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Benzo[k]fluoranthene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Biphenyl | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Chrysene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Dibenzo[a,h]anthracene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Fluoranthene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | **150** | 70 | 75 | 33 |
| Fluorene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Indeno[1,2,3-cd]pyrene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Naphthalene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Perylene | | 55 | 55 | 60 | 70 | 34 | **140** | 65 | 70 | 48 | 70 | 75 | 33 |
| Phenanthrene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | 48 | 70 | 75 | 33 |
| Pyrene | | 55 | 55 | 60 | 70 | 34 | 60 | 65 | 70 | **160** | 70 | 75 | 33 |
| Total SVOC/PAHs | 9,000 | 1,155 | 1,155 | 1,260 | 1,470 | 703.5 | 1,340 | 1,365 | 1,470 | 1,213 | 1,470 | 1,575 | 693 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 33.8 | 35.7 | 36.75 | 44.65 | 20.85 | 37.9 | 40.3 | 44.65 | 29.75 | 43.1 | 48.1 | 20.5 |
| Aroclor® 1221 | | 33.8 | 35.7 | 36.75 | 44.65 | 20.85 | 37.9 | 40.3 | 44.65 | 29.75 | 43.1 | 48.1 | 20.5 |
| Aroclor® 1232 | | 33.8 | 35.7 | 36.75 | 44.65 | 20.85 | 37.9 | 40.3 | 44.65 | 29.75 | 43.1 | 48.1 | 20.5 |
| Aroclor® 1248 | | 33.8 | 35.7 | 36.75 | 44.65 | 20.85 | 37.9 | 40.3 | 44.65 | 29.75 | 43.1 | 48.1 | 20.5 |
| Aroclor® 1254 | | 33.8 | 35.7 | 36.75 | 44.65 | 20.85 | 37.9 | 40.3 | 44.65 | 29.75 | 43.1 | 48.1 | 20.5 |
| Aroclor® 1260 | | 33.8 | **176** | 36.75 | 44.65 | 20.85 | 37.9 | 40.3 | 44.65 | 29.75 | 43.1 | 48.1 | 20.5 |
| Aroclor® 1262 | | 33.8 | 35.7 | 36.75 | 44.65 | 20.85 | 37.9 | 40.3 | 44.65 | 29.75 | 43.1 | 48.1 | 20.5 |
| Aroclor® 1268 | | 33.8 | 35.7 | 36.75 | 44.65 | 20.85 | 37.9 | 40.3 | 44.65 | 29.75 | 43.1 | 48.1 | 20.5 |
| Total PCBs | 2,000 | 270.4 | 425.9 | 294 | 357.2 | 166.8 | 303.2 | 322.4 | 357.2 | 238 | 344.8 | 384.8 | 164 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BC-C030-01 | BC-C031-01 | BC-C036-01 | BC-C037-01 | BC-C038-01 | BC-C043-01 | BC-C044-01 | BC-C045-01 | BC-C050-01 | BC-C051-01 | BC-C052-01 | BC-C057-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 28-Jan-04 | 23-Jan-04 | 23-Jan-04 | 23-Jan-04 | 23-Jan-04 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **8.4** | **5.8** | **6.3** | **9.5** | **5.3** | **5.5** | **5.3** | **8.3** | **5.3** | **6.3** | **4.7** | **6.3** |
| Chromium | 332 | **9.5** | **91** | **5.8** | **7.5** | **22** | **8** | **9.5** | **12** | **6.2** | **29** | **91** | **6** |
| Copper | 372 | **13** | **85** | **7.3** | **10** | **26** | **11** | **15** | **19** | **10** | **33** | **88** | **13** |
| Lead | 210 | **2.6** | **18** | **1.9** | **2.2** | **5.4** | **2.1** | **2.6** | **3.4** | **2.3** | **5.8** | **17** | **2.2** |
| Silver | 13 | 0.15 | **3.4** | 0.11 | 0.15 | **0.84** | 0.16 | 0.17 | 0.16 | 0.16 | **1.1** | **4.7** | 0.16 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| 1-Methylnaphthalene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| 2-Methylnaphthalene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Acenaphthene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Acenaphthylene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Anthracene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Benz[a]anthracene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Benzo[a]pyrene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | **150** | 65 |
| Benzo[b]fluoranthene | | 60 | **230** | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | **370** | 65 |
| Benzo[ghi]perylene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | **140** | 65 |
| Benzo[k]fluoranthene | | 60 | **190** | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | **260** | 65 |
| Biphenyl | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Chrysene | | 60 | **160** | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | **240** | 65 |
| Dibenzo[a,h]anthracene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Fluoranthene | | 60 | **260** | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | **300** | 65 |
| Fluorene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Indeno[1,2,3-cd]pyrene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | **140** | 65 |
| Naphthalene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Perylene | | 60 | 70 | 45 | **140** | **180** | **230** | **170** | **200** | **210** | 65 | **190** | **270** |
| Phenanthrene | | 60 | 70 | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | 70 | 65 |
| Pyrene | | 60 | **230** | 45 | 60 | 75 | 60 | 65 | 65 | 65 | 65 | **310** | **140** |
| Total SVOC/PAHs | 9,000 | 1,260 | 2,190 | 934.5 | 1,340 | 1,680 | 1,430 | 1,470 | 1,500 | 1,510 | 1,365 | 2,940 | 1,645 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 36.75 | 44.65 | 27.8 | 36.75 | 48.1 | 39.05 | 41.65 | 40.3 | 40.3 | 40.3 | 43.1 | 40.3 |
| Aroclor® 1221 | | 36.75 | 44.65 | 27.8 | 36.75 | 48.1 | 39.05 | 41.65 | 40.3 | 40.3 | 40.3 | 43.1 | 40.3 |
| Aroclor® 1232 | | 36.75 | 44.65 | 27.8 | 36.75 | 48.1 | 39.05 | 41.65 | 40.3 | 40.3 | 40.3 | 43.1 | 40.3 |
| Aroclor® 1248 | | 36.75 | 44.65 | 27.8 | 36.75 | 48.1 | 39.05 | 41.65 | 40.3 | 40.3 | 40.3 | 43.1 | 40.3 |
| Aroclor® 1254 | | 36.75 | 44.65 | 27.8 | 36.75 | 48.1 | 39.05 | 41.65 | 40.3 | 40.3 | 40.3 | 43.1 | 40.3 |
| Aroclor® 1260 | | 36.75 | **143** | 27.8 | 36.75 | 48.1 | 39.05 | 41.65 | 40.3 | 40.3 | 40.3 | **125** | 40.3 |
| Aroclor® 1262 | | 36.75 | 44.65 | 27.8 | 36.75 | 48.1 | 39.05 | 41.65 | 40.3 | 40.3 | 40.3 | 43.1 | 40.3 |
| Aroclor® 1268 | | 36.75 | 44.65 | 27.8 | 36.75 | 48.1 | 39.05 | 41.65 | 40.3 | 40.3 | 40.3 | 43.1 | 40.3 |
| Total PCBs | 2,000 | 294 | 455.55 | 222.4 | 294 | 384.8 | 312.4 | 333.2 | 322.4 | 322.4 | 322.4 | 426.7 | 322.4 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BC-C058-01 | BC-C059-01 | BC-C064-01 | BC-C065-01 | BC-C066-01 | BC-C071-01 | BC-C072-01 | BC-C073-01 | BC-C079-01 | BD-C001-01 | BD-C002-01 | BD-C003-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 23-Jan-04 | 23-Jan-04 | 23-Jan-04 | 23-Jan-04 | 23-Jan-04 | 23-Jan-04 | 23-Jan-04 | 28-Jan-04 | 23-Jan-04 | 05-Dec-03 | 04-Dec-03 | 04-Dec-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **3** | **4** | **6.4** | **5.9** | **5.4** | **13** | **4.8** | **9.3** | **7.5** | **3** | **4.4** | **8** |
| Chromium | 332 | **4.6** | **6.1** | **8.2** | **7.3** | **19** | **9.9** | **10** | **6.4** | **7.2** | **17** | **5.9** | **7.5** |
| Copper | 372 | **8.8** | **12** | **16** | **15** | **23** | **18** | **16** | **12** | **11** | **40** | **4.2** | **2.7** |
| Lead | 210 | **1.9** | **2.3** | **3.1** | **3.1** | **5.4** | **11** | **4** | **2.1** | **3.2** | **3.7** | **2** | **2.5** |
| Silver | 13 | 0.16 | 0.17 | 0.17 | 0.17 | **0.76** | 0.19 | 0.19 | 0.19 | 0.18 | **0.53** | 0.06 | 0.08 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| 1-Methylnaphthalene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| 2-Methylnaphthalene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Acenaphthene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Acenaphthylene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Anthracene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Benz[a]anthracene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Benzo[a]pyrene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Benzo[b]fluoranthene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Benzo[ghi]perylene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Benzo[k]fluoranthene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Biphenyl | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Chrysene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Dibenzo[a,h]anthracene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Fluoranthene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | **140** | 33 | 25 | 31 |
| Fluorene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Indeno[1,2,3-cd]pyrene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Naphthalene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Perylene | | **190** | **230** | **150** | **160** | **140** | 75 | **170** | **270** | 70 | 33 | 25 | 31 |
| Phenanthrene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | 70 | 33 | 25 | 31 |
| Pyrene | | 60 | 65 | 70 | 65 | 65 | 75 | 75 | 75 | **220** | 33 | 25 | 31 |
| Total SVOC/PAHs | 9,000 | 1,390 | 1,530 | 1,550 | 1,460 | 1,440 | 1,575 | 1,670 | 1,770 | 1,690 | 693 | 514.5 | 651 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 39.05 | 41.65 | 43.1 | 41.65 | 41.65 | 46.3 | 48.1 | 46.3 | 44.65 | 20.5 | 15.45 | 19.55 |
| Aroclor® 1221 | | 39.05 | 41.65 | 43.1 | 41.65 | 41.65 | 46.3 | 48.1 | 46.3 | 44.65 | 20.5 | 15.45 | 19.55 |
| Aroclor® 1232 | | 39.05 | 41.65 | 43.1 | 41.65 | 41.65 | 46.3 | 48.1 | 46.3 | 44.65 | 20.5 | 15.45 | 19.55 |
| Aroclor® 1248 | | 39.05 | 41.65 | 43.1 | 41.65 | 41.65 | 46.3 | 48.1 | 46.3 | 44.65 | 20.5 | 15.45 | 19.55 |
| Aroclor® 1254 | | 39.05 | 41.65 | 43.1 | 41.65 | 41.65 | 46.3 | 48.1 | 46.3 | 44.65 | 20.5 | 15.45 | 19.55 |
| Aroclor® 1260 | | 39.05 | 41.65 | 43.1 | 41.65 | 41.65 | 46.3 | 48.1 | 46.3 | 44.65 | 20.5 | 15.45 | 19.55 |
| Aroclor® 1262 | | 39.05 | 41.65 | 43.1 | 41.65 | 41.65 | 46.3 | 48.1 | 46.3 | 44.65 | 20.5 | 15.45 | 19.55 |
| Aroclor® 1268 | | 39.05 | 41.65 | 43.1 | 41.65 | 41.65 | 46.3 | 48.1 | 46.3 | 44.65 | 20.5 | 15.45 | 19.55 |
| Total PCBs | 2,000 | 312.4 | 333.2 | 344.8 | 333.2 | 333.2 | 370.4 | 384.8 | 370.4 | 357.2 | 164 | 123.6 | 156.4 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BD-C004-01 | BD-C005-01 | BD-C006-01 | BD-C008-01 | BD-C009-01 | BD-C010-01 | BD-C011-01 | BD-C012-01 | BD-C013-01 | BD-C015-01 | BD-C016-01 | BD-C017-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 05-Dec-03 | 05-Dec-03 | 05-Dec-03 | 05-Dec-03 | 19-Nov-03 | 19-Nov-03 | 04-Dec-03 | 04-Dec-03 | 04-Dec-03 | 18-Nov-03 | 18-Nov-03 | 18-Nov-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **8.3** | **5.8** | **6** | **9.8** | **40** | **9.8** | **5** | **7.1** | **6.7** | **11** | **19** | **30** |
| Chromium | 332 | **7.2** | **14** | **48** | **51** | **20** | **5.8** | **17** | **15** | **400** | **7.3** | **7.6** | **8.6** |
| Copper | 372 | **3** | **14** | **40** | **51** | **10** | **3.4** | **13** | **13** | **240** | **130** | **4.2** | **8** |
| Lead | 210 | **2.2** | **3.6** | **7.4** | **7.8** | **6** | **2.4** | **3.3** | **3.4** | **46** | **2.6** | **2.5** | **2.5** |
| Silver | 13 | 0.13 | 0.14 | **1** | **1.8** | 0.15 | 0.08 | **0.33** | 0.12 | **8.1** | **0.27** | 0.06 | 0.07 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| 1-Methylnaphthalene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| 2-Methylnaphthalene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Acenaphthene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Acenaphthylene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Anthracene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Benz[a]anthracene | | 50 | 55 | 55 | **68** | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Benzo[a]pyrene | | 50 | 55 | 55 | **81** | 60 | 30 | 35 | 47 | **96** | 27 | 25 | 27 |
| Benzo[b]fluoranthene | | 50 | 55 | 55 | **110** | 60 | 30 | 35 | 47 | **210** | 27 | 25 | 27 |
| Benzo[ghi]perylene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | **100** | 27 | 25 | 27 |
| Benzo[k]fluoranthene | | 50 | 55 | 55 | **94** | 60 | 30 | 35 | 47 | **160** | 27 | 25 | 27 |
| Biphenyl | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Chrysene | | 50 | 55 | 55 | **110** | 60 | 30 | 35 | 47 | **180** | 27 | 25 | 27 |
| Dibenzo[a,h]anthracene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Fluoranthene | | 50 | 55 | 55 | **200** | 60 | 30 | 35 | 47 | **180** | 27 | 25 | 27 |
| Fluorene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Indeno[1,2,3-cd]pyrene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | **100** | 27 | 25 | 27 |
| Naphthalene | | 50 | 55 | 55 | 34 | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Perylene | | **140** | 55 | **140** | 34 | 60 | 30 | **87** | **160** | 45 | 27 | 25 | 27 |
| Phenanthrene | | 50 | 55 | 55 | **86** | 60 | 30 | 35 | 47 | 45 | 27 | 25 | 27 |
| Pyrene | | 50 | 55 | 55 | **170** | 60 | 30 | 35 | 47 | **170** | 27 | 25 | 27 |
| Total SVOC/PAHs | 9,000 | 1,140 | 1,155 | 1,240 | 1,355 | 1,260 | 619.5 | 777 | 1,090 | 1,775 | 556.5 | 514.5 | 567 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 32.9 | 35.7 | 35.7 | 20.85 | 37.9 | 18.4 | 21.55 | 29.05 | 27.8 | 16.45 | 15.45 | 16.9 |
| Aroclor® 1221 | | 32.9 | 35.7 | 35.7 | 20.85 | 37.9 | 18.4 | 21.55 | 29.05 | 27.8 | 16.45 | 15.45 | 16.9 |
| Aroclor® 1232 | | 32.9 | 35.7 | 35.7 | 20.85 | 37.9 | 18.4 | 21.55 | 29.05 | 27.8 | 16.45 | 15.45 | 16.9 |
| Aroclor® 1248 | | 32.9 | 35.7 | 35.7 | 20.85 | 37.9 | 18.4 | 21.55 | 29.05 | 27.8 | 16.45 | 15.45 | 16.9 |
| Aroclor® 1254 | | 32.9 | 35.7 | 35.7 | 20.85 | 37.9 | 18.4 | **383** | 29.05 | **462** | 16.45 | 15.45 | 16.9 |
| Aroclor® 1260 | | 32.9 | 35.7 | **79.4** | **137** | 37.9 | 18.4 | **720** | 29.05 | **951** | 16.45 | 15.45 | 16.9 |
| Aroclor® 1262 | | 32.9 | 35.7 | 35.7 | 20.85 | 37.9 | 18.4 | 21.55 | 29.05 | 27.8 | 16.45 | 15.45 | 16.9 |
| Aroclor® 1268 | | 32.9 | 35.7 | 35.7 | 20.85 | 37.9 | 18.4 | 21.55 | 29.05 | 27.8 | 16.45 | 15.45 | 16.9 |
| Total PCBs | 2,000 | 263.2 | 285.6 | 329.3 | 282.95 | 303.2 | 147.2 | 1,232 | 232.4 | 1,580 | 131.6 | 123.6 | 135.2 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BD-C018-01 | BD-C019-01 | BD-C020-01 | BD-C022-01 | BD-C023-01 | BD-C024-01 | BD-C025-01 | BD-C026-01 | BD-C027-02 | BD-C029-01 | BD-C030-01 | BD-C031-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 18-Nov-03 | 04-Dec-03 | 04-Dec-03 | 18-Nov-03 | 17-Nov-03 | 17-Nov-03 | 17-Nov-03 | 04-Dec-03 | 27-Jan-04 | 18-Nov-03 | 17-Nov-03 | 17-Nov-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **12** | **12** | **16** | **6.2** | **3** | **10** | **22** | **7.6** | **7.2** | **5.6** | **3.1** | **4.6** |
| Chromium | 332 | **6.7** | **15** | **630** | **7** | **6.2** | **8.1** | **9.4** | **6.2** | **5.4** | **10** | **4.4** | **5.9** |
| Copper | 372 | **2.6** | **12** | **520** | **27** | **9.7** | **7.9** | **16** | **4.2** | **3.1** | **230** | **6.8** | **3.7** |
| Lead | 210 | **2.5** | **3.8** | **100** | **2.8** | **1.6** | **2.7** | **2.8** | **2.2** | **2.3** | **4.2** | **1.9** | **2.7** |
| Silver | 13 | 0.09 | 0.13 | **26** | **0.3** | 0.14 | 0.12 | **0.48** | 0.08 | 0.09 | **1.1** | 0.13 | 0.13 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| 1-Methylnaphthalene | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| 2-Methylnaphthalene | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Acenaphthene | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Acenaphthylene | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Anthracene | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Benz[a]anthracene | | 34 | 50 | **290** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Benzo[a]pyrene | | 34 | 50 | **440** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Benzo[b]fluoranthene | | 34 | 50 | **900** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Benzo[ghi]perylene | | 34 | 50 | **420** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Benzo[k]fluoranthene | | 34 | 50 | **640** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Biphenyl | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Chrysene | | 34 | 50 | **730** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Dibenzo[a,h]anthracene | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Fluoranthene | | 34 | 50 | **800** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Fluorene | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Indeno[1,2,3-cd]pyrene | | 34 | 50 | **430** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Naphthalene | | 34 | 50 | 70 | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Perylene | | 34 | **170** | **170** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Phenanthrene | | 34 | 50 | **280** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Pyrene | | 34 | 50 | **720** | 25 | 28 | 25 | 26 | 33 | 36 | 31 | 26 | 26 |
| Total SVOC/PAHs | 9,000 | 703.5 | 1,170 | 6,520 | 525 | 577.5 | 514.5 | 546 | 693 | 745.5 | 651 | 535.5 | 546 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 20.85 | 31.25 | 44.65 | 15.6 | 17.1 | 15.25 | 16.25 | 20.5 | 22.3 | 19.55 | 16 | 16.25 |
| Aroclor® 1221 | | 20.85 | 31.25 | 44.65 | 15.6 | 17.1 | 15.25 | 16.25 | 20.5 | 22.3 | 19.55 | 16 | 16.25 |
| Aroclor® 1232 | | 20.85 | 31.25 | 44.65 | 15.6 | 17.1 | 15.25 | 16.25 | 20.5 | 22.3 | 19.55 | 16 | 16.25 |
| Aroclor® 1248 | | 20.85 | 31.25 | 44.65 | 15.6 | 17.1 | 15.25 | 16.25 | 20.5 | 22.3 | 19.55 | 16 | 16.25 |
| Aroclor® 1254 | | 20.85 | 31.25 | **407** | 15.6 | 17.1 | 15.25 | 16.25 | 20.5 | 22.3 | 19.55 | 16 | 16.25 |
| Aroclor® 1260 | | 20.85 | 31.25 | **548** | 15.6 | 17.1 | 15.25 | 16.25 | 20.5 | 22.3 | 19.55 | 16 | 16.25 |
| Aroclor® 1262 | | 20.85 | 31.25 | 44.65 | 15.6 | 17.1 | 15.25 | 16.25 | 20.5 | 22.3 | 19.55 | 16 | 16.25 |
| Aroclor® 1268 | | 20.85 | 31.25 | 44.65 | 15.6 | 17.1 | 15.25 | 16.25 | 20.5 | 22.3 | 19.55 | 16 | 16.25 |
| Total PCBs | 2,000 | 166.8 | 250 | 1,223 | 124.8 | 136.8 | 122 | 130 | 164 | 178.4 | 156.4 | 128 | 130 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BD-C032-01 | BD-C033-01 | BD-C034-02 | BD-C036-01 | BD-C037-01 | BD-C038-01 | BD-C039-01 | BD-C040-01 | BD-C041-01 | BD-C043-01 | BD-C044-01 | BD-C045-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 17-Nov-03 | 04-Dec-03 | 27-Jan-04 | 18-Nov-03 | 17-Nov-03 | 17-Nov-03 | 17-Nov-03 | 04-Dec-03 | 04-Dec-03 | 19-Nov-03 | 19-Nov-03 | 02-Dec-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **12** | **17** | **8.5** | **13** | **8.5** | **6.5** | **7.3** | **4.2** | **8.9** | **22** | **6.5** | **5.5** |
| Chromium | 332 | **12** | **9.6** | **5.6** | **31** | **14** | **9.9** | **12** | **3.1** | **130** | **94** | **9.2** | **14** |
| Copper | 372 | **17** | **5.3** | **3.2** | **46** | **21** | **6** | **5.2** | **1.6** | **210** | **89** | **3** | **10** |
| Lead | 210 | **4** | **2.3** | **1.7** | **5.9** | **9.9** | **3.3** | **4.3** | **2.2** | **27** | **18** | **3.1** | **3.8** |
| Silver | 13 | **0.28** | 0.07 | 0.07 | **0.55** | **0.18** | 0.14 | 0.14 | 0.06 | **4.2** | **2** | 0.07 | **0.28** |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| 1-Methylnaphthalene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| 2-Methylnaphthalene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Acenaphthene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Acenaphthylene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Anthracene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Benz[a]anthracene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Benzo[a]pyrene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Benzo[b]fluoranthene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Benzo[ghi]perylene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Benzo[k]fluoranthene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Biphenyl | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Chrysene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Dibenzo[a,h]anthracene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Fluoranthene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Fluorene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Indeno[1,2,3-cd]pyrene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Naphthalene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Perylene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Phenanthrene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Pyrene | | 26 | 26 | 26 | 60 | 47 | 28 | 28 | 25 | 32 | 50 | 26 | 27 |
| Total SVOC/PAHs | 9,000 | 546 | 546 | 535.5 | 1260 | 976.5 | 588 | 577.5 | 514.5 | 672 | 1,050 | 535.5 | 556.5 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 16.25 | 16.25 | 16 | 37.9 | 29.05 | 17.35 | 17.1 | 15.25 | 20.15 | 31.25 | 16 | 16.45 |
| Aroclor® 1221 | | 16.25 | 16.25 | 16 | 37.9 | 29.05 | 17.35 | 17.1 | 15.25 | 20.15 | 31.25 | 16 | 16.45 |
| Aroclor® 1232 | | 16.25 | 16.25 | 16 | 37.9 | 29.05 | 17.35 | 17.1 | 15.25 | 20.15 | 31.25 | 16 | 16.45 |
| Aroclor® 1248 | | 16.25 | 16.25 | 16 | 37.9 | 29.05 | 17.35 | 17.1 | 15.25 | 20.15 | 31.25 | 16 | 16.45 |
| Aroclor® 1254 | | 16.25 | 16.25 | 16 | 37.9 | 29.05 | 17.35 | 17.1 | 15.25 | **116** | 31.25 | 16 | 16.45 |
| Aroclor® 1260 | | 16.25 | 16.25 | 16 | **193** | 29.05 | 17.35 | 17.1 | 15.25 | **279** | 31.25 | 16 | 16.45 |
| Aroclor® 1262 | | 16.25 | 16.25 | 16 | 37.9 | 29.05 | 17.35 | 17.1 | 15.25 | 20.15 | 31.25 | 16 | 16.45 |
| Aroclor® 1268 | | 16.25 | 16.25 | 16 | 37.9 | 29.05 | 17.35 | 17.1 | 15.25 | 20.15 | 31.25 | 16 | 16.45 |
| Total PCBs | 2,000 | 130 | 130 | 128 | 458.3 | 232.4 | 138.8 | 136.8 | 122 | 515.9 | 250 | 128 | 131.6 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BD-C046-01 | BD-C047-01 | BD-C048-01 | BD-C050-01 | BD-C051-01 | BD-C052-01 | BD-C053-01 | BD-C054-01 | BD-C055-01 | BD-C057-01 | BD-C058-01 | BD-C059-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 03-Dec-03 | 03-Dec-03 | 03-Dec-03 | 19-Nov-03 | 02-Dec-03 | 02-Dec-03 | 03-Dec-03 | 03-Dec-03 | 03-Dec-03 | 02-Dec-03 | 02-Dec-03 | 03-Dec-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | **1.6** | **1.1** | **8.3** | **10** | **6.2** | **5.2** | **2.8** | **3.2** | **9.1** | **17** | **5.4** | **3.6** |
| Chromium | 332 | **18** | **14** | **150** | **5.8** | **7.1** | **20** | **140** | **780** | **1,600** | **14** | **14** | **960** |
| Copper | 372 | **13** | **17** | **250** | **19** | **36** | **9.8** | **110** | **500** | **800** | **4.4** | **4.7** | **690** |
| Lead | 210 | **2.8** | **3.4** | **37** | **3.6** | **2.5** | **4.2** | **17** | **85** | **230** | **4.4** | **3.6** | **100** |
| Silver | 13 | **0.44** | **0.35** | **4** | 0.06 | 0.06 | **0.29** | **5.3** | **12** | **17** | 0.07 | 0.07 | **31** |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 180 | 28 | 28 | 65 |
| 1-Methylnaphthalene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 180 | 28 | 28 | 65 |
| 2-Methylnaphthalene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 180 | 28 | 28 | 65 |
| Acenaphthene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 180 | 28 | 28 | 65 |
| Acenaphthylene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 180 | 28 | 28 | 65 |
| Anthracene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | **370** | 28 | 28 | 65 |
| Benz[a]anthracene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | **1,000** | 28 | 28 | **190** |
| Benzo[a]pyrene | | 27 | 29 | **74** | 25 | 25 | 30 | 35 | **220** | **1,600** | 28 | 28 | **290** |
| Benzo[b]fluoranthene | | 27 | 29 | **180** | 25 | 25 | 30 | 35 | **610** | **3,600** | 28 | 28 | **640** |
| Benzo[ghi]perylene | | 27 | 29 | **79** | 25 | 25 | 30 | 35 | **300** | **1,700** | 28 | 28 | **310** |
| Benzo[k]fluoranthene | | 27 | 29 | **140** | 25 | 25 | 30 | 35 | **360** | **2,400** | 28 | 28 | **500** |
| Biphenyl | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 180 | 28 | 28 | 65 |
| Chrysene | | 27 | 29 | **130** | 25 | 25 | 30 | 35 | **560** | **2,600** | 28 | 28 | **510** |
| Dibenzo[a,h]anthracene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 430 | 28 | 28 | 65 |
| Fluoranthene | | 27 | 29 | **130** | 25 | 25 | 30 | 35 | **340** | **2,400** | 28 | 28 | **420** |
| Fluorene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 180 | 28 | 28 | 65 |
| Indeno[1,2,3-cd]pyrene | | 27 | 29 | **75** | 25 | 25 | 30 | 35 | **300** | **1,700** | 28 | 28 | **320** |
| Naphthalene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 180 | 28 | 28 | 65 |
| Perylene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | 180 | 28 | 28 | 65 |
| Phenanthrene | | 27 | 29 | 37 | 25 | 25 | 30 | 35 | 70 | **690** | 28 | 28 | **170** |
| Pyrene | | 27 | 29 | **120** | 25 | 25 | 30 | 35 | **320** | **2,200** | 28 | 28 | **410** |
| Total SVOC/PAHs | 9,000 | 556.5 | 598.5 | 1,403 | 514.5 | 525 | 619.5 | 735 | 3,920 | 22,310 | 588 | 588 | 4,475 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 16.65 | 17.85 | 22.7 | 15.45 | 15.6 | 18.4 | 21.9 | 22.3 | 57 | 17.35 | 17.35 | 20.85 |
| Aroclor® 1221 | | 16.65 | 17.85 | 22.7 | 15.45 | 15.6 | 18.4 | 21.9 | 22.3 | 57 | 17.35 | 17.35 | 20.85 |
| Aroclor® 1232 | | 16.65 | 17.85 | 22.7 | 15.45 | 15.6 | 18.4 | 21.9 | 22.3 | 57 | 17.35 | 17.35 | 20.85 |
| Aroclor® 1248 | | 16.65 | 17.85 | 22.7 | 15.45 | 15.6 | 18.4 | 21.9 | 22.3 | 57 | 17.35 | 17.35 | 20.85 |
| Aroclor® 1254 | | 16.65 | 17.85 | 22.7 | 15.45 | 15.6 | 18.4 | 21.9 | 22.3 | 57 | 17.35 | 17.35 | 20.85 |
| Aroclor® 1260 | | 16.65 | 17.85 | 93.7 | 15.45 | 15.6 | **91** | **66.5** | **2,030** | **1,350** | 17.35 | 17.35 | **465** |
| Aroclor® 1262 | | 16.65 | 17.85 | 22.7 | 15.45 | 15.6 | 18.4 | 21.9 | 22.3 | 57 | 17.35 | 17.35 | 20.85 |
| Aroclor® 1268 | | 16.65 | 17.85 | 22.7 | 15.45 | 15.6 | 18.4 | 21.9 | 22.3 | 57 | 17.35 | 17.35 | 20.85 |
| Total PCBs | 2,000 | 133.2 | 142.8 | 252.6 | 123.6 | 124.8 | 219.8 | 219.8 | 2,186 | 1749 | 138.8 | 138.8 | 610.95 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1e**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BD-C064-01 | BD-C065-01 | BD-C066-01 | BD-C071-02 | BD-C072-02 | BD-C073-02 | Average |
|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 02-Dec-03 | 02-Dec-03 | 03-Dec-03 | 27-Jan-04 | 27-Jan-04 | 27-Jan-04 | |
| **Total Metals (mg/kg)** | | | | | | | | |
| Arsenic | 11 | **7.7** | **1.3** | **1.5** | **6.4** | **4.1** | **4.2** | 8.8 |
| Chromium | 332 | **21** | **20** | **540** | **12** | **7.6** | **10** | 54.3 |
| Copper | 372 | **22** | **14** | **470** | **2** | **1.1** | **1.6** | 56.0 |
| Lead | 210 | **4.8** | **3.6** | **50** | **3.8** | **3.8** | **2.8** | 11.9 |
| Silver | 13 | **0.51** | **0.44** | **10** | 0.07 | 0.06 | 0.065 | 1.3 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | |
| 1-Methyl phenanthrene | | 28 | 27 | 31 | 27 | 25 | 27 | 42.9 |
| 1-Methylnaphthalene | | 28 | 27 | 31 | 27 | 25 | 27 | 41.6 |
| 2-Methylnaphthalene | | 28 | 27 | 31 | 27 | 25 | 27 | 41.6 |
| Acenaphthene | | 28 | 27 | 31 | 27 | 25 | 27 | 42.0 |
| Acenaphthylene | | 28 | 27 | 31 | 27 | 25 | 27 | 50.0 |
| Anthracene | | 28 | 27 | 31 | 27 | 25 | 27 | 54.4 |
| Benz[a]anthracene | | 28 | 27 | 31 | 27 | 25 | 27 | 91.6 |
| Benzo[a]pyrene | | 28 | 27 | **80** | 27 | 25 | 27 | 94.4 |
| Benzo[b]fluoranthene | | 28 | 27 | **220** | 27 | 25 | 27 | 129.6 |
| Benzo[ghi]perylene | | 28 | 27 | **130** | 27 | 25 | 27 | 83.2 |
| Benzo[k]fluoranthene | | 28 | 27 | **140** | 27 | 25 | 27 | 112.4 |
| Biphenyl | | 28 | 27 | 31 | 27 | 25 | 27 | 41.6 |
| Chrysene | | 28 | 27 | **150** | 27 | 25 | 27 | 125.7 |
| Dibenzo[a,h]anthracene | | 28 | 27 | 31 | 27 | 25 | 27 | 49.4 |
| Fluoranthene | | 28 | 27 | **120** | 27 | 25 | 27 | 180.1 |
| Fluorene | | 28 | 27 | 31 | 27 | 25 | 27 | 44.6 |
| Indeno[1,2,3-cd]pyrene | | 28 | 27 | **120** | 27 | 25 | 27 | 82.3 |
| Naphthalene | | 28 | 27 | 31 | 27 | 25 | 27 | 41.6 |
| Perylene | | 28 | 27 | 31 | 27 | 25 | 27 | 73.9 |
| Phenanthrene | | 28 | 27 | 31 | 27 | 25 | 27 | 69.6 |
| Pyrene | | 28 | 27 | **120** | 27 | 25 | 27 | 167.1 |
| Total SVOC/PAHs | 9,000 | 588 | 567 | 1,483 | 567 | 514.5 | 567 | 1,660 |
| **PCBs (µg/kg)** | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 17.35 | 16.9 | 19.25 | 16.9 | 15.45 | 16.9 | 27.1 |
| Aroclor® 1221 | | 17.35 | 16.9 | 19.25 | 16.9 | 15.45 | 16.9 | 27.1 |
| Aroclor® 1232 | | 17.35 | 16.9 | 19.25 | 16.9 | 15.45 | 16.9 | 27.1 |
| Aroclor® 1248 | | 17.35 | 16.9 | 19.25 | 16.9 | 15.45 | 16.9 | 27.1 |
| Aroclor® 1254 | | 17.35 | 16.9 | 19.25 | 16.9 | 15.45 | 16.9 | 36.2 |
| Aroclor® 1260 | | 17.35 | **43.3** | **199** | 16.9 | 15.45 | 16.9 | 89.6 |
| Aroclor® 1262 | | 17.35 | 16.9 | 19.25 | 16.9 | 15.45 | 16.9 | 27.3 |
| Aroclor® 1268 | | 17.35 | 16.9 | 19.25 | 16.9 | 15.45 | 16.9 | 27.1 |
| Total PCBs | 2,000 | 138.8 | 161.6 | 333.75 | 135.2 | 123.6 | 135.2 | 288.8 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limi
- no UCL

**Table 1f**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Perimeters**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | Upper Concentration Limit | AC-P043-03 | AC-P036-03 | AC-P031-03 | AC-P026-01 | AC-P012-01 | BC-P006-01 | BC-P012-01 | BC-P018-01 | BC-P031-01 | BC-P045-01 | BC-P059-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | | 12-Feb-04 | 12-Feb-04 | 12-Feb-04 | 30-Jan-04 | 30-Jan-04 | 24-Oct-03 | 24-Oct-03 | 24-Oct-03 | 24-Oct-03 | 24-Oct-03 | 22-Jan-04 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | | |
| Arsenic | 11 | 500 | **46** | **31** | **17** | **7.8** | **6.7** | **4.0** | **4.5** | **5.0** | **4.0** | **18** | **6.5** |
| Chromium | 332 | 2,000 | **250** | **7.7** | **11** | **54** | **11** | **9.1** | **14** | **34** | **12** | **46** | **27** |
| Copper | 372 | - | **290** | **6.4** | **13** | **73** | **18** | **11** | **26** | **160** | **46** | **73** | **110** |
| Lead | 210 | 6,000 | **81** | **3.9** | **3.5** | **15** | **7.5** | **3.9** | **11** | **51** | **5.7** | **14** | **7.8** |
| Silver | 13 | 2,000 | **18** | 0.15 | **0.44** | **1.1** | 0.07 | 0.15 | 0.17 | **1.5** | 0.17 | **2.0** | **1.5** |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | - | 65 | 60 | 55 | 33 | **55** | 60 | 65 | 65 | 65 | 75 | 75 |
| 1-Methylnaphthalene | | - | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| 2-Methylnaphthalene | | 5,000,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Acenaphthene | | 10,000,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Acenaphthylene | | 10,000,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Anthracene | | 10,000,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Benz[a]anthracene | | 3,000,000 | 65 | 60 | 55 | **160** | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Benzo[a]pyrene | | 300,000 | 65 | 60 | 55 | **170** | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Benzo[b]fluoranthene | | 3,000,000 | **140** | 60 | 55 | **370** | 27 | 60 | 65 | 65 | 65 | **170** | 75 |
| Benzo[ghi]perylene | | 10,000,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Benzo[k]fluoranthene | | 10,000,000 | 65 | 60 | 55 | **200** | 27 | 60 | 65 | 65 | 65 | **150** | 75 |
| Biphenyl | | 10,000,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Chrysene | | 10,000,000 | 65 | 60 | 55 | **210** | 27 | 60 | 65 | 65 | 65 | **170** | 75 |
| Dibenzo[a,h]anthracene | | 300,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Fluoranthene | | 10,000,000 | **170** | 60 | 55 | **410** | **57** | 60 | 65 | 65 | 65 | **230** | 75 |
| Fluorene | | 10,000,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Indeno[1,2,3-cd]pyrene | | 3,000,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Naphthalene | | 10,000,000 | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Perylene | | - | 65 | 60 | 55 | 33 | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Phenanthrene | | 10,000,000 | 65 | 60 | 55 | **150** | 27 | 60 | 65 | 65 | 65 | 75 | 75 |
| Pyrene | | 10,000,000 | **160** | 60 | 55 | **350** | **57** | 60 | 65 | 65 | 65 | **250** | **180** |
| Total SVOC/PAHs | 9,000 | - | 1,640 | 1,260 | 1,155 | 2,449 | 646 | 1,260 | 1,365 | 1,365 | 1,365 | 2,170 | 1,680 |
| **PCBs (µg/kg)** | | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | - | 40.3 | 37.9 | 35.7 | 20.5 | 66 | 37.9 | 41.65 | 41.65 | 41.65 | 46.3 | 46.3 |
| Aroclor® 1221 | | - | 40.3 | 37.9 | 35.7 | 20.5 | 66 | 37.9 | 41.65 | 41.65 | 41.65 | 46.3 | 46.3 |
| Aroclor® 1232 | | - | 40.3 | 37.9 | 35.7 | 20.5 | 66 | 37.9 | 41.65 | 41.65 | 41.65 | 46.3 | 46.3 |
| Aroclor® 1248 | | - | 40.3 | 37.9 | 35.7 | 20.5 | 66 | 37.9 | 41.65 | 41.65 | 41.65 | 46.3 | 46.3 |
| Aroclor® 1254 | | - | 40.3 | 37.9 | 35.7 | **79.3** | 66 | 37.9 | 41.65 | 41.65 | 41.65 | 46.3 | 46.3 |
| Aroclor® 1260 | | - | 40.3 | 37.9 | 35.7 | **228** | 66 | 37.9 | 41.65 | **154** | 41.65 | 46.3 | 46.3 |
| Aroclor® 1262 | | - | 40.3 | 37.9 | 35.7 | 20.5 | 66 | 37.9 | 41.65 | 41.65 | 41.65 | 46.3 | 46.3 |
| Aroclor® 1268 | | - | 40.3 | 37.9 | 35.7 | 20.5 | 66 | 37.9 | 41.65 | 41.65 | 41.65 | 46.3 | 46.3 |
| Total PCBs | 2,000 | 100,000 | 322.4 | 303.2 | 285.6 | 430.3 | 528 | 303.2 | 333.2 | 445.55 | 333.2 | 370.4 | 370.4 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection limit.
- no UCL

**Table 1f**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Perimeters**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BC-P073-01 | BC-P079-01 | BC-P071-01 | BC-P057-01 | BD-P072-02 | BD-P066-01 | BD-P053-01 | BD-P055-01 | BD-P041-01 | BD-P034-02 | BD-P020-01 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 22-Jan-04 | 22-Jan-04 | 22-Jan-04 | 22-Jan-04 | 27-Jan-04 | 19-Nov-03 | 02-Dec-03 | 24-Oct-03 | 24-Oct-03 | 27-Jan-04 | 24-Oct-03 |
| **Total Metals (mg/kg)** | | | | | | | | | | | | |
| Arsenic | 11 | **8.4** | **16** | **43** | **38** | **8.2** | **5.2** | **4.5** | **4.4** | **7.0** | **37** | **9.3** |
| Chromium | 332 | **14** | **120** | **430** | **220** | **49** | **69** | **27** | **27** | **13** | **20** | **16** |
| Copper | 372 | **20** | **130** | **540** | **420** | **44** | **1,800** | **200** | **120** | **50** | **33** | **42** |
| Lead | 210 | **4.7** | **27** | **140** | **120** | **25** | **64** | **13** | **36** | **7.2** | **9.1** | **13** |
| Silver | 13 | **0.51** | **7.1** | **34** | **11** | **0.9** | **1.9** | **0.79** | **0.81** | **0.77** | **1.1** | **0.74** |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| 1-Methylnaphthalene | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| 2-Methylnaphthalene | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Acenaphthene | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Acenaphthylene | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Anthracene | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Benz[a]anthracene | | 70 | 70 | **280** | **210** | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Benzo[a]pyrene | | **200** | 70 | **450** | **290** | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Benzo[b]fluoranthene | | **420** | 70 | **980** | **580** | **150** | 65 | 60 | 45 | 41 | 60 | 60 |
| Benzo[ghi]perylene | | **170** | 70 | **430** | **270** | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Benzo[k]fluoranthene | | **290** | 70 | **640** | **390** | **130** | 65 | 60 | 45 | 41 | 60 | 60 |
| Biphenyl | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Chrysene | | **300** | 70 | **710** | **470** | **130** | 65 | 60 | 45 | 41 | 60 | 60 |
| Dibenzo[a,h]anthracene | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Fluoranthene | | **380** | 70 | **840** | **590** | **180** | 65 | 60 | 45 | 41 | **120** | 60 |
| Fluorene | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Indeno[1,2,3-cd]pyrene | | **180** | 70 | **440** | **280** | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Naphthalene | | 70 | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Perylene | | **220** | 70 | 95 | 85 | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Phenanthrene | | 70 | 70 | **270** | **240** | 65 | 65 | 60 | 45 | 41 | 60 | 60 |
| Pyrene | | **370** | 70 | **770** | **540** | **180** | 65 | 60 | 45 | 41 | 60 | 60 |
| Total SVOC/PAHs | 9,000 | 3,370 | 1,470 | 6,855 | 4,795 | 1,810 | 1,365 | 1,260 | 934.5 | 861 | 1,320 | 1,260 |
| **PCBs (µg/kg)** | | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 43.1 | 44.65 | 59.5 | 52 | 40.3 | 41.65 | 37.9 | 27.8 | 25.5 | 36.75 | 39.05 |
| Aroclor® 1221 | | 43.1 | 44.65 | 59.5 | 52 | 40.3 | 41.65 | 37.9 | 27.8 | 25.5 | 36.75 | 39.05 |
| Aroclor® 1232 | | 43.1 | 44.65 | 59.5 | 52 | 40.3 | 41.65 | 37.9 | 27.8 | 25.5 | 36.75 | 39.05 |
| Aroclor® 1248 | | 43.1 | 44.65 | 59.5 | 52 | 40.3 | 41.65 | 37.9 | 27.8 | 25.5 | 36.75 | 39.05 |
| Aroclor® 1254 | | **97.8** | 44.65 | **373** | **190** | 40.3 | 41.65 | 37.9 | 27.8 | 25.5 | 36.75 | 39.05 |
| Aroclor® 1260 | | **132** | 44.65 | **401** | **241** | **87.8** | 41.65 | 37.9 | 27.8 | 25.5 | 36.75 | 39.05 |
| Aroclor® 1262 | | 43.1 | 44.65 | 59.5 | 52 | 40.3 | 41.65 | 37.9 | 27.8 | 25.5 | 36.75 | 39.05 |
| Aroclor® 1268 | | 43.1 | 44.65 | 59.5 | 52 | 40.3 | 41.65 | 37.9 | 27.8 | 25.5 | 36.75 | 39.05 |
| Total PCBs | 2,000 | 488.4 | 357.2 | 1,131 | 743 | 369.9 | 333.2 | 303.2 | 222.4 | 204 | 294 | 312.4 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection lim
- no UCL

**Table 1f**
**Summary of Wetland Soil/Sediment Analytical Results -**
**Area C Perimeters**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Clean-up Goals | BD-P013-01 | AD-P006-02 | AD-P020-01 | AD-P034-02 | AD-P048-02 | AD-P058-01 | AD-P060-01 | AD-P065-02 | AD-P071-02 | Average |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Date Sampled | | 24-Oct-03 | 26-Jan-04 | 12-Nov-03 | 04-Dec-03 | 03-Dec-03 | 19-Nov-03 | 03-Dec-03 | 27-Jan-04 | 27-Jan-04 | |
| **Total Metals (mg/kg)** | | | | | | | | | | | |
| Arsenic | 11 | **11** | **6** | **5.1** | **6.4** | **7.6** | **14** | **20** | **7.6** | **9.0** | 13.5 |
| Chromium | 332 | **20** | **6.6** | **12** | **8.1** | **11** | **12** | **200** | **10** | **6.5** | 57 |
| Copper | 372 | **57** | **10** | **12** | **16** | **15** | **55** | **190** | **3.6** | **1.6** | 148 |
| Lead | 210 | **13** | **5.9** | **5.8** | **5.6** | **10** | **4.6** | **86** | **3.2** | **3.4** | 26 |
| Silver | 13 | 0.16 | 0.06 | 0.12 | 0.05 | 0.06 | **0.41** | **5.4** | 0.06 | 0.07 | 2.9 |
| **SVOC/PAHs (µg/kg)** | | | | | | | | | | | |
| 1-Methyl phenanthrene | | 65 | 25 | 23 | 21 | 25 | 27 | 49 | 25 | 26 | 54 |
| 1-Methylnaphthalene | | 65 | 25 | 23 | 21 | 25 | 27 | 49 | 25 | 26 | 53 |
| 2-Methylnaphthalene | | 65 | 25 | 23 | 21 | 25 | 27 | 49 | 25 | 26 | 53 |
| Acenaphthene | | 65 | 25 | 23 | 21 | 25 | 27 | 49 | 25 | 26 | 53 |
| Acenaphthylene | | 65 | 25 | 23 | 21 | 25 | 27 | 49 | 25 | 26 | 53 |
| Anthracene | | 65 | 25 | 23 | 21 | 75 | 27 | **210** | 25 | 26 | 60 |
| Benz[a]anthracene | | 65 | 25 | **49** | 21 | **180** | 27 | **160** | 25 | 26 | 77 |
| Benzo[a]pyrene | | 65 | 25 | 23 | 21 | **140** | 27 | **170** | 25 | 26 | 87 |
| Benzo[b]fluoranthene | | 65 | 25 | **47** | 21 | **170** | 27 | **260** | 25 | 26 | 140 |
| Benzo[ghi]perylene | | 65 | 25 | 23 | 21 | **100** | 27 | **210** | 25 | 26 | 81 |
| Benzo[k]fluoranthene | | 65 | 25 | **57** | 21 | **160** | 27 | **250** | 25 | 26 | 109 |
| Biphenyl | | 65 | 25 | 23 | 21 | 25 | 27 | 49 | 25 | 26 | 53 |
| Chrysene | | 65 | 25 | **50** | 21 | **230** | 27 | **290** | 25 | 26 | 119 |
| Dibenzo[a,h]anthracene | | 65 | 25 | 23 | 21 | 25 | 27 | 49 | 25 | 26 | 53 |
| Fluoranthene | | 65 | 25 | **72** | 21 | **400** | 27 | **800** | 52 | 26 | 169 |
| Fluorene | | 65 | 25 | 23 | 21 | 25 | 27 | 49 | 25 | 26 | 53 |
| Indeno[1,2,3-cd]pyrene | | 65 | 25 | 23 | 21 | **95** | 27 | **170** | 25 | 26 | 80 |
| Naphthalene | | 65 | 25 | 23 | 21 | 25 | 27 | 49 | 25 | 26 | 53 |
| Perylene | | 65 | 25 | 23 | 21 | **62** | 27 | 49 | 25 | 26 | 59 |
| Phenanthrene | | 65 | 25 | 23 | 21 | **160** | 27 | **140** | 25 | 26 | 75 |
| Pyrene | | 65 | **67** | **70** | 21 | **350** | 27 | **810** | 25 | 26 | 164 |
| Total SVOC/PAHs | 9,000 | 1,365 | 567 | 690 | 441 | 2,347 | 556.5 | 3,960 | 552 | 546 | 1,699 |
| **PCBs (µg/kg)** | | | | | | | | | | | |
| Aroclor® 1016 and 1242 - combination | | 40.3 | 15.6 | 14.35 | 13.3 | 15.6 | 16.65 | 30.5 | 15.6 | 16.25 | 35 |
| Aroclor® 1221 | | 40.3 | 15.6 | 14.35 | 13.3 | 15.6 | 16.65 | 30.5 | 15.6 | 16.25 | 35 |
| Aroclor® 1232 | | 40.3 | 15.6 | 14.35 | 13.3 | 15.6 | 16.65 | 30.5 | 15.6 | 16.25 | 35 |
| Aroclor® 1248 | | 40.3 | 15.6 | 14.35 | 13.3 | 15.6 | 16.65 | 30.5 | 15.6 | 16.25 | 35 |
| Aroclor® 1254 | | 40.3 | 15.6 | 14.35 | 13.3 | 15.6 | 16.65 | 30.5 | 15.6 | 16.25 | 53 |
| Aroclor® 1260 | | 40.3 | 15.6 | 14.35 | 13.3 | 15.6 | 16.65 | **191** | 15.6 | 16.25 | 72 |
| Aroclor® 1262 | | 40.3 | 15.6 | 14.35 | 13.3 | 15.6 | 16.65 | 30.5 | 15.6 | 16.25 | 35 |
| Aroclor® 1268 | | 40.3 | 15.6 | 14.35 | 13.3 | 15.6 | 16.65 | 30.5 | 15.6 | 16.25 | 35 |
| Total PCBs | 2,000 | 322.4 | 124.8 | 114.8 | 106.4 | 124.8 | 133.2 | 404.5 | 124.8 | 130 | 335 |

Notes: Detected values are displayed in bold.
Non-detects are shown as half the method detection lim
- no UCL

**Table 2**
**Summary of Resampled Wetland Grid Cells**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| Sample I.D. | Sample Date | Parameters in Exceedance | Resample ID | Resampled Date | Parameters in Exceedance | Resample ID | Resampled Date |
|---|---|---|---|---|---|---|---|
| AC-P031 -01 | 30-Jan-04 | As | AC-P031 -02 | 05-Feb-04 | As | AC-P031 -03 | 12-Feb-04 |
| AC-P036 -01 | 29-Jan-04 | As | AC-P036 -02 | 05-Feb-04 | As | AC-P036 -03 | 12-Feb-04 |
| AC-P043 -01 | 28-Jan-04 | As, Cr, Cu, Ag, PAHs | AC-P043 -02 | 05-Feb-04 | As | AC-P043 -03 | 12-Feb-04 |
| AD-C006 -01 | 05-Dec-03 | PAHs | AD-C006 -02 | 26-Jan-04 | - | - | - |
| AD-P006 -01 | 04-Dec-03 | PAHs | AD-P006 -02 | 26-Jan-04 | - | - | - |
| AD-C026 -01 | 12-Nov-03 | PAHs, PCBs | AD-C026 -02 | 04-Dec-03 | - | - | - |
| AD-C027 -01 | 12-Nov-03 | PAHs | AD-C027 -02 | 04-Dec-03 | - | - | - |
| AD-C033 -01 | 12-Nov-03 | PAHs | AD-C033 -02 | 04-Dec-03 | PAHs | AD-C033 -03 | 26-Jan-04 |
| AD-C034 -01 | 12-Nov-03 | Ag, PAHs, PCBs | AD-C034 -02 | 04-Dec-03 | - | - | - |
| AD-P034 -01 | 12-Nov-03 | PAHs | AD-P034 -02 | 04-Dec-03 | - | - | - |
| AD-C048 -01 | 14-Nov-03 | As, PAHs | AD-C048 -02 | 03-Dec-03 | - | - | - |
| AD-P048 -01 | 12-Nov-03 | PAHs | AD-P048 -02 | 03-Dec-03 | - | - | - |
| AD-C053 -01 | 14-Nov-03 | As, Cr, Cu, Ag, PAHs, PCBs | AD-C053 -02 | 03-Dec-03 | - | - | - |
| AD-C054 -01 | 14-Nov-03 | Cr, Cu, Ag, PCBs | AD-C054 -02 | 03-Dec-03 | - | - | - |
| AD-C055 -01 | 03-Dec-03 | PAHs, PCBs | AD-C055 -02 | 26-Jan-04 | - | - | - |
| AD-C059 -01 | 19-Nov-03 | As, Cr, Cu, Pb, Ag, PAHs, PCBs | AD-C059 -02 | 26-Jan-04 | - | - | - |
| AD-C060 -01 | 03-Dec-03 | As, Cr, Cu, Pb, Ag, PAHs, PCBs | AD-C060 -02 | 26-Jan-04 | - | - | - |
| AD-C065 -01 | 19-Nov-03 | As, Cr, Cu, Pb, Ag, PAHs, PCBs | AD-C065 -02 | 26-Jan-04 | - | - | - |
| AD-P065 -01 | 19-Nov-03 | As | AD-P065 -02 | 26-Jan-04 | - | - | - |
| AD-C071 -01 | 19-Nov-03 | NONE[1] | AD-C071 -02 | 26-Jan-04 | - | - | - |
| AD-P071 -01 | 19-Nov-03 | NONE[1] | AD-P071 -02 | 26-Jan-04 | - | - | - |
| AD-C072 -01 | 19-Nov-03 | As, Cr, Cu, Ag, PAHs, PCBs | AD-C072 -02 | 26-Jan-04 | - | - | - |
| BD-C027 -01 | 04-Dec-03 | As, Cu | BD-C027 -02 | 26-Jan-04 | - | - | - |
| BD-C034 -01 | 04-Dec-03 | As, Cr, Cu, Ag, PCBs | BD-C034 -02 | 26-Jan-04 | - | - | - |
| BD-P034 -01 | 24-Oct-03 | As | BD-P034 -02 | 26-Jan-04 | - | - | - |
| BD-C071 -01 | 02-Dec-03 | Cr, Cu, Ag, PAHs, PCBs | BD-C071 -02 | 26-Jan-04 | - | - | - |
| BD-C072 -01 | 02-Dec-03 | Cr, Cu, Ag, PCBs | BD-C072 -02 | 26-Jan-04 | - | - | - |
| BD-P072 -01 | 19-Nov-03 | Cu | BD-P072 -02 | 26-Jan-04 | - | - | - |
| BD-C073 -01 | 02-Dec-03 | As, Cr, Cu, Pb, Ag, PAHs, PCBs | BD-C073 -02 | 26-Jan-04 | - | - | - |

Notes:
[1] AD-C071 was resampled due to proximity to AD-C072, AD-C065 and BD-C071.

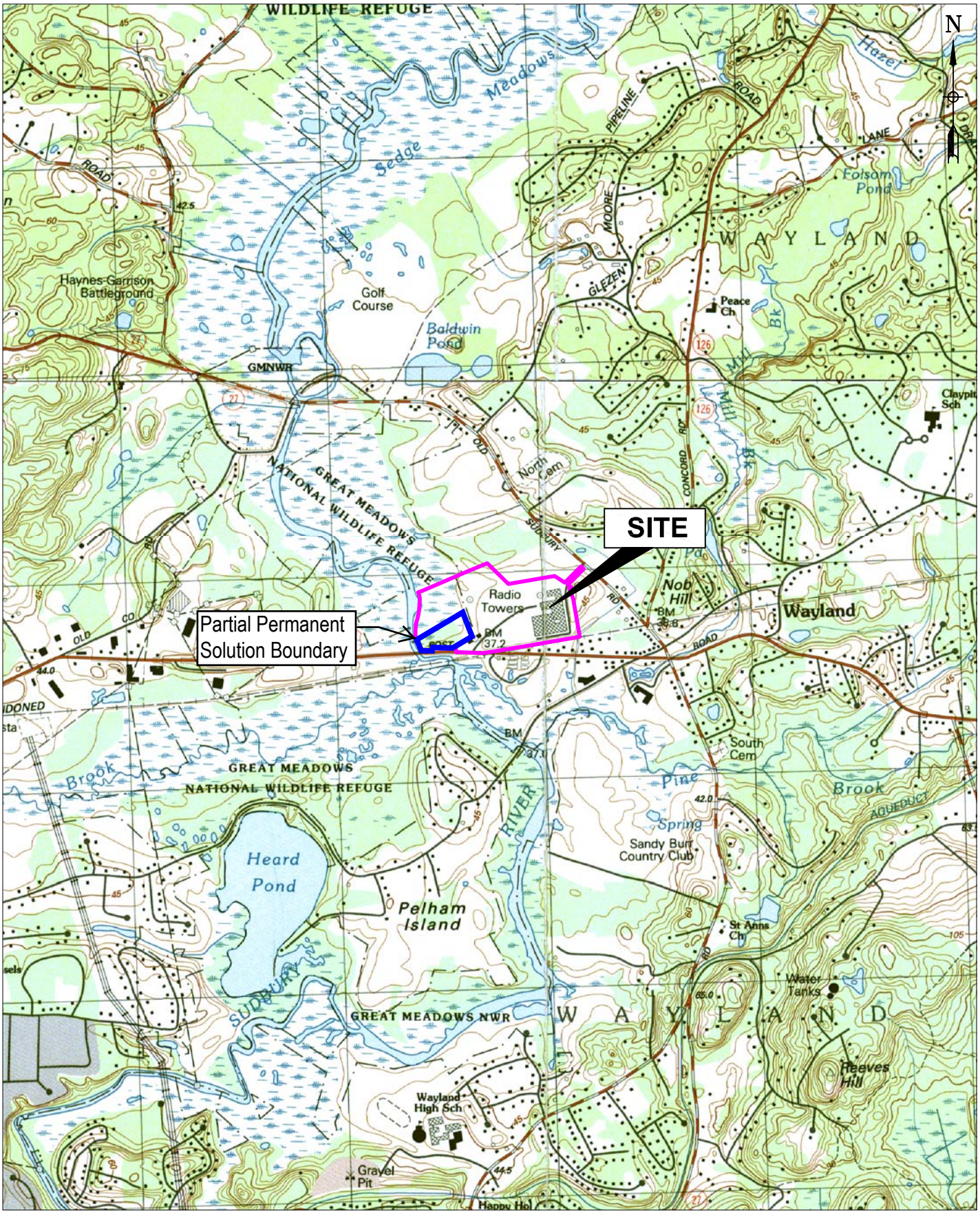
**Table 3**
**Summary of Surface Water Monitoring Data**
**Former Raytheon Facility**
**430 Boston Post Road**
**Wayland, Massachusetts**

| **Sample ID** | SW-1 | SW-2 | SW-3 | SW-4 | SW-1 | SW-2 | SW-3 | SW-4 |
|---|---|---|---|---|---|---|---|---|
| Date/Time Sampled | 31-Dec-03 11:45 | 31-Dec-04 12:00 | 31-Dec-04 12:15 | 31-Dec-04 12:30 | 06-Jan-04 13:40 | 06-Jan-04 13:47 | 06-Jan-04 14:00 | 06-Jan-04 14:14 |
| **Parameter** | | | | | | | | |
| Temperature (°C) | 2.4 | 2.6 | 2.6 | 1.5 | 2.5 | 2.5 | 2.2 | 2.3 |
| Specific Conductivity (uS/cm) | 377 | 377 | 378 | 368 | 384 | 385 | 358 | 383 |
| Conductivity (uS/cm) | 215 | 216 | 216 | 202 | 219 | 220 | 203 | 217 |
| Dissolved Oxygen (mg/L) | 12.4 | 12.3 | 12.1 | 10.9 | 12.9 | 12.8 | 12.1 | 12.8 |
| pH (std. units) | 7.3 | 7.0 | 7.0 | 6.9 | 8.0 | 7.5 | 7.3 | 7.2 |
| ORP (mV) | 108 | 102 | 106 | 109 | 114 | 87 | 82 | 89 |
| Turbidity (NTU) | 0.7 | 0.7 | 0.5 | 0.0 | 0.9 | 0.7 | 0.1 | 0.9 |

Notes:

SW-1 located approximately 100 yds downstream of site activities.
SW-2 located at mouth of swale.
SW-3 located at intersection of silt fence and swale.
SW-4 located upstream of Route 20 bridge.

*Figures*




Legend
Subject Property Line

Scale = 1:25,000

**Figure 1** - Locus Map
Former Raytheon Facility - Wayland, MA

ERM

Z:\Raytheon Wayland and supporting documents\Raytheon Figures with Grid_recover.dwg (09/09/2004 - 12:02pm Boston)

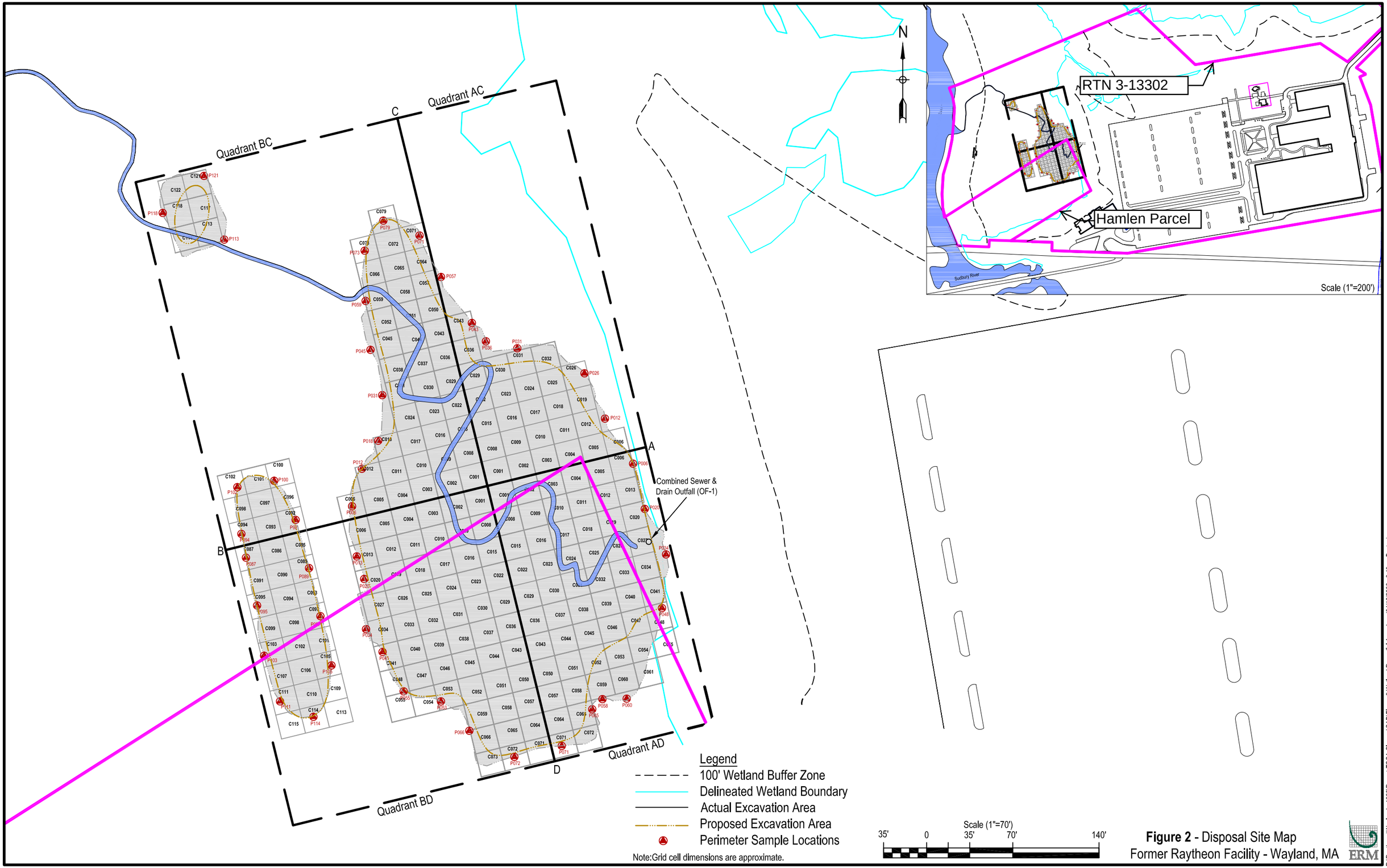
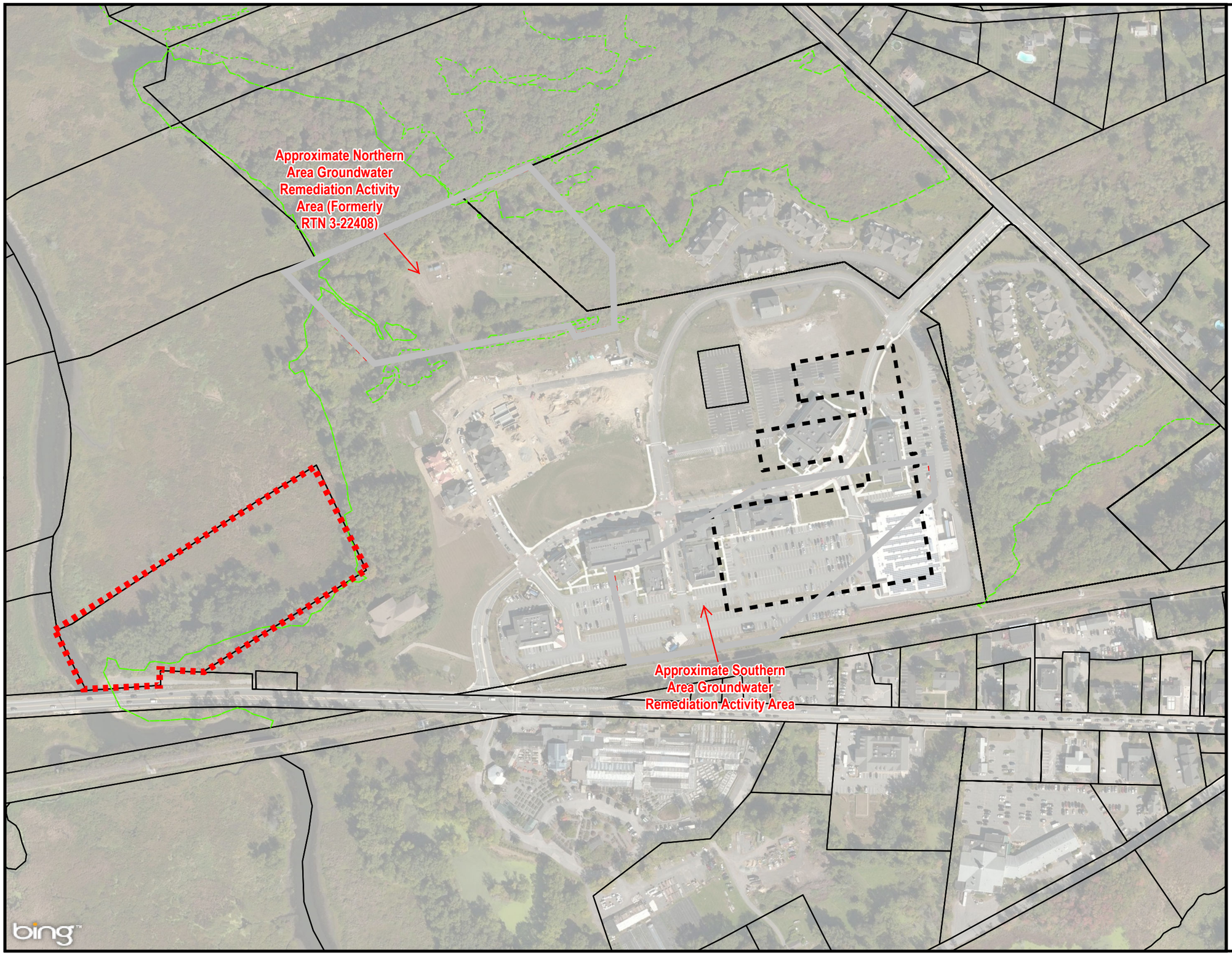
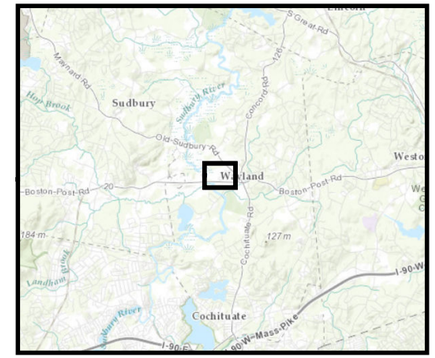



**Figure 2** - Disposal Site Map
Former Raytheon Facility - Wayland, MA

ERM

R:\Raytheon\Wayland - 1922\Report-TSCA Closure\CAD\Figure 2 Wetland Remedial Area.dwg (04/18/2008 - 3:40pm Boston)




**Legend**

- Disposal Site Boundary
- Approx. Footprint of Former Raytheon Building
- Delineated Wetland Boundary
- Parcel Outlines

N

0 50 100 200 300 400 500 Feet

**Figure 2:** Disposal Site Area
Site Plan
Former Raytheon Facility
Wayland, MA

ERM

G:\Graphics\Clients_Q_U\Raytheon\WAYLAND\MXD\2015_10_ROS\Report\Figure2_RemediationSitePlan_20160523.mxd - brett.shaver - 5/23/2016

SW-1

Sudbury River

SW-2

SW-3

Treated Water Discharge Line

Emergency Flood Barrier

Area A

Area B

Area C

Staging Area

Asphalt Area

Poly-lined Area

Decon/ Refueling Area

Dust Monitoring Station 4

Sump

Dust Monitoring Station 3

Fence/Screening

Diesel Generator

Trailers

Security Check-in

Water Treatment Area

Project Parking

Sump

Dust Monitoring Station 2

6' Manhole

Combined Sewer & Drain Outfall (OF-1)

Observation Area

Dust Monitoring Station 1

Upstream of Rt. 20 Bridge

SW-4

River Water Withdrawal Location

N

Legend

- Existing Building
- 100' Wetland Buffer Zone
- Delineated Wetland Boundary
- Roads
- Dust Monitors
- SW-2 Surface Water Sample
- Wetland Remediation Excavation Area
- Area of Readily Apparent Harm (ARAH)
- Silt Fence

Scale (1"=120')

60' 0 60' 120' 240'

Figure 4 - Wetland Excavation Activities
Former Raytheon Facility - Wayland, MA

ERM

R:\Raytheon\Wayland - 1922\REPORT - Phase 4 Completion\Raytheon Phase 4 completion.dwg (10/06/2004 - 10:14am Boston)

# MassDEP - Bureau of Waste Site Cleanup

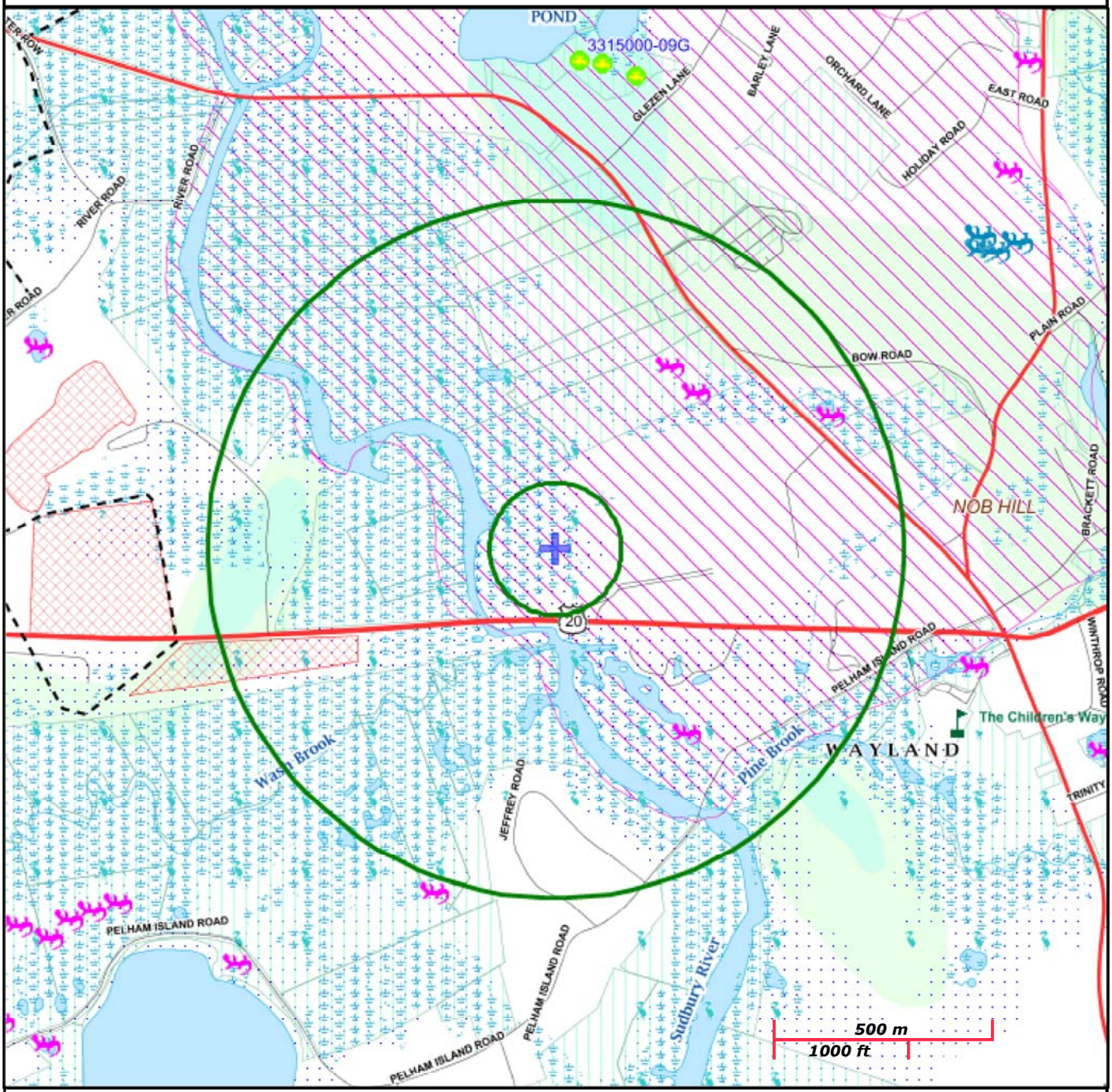
## Phase 1 Site Assessment Map: 500 feet & 0.5 Mile Radii

**Site Information:**
HAMLEN PARCEL
BOSTON POST ROAD WAYLAND, MA
3-000013302

**NAD83 UTM Meters:**
4693009mN , 304617mE (Zone: 19)
September 16, 2016

The information shown is the best available at the date of printing. However, it may be incomplete. The responsible party and LSP are ultimately responsible for ascertaining the true conditions surrounding the site. Metadata for data layers shown on this map can be found at: http://www.mass.gov/mgis/.

MassDEP
Commonwealth of Massachusetts
Department of Environmental Protection




Roads: Limited Access, Divided, Other Hwy, Major Road, Minor Road, Track, Trail
Boundaries: Town, County, DEP Region; Train; Powerline; Pipeline; Aqueduct
Basins: Major, PWS; Streams: Perennial, Intermittent, Man Made Shore, Dam
Aquifers: Medium Yield, High Yield, EPA Sole Source
Non Potential Drinking Water Source Area: Medium, High (Yield)
PWS Protection Areas: Zone II, IWPA, Zone A
Hydrography: Open Water, PWS Reservoir, Tidal Flat
Wetlands: Freshwater, Saltwater, Cranberry Bog
FEMA 100yr Floodplain; Protected Open Space; ACEC
Est. Rare Wetland Wildlife Hab; Vernal Pool: Cert., Potential
Solid Waste Landfill; PWS: Com.GW,SW, Emerg.,Non-Com.

Figure 5 - Priority Resources Map
Former Raytheon Facility - Wayland, MA

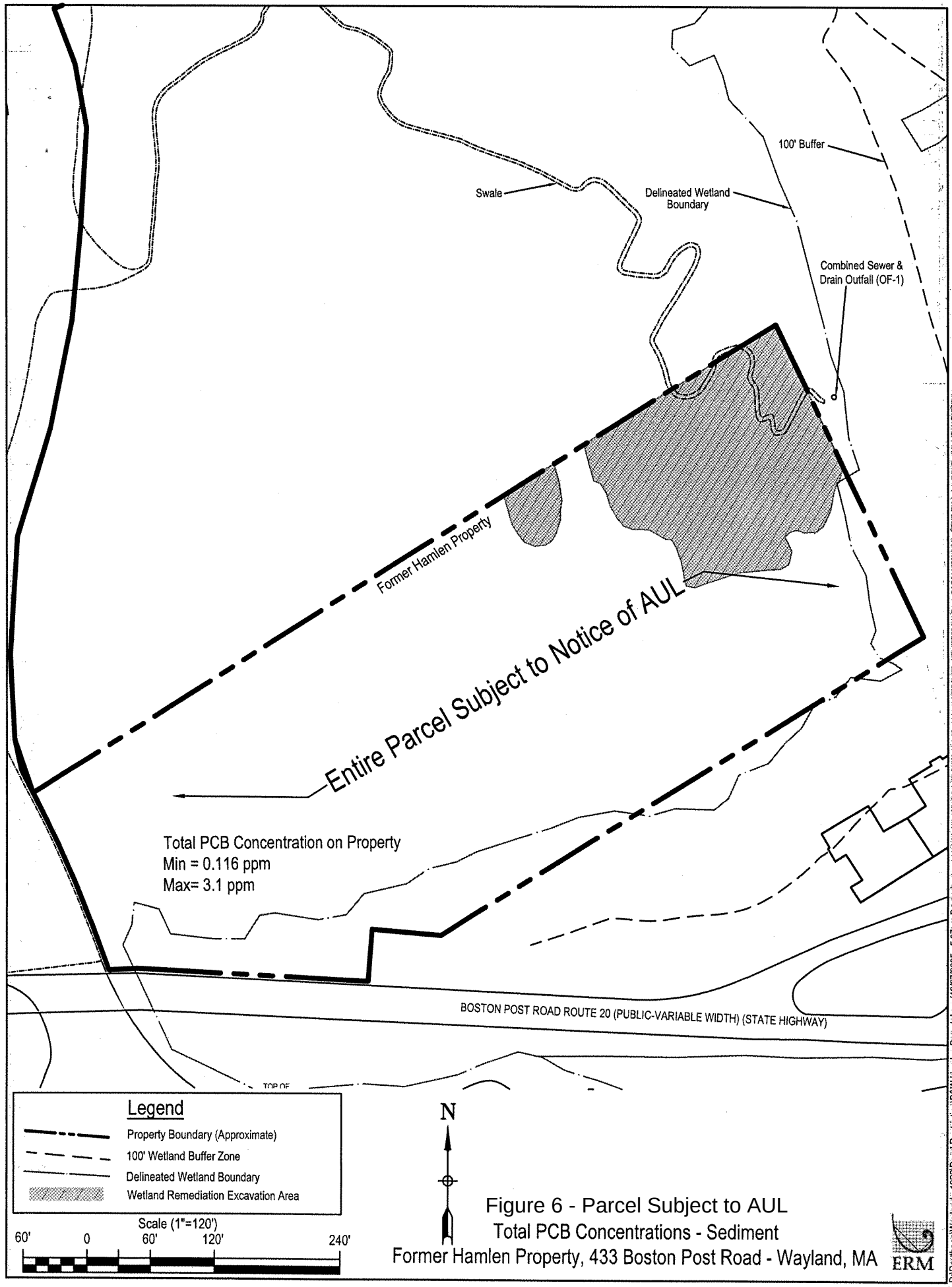



Figure 6 - Parcel Subject to AUL
Total PCB Concentrations - Sediment
Former Hamlen Property, 433 Boston Post Road - Wayland, MA

ERM

R:\Raytheon\Wayland - 1922\Deed Restriction\B&W Hamlen Parcel.dwg (12/27/2005 - 5:07pm Boston)

*Appendix A*
*Public Notification Letters*

**Environmental Resources Management**

One Beacon Street, 5th Floor
Boston, MA 02108
(617) 646-7800
(617) 267-6447 (fax)

http://www.erm.com

DRAFT

Board of Selectmen
Town of Wayland
41 Cochituate Rd
Wayland, MA 01778

RE: Partial Permanent Solution With Conditions
433 Boston Post Road
Wayland, Massachusetts
Release Tracking Number (RTN) 3-13302

Board of Selectmen:

On behalf of Raytheon Company (Raytheon), Environmental Resources Management (ERM) has filed a Partial Permanent Solution With Conditions for the above-referenced Site with the Massachusetts Department of Environmental Protection (MassDEP). In accordance with 310 CMR 40.1403(3)(f), the Chief Municipal Officer and the Board of Health of the community in which the Site is located must be notified of the Permanent Solution Statement filing.

Additional information regarding this submittal can be reviewed at the following location:

Massachusetts Department of Environmental Protection
Northeast Regional Office
205B Lowell Street
Wilmington, MA 01887

If you have any questions, please contact me at (617) 646-7800 or Mr. Louis Burkhardt, Raytheon Company, at (978) 858-1885.

Sincerely,

Lyndsey Colburn, P.G.
*Principal Consultant*

cc: Wayland Board of Health
MassDEP
L. Burkhardt, Raytheon Company

*Appendix B*
*Copy of Activity and Use Limitation*

2006 00025004
Bk: 46945 Pg: 9 Doc: NOT
Page: 1 of 20 02/08/2006 02:39 PM

Form 1075

# NOTICE OF ACTIVITY AND USE LIMITATION

M.G.L. c. 21E, §6 and 310 CMR 40.0000

Disposal Site Name: Former Hamlen Property/Raytheon Company (FMR), 433 Boston Post Road, Wayland, MA
DEP Release Tracking Nos.: 3-13302

This Notice of Activity and Use Limitation ("**Notice**") is made as of this 27th day of January, 2006, by Raytheon Company with an address at 528 Boston Post Road, Sudbury, MA. 01776 together with his/her/its/their successors and assigns (collectively "**Owner**").

WITNESSETH:

WHEREAS, Raytheon Company, of Waltham, Middlesex County, Massachusetts is the owner in fee simple of that certain parcel of land located at 433 Boston Post Road, in Wayland, Middlesex County, Massachusetts, with the buildings and improvements thereon ("**Property**"). pursuant to a deed recorded with the Middlesex County Registry of Deeds in Book 41001, Page 463.

WHEREAS, said parcel of land, which is more particularly bounded and described in **Exhibit A**, attached hereto and made a part hereof ("Property") is subject to this Notice of Activity and Use Limitation. The Property is shown on a plan to be recorded herewith in the Middlesex County (South) Registry of Deeds and/ or on a sketch plan attached hereto and filed herewith for registration with the Middlesex County (South) Registry District of the Land Court.

WHEREAS, the Property comprises part of a disposal site as the result of a release of oil and/or hazardous material. Exhibit B-1 and Exhibit B-2 are sketch plans showing the relationship of the Property subject to this Notice of Activity and Use Limitation to the boundaries of said disposal site existing within the limits of the Property and to the extent such boundaries have been established. Exhibit B-1 and Exhibit B-2 are attached hereto and made a part hereof; and

WHEREAS, one or more response actions have been selected for the Property in accordance with M.G.L. c.21E ("**Chapter 21E**") and the Massachusetts Contingency Plan, 310 CMR 40.0000 ("**MCP**"). Said response actions are based upon (a) the restriction of human access to and contact with oil and/or hazardous material in soil and/ or groundwater and/or (b) the restriction of certain activities occurring in, on, through, over or under the Property. The basis for such restrictions is set forth in an Activity and Use

RETURN TO: DJO
SAH – Rackemann, Sawyer & Brewster
One Financial Center – 29th Floor
Boston, MA 02111

Limitation Opinion ("**AUL Opinion**"), dated 9 January 2006, (which is attached hereto as **Exhibit B** and made a part hereof); and

NOW, THEREFORE, notice is hereby given that the activity and use limitations set forth in said AUL Opinion are as follows:

1. Permitted Activities and Uses Set Forth in the AUL Opinion. The AUL Opinion provides that a condition of No Significant Risk to health, safety, public welfare and the environment exists for any foreseeable period of time (pursuant to 310 CMR 40.0000) so long as any of the following activities and uses occur on the Property:

(i) The Property may be used for passive recreation such as fishing, boating, etc; and

(ii) Such other activities or uses which, in the Opinion of the LSP, shall present no greater risk of harm to health, safety, public welfare and the environment than the activities and uses set forth in this Paragraph; and

(iii) All activities and uses consistent with those set forth in this Paragraph and not expressly prohibited by this Notice.

2. Activities and Uses Inconsistent with the AUL Opinion. Activities and uses which are inconsistent with the objectives of this Notice of Activity and Use Limitation, and which, if implemented at the Property, may result in a significant risk of harm to health, safety, public welfare or the environment or in a substantial hazard, are as follows:

(i) Residential, childcare, daycare, commercial, industrial, agricultural, horticultural, or gardening activities, unless previously approved by the LSP in accordance with the obligations and conditions set forth in the AUL Opinion;

(ii) Groundwater use except for assessment or remedial purposes;

(iii) Other activities or uses that, in the Opinion of the LSP, would likely result in significant, risk from exposures to oil and/or hazardous material if site activities or uses were to take place on the Property.

3. Obligations and Conditions Set Forth in the AUL Opinion. If applicable, obligations and/or conditions to be undertaken and/or maintained at the Property to maintain a condition of No Significant Risk as set forth in the AUL Opinion shall include the following:

(i) Certification in the form of documentation bearing the original signature, date and Seal of the LSP must be obtained by the Owner prior to implementation of the following activities and uses:

a) use of the Property for residential, childcare, daycare, recreational, agricultural, horticultural, or gardening activities, or for unrestricted public access;

b) land development or construction involving changes in surface conditions (i.e., topography, surface cover, etc.).

(ii) Parties conducting activities and uses described in 3(i), above, that, in the Opinion of the LSP, may include disturbance of contaminated media, waste or debris, or that could render subsurface contaminated media, waste or debris accessible to exposure, shall submit, for approval by the LSP, a contingency plan for the management of contaminated media, waste or debris, if encountered, including:

a) procedures for monitoring of contaminated media, waste or debris;

b) procedures for notification to the LSP of the discovery of contaminated media, waste or debris;

c) a certification that all response actions will be conducted under the supervision of the LSP;

d) a soils management plan including contingencies for handling contaminated soil and/or groundwater if activities may extend below the water table;

e) a certification that response personnel will comply with applicable safety regulations, including 29 CFR 1910.120;

f) a certification that contaminated waste, debris or media or remediation waste (pursuant to 310 CMR 40.0000) generated by such activities shall be handled, stored, transported and disposed in accordance with the applicable federal, state and local regulations.

(iii) The responsible parties and their representatives shall be granted unrestricted assess to the Property in order to conduct any and all activities associated with the performance of response actions as defined under the MCP, or any other applicable regulation.

4. Proposed Changes in Activities and Uses. Any proposed changes in activities and uses at the Property which may result in higher levels of exposure to oil and/or hazardous material than currently exist shall be evaluated by the LSP who shall render an Opinion, in accordance with 310 CMR 40.1080 *et seq.*, as to whether the proposed changes will present a significant risk of harm to health, safety, public welfare and the environment. Any and all requirements set forth in the Opinion to meet the objective of this Notice shall be satisfied before any such activity or use is commenced.

5. Violation of a Response Action Outcome. The activities, uses and/or exposures upon which this Notice is based shall not change at any time to cause a significant risk of harm to health, safety, public welfare, and the environment, or to create substantial hazards due to exposure to oil and/or hazardous material without the prior evaluation by the LSP in accordance with 310 CMR 40.1080 *et seq.*, and without additional response actions, if necessary, to achieve or maintain a condition of No Significant Risk or to eliminate substantial hazards.

If the activities, uses, and/or exposures upon which this Notice is based change without the prior evaluation and additional response actions determined to be necessary by the LSP in accordance with 310 CMR 40.1080 *et seq.*, the owner or operator of the Portion of the Property subject to this Notice at the time that the activities, uses and/or exposures change, shall comply with the requirements set forth in 310 CMR 40.0020.

6. Incorporation Into Deeds, Mortgages, Leases, and Instruments of Transfer. This Notice shall be incorporated either in full or by reference into all deeds, easements, mortgages, leases, licenses, occupancy agreements or any other instrument of transfer, whereby an interest in and/or a right to use the Property or a portion thereof is conveyed.

Owner hereby authorizes and consents to the filing and recordation and/or registration of this Notice, said Notice to become effective when executed under seal by the undersigned LSP, and recorded and/or registered with the appropriate Registry of Deeds and/or Land Registration Office(s).

WITNESS the execution hereof under seal this 21th day of January, 2006.

Owner: Raytheon Company

By: _____

*Jay B. Stephens*
Senior Vice President and General Counsel

**COMMONWEALTH OF MASSACHUSETTS**

Middlesex, ss January 27, 2006

Then personally appeared the above named Jay B. Stephens as Senior Vice President and General Counsel of Raytheon Company, and acknowledged the foregoing to be their free act and deed, and the free act and deed of said corporation as said general partner, before me,

NANCY L. MEAGHER
Notary Public
Commonwealth of Massachusetts
My Commission Expires Apr 26, 2007

Nancy L. Meagher
Notary Public Nancy L. Meagher
My Commission Expires: 4-26-07

The undersigned LSP-of-Record hereby certifies that he executed the aforesaid Activity and Use Limitation Opinion attached hereto as Exhibit B and Exhibit C, and made a part hereof and that in his Opinion this Notice of Activity and Use Limitation is consistent with the terms set forth in said Activity and Use Limitation Opinion.

Date: 1/09/06

John C. Drobinski, LSP Reg. No. 2196
[ LSP SEAL ]

COMMONWEALTH OF MASSACHUSETTS
JOHN C. DROBINSKI No. 2196 REGISTERED LICENSED SITE PROFESSIONAL

**COMMONWEALTH OF MASSACHUSETTS**

Suffolk, ss January 4, 2006

Then personally appeared the above named John C. Drobinski, and acknowledged the foregoing to be his free act and deed before me,

Notary Public
My Commission Expires: 3/24/11

Upon recording, return to:

EXHIBIT A

Property Description

## Metes and Bounds Description

That certain parcel of unregistered vacant land in Wayland, Massachusetts, bounded and described in part by reference to plans of abutting land as follows:

Beginning at a drill hole at the southerly end of a 328 foot bound shown on Land Court Plan 17983A filed with South Middlesex District of the Land Court with Certificate of Title No. 49312 in Registration Book 326 at Page 97; thence running

| | |
|---|---|
| N 11°48'20" W | by land of Raytheon Company, 328 feet to the northeast corner of the parcel; thence |
| S 71°01'00" W | by the Raytheon land, 842 feet, more or less, to the Sudbury River; thence |
| SOUTHERLY | by the River, about 200 feet to the Boston Post Road; thence |
| S 83°14'20" W | about 140 feet by the road as shown on a plan entitled "Plan of Road in the Town of Wayland Middlesex County Laid Out as a State Highway by the Department of Public Works Division of Highways" dated May 20, 1924 and filed with Middlesex South District Deeds in Plan Book 336 as Plan 17; thence |
| N 09°19'50" E | by the road as shown on the 1924 plan, about 40 feet; thence |
| S 78°06'00" E | by the road as shown on the 1924 plan, about 160 feet; and thence |
| N 69°42'20" E | by the Raytheon land, about 540 feet by estimation to the point of beginning. |

Containing, according to assessment records, five and a half acres.

EXHIBIT B

LSP-of-Record Notice of AUL Opinion

## *EXHIBIT B*

## *ACTIVITY & USE LIMITATION OPINION*

### *433 BOSTON POST ROAD, WAYLAND, MASSACHUSETTS*

This Activity & Use Limitation Opinion (AUL) Opinion is issued in support of the Notice of Activity and Use Limitation (Notice) filed on a the Property located at 433 Boston Post Road, Wayland Massachusetts. Pursuant to 310 CMR 40.0000, this AUL Opinion describes the basis for restrictions in activities on, and uses of, the Portion of the Property subject to this Notice and obligations and conditions to be undertaken and/or maintained to ensure protection of health, safety, public welfare and the environment. This AUL Opinion is certified by the Licensed Site Professional (LSP)-of-Record for Comprehensive Response Actions conducted in accordance with Permit No. 322-553 issued under the authority of the Massachusetts Department of Environmental Protection (MA DEP), Bureau of Waste Site Cleanup.

### *1.0 PHYSICAL DESCRIPTION AND LAND USE*

The subject Property is an approximately 5.5 acre parcel located at 433 Boston Post Road in Wayland, Massachusetts (Exhibit A). The Property is bounded to the west by the Sudbury River, to north by undeveloped land including the Great Meadows National Wildlife Refuge, to the east by the former Raytheon Facility and to the South by Route 20. The property is the Former Hamlen Property.

Prior to 1955 the Property was a wetland and floodplain. Subsequent to 1955, the Property remained the same but was bordered by an engineering research and development facility that was decommissioned in 1995. The Property is currently a wetland and floodplain subject to the restrictions of the Wetlands Protection Act.

## 2.0 *BACKGROUND*

Releases of oil and/or hazardous materials (OHM) to soil and groundwater were discovered on the abutting Raytheon property during decommissioning of the former manufacturing facility. Concentrations of OHM were also discovered on the Property subsequent to the above investigation. Massachusetts General Law, Chapter 21E, requires assessment and, if necessary, remedial actions in accordance with requirements of the Massachusetts Contingency Plan (MCP) 310 CMR 40.0000.

The MCP process allows up to five years for completion of those phases of assessment and/or remediation that are necessary to achieve regulatory closure. Assessment and/or remediation activities are conducted as "Comprehensive Response Actions" under the direction of the Licensed Site Professional (LSP) -of-Record. Upon satisfying all applicable MCP requirements, a Response Action Outcome (RAO) Statement, certified by the LSP, is filed with the MA DEP Bureau of Waste Site Cleanup, officially closing the site out of the MCP process. Once closure is obtained it is binding, subject however, to DEP audit for up to five years from the date of filing.

## 3.0 *PURPOSE AND APPLICABILITY OF THE NOTICE OF ACTIVITY AND USE LIMITATION*

The purpose of the Notice is to record on the registered property deed those activities and land uses that are consistent with continued protection of health, safety, public welfare and the environment, those that are specifically prohibited and obligations and conditions necessary to ensure continued protection.

This Notice is applicable to the Property as defined in Exhibit A. This Notice is being filed after completion of assessment and remedial actions required to achieve an RAO.

This Notice of AUL is recorded by the Property owner as a precautionary measure to ensure appropriate use of Property. In all cases, the LSP shall review this Notice of AUL, and if appropriate, terminate or amend this Notice of AUL prior to approval and filing of a RAO for the Property, or any portion thereof. All approvals and opinions required by a Licensed Site Professional to maintain compliance with this Notice and AUL Opinion shall be restricted to the Licensed Site Professional of Record for Comprehensive Response Actions, and any termination or amendment of this Notice of AUL pursuant to the prior sentence shall be based upon an opinion of the LSP of Record, only.

## 4.0 *SUMMARY OF PCB IMPACTS, REMEDIAL ACTION, AND USE RESTRICTIONS ON PROPERTY*

*Pre-Excavation Extent and Concentrations of Contamination in Remediation Area*

The primary source of impact to wetland sediments appeared to be historic releases of oil and/or hazardous material (OHM) to the storm water conveyance system, discharging at the storm water outfall OF-1. The primary contaminants of concern (COCs) identified in source structures (dry wells and manholes) connected to the storm water conveyance system included polyaromatic hydrocarbons (PAHs) and associated petroleum hydrocarbons, polychlorinated biphenyls (PCBs), and heavy metals (chromium, copper, arsenic, silver and lead). Evaluation of the average concentrations of primary COCs versus distance from the outfall indicated concentrations were highest near the outfall, decreasing sharply within 200 feet from the outfall and then approaching background near the Sudbury River. The vertical extent of impact appeared to be largely limited to the top 18 inches of sediment, although local variations were noted. The sediment layer is confined by an underlying, silt/clay unit beneath the wetland.

Correlation of areas of COCs in sediment with the results of vegetative mapping and analysis of plant tissue defined an area of stunted vegetation estimated at approximately 0.6-acre in size. This condition constituted a condition of "readily apparent harm", defined by 310 CMR 40.0955(3) as "stressed vegetation attributable to Site OHM" and is interpreted to reflect the toxicity of heavy metals (e.g., chromium) to plants.

The remediation area was conducted in the Site wetland including the Former Hamlen Property and the Former Raytheon Property at 430 Boston Post Road in Wayland, Massachusetts. Pre-excavation total PCB minimum and maximum concentrations on the Former Hamlen Property

were 1.2 and 129 part per million (ppm), respectively (Figure 1). The total PCB concentration was calculated by summing analytical detections of PCBs and one-half the method detection limit for non-detect PCBs.

Specific details regarding the remediation area for the Toxic Substance Control Act (TSCA) (40 CFR 750 and 761) were presented in the Application for Risk-Based Disposal Approval submitted on 23 December 2002 (revision and additional information submitted on 3 April 2003, 8 May 2003, and 28 August 2003) and the Phase IV Remedy Implementation Plan dated 27 December 2002.

*Description of Remedial Actions Undertaken Remediation Area*

Comprehensive Remedial Actions were completed from October 2003 through October 2004 on the Property. Remedial Activities required the excavation of approximately 3,494 cubic yards ($yd^3$) of sediment material from a 0.9 acre to a depth of approximately 2.4 ft on the Property. Following verification sampling of the excavated area, engineered soil was brought in as fill and the remediation area was returned to its original grades.

Post-excavation total PCB minimum and maximum concentrations on the Former Hamlen Property were 0.116 and 3.1 ppm, respectively (Figure 2). The total PCB concentration was calculated by summing analytical detections of PCBs and one-half the method detection limit for non-detect PCBs.

Wetland restoration was completed on 20 February 2004 using the planting specifications submitted in the permit applications. Minor substitutions were made based on species availability at that time of year. All substitutions were made using comparable species and were planted in the same zones. Wetlands monitoring will continue for the next five years. Additional plantings and invasive species control will be planned as needed. To date, plantings cover the entire remedial area.

*Description of Use Restrictions for the Remediation Area*

Remediation and restoration of the wetland area provides a level of protection to human health consistent with EPA guidance. It restores the site to a condition of "no significant risk", meets the Massachusetts Contingency Plan (MCP) performance standards for filing of a Response Action Outcome and represents a Permanent Solution for the site.

The US EPA approval for risk-based PCB remediation contained the provision requiring a Deed Notice be applied to the property. This

Activities and Use Limitations for the Former Hamlen Property includes a description of Permitted Activities and Uses Set Forth in the AUL Opinion (Section 5.0), Activities and Uses Inconsistent with the AUL Opinion (Section 6.0), and Obligations and Conditions Set Forth in the AUL Opinion (Section 7.0).

## 5.0 *PERMITTED ACTIVITIES AND USES SET FORTH IN THE AUL OPINION*

The AUL Opinion provides that a condition of No Significant Risk to health, safety, public welfare and the environment exists for any foreseeable period of time (pursuant to 310 CMR 40.0000) so long as any of the following activities and uses occur on the Property:

(i) The Property may be used for passive recreation including boating, fishing, etc; and

(ii) Such other activities or uses which, in the Opinion of the LSP, shall present no greater risk of harm to health, safety, public welfare and the environment than the activities and uses set forth in this Paragraph; and

(iii) All activities and uses consistent with those set forth in this Paragraph and not expressly prohibited by this Notice.

## 6.0 *ACTIVITIES AND USES INCONSISTENT WITH THE AUL OPINION*

Activities and uses which are inconsistent with the objectives of this Notice of Activity and Use Limitation, and which, if implemented at the Property, may result in a significant risk of harm to health, safety, public welfare or the environment or in a substantial hazard, are as follows:

(i) Residential, childcare, daycare, agricultural, horticultural, gardening, commercial or industrial activities, unless previously approved by the LSP in accordance with the obligations and conditions set forth in the AUL Opinion;

(ii) Groundwater use except for assessment or remedial purposes;

(iii) Other activities or uses that, in the Opinion of the LSP, would likely result in significant, risk from exposures to oil and/or hazardous material if site activities or uses were to take place on the Portion of the Property.

## 7.0 *OBLIGATIONS AND CONDITIONS SET FORTH IN THE AUL OPINION*

If applicable, obligations and/or conditions to be undertaken and/or maintained at the Property to maintain a condition of No Significant Risk as set forth in the AUL Opinion shall include the following:

(i) Certification in the form of documentation bearing the original signature, date and Seal of the LSP must be obtained by the Owner prior to implementation of the following activities and uses:

a) expansion or relocation of existing buildings laterally or vertically;

b) use of the Property for residential, childcare, daycare, recreational, agricultural, horticultural, or gardening activities, or for unrestricted public access;

c) subsurface activities including; excavation, new construction below grade, and

d) land development or construction involving changes in surface conditions (i.e., topography, surface cover, etc.) including installation of pavement, or building foundations,.

(ii) Parties conducting activities and uses described in 6.0(i) above, that, in the Opinion of the LSP, may include disturbance of contaminated media, waste or debris, or that could render subsurface contaminated media, waste or debris accessible to exposure, shall submit, for approval by the LSP, a contingency plan for the management of contaminated media, waste or debris, if encountered, including:

a) procedures for monitoring of contaminated media, waste or debris;

b) procedures for notification to the LSP of the discovery of contaminated media, waste or debris;
c) a certification that all response actions will be conducted under the supervision of the LSP;
d) a soils management plan including contingencies for handling contaminated soil and/or groundwater if activities may extend below the water table;
e) a certification that response personnel will comply with applicable safety regulations, including 29 CFR 1910.120;
f) a certification that contaminated waste, debris or media or remediation waste (pursuant to 310 CMR 40.0000) generated by such activities shall be handled, stored, transported and disposed in accordance with the applicable federal, state and local regulations.

(iii) The responsible parties and their representatives shall be granted unrestricted assess to the Property in order to conduct any and all activities associated with the performance of response actions as defined under the MCP, or any other applicable regulation.

## *8.0 CERTIFICATION*

The undersigned LSP-of-Record hereby certifies that the terms of this Activity and Use Limitation Opinion are consistent with those of the Notice for the subject Property located at 433 Boston Post Road, Wayland, Massachusetts.

Date: 1/09/06

John C. Drobinski, LSP Reg. No. 2196

[ LSP SEAL ]

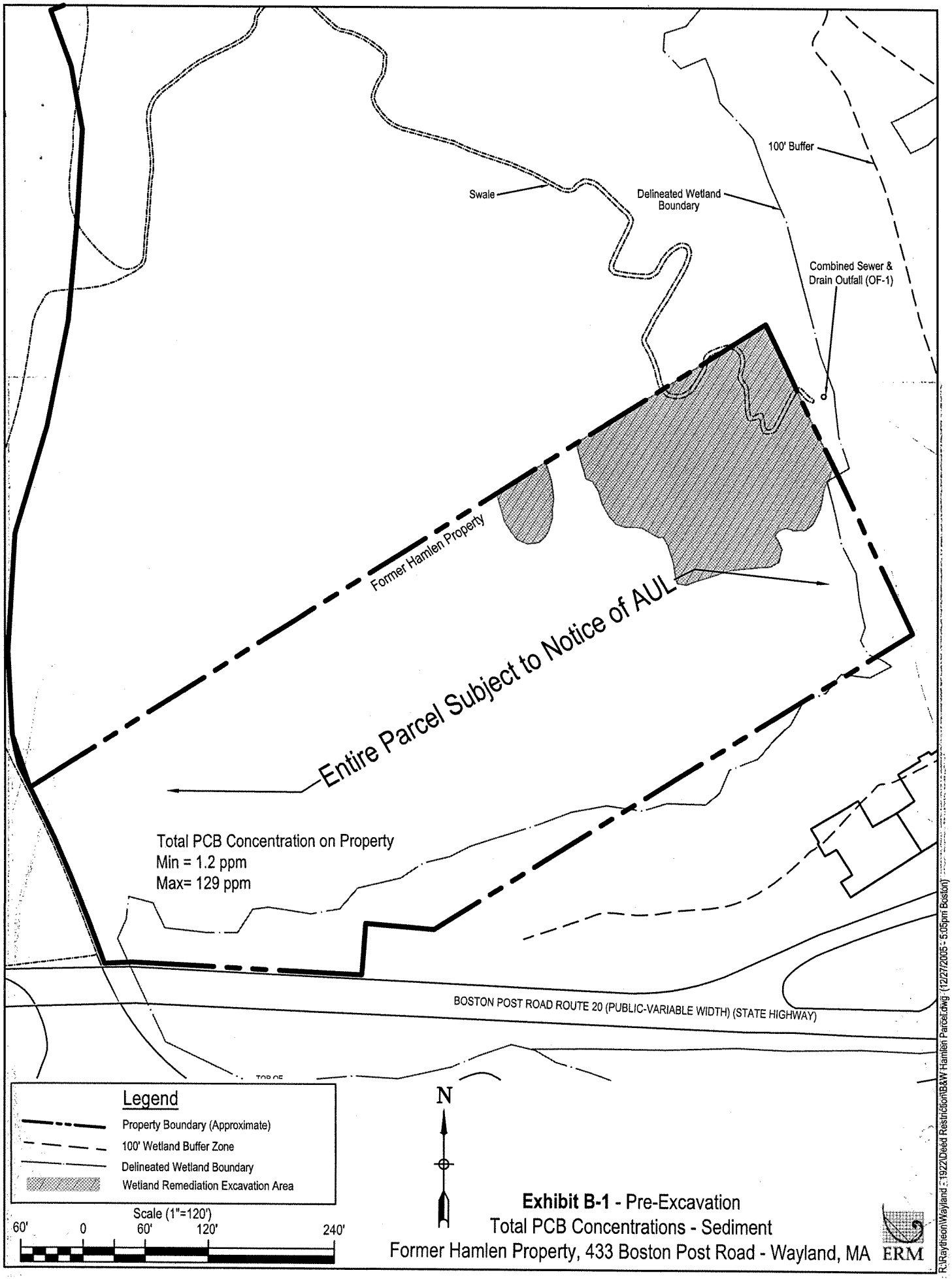



**Exhibit B-1** - Pre-Excavation
Total PCB Concentrations - Sediment
Former Hamlen Property, 433 Boston Post Road - Wayland, MA

ERM

R:\Raytheon\Wayland :.1922\Deed Restriction\B&W Hamlen Parcel.dwg (12/27/2005 - 5:05pm Boston)

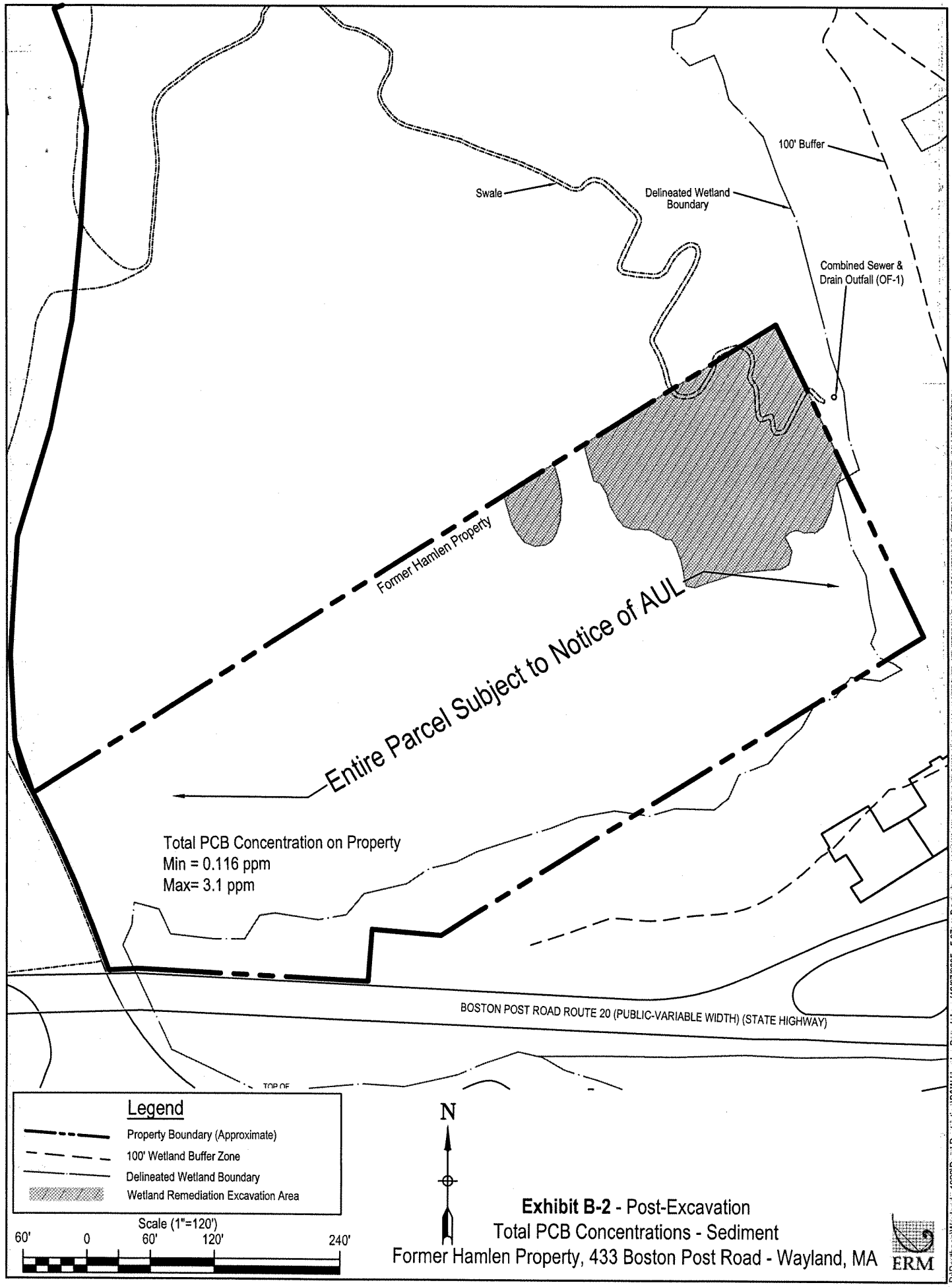



**Exhibit B-2** - Post-Excavation
Total PCB Concentrations - Sediment
Former Hamlen Property, 433 Boston Post Road - Wayland, MA

ERM

R:\Raytheon\Wayland - 1922\Deed Restriction\B&W Hamlen Parcel.dwg (12/27/2005 - 5:07pm Boston)

EXHIBIT C

BWSC Form 114, AUL Opinion Transmittal Form

**Massachusetts Department of Environmental Protection** **BWSC-114**

*Bureau of Waste Site Cleanup*

# ACTIVITY & USE LIMITATION (AUL) OPINION FORM

Pursuant to 310 CMR 40.1070 - 40.1084 (Subpart J)

Release Tracking Number: 3 - 13302

**COMPLETE THIS FORM AND ATTACH AS AN EXHIBIT TO THE AUL DOCUMENT TO BE RECORDED AND/OR REGISTERED WITH THE REGISTRY OF DEEDS AND/OR LAND REGISTRATION OFFICE.**

## A. LOCATION OF DISPOSAL SITE AND PROPERTY SUBJECT TO AUL:

Disposal Site Name: Former Hamlen Property

Street: 433 Boston Post Road Location:

City/Town: Wayland ZIP Code: 01778

Address of property subject to AUL, if different than above. Street:

City/Town: ZIP Code:

## B. THIS FORM IS BEING USED TO: (check one)

- [x] Provide the LSP Opinion for a **Notice of Activity and Use Limitation**, pursuant to 310 CMR 40.1074 (complete all sections of this form).
- [ ] Provide the LSP Opinion for an **Amended Notice of Activity and Use Limitation**, pursuant to 310 CMR 40.1081(4) (complete all sections of this form).
- [ ] Provide the LSP Opinion for a **Termination of a Notice of Activity and Use Limitation**, pursuant to 310 CMR 40.1083(3) (complete all sections of this form).
- [ ] Provide the LSP Opinion for a **Grant of Environmental Restriction**, pursuant to 310 CMR 40.1071, (complete all sections of this form).
- [ ] Provide the LSP Opinion for an **Amendment of Environmental Restriction**, pursuant to 310 CMR 40.1081(3) (complete all sections of this form).
- [ ] Provide the LSP Opinion for a **Release of Environmental Restriction**, pursuant to 310 CMR 40.1083(2) (complete all sections of this form).

## C. LSP OPINION:

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this submittal, including any and all documents accompanying this submittal. In my professional opinion and judgment based upon application of (i) the standard of care in 309 CMR 4.02(1), (ii) the applicable provisions of 309 CMR 4.02(2) and (3), and (iii) the provisions of 309 CMR 4.03(5), to the best of my knowledge,

> *if Section B indicates that a **Notice of Activity and Use Limitation** is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1074(1)(b);

> *if Section B indicates that an **Amended Notice of Activity and Use Limitation** is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1080(1) and 40.1081(1);

> *if Section B indicates that a **Termination of a Notice of Activity and Use Limitation** is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1083(3)(a);

> *if Section B indicates that a **Grant of Environmental Restriction** is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1071(1)(b);

> *if Section B indicates that an **Amendment to a Grant of Environmental Restriction** is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1080(1) and 40.1081(1);

> *if Section B indicates that a **Release of Grant of Environmental Restriction** is being registered and/or recorded*, the Activity and Use Limitation that is the subject of this submittal (i) is being provided in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (ii) complies with 310 CMR 40.1083(3)(a).

I am aware that significant penalties may result, including, but not limited to, possible fines and imprisonment, if I submit information which I know to be false, inaccurate or materially incomplete.

- [x] Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

See Section 4 of LSP Opinion

**SECTION C IS CONTINUED ON THE NEXT PAGE.**

# ACTIVITY & USE LIMITATION (AUL) OPINION FORM

Pursuant to 310 CMR 40.1070 - 40.1084 (Subpart J)

Release Tracking Number: 3 - 13302

**C. LSP OPINION: (continued)**

LSP Name: John C. Drobinski LSP #: 2196 Stamp:

Telephone 617-646-7850 Ext.:

FAX: 617-267-6447

LSP Signature:

Date: 1/09/06

COMMONWEALTH OF MASSACHUSETTS JOHN C DROBINSKI No. 2196 REGISTERED LICENSED SITE PROFESSIONAL

**YOU MUST COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY FIND THE DOCUMENT TO BE INCOMPLETE.**

FEB 08 2006

COMMONWEALTH OF MASSACHUSETTS.
MIDDLESEX S. S.
SOUTH DIST. REGISTRY OF DEEDS
CAMBRIDGE, MA
I HEREBY CERTIFY THE FOREGOING
IS A TRUE COPY OF A PAPER
RECORDED IN BOOK 46945
PAGE 9

REGISTER

*Appendix C*
*BWSC-104 Transmittal Form*
*(Submitted Concurrently via*
*eDEP)*