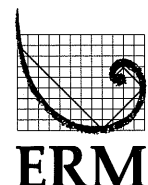


399 Boylston Street, 6<sup>th</sup> floor  
Boston, MA 02116  
(617) 267-8377  
(617) 267-6447 (fax)

9 September 2004  
Reference: 0010686

Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup  
Northeast Regional Office  
1 Winter Street  
Boston, MA 02108



RE: Immediate Response Action Completion Report  
Former Raytheon Facility  
430 Boston Post Road  
Wayland, Massachusetts  
Permit No. 133939

Dear Sir or Madam:

On behalf of Raytheon Company (Raytheon), Environmental Resources Management (ERM) is submitting an Immediate Response Action (IRA) Completion Report for the former Raytheon facility located at 430 Boston Post Road, Wayland, Massachusetts (the "Site") (Figure 1). This submittal was prepared in accordance with the requirements of the Massachusetts Contingency Plan (MCP), 310 CMR 40.0000.

## **BACKGROUND**

In accordance with the requirements of the MCP, 310 CMR 40.0480, ERM submitted a Phase I-Initial Site Investigation (Phase I) report for the Site to the Massachusetts Department of Environmental Protection (the Department) in July 1996 and a Tier Classification filing in January 1997. The Department issued Raytheon a Tier IB Permit, effective 21 May 1997. The Phase II-Comprehensive Site Assessment (Phase II) and Phase III Remedial Action Plan (Phase III) reports were submitted to the Department on 28 November 2001. The Phase IV Remedy Implementation Plan (Phase IV) was submitted to the Department on 30 December 2002.

Results of the Phase II linked a suspected area of stunted growth in the wetland area to elevated levels of metals, polychlorinated biphenyls (PCBs) and polynuclear aromatic hydrocarbons (PAHs). The reduced stem count of biota in this area indicated that a potential imminent

hazard may exist, based on the criteria set forth in 310 CMR 40.0955(3). The potential Imminent Hazard Condition was reported to the Department on 26 April 2000.

An IRA Plan was submitted to the Department on 26 June 2000 following the imminent hazard determination. The Imminent Hazard Evaluation determined that the Site did not pose an Imminent Hazard to human health or safety, but posed a potential Imminent Hazard to the environment. The objective of the IRA Plan was to assess the Site conditions in the wetlands according to the Phase II Scope of Work (SOW) and addendum, to delineate the extent of impact to sediments and surface water, and to assess risk to human health and the environment.

### **COMPLETION REPORT**

The remainder of this IRA Completion Report is formatted consistent with the requirements of 310 CMR 40.0427. The IRA Transmittal Form (BWSC Form 105) is located in Appendix A.

#### ***a) Description of the release, site conditions and surrounding receptors***

The subject Site is an approximately 83-acre facility located at 430 Boston Post Road in Wayland, Massachusetts (Figure 1). Raytheon operated the Site under a lease from 1955 to 1995. Operations included electronic testing and chemical process research to support Raytheon's in-house prototype manufacturing. Raytheon operations have been terminated, and the facility decommissioned. The Site buildings are currently either under lease or are available for lease.

The 15-acre wetland on-site has historically received treated wastewater and storm water discharges from the facility. Currently, the wetland receives stormwater as well as treated wastewater effluent from an on-site treatment plant, being operated by the Town of Wayland, via a National Pollution Discharge Elimination System (NPDES) permitted outfall.

Potential impacts to sediment from PAHs, PCBs and metals were discovered near the storm water outfall in July 1989 by the US Fish & Wildlife Service (USFWS) as part of a study of the Great Meadows National Wildlife Refuge. Subsequent sampling performed in May 1990 and July 1995 did not confirm the results reported by USFWS due to uncertainty of USFWS sample locations.

In November 1998 during the Phase II site assessment activities, verification sampling of wetland sediments was conducted along a series of transects. Sediment sampling results indicated the presence of PCBs and metals in wetland sediments adjacent to the combined outfall.

Two additional rounds of sampling and analysis were conducted in October and November 1999. Another round of sampling was conducted in February 2003 to further evaluate the nature and extent of dioxins and dibenzofurans and to perform additional PAHs, PCBs and metals sampling. All sampling locations are displayed in Figure 2. Historical data has been provided in previous reports.

Additional characterization to identify receptors in the wetland habitat was conducted by qualified wildlife biologists. Activities included mapping wetland vegetation, compiling an inventory of potential site-specific environmental receptors and collecting plant tissue samples.

Wildlife biologists also identified the following receptors:

1. Terrestrial receptors include meadow vole and muskrat (observed on site), sparrow, red-winged blackbird and Northern Harrier (an endangered raptor species observed downstream of the study area).
2. One endangered plant species, River Bulrush was observed along the western edge of the wetland bordering the Sudbury River outside of the suspected area of impact.
3. The wetland is a habitat for both aquatic and terrestrial receptors, depending on the flood stage of the river. During periods of inundation, the habitat is not suitable for terrestrial receptors, but available to potential aquatic receptors. Further detailed information is documented in the completed Phase II and Phase III previously, submitted to the Department.

***b) Description of any Immediate Response Actions undertaken to date at the site***

Assessment activities have been conducted at the site as outlined in the Phase II SOW and Phase II SOW - Addendum No. 1. The initial Phase II SOW excluded comprehensive sediment sampling pending further investigation of existing site data. ERM submitted an addendum to the Phase II Scope of Work dated 20 September 1999 describing additional sediment and surface water sampling planned to further define the nature and extent of impact to wetland sediment. Assessment activities have been completed at the Site and were documented in the Phase II and Phase IV reports.

Comprehensive response actions, conducted in accordance with the Phase IV Remedy Implementation Plan, included excavation of approximately two acres of impacted wetland soil/sediment, transportation of excavated material off-site for disposal, and restoration of the wetland. Remedial activities were initiated at the Site on 14 October 2003. Activities are scheduled for completion in Summer/Fall 2004.

A chain-link fence was installed along the wetland boundary under the Tier 1B permit (see Figure 3). The chain-link fence was a response action to preclude the possibility of inadvertent exposure.

***c) All investigatory and monitoring data obtained during the implementation of IRA***

Assessment activities associated with the Phase II and Phase III have been completed. The Phase II and III were submitted to the Department on 28 November 2001. Additional assessment activities completed to satisfy the Town of Wayland's concerns have been completed and are documented in the Phase IV report.

Pursuant to 310 CMR 40.0530, a Major Permit Modification Application was filed on 25 May 2000 to upgrade the Site tier classification and permit from Tier IB to Tier IA following the re-evaluation of the Site Numerical Ranking Score (NRS). On 7 September 2000, Raytheon received a Notice of Proposed Permit Decision from the Department, which indicated that a new Tier IB permit would be issued with special conditions. Tier IB Permit number 133939 was issued on 13 December 2000.

***d) Findings and conclusions of IRA***

The objective of the IRA Plan was to perform assessment activities in the wetland as outlined in the Phase II SOW and Phase II SOW - Addendum No. 1. In addition to the proposed assessment activities, Raytheon has undertaken an aggressive remedial action under the Phase IV of the MCP. Comprehensive Response Actions are being conducted under the Phase IV Remedy Implementation Plan and are expected to be completed in Summer/Fall 2004. All data pertaining to remediation response actions will be included in the Phase IV completion report and permit closure documentation.

***e) Management of remedial waste***

No remediation waste has been generated on-site under this assessment IRA. Remediation waste generated during the excavation of the two-acre impacted area will be properly disposed of in an off-site disposal location in accordance with all applicable local, state and federal regulations. Documentation for these disposal activities will be provided under the Phase IV completion report.

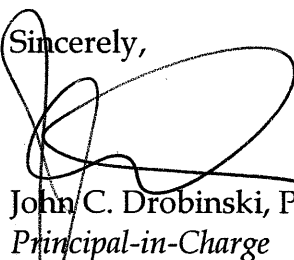
***f) Description of on-going activities***

Assessment activities have been completed at the Site and were documented in the Phase II and Phase IV reports. Comprehensive response actions are being implemented in accordance with the Phase IV and should be completed during Summer/Fall 2004. Information regarding ongoing activities will be included in the Phase IV completion report and permit closure documentation.

*Seal and Signature of LSP-of-Record*

Please refer to BWSC Form 105, Section 8 in Appendix A.

If the Department requires additional clarification or information regarding this submittal, please contact us at (617) 646-7800.

Sincerely,  
  
John C. Drobinski, P.G., LSP  
Principal-in-Charge

cer

  
Catherine E. Regan  
Project Manager

Enclosures:      Figure 1 - Locus Map  
                      Figure 2 - Wetland Sediment Sample Location Map  
                      Figure 3 - Site Layout  
                      Appendix A - BWSC-105

cc:      Mr. Edwin Madera, Raytheon Company, Sudbury, MA 01776

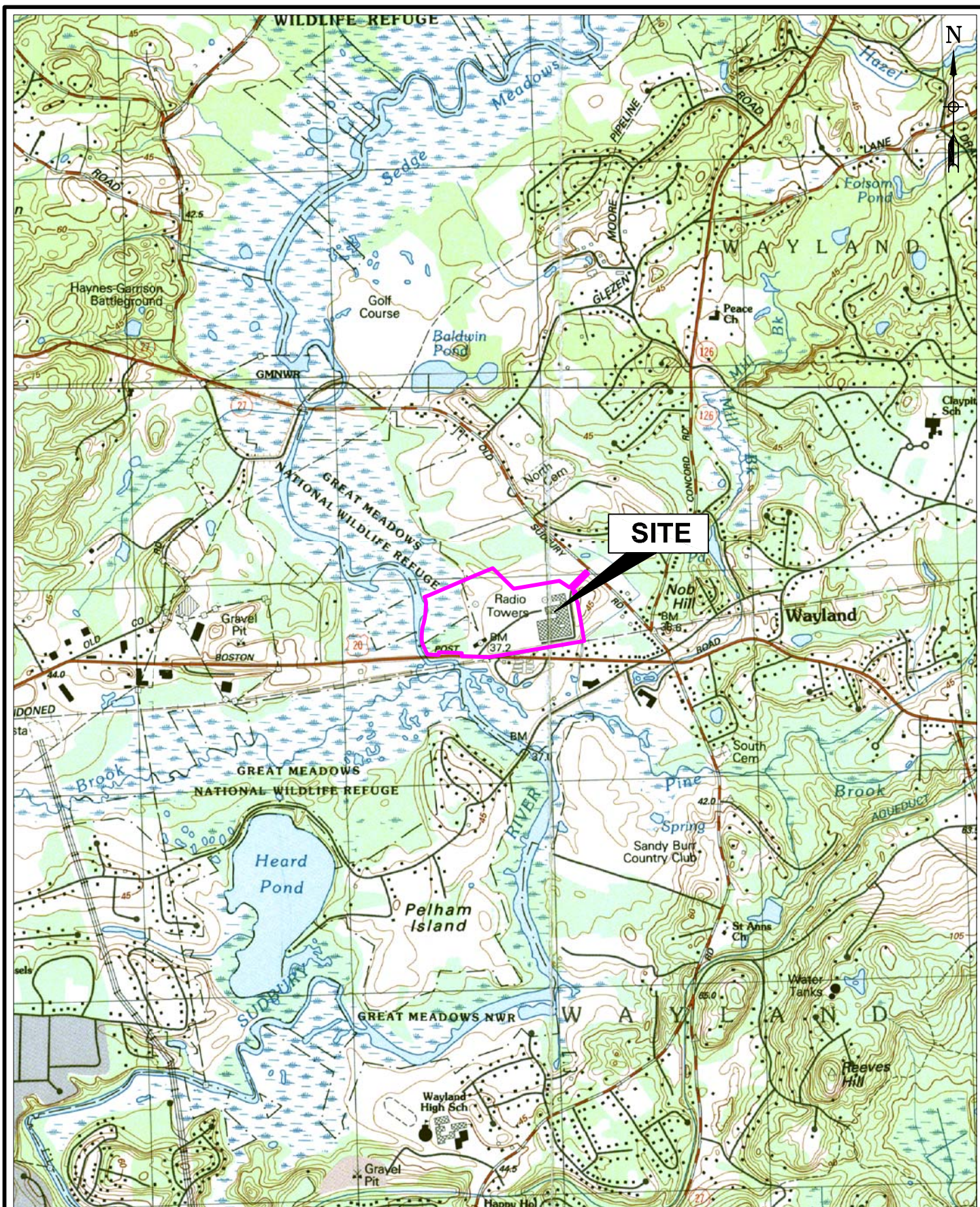
Public Repository (Primary Location), Wayland Public Library,  
Wayland, MA 01778

Public Repository (Secondary Location), Board of Health Office,  
Wayland, MA 01778

Mr. Benson R. Gould, CMG Environmental, Inc., 600 Charlton  
Street, Southbridge, MA 01550

## ***FIGURES***





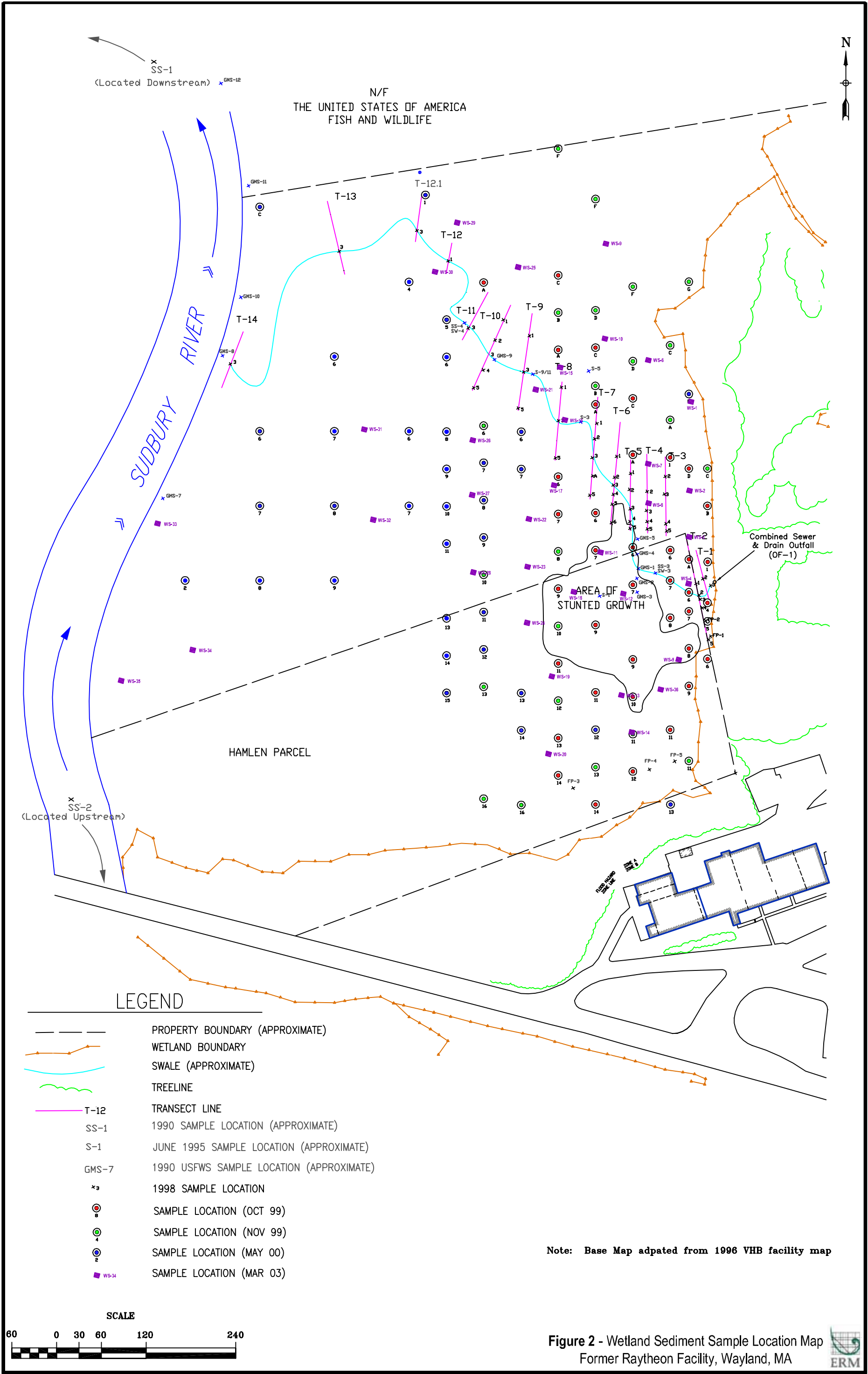
Legend  
 Subject Property Line

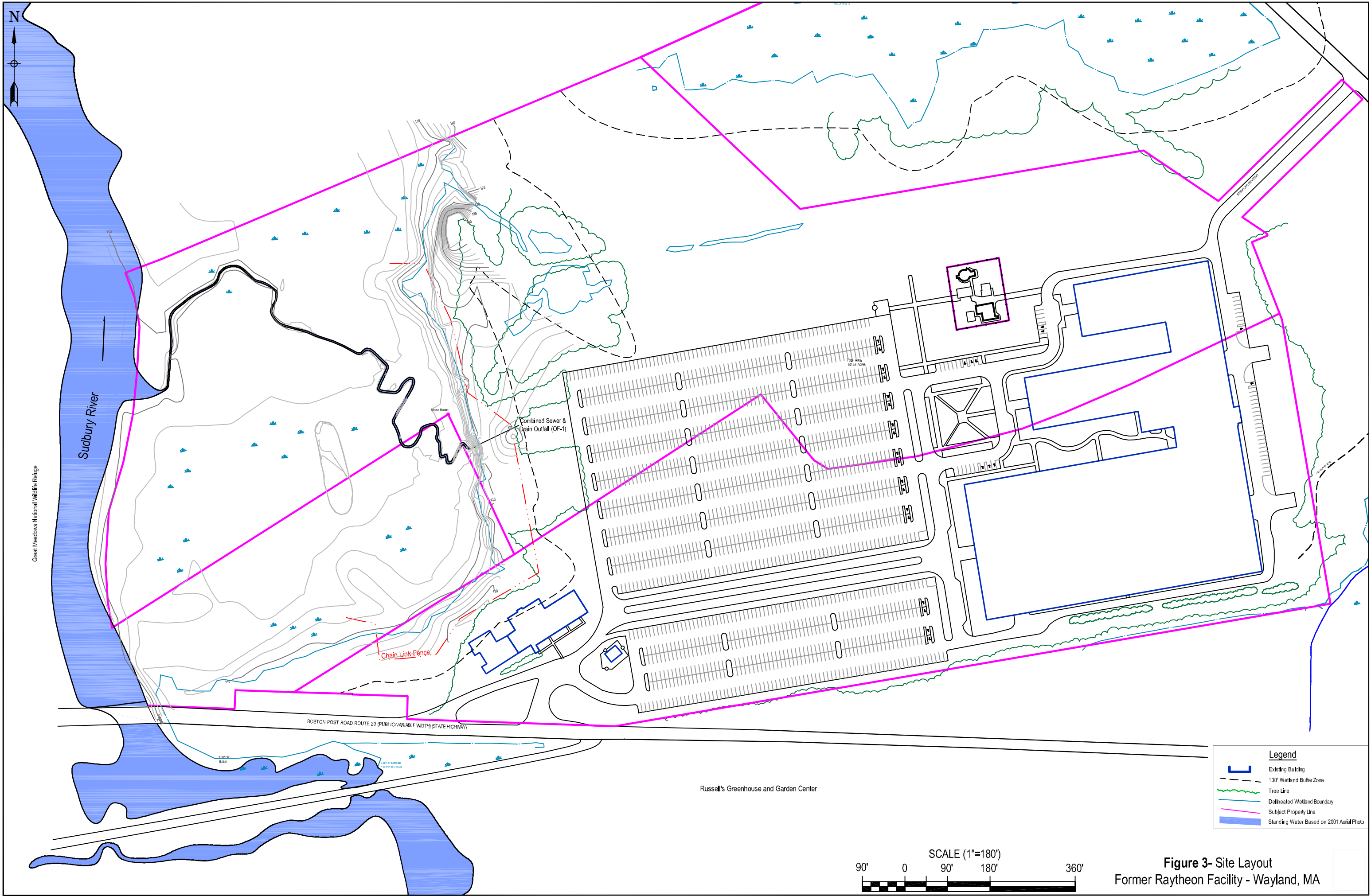
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**Figure 1 - Locus Map**  
 Former Raytheon Facility - Wayland, MA

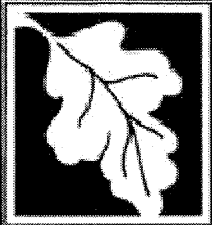








***APPENDIX A - BWSC Form 105***



Massachusetts Department of Environmental Protection  
Bureau of Waste Site Cleanup

BWSC105

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3 - 13302

**A. RELEASE OR THREAT OF RELEASE LOCATION:**

1. Release Name/Location Aid: Former Raytheon Facility

2. Street Address: 430 Boston Post Road

3. City/Town: Wayland

4. ZIP Code: 01778-0000

☒ 5. Check here if a Tier Classification Submittal has been provided to DEP for this disposal site.

☐ a. Tier IA ☒ b. Tier IB ☐ c. Tier IC ☐ d. Tier II

☐ 6. Check here if this location is Adequately Regulated, pursuant to 310 CMR 40.0110-0114. Specify Program (check one):

☐ a. CERCLA ☐ b. HSWA Corrective Action ☐ c. Solid Waste Management

☐ d. RCRA State Program (21C Facilities)

**B. THIS FORM IS BEING USED TO:** (check all that apply)

1. List Submittal Date of Initial IRA Written Plan (if previously submitted): 06/26/2000  
(mm/dd/yyyy)

☐ 2. Submit an **Initial IRA Plan**.

☐ 3. Submit a **Modified IRA Plan** of a previously submitted written IRA Plan.

☐ 4. Submit an **Imminent Hazard Evaluation**. (check one)

☐ a. An Imminent Hazard exists in connection with this Release or Threat of Release.

☐ b. An Imminent Hazard does not exist in connection with this Release or Threat of Release.

☐ c. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release, and further assessment activities will be undertaken.

☐ d. It is unknown whether an Imminent Hazard exists in connection with this Release or Threat of Release. However, response actions will address those conditions that could pose an Imminent Hazard.

☐ 5. Submit a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard**.

☐ 6. Submit an **IRA Status Report**.

☒ 7. Submit an **IRA Completion Statement**.

☐ a. Check here if future response actions addressing this Release or Threat of Release notification condition will be conducted as part of the Response Actions planned or ongoing at a Site that has already been Tier Classified under a different Release Tracking Number (RTN). When linking RTNs, rescoring via the NRS is required if there is a reasonable likelihood that the addition of the new RTN(s) would change the classification of the site.

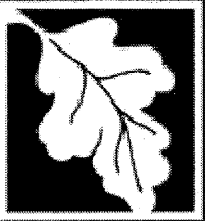
b. Provide Release Tracking Number of Tier Classified Site (Primary RTN):

☐ - ☐

These additional response actions must occur according to the deadlines applicable to the Primary RTN. Use the Primary RTN when making all future submittals for the site unless specifically relating to this Immediate Response Action.

☐ 8. Submit a **Revised IRA Completion Statement**.

(All sections of this transmittal form must be filled out unless otherwise noted above)



**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3 - 13302

**C. RELEASE OR THREAT OF RELEASE CONDITIONS THAT WARRANT IRA:**

1. Identify Media Impacted and Receptors Affected: (check all that apply)

- ☐ a. Air ☐ b. Basement ☐ c. Critical Exposure Pathway ☐ d. Groundwater ☐ e. Residence  
☐ f. Paved Surface ☐ g. Private Well ☐ h. Public Water Supply ☐ i. School ☒ j. Sediments  
☐ k. Soil ☐ l. Storm Drain ☒ m. Surface Water ☐ n. Unknown ☒ o. Wetland ☒ p. Zone 2  
☐ q. Others Specify: \_\_\_\_\_

2. Identify Oils and Hazardous Materials Released: (check all that apply)

- ☐ a. Oils ☐ b. Chlorinated Solvents ☐ c. Heavy Metals  
☒ d. Others Specify: PCBs

**D. DESCRIPTION OF RESPONSE ACTIONS:** (check all that apply, for volumes list cumulative amounts)

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> 1. Assessment and/or Monitoring Only     | <input type="checkbox"/> 2. Temporary Covers or Caps                        |
| <input type="checkbox"/> 3. Deployment of Absorbent or Containment Materials | <input type="checkbox"/> 4. Temporary Water Supplies                        |
| <input type="checkbox"/> 5. Structure Venting System                         | <input type="checkbox"/> 6. Temporary Evacuation or Relocation of Residents |
| <input type="checkbox"/> 7. Product or NAPL Recovery                         | <input type="checkbox"/> 8. Fencing and Sign Posting                        |
| <input type="checkbox"/> 9. Groundwater Treatment Systems                    | <input type="checkbox"/> 10. Soil Vapor Extraction                          |
| <input type="checkbox"/> 11. Bioremediation                                  | <input type="checkbox"/> 12. Air Sparging                                   |
| <input type="checkbox"/> 13. Excavation of Contaminated Soils                |   |

☐ a. Re-use, Recycling or Treatment ☐ i. On Site Estimated volume in cubic yards \_\_\_\_\_

☐ ii. Off Site Estimated volume in cubic yards \_\_\_\_\_

ii.a. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

ii.b. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

iii. Describe: \_\_\_\_\_

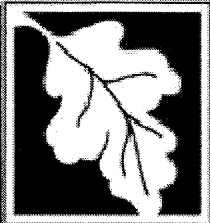
☐ b. Store ☐ i. On Site Estimated volume in cubic yards \_\_\_\_\_

☐ ii. Off Site Estimated volume in cubic yards \_\_\_\_\_

ii.a. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

ii.b. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_





**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

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13302

**D. DESCRIPTION OF RESPONSE ACTIONS (cont.):** (check all that apply, for volumes list cumulative amounts)

☐ c. Landfill

☐ i. Cover Estimated volume in cubic yards \_\_\_\_\_

Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

☐ ii. Disposal Estimated volume in cubic yards \_\_\_\_\_

Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

☐ 14. Removal of Drums, Tanks or Containers:

a. Describe Quantity and Amount: \_\_\_\_\_

\_\_\_\_\_

b. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

c. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

☐ 15. Removal of Other Contaminated Media:

a. Specify Type and Volume: \_\_\_\_\_

\_\_\_\_\_

b. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

c. Receiving Facility: \_\_\_\_\_ Town: \_\_\_\_\_ State: \_\_\_\_\_

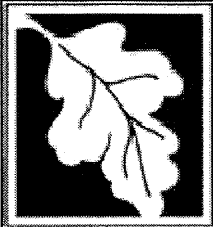
☐ 16. Other Response Actions:

Describe: \_\_\_\_\_

\_\_\_\_\_

☐ 17. Use of Innovative Technologies:

Describe: \_\_\_\_\_



**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

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13302

**E. LSP SIGNATURE AND STAMP:**

I attest under the pains and penalties of perjury that I have personally examined and am familiar with this transmittal form, 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 309 CMR 4.03(2), and (iii) the provisions of 309 CMR 4.03(3), to the best of my knowledge, information and belief,

> if Section B of this form indicates that an **Immediate Response Action Plan** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) complies(y) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Imminent Hazard Evaluation** is being submitted, this Imminent Hazard Evaluation was developed in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, and the assessment activity(ies) undertaken to support this Imminent Hazard Evaluation comply(ies) with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000;

> if Section B of this form indicates that an **Immediate Response Status Report** is being submitted, the response action(s) that is (are) the subject of this submittal (i) is (are) being implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal;

> if Section B of this form indicates that an **Immediate Response Action Completion Statement** or a request to **Terminate an Active Remedial System or Response Action(s) Taken to Address an Imminent Hazard** is being submitted, the response action(s) that is (are) the subject of this submittal (i) has (have) been developed and implemented in accordance with the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000, (ii) is (are) appropriate and reasonable to accomplish the purposes of such response action(s) as set forth in the applicable provisions of M.G.L. c. 21E and 310 CMR 40.0000 and (iii) comply(ies) with the identified provisions of all orders, permits, and approvals identified in this submittal.

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.

1. LSP #: 2196

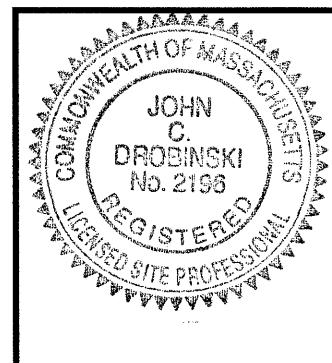
2. First Name: John 3. Last Name: Drobinski

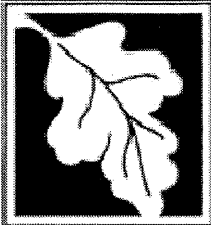
4. Telephone: (617) 646-7800 5. Ext.: 7850 6. FAX: (617) 267-6447

7. Signature: 

8. Date: 07/16/04  
(mm/dd/yyyy)

9. LSP Stamp:





**Massachusetts Department of Environmental Protection**  
*Bureau of Waste Site Cleanup*

**BWSC105**

**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

**3** - **13302**

**F. PERSON UNDERTAKING IRA:**

1. Check all that apply: ☐ a. change in contact name ☐ b. change of address ☐ c. change in the person undertaking response actions

2. Name of Organization: Raytheon Company

3. Contact First Name: Edwin P. 4. Last Name: Madera

5. Street: 528 Boston Post Road 6. Title: Sr. Environmental Engineer

7. City/Town: Sudbury 8. State: MA 9. ZIP Code: 01776-0000

10. Telephone: (978) 440-1813 11. Ext.: \_\_\_\_\_ 12. FAX: \_\_\_\_\_

**G. RELATIONSHIP TO RELEASE OR THREAT OF RELEASE OF PERSON UNDERTAKING IRA:**

☒ 1. RP or PRP ☐ a. Owner ☐ b. Operator ☐ c. Generator ☐ d. Transporter

☒ e. Other RP or PRP Specify: Former Operator

☐ 2. Fiduciary, Secured Lender or Municipality with Exempt Status (as defined by M.G.L. c. 21E, s. 2)

☐ 3. Agency or Public Utility on a Right of Way (as defined by M.G.L. c. 21E, s. 5(j))

☐ 4. Any Other Person Undertaking IRA Specify Relationship: \_\_\_\_\_

**H. REQUIRED ATTACHMENT AND SUBMITTALS:**

☐ 1. Check here if any Remediation Waste, generated as a result of this IRA, will be stored, treated, managed, recycled or reused at the site following submission of the IRA Completion Statement. If this box is checked, you must submit one of the following plans, along with the appropriate transmittal form.

☐ a. A Release Abatement Measure (RAM) Plan (BWSC106) ☐ b. Phase IV Remedy Implementation Plan (BWSC108)

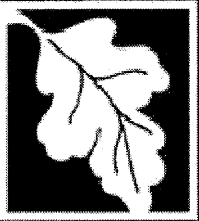
☐ 2. Check here if the Response Action(s) on which this opinion is based, if any, are (were) subject to any order(s), permit(s) and/or approval(s) issued by DEP or EPA. If the box is checked, you MUST attach a statement identifying the applicable provisions thereof.

☐ 3. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the implementation of an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.

☐ 4. Check here to certify that the Chief Municipal Officer and the Local Board of Health have been notified of the submittal of a Completion Statement for an Immediate Response Action taken to control, prevent, abate or eliminate an Imminent Hazard.

☐ 5. Check here if any non-updatable information provided on this form is incorrect, e.g. Release Address/Location Aid. Send corrections to the DEP Regional Office.

☐ 6. Check here to certify that the LSP Opinion containing the material facts, data, and other information is attached.



**IMMEDIATE RESPONSE ACTION (IRA) TRANSMITTAL  
FORM** Pursuant to 310 CMR 40.0424 - 40.0427 (Subpart D)

Release Tracking Number

3

-

13302

**I. CERTIFICATION OF PERSON UNDERTAKING IRA:**

1. I, Edwin P. Madera, attest under the pains and penalties of perjury (i) that I have personally examined and am familiar with the information contained in this submittal, including any and all documents accompanying this transmittal form, (ii) that, based on my inquiry of those individuals immediately responsible for obtaining the information, the material information contained in this submittal is, to the best of my knowledge and belief, true, accurate and complete, and (iii) that I am fully authorized to make this attestation on behalf of the entity legally responsible for this submittal. I/the person or entity on whose behalf this submittal is made am/is aware that there are significant penalties, including, but not limited to, possible fines and imprisonment, for willfully submitting false, inaccurate, or incomplete information.

2. By: Edwin P. Madera 3. Title: Sr. Environmental Engineer  
Signature

4. For: Raytheon Company 5. Date: 7/5/04  
(Name of person or entity recorded in Section F) (mm/dd/yyyy)

☐ 6. Check here if the address of the person providing certification is different from address recorded in Section F.

7. Street: \_\_\_\_\_

8. City/Town: \_\_\_\_\_ 9. State: \_\_\_\_\_ 10. ZIP Code: \_\_\_\_\_

11. Telephone: \_\_\_\_\_ 12. Ext.: \_\_\_\_\_ 13. FAX: \_\_\_\_\_

**YOU MUST LEGIBLY COMPLETE ALL RELEVANT SECTIONS OF THIS FORM OR DEP MAY  
RETURN THE DOCUMENT AS INCOMPLETE. IF YOU SUBMIT AN INCOMPLETE FORM, YOU  
MAY BE PENALIZED FOR MISSING A REQUIRED DEADLINE.**

Date Stamp (DEP USE ONLY:)

