



# Explanation of Significant Differences

## Former Naval Air Station Brunswick, Maine

### Land Use Control Changes Due to Base Closure

#### Sites 1, 2, 3, 4, 7, 9, and the Eastern Plume

### INTRODUCTION AND STATEMENT OF PURPOSE

An Explanation of Significant Differences (ESD) is required for seven sites at the former Naval Air Station (NAS) Brunswick, Brunswick, Maine, to modify the Sites 1, 2, 3, 4, 7, 9, and Eastern Plume remedies documented in their Records of Decision (RODs) to account for the change in site conditions brought about by disestablishment of the base on May 31, 2011. The modification is significant because it changes the land use control (LUC) component of each of remedies selected for the sites but does not fundamentally alter the overall cleanup approaches documented in the RODs.

The former NAS Brunswick, located in Cumberland County, Maine, supported the Navy's antisubmarine warfare operations in the Atlantic Ocean with several squadrons of P-3 maritime patrol aircraft. In 2005, the Base Realignment and Closure (BRAC) Commission recommended closure of the facility. The base's flying mission ended in January 2010, and the base was disestablished on May 31, 2011. The base occupied approximately 3,135 acres, and the operational area covered approximately 138 acres east of the two parallel runways extending north to south in the northern portion of the facility. The operational area included numerous office buildings, barracks, recreational facilities, hangars, repair shops, and other facilities to support NAS Brunswick aircraft. Forested areas, grasslands, shrubland, marsh, and open water comprise approximately 83 percent of the base, with the remaining 17 percent consisting of paved areas (primary flight ramps and runways) of the operations area. The southern edge of the base borders coves and estuaries of the Gulf of Maine.

The Navy is the lead agency, with oversight from the United States Environmental Protection Agency (EPA) and Maine Department of Environmental Protection (MEDEP), for cleanup of sites at NAS Brunswick in the Installation Restoration (IR) Program under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) as modified by the Superfund Amendments and Reauthorization Act (SARA). The Navy is issuing this ESD for seven sites as part of the public participation requirements under Section 117(c) of CERCLA, Section 300.435(c)(2)(i) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), and the Navy IR Program. In accordance with Section 300.825(a)(2) of the NCP, this ESD will become part of the Administrative Record for the facility. The Administrative Record also contains background

information that was used in determining the original remedies, as documented in the RODs, and in preparing this ESD. The Administrative Record for NAS Brunswick is included as part of the Information Repository, which is available for review at the following location:

Curtis Memorial Library  
23 Pleasant Street  
Brunswick, Maine 04011  
(207) 725-5242  
www.curtislibrary.com

#### Hours of Availability:

##### *September to May*

Monday to Thursday ♦ 9:30 am to 8:00 pm  
Friday ♦ 9:30 am to 6:00 pm  
Saturday ♦ 9:30 am to 5:00 pm

##### *June to August*

Monday to Thursday ♦ 9:30 am to 8:00 pm  
Friday ♦ 9:30 am to 6:00 pm  
Saturday ♦ 9:30 am to 1:00 pm  
Sunday ♦ Closed

This ESD provides enforceable LUC provisions that are to become part of the ROD for each of the following sites at the former NAS Brunswick (see Figure 1):

- Site 1, Orion Street Landfill-North
- Site 2, Orion Street Landfill-South
- Site 3, Hazardous Waste Burial Area
- Site 4, Acid/Caustic Pit
- Site 7, Old Acid/Caustic Pit
- Site 9, Neptune Drive Disposal Site
- Eastern Plume

### SELECTED REMEDIES

The Navy and EPA, with concurrence from MEDEP, selected cleanup remedies, as summarized in Table 1, for the seven sites included in this ESD sites, as documented in the following Records of Decision (RODs):

- June 1992 ROD for Sites 1 and 3.
- September 1998 ROD for Site 2.
- September 2002 ROD for Site 7.
- September 1999 Final ROD for Site 9.
- February 1998 ROD for No Further Action at Sites 4, 11, and 13, and a Remedial Action for the Eastern Plume. LUCs for the Eastern Plume were implemented via the December 2000 Eastern Plume ESD.

## BASIS FOR THE DOCUMENT

When the base was operational, LUCs required by the CERCLA remedies, as documented in the RODs, were implemented and enforced as part of a Base Instruction. The original Base Instruction, NASBINST 5090.1A, Restriction on Excavation Activities, was issued in 1999 and regulated excavation practices within the former base. The instruction was updated in 2000 (as 5090.1B) to include groundwater use restrictions required at the facility's IR sites. It implemented restrictions on soil excavation/disturbance and/or groundwater use and protection of remedial components by specifying review and coordination procedures prior to construction projects at the facility. Instruction 5090.1C issued in 2008 was the final update prior to base closure.

The underlying assumption in the RODs for the seven sites addressed by this ESD was that access restrictions would be ongoing as part of active base operations. As a result of the closure of the base and because the Base Instruction is no longer in effect, specific enforceable documentation is necessary to maintain the permanence and protectiveness of LUC components of the CERCLA remedies at these sites. In addition, it is necessary to clarify and update the LUC objectives and specific LUCs to account for the fact that access restrictions associated with active base operations are no longer in place. This ESD establishes and updates the objectives of the LUCs required for the remedies to continue to be protective of human health and the environment and incorporates specific enforceable LUC language agreed to by the Department of Defense (DoD) and EPA Headquarters and finalized after the RODs were signed for these seven sites. Other CERCLA sites at the base and other non-CERCLA sites that require LUCs will be addressed in future documents when the specific LUC requirements and boundaries are determined. In addition, assessments are underway at sites that have been identified as potentially impacted by radiological contamination (including the seven subject sites except the Eastern Plume) based on the results of the Historical Radiological Assessment (HRA). Any LUCs required to address radiological issues will be determined based on the results of these assessments and incorporated into the LUC documentation to be prepared after finalization of this ESD. The HRA, finalized in March 2014, presented the results of the Navy's efforts to identify potentially radiologically impacted sites based on past activities at the facility involving radiological materials, with a goal of providing clearance of the sites to facilitate property transfer.

After the changes documented in this ESD are implemented, the final cleanup remedies will still be as indicated in Table 1 and will continue to be protective of human health and the environment. The Navy has obtained concurrence from EPA and MEDEP on these modifications to the LUC components of the cleanup remedies for these sites.

## DESCRIPTION OF SIGNIFICANT DIFFERENCES

This ESD documents a modification to each of the RODs for these seven sites that significantly changes, but does not fundamentally alter, their selected remedies. The significant differences in the remedies as detailed in the RODs (and as modified by the 2000 ESD for the Eastern Plume) are clarifications of the LUC objectives in light of the closure of the base and the incorporation of formal LUC language as an enforceable component of each remedy. A summary of the objectives of the LUCs to be implemented at each site is provided in Table 1.

Soil and/or groundwater contamination remains at the seven sites included in this ESD at concentrations that preclude unlimited use and unrestricted exposure; therefore, the remedies include LUCs to prevent unacceptable risk. The areas to which LUCs are applied are shown on Figure 2 for Sites 1, 2, 3, 4, and the Eastern Plume, on Figure 3 for Site 7, and on Figure 4 for Site 9. LUC performance objectives are outlined in Table 1, and specific LUCs and associated LUC implementation actions will be detailed in subsequent LUC Remedial Designs for the sites (discussed below). LUCs will be implemented upon finalization of the LUC Remedial Designs.

Because of the proximity of Sites 1 and 3, Site 2, and the Eastern Plume, their LUC boundaries have been combined into a single area (see Figure 2). Groundwater restrictions are required across the entire combined area, and soil restrictions are also required in two areas within the overall boundary. One area encompasses Sites 1 and 3 and Site 2 (former landfills), and the second is the former Site 11 area where groundwater treatment system components are located.

At Site 4, a former acid and caustic pit approximately 4 feet square and 3 feet deep was reportedly used from 1969 to 1974 for disposal of an unknown quantity of liquid wastes. Subsequently, an addition to Building 584 was reportedly constructed over the former pit. Although the ROD for Sites 4, 11, 13, and the Eastern Plume documented that no remedial action was required at Site 4, it did state that because subsurface soil samples could not be collected from the presumed former pit location (under Building 584), "if this building is ever removed, further investigations and remedial actions may be required." Further investigation beneath Building 584 may be considered in the future.

The ROD for Sites 4, 11, 13, and the Eastern Plume also documented that no further action under CERCLA was required for soil at Sites 11 and 13 because risks associated with hypothetical future residential exposure to soil at these sites were less EPA and MEDEP target levels. However, because the infiltration gallery and other associated subsurface infrastructure for the Eastern Plume groundwater treatment system is located at Site 11, soil excavation restrictions are required at this site for as long as the system

operates to protect the integrity of this component of the remedy.

Based on the results of recent investigation at Site 7 (Supplemental Investigation in 2009 and Data Gap Investigation in 2011/2012), LUCs including groundwater and soil use restrictions are required.

The Site 9 remedy requires LUCs to prevent use of and contact with impacted groundwater and to prevent disturbance of and contact with the contents of the ash landfill. Based on the results of post-ROD investigations and removal actions and long-term monitoring results, the boundaries of the area requiring soil and groundwater LUCs has been refined (see Figure 4).

For the seven sites included in this ESD, Table 1 includes a summary of remedy components along with the objectives of the LUCs to be implemented.

These LUCs shall be maintained for as long as they are required to prevent unacceptable exposures to contaminated media or to preserve the integrity of the remedies. The Navy or any subsequent owners shall not modify, delete, or terminate any LUC without Navy, EPA, and MEDEP concurrence. The LUCs shall be maintained until such time as the concentrations of hazardous substances in soil and/or groundwater have been reduced to levels that allow for unlimited use and unrestricted exposure.

The Navy will be responsible for implementing, maintaining, reporting on, and enforcing the LUCs described in this ESD in accordance with the approved LUC Remedial Designs. Although the Navy may later transfer these procedural responsibilities to another party by contract, property transfer agreement, or through other means, the Navy shall retain ultimate legal responsibility for the integrity of the remedies. Should the LUC component of the remedy fail at any of these sites, the Navy will ensure that appropriate actions are taken to reestablish its protectiveness and may initiate legal action to either compel action by a third party(ies) and/or to recover the Navy's costs for remedying any discovered LUC violation(s).

A LUC Remedial Design will be prepared as the LUC component of the Remedial Design for each site. Within 90 days of ESD approval, the Navy shall prepare and submit to EPA and MEDEP for review and approval, LUC Remedial Designs that shall contain LUC implementation and maintenance actions, including periodic inspections. The Navy will implement, report, maintain, monitor, and enforce the LUCs according to the LUC Remedial Designs.

### **SUPPORT AGENCY COMMENTS**

EPA and MEDEP representatives, as part of the NAS Brunswick IR Team, have had ongoing involvement in the decision-making process associated with the changes in LUCs associated with the remedies for Sites 1, 2, 3, 4, 7, 9, and the Eastern Plume. The Navy has obtained concurrence EPA and MEDEP on the modifications to the cleanup remedies for these sites.

### **STATUTORY DETERMINATIONS**

The proposed changes to the selected remedies will continue to satisfy the statutory requirements of CERCLA Section 121, and the modified remedies will remain protective of human health and the environment and will continue to comply with federal and state Applicable or Relevant and Appropriate Requirements (ARARs) and be cost effective.

### **PUBLIC PARTICIPATION**

Public participation requirements as outlined in the NCP, Section 300.435 (c)(2)(i) have been met.

### **FOR MORE INFORMATION**

If you have questions or would like further information about the ESD for LUCs at Sites 1, 2, 3, 4, 7, 9, and the Eastern Plume at NAS Brunswick, please contact:

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**DECLARATION**

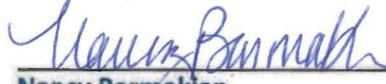
The issuance of this ESD for seven sites at the former NAS Brunswick is concurred with.

*United States Department of the Navy:*

*United States Environmental Protection Agency:*

  
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Paul Burgio  
BRAC Base Environmental Coordinator  
U.S. Navy

4/2/15  
Date

  
\_\_\_\_\_  
Nancy Barmakjan  
Acting Director  
Office of Site Remediation and Restoration  
EPA Region 1

04/13/15  
Date

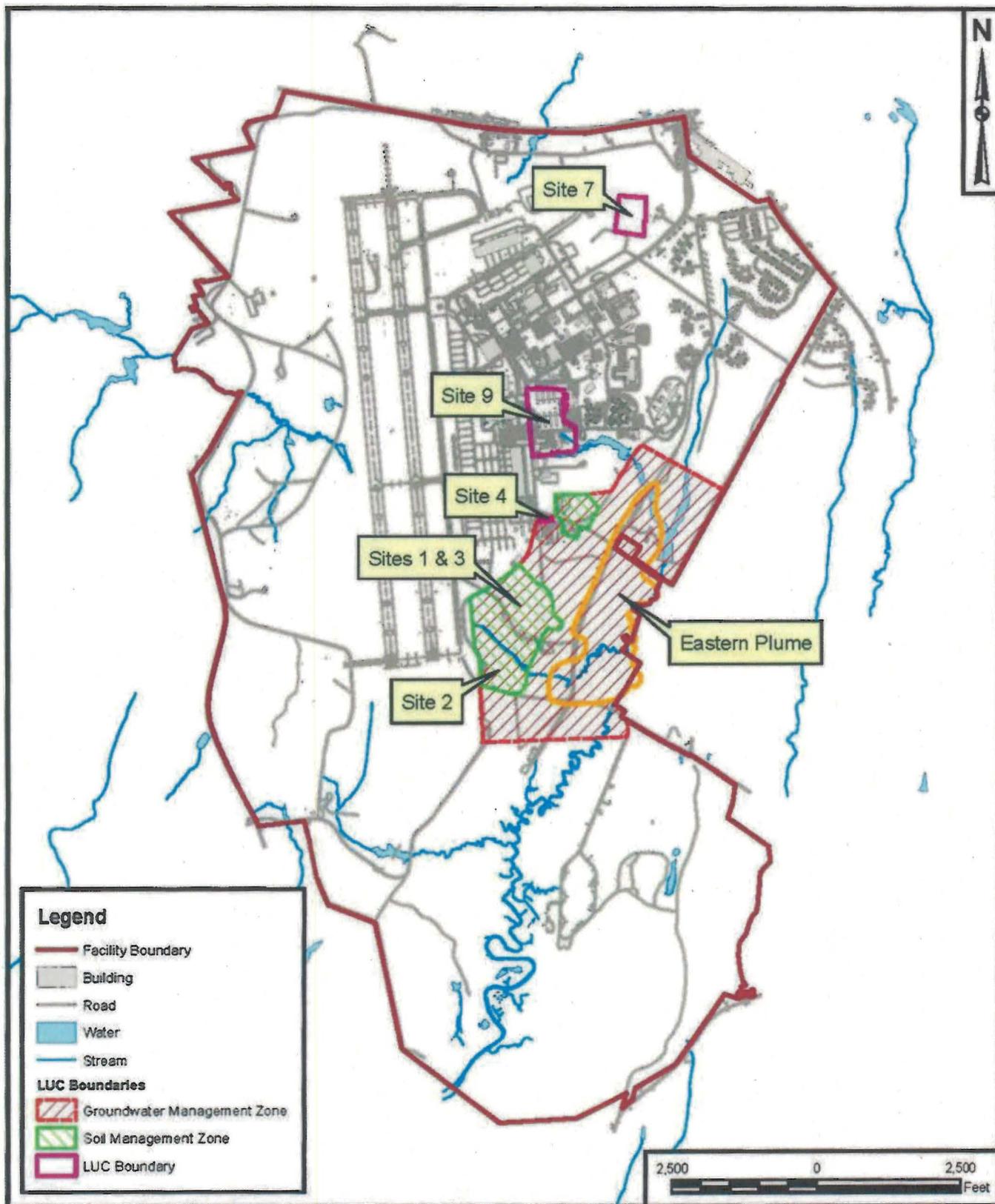
**TABLE 1 – SUMMARY OF LUC INFORMATION**

SITE	SUMMARY OF REMEDY	SUMMARY OF LUC PERFORMANCE OBJECTIVES
1 and 3	<ul style="list-style-type: none"> <li>➤ Groundwater cutoff slurry wall to divert contaminated groundwater around the sites, preventing groundwater contact with landfill material</li> <li>➤ Low-permeability cap to reduce rainfall infiltration and thereby leachate production</li> <li>➤ Operation of groundwater extraction and treatment system (GWETS) to lower the water table below the waste and remove the most contaminated groundwater to prevent its discharge to Mere Brook</li> <li>➤ LUCs to prohibit unauthorized use of the sites and to prohibit use of site groundwater</li> <li>➤ Monitoring to assess the effectiveness of the cap and slurry wall in diverting groundwater around the sites and preventing further contamination of groundwater and also to assess the dispersion and degradation of contamination that already emanated from the landfills</li> </ul>	<ul style="list-style-type: none"> <li>➤ Prevent uncontrolled human exposure to and/or use of contaminated groundwater within groundwater management zone</li> <li>➤ Prevent unacceptable human exposure to volatile vapors potentially migrating from contaminated groundwater to the indoor air of future habitable structures within groundwater management zone</li> <li>➤ Prevent changes in hydrology within groundwater management zone that have potential to negatively impact the nature and extent of delineated groundwater contamination</li> </ul>
2	<ul style="list-style-type: none"> <li>➤ LUCs to prohibit soil excavation/disturbance anywhere on or adjacent to the landfill cap and within the basin of the landfill area, to prohibit activity that could damage remedial components, and to prohibit groundwater use (because of its location within the Eastern Plume restriction zone)</li> <li>➤ Removal of surface debris visible on depression immediately south and east of the landfill</li> </ul>	<ul style="list-style-type: none"> <li>➤ Manage future construction activities within soil and groundwater management zones to prevent uncontrolled human exposure and/or transport/migration of contaminated soil and groundwater</li> </ul>
Eastern Plume	<ul style="list-style-type: none"> <li>➤ Operation of the GWETS to minimize further migration of the plume, to minimize any future negative impact to surface water resulting from discharge of contaminated groundwater, to reduce potential risks associated with ingestion of contaminated groundwater to acceptable levels, and to restore the aquifer</li> <li>➤ Groundwater monitoring to evaluate the effectiveness of the extraction system and confirm that the source areas are not continuing to impact groundwater</li> <li>➤ LUCs (as required by the December 2000 ESD) to prevent exposure to contaminated groundwater</li> </ul>	<ul style="list-style-type: none"> <li>➤ Prevent uncontrolled human exposure to and/or use of surface and subsurface soils within the soil management zones</li> <li>➤ Protect the integrity and operation of all landfill caps/covers and remediation and monitoring systems within soil and groundwater management zones</li> </ul>
4	<p>Based on the ROD, exposure to soil at Site 4 did not pose an unacceptable risk, and no cleanup action was required. However, Building 584 was believed to have been extended over a former acid/caustic pit, prohibiting sampling in this area; therefore, the ROD stipulated that the need for additional evaluation would be assessed if Building 584 were ever removed.</p>	<ul style="list-style-type: none"> <li>➤ Prevent uncontrolled human exposure to subsurface soil beneath Building 584</li> </ul>

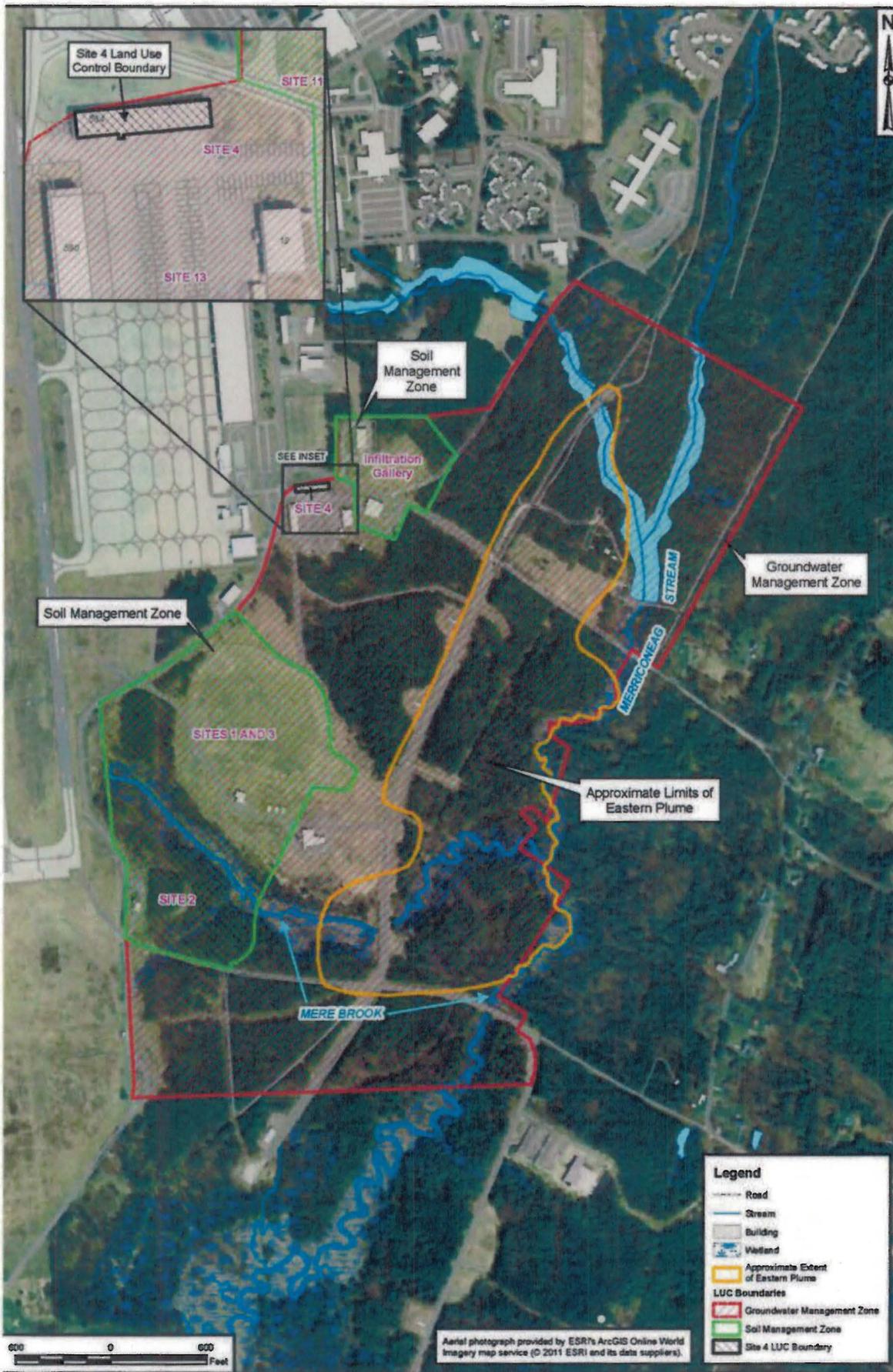
**TABLE 1 – SUMMARY OF LUC INFORMATION (CONTINUED)**

SITE	SUMMARY OF REMEDY	SUMMARY OF LUC PERFORMANCE OBJECTIVES
7	<ul style="list-style-type: none"> <li>➤ LUCs to prevent uncontrolled human contact with and use of contaminated soil and groundwater</li> <li>➤ Monitoring to verify that contamination remains localized and to monitor contaminant trends until concentrations are consistently less than federal Maximum Contaminant Levels (MCLs)/Maine Maximum Exposure Guidelines (MEGs)</li> </ul>	<ul style="list-style-type: none"> <li>➤ Prevent uncontrolled human exposure to and/or use of contaminated groundwater</li> <li>➤ Manage future construction activities to prevent uncontrolled human exposure and/or transport/migration of contaminated soil and groundwater</li> <li>➤ Protect active and future remediation and monitoring systems</li> <li>➤ Prevent uncontrolled exposure to and/or use of contaminated surface and subsurface soils</li> </ul>
9	<ul style="list-style-type: none"> <li>➤ Natural attenuation of groundwater contaminants.</li> <li>➤ Long-term monitoring to verify that landfill contents are not impacting groundwater, to monitor progress of natural attenuation, and to monitor for plume migration.</li> <li>➤ LUCs to prevent use of/contact with impacted groundwater and disturbance of/contact with contents of ash landfill.</li> </ul>	<ul style="list-style-type: none"> <li>➤ Prevent uncontrolled human exposure to and/or use of contaminated groundwater</li> <li>➤ Manage future construction activities to prevent uncontrolled human exposure and/or transport/migration of contaminated soil and groundwater</li> <li>➤ Protect active and future remediation and monitoring systems</li> <li>➤ Prevent uncontrolled exposure to and/or use of contaminated surface and subsurface soils</li> </ul>

**FIGURE 1. SITES 1, 2, 3, 4, 7, 9, AND EASTERN PLUME  
WITHIN FORMER NAS BRUNSWICK**



**FIGURE 2. SITES 1, 2, AND 3 AND EASTERN PLUME LUC BOUNDARIES**



**FIGURE 3. SITE 7 LUC BOUNDARY**



**FIGURE 4. SITE 9 LUC BOUNDARY**

